

SGS

AXYS

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SGS AXYS Client No.: 4972

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The SGS AXYS contact for these data is Sean Campbell.

BATCH SUMMARY

Batch ID:	WG65146	Date:	25-Oct-2018
Analysis Type:	PCB Congener	Matrix Type:	Tissue
BATCH MAKEUP			
Contract: 4972		Blank:	
Samples:		WG65146-101	
L29915-1	PDI-TF-SMB049	L29915-11	PDI-TF-SMB067
L29915-2	PDI-TF-SMB085	L29915-12	PDI-TF-SMB077
L29915-3	PDI-TF-SMB089	L29915-13	PDI-TF-SMB079
L29915-4	PDI-TF-SMB092	L29915-14	PDI-TF-SMB086
L29915-5	PDI-TF-SMB075	L29915-15	PDI-TF-SMB057
L29915-6	PDI-TF-SMB046	L29915-16	PDI-TF-SMB090
L29915-7	PDI-TF-SMB052	L29915-17	PDI-TF-SMB105
L29915-8	PDI-TF-SMB093	L29915-18	PDI-TF-SMB103
L29915-9	PDI-TF-SMB087	L29915-19	PDI-TF-SMB101
L29915-10	PDI-TF-SMB091	L29915-20	PDI-TF-SMB099
		Reference or Spike:	
		WG65146-102	
		Duplicate:	
		WG65146-103	
Comments: 1. Data are considered final. 2. Data are not blank corrected. Sample data should be evaluated with consideration of analyte levels in the Lab Blank (AXYS ID WG65146-101). 3. Recoveries of labeled quantification standards PCB 1, 3, 4, 15 and 19 in sample PDI-TF-SMB075 (AXYS ID L29915-5) were below the levels required for accurate quantification of associate target analytes. As a result, all mono-, di-congeners and PCB 19 are flagged with an 'NQ' (not quantifiable). Data for these congeners are not available. Concentrations for all tri-congeners except PCB 37 are re-quantified using labeled PCB 37 alone. This is indicated by the flag 'T'. 4. Percent recoveries of ¹³C-labeled PCB 54 and 104 in sample PDI-TF-SMB075 (AXYS ID L29915-5) were below the method lower control limits. These labeled surrogates are flagged with a 'V'. Since the isotope dilution method of quantification produces data that are recovery corrected, the variances from the method acceptance criteria are deemed not to affect the quantification of the analytes. Percent surrogate recoveries are used as general method performance indicator only. 5. Disturbances of the mass ions used to monitor instrument performance (lock-mass) were observed at the retention time corresponding to PCB 66, 86/87/97/108/119/125, 128/166, 129/138/160/163, 180/193, 187 and/or 197/200 in samples PDI-TF-SMB049, PDI-TF-SMB085, PDI-TF-SMB092, PDI-TF-SMB046, PDI-TF-SMB087, PDI-TF-SMB086, PDI-TF-SMB057, PDI-TF-SMB105, PDI-TF-SMB101, PDI-TF-SMB099 and PDI-TF-SMB089 Duplicate (AXYS ID L29915-1, -2, -4, -6, -9, -14, -15, -17, -19, -20 and WG65146-103, respectively). The congeners are flagged with a 'G'. As the interferences only affect congeners that are small contributors to the overall total, data are not considered affected by the variances. The lock-mass disturbances at retention times corresponding to PCB 66 and 86/87/97/108/119/125 are determined to originate from a labeled standard solution used for the quantification of target pesticide analytes. Test dilutions conducted for this matrix to minimize the disturbances have proven that the disturbances do not affect the quantification of these congeners. 6. Peaks for PCB 81, 123 and 126 in all client samples were on the tail or shoulder of a larger peak and there was no obvious valley between the two peaks. As a result, these congeners are flagged with a 'K' though their ion abundance ratios are within the method control limits in some samples. The reported concentrations should be interpreted as estimated maximum possible concentrations. 7. The relative retention time (RRT) for PCB 196 in samples PDI-TF-SMB086 and PDI-TF-SMB099 (AXYS ID L29915-14 and -20, respectively) were slightly outside of the nominal RRT acceptance windows printed on Form 3A/B but these congeners were determined to be present based on a detailed inspection of sample and calibration chromatogram patterns. Resubmission on 16-Nov-2018: The results for the PCB co-elutions were not reported properly in the previous database submission. This has been corrected and the data is re-submitted. None of the other information has been changed.			

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February 2017

FQA-006 Rev. 4. 20-Sep-2013

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB049
Sample Collection:
18-Aug-2018 12:29

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-1
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.1 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	03-Oct-2018 Time: 03:05:42	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_332C S: 8
Dilution Factor:	N/A	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_332C S: 1
		% Lipid:	5.93

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1			11.6	0.0724 (Q)	3.03	1.001
3-MoCB	2			1.39	0.0724 (Q)	3.26	0.988
4-MoCB	3			3.54	0.0724 (Q)	3.15	1.001
2,2'-DiCB	4			255	0.721 (S)	1.51	1.001
2,3-DiCB	5			1.04	0.526 (S)	1.36	1.196
2,3'-DiCB	6			26.3	0.487 (S)	1.50	1.175
2,4-DiCB	7			3.65	0.493 (S)	1.66	1.158
2,4'-DiCB	8			98.4	0.458 (S)	1.51	1.206
2,5-DiCB	9			6.07	0.476 (S)	1.66	1.145
2,6-DiCB	10			10.9	0.487 (S)	1.53	1.013
3,3'-DiCB	11			78.6	0.492 (S)	1.49	0.970
3,4-DiCB	12	12 + 13	C	2.73	0.498 (S)	1.35	0.985
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.498 (S)		
4,4'-DiCB	15			30.4	0.505 (S)	1.51	1.001
2,2',3-TriCB	16			81.0	0.0724 (Q)	1.05	1.166
2,2',4-TriCB	17			239	0.0724 (Q)	1.07	1.139
2,2',5-TriCB	18	18 + 30	C	244	0.0724 (Q)	1.08	1.113
2,2',6-TriCB	19			499	0.0775 (S)	1.07	1.001
2,3,3'-TriCB	20	20 + 28	C	775	0.530 (S)	0.98	0.847
2,3,4-TriCB	21	21 + 33	C	144	0.530 (S)	0.99	0.856
2,3,4'-TriCB	22			170	0.583 (S)	0.98	0.871
2,3,5-TriCB	23		J	0.576	0.572 (S)	1.01	1.282
2,3,6-TriCB	24			3.17	0.0724 (Q)	1.02	1.159
2,3',4-TriCB	25			64.6	0.481 (S)	0.99	0.824
2,3',5-TriCB	26	26 + 29	C	133	0.540 (S)	1.00	1.302
2,3',6-TriCB	27			53.5	0.0724 (Q)	1.06	1.151
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31			464	0.514 (S)	1.00	0.836
2,4',6-TriCB	32			130	0.532 (S)	0.99	1.197
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			5.07	0.559 (S)	0.99	1.273
3,3',4-TriCB	35		U		0.543 (S)		
3,3',5-TriCB	36		U		0.516 (S)		
3,4,4'-TriCB	37			73.0	0.534 (S)	0.98	1.001
3,4,5-TriCB	38			1.23	0.542 (S)	0.93	0.967
3,4',5-TriCB	39			5.15	0.517 (S)	0.90	0.946

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2,2',3,3'-TeCB	40	40 + 41 + 71	C	513	0.0734 (S)	0.79	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			374	0.0777 (S)	0.79	1.313
2,2',3,5'-TeCB	43			50.2	0.0816 (S)	0.80	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	2880	0.0724 (Q)	0.80	1.287
2,2',3,6'-TeCB	45	45 + 51	C	403	0.0738 (S)	0.79	1.149
2,2',3,6'-TeCB	46			45.0	0.0838 (S)	0.80	1.162
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			179	0.0739 (S)	0.80	1.275
2,2',4,5'-TeCB	49	49 + 69	C	1820	0.0724 (Q)	0.79	1.261
2,2',4,6'-TeCB	50	50 + 53	C	287	0.0726 (S)	0.79	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			2650	0.0724 (Q)	0.79	1.235
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			101	0.0724 (Q)	0.81	1.002
2,3,3',4'-TeCB	55		U		1.26 (S)		
2,3,3',4'-TeCB	56			387	1.23 (S)	0.76	0.904
2,3,3',5'-TeCB	57			7.69	1.15 (S)	0.79	0.843
2,3,3',5'-TeCB	58			12.0	1.18 (S)	0.74	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	167	0.0724 (Q)	0.80	1.303
2,3,4,4'-TeCB	60			388	1.24 (S)	0.77	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	2590	1.16 (S)	0.77	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			118	1.14 (S)	0.75	0.864
2,3,4',6'-TeCB	64			742	0.0724 (Q)	0.80	1.350
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			2040	1.11 (S)	0.76	0.884
2,3',4,5'-TeCB	67			43.0	1.04 (S)	0.78	0.856
2,3',4,5'-TeCB	68			54.3	1.13 (S)	0.75	0.830
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72			53.3	1.11 (S)	0.75	0.822
2,3',5',6'-TeCB	73		U		0.0724 (Q)		
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77			132	1.22 (S)	0.79	1.000
3,3',4,5'-TeCB	78		U		1.19 (S)		
3,3',4,5'-TeCB	79			40.6	1.02 (S)	0.71	0.969
3,3',5,5'-TeCB	80		U		1.08 (S)		
3,4,4',5'-TeCB	81		K	6.16	1.22 (S)	0.78	1.001
2,2',3,3',4'-PeCB	82			300	2.72 (S)	1.61	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	4920	2.39 (S)	1.57	0.885
2,2',3,3',6'-PeCB	84			647	2.65 (S)	1.60	1.165
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1270	2.05 (S)	1.57	0.920
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C	2960	2.10 (S)	1.59	0.901
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C	804	2.35 (S)	1.55	1.155
2,2',3,4,6'-PeCB	89			16.7	2.49 (S)	1.70	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	6310	2.07 (S)	1.57	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			1290	2.36 (S)	1.60	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	3370	2.30 (S)	1.60	1.122
2,2',3,5,6'-PeCB	94			31.6	2.59 (S)	1.55	1.102
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			31.0	0.0724 (Q)	1.57	1.016
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103			159	2.11 (S)	1.61	1.094
2,2',4,6,6'-PeCB	104			14.2	0.0724 (Q)	1.67	1.001
2,3,3',4,4'-PeCB	105			1880	7.64 (S)	1.53	1.001
2,3,3',4,5-PeCB	106		U		7.55 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	163	7.95 (S)	1.53	0.991
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109			565	7.35 (S)	1.46	0.998
2,3,3',4',6-PeCB	110	110 + 115	C	5080	1.84 (S)	1.60	0.925
2,3,3',5,5'-PeCB	111			16.9	1.83 (S)	1.59	0.945
2,3,3',5,6-PeCB	112		U		1.77 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			148	7.65 (S)	1.48	1.000
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118			6250	7.54 (S)	1.53	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120			65.3	1.71 (S)	1.61	0.958
2,3',4,5',6-PeCB	121			16.2	1.78 (S)	1.50	1.200
2',3,3',4,5-PeCB	122			39.5	8.75 (S)	1.47	1.010
2',3,4,4',5-PeCB	123		K	106	7.93 (S)	1.58	1.001
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		K	82.3	7.97 (S)	1.69	1.001
3,3',4,5,5'-PeCB	127			17.3	8.20 (S)	1.54	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1730	9.83 (S)	1.28	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	15700	10.1 (S)	1.26	0.928
2,2',3,3',4,5'-HxCB	130			660	12.4 (S)	1.26	0.913
2,2',3,3',4,6-HxCB	131			49.8	11.7 (S)	1.24	1.160
2,2',3,3',4,6'-HxCB	132			1630	12.2 (S)	1.28	1.176
2,2',3,3',5,5'-HxCB	133			326	11.5 (S)	1.27	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	273	11.7 (S)	1.28	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	4120	0.0724 (Q)	1.27	1.105
2,2',3,3',6,6'-HxCB	136			671	0.0724 (Q)	1.26	1.025
2,2',3,4,4',5-HxCB	137			544	12.4 (S)	1.27	0.918
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C	171	10.5 (S)	1.26	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			1870	10.9 (S)	1.28	0.903
2,2',3,4,5,6-HxCB	142		U		12.1 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			393	0.0724 (Q)	1.28	1.123
2,2',3,4,6,6'-HxCB	145			0.974	0.0724 (Q)	1.14	1.035
2,2',3,4',5,5'-HxCB	146			3190	10.3 (S)	1.27	0.884
2,2',3,4',5,6-HxCB	147	147 + 149	C	6400	10.3 (S)	1.27	1.134
2,2',3,4',5,6'-HxCB	148			56.5	0.0724 (Q)	1.23	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			30.9	0.0724 (Q)	1.26	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			10.2	0.0724 (Q)	1.24	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C	18200	9.04 (S)	1.27	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155			16.0	0.0724 (Q)	1.19	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	1400	11.1 (S)	1.26	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			1170	7.71 (S)	1.26	0.937
2,3,3',4,5,5'-HxCB	159		U		8.30 (S)		
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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2,3,3',4,5',6-HxCB	161		U		7.97 (S)		
2,3,3',4',5,5'-HxCB	162			37.5	8.16 (S)	1.32	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			595	8.10 (S)	1.26	0.921
2,3,3',5,5',6-HxCB	165			14.8	9.43 (S)	1.29	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			628	9.14 (S)	1.28	1.001
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U		18.0 (S)		
2,2',3,3',4,4',5-HpCB	170			4330	0.148 (S)	1.04	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	1390	0.173 (S)	1.06	1.163
2,2',3,3',4,5,5'-HpCB	172			944	0.176 (S)	1.06	0.896
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174			2100	0.164 (S)	1.06	1.134
2,2',3,3',4,5',6-HpCB	175			183	0.160 (S)	1.04	1.103
2,2',3,3',4,6,6'-HpCB	176			229	0.121 (S)	1.04	1.034
2,2',3,3',4',5,6-HpCB	177			2100	0.151 (S)	1.06	1.146
2,2',3,3',5,5',6-HpCB	178			1250	0.166 (S)	1.05	1.086
2,2',3,3',5,6,6'-HpCB	179			954	0.119 (S)	1.06	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	14400	0.141 (S)	1.06	1.000
2,2',3,4,4',5,6-HpCB	181			43.5	0.162 (S)	1.06	1.157
2,2',3,4,4',5,6'-HpCB	182			30.8	0.154 (S)	1.05	1.116
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	3820	0.159 (S)	1.05	1.127
2,2',3,4,4',6,6'-HpCB	184			13.0	0.118 (S)	1.07	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.129 (S)		
2,2',3,4',5,5',6-HpCB	187			9250	0.150 (S)	1.03	1.110
2,2',3,4',5,6,6'-HpCB	188			19.2	0.121 (S)	1.06	1.000
2,3,3',4,4',5,5'-HpCB	189			149	0.464 (S)	1.01	1.000
2,3,3',4,4',5,6-HpCB	190			1150	0.128 (S)	1.06	0.947
2,3,3',4,4',5',6-HpCB	191			226	0.130 (S)	1.05	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.142 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			1960	0.381 (S)	0.89	0.991
2,2',3,3',4,4',5,6-OxCB	195			931	0.399 (S)	0.89	0.945
2,2',3,3',4,4',5,6'-OxCB	196			1290	0.0899 (S)	0.91	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C G	211	0.0724 (Q)	0.89	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	2790	0.0937 (S)	0.90	1.115
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5,6,6'-OxCB	201			259	0.0724 (Q)	0.90	1.023
2,2',3,3',5,5',6,6'-OxCB	202			609	0.0772 (S)	0.89	1.000
2,2',3,4,4',5,5',6-OxCB	203			2060	0.0851 (S)	0.90	0.919
2,2',3,4,4',5,6,6'-OxCB	204			1.86	0.0724 (Q)	1.00	1.039
2,3,3',4,4',5,5',6-OxCB	205			110	0.346 (S)	0.90	1.001
2,2',3,3',4,4',5,5',6-NoCB	206			654	0.0774 (S)	0.80	1.001
2,2',3,3',4,4',5,6,6'-NoCB	207			87.6	0.0724 (Q)	0.79	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			207	0.0724 (Q)	0.79	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			177	0.0724 (Q)	1.15	1.001

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent; G = lock mass interference present; C = co-eluting congener.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB049
Sample Collection:
18-Aug-2018 12:29

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 03-Oct-2018 Time: 03:05:42
 Extract Volume (uL): 20
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-1
 Sample Size: 10.1 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_332C S: 8
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_332C S: 1
 % Lipid: 5.93

This page is part of a total report that contains information necessary for accreditation compliance.
 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L			2000	1030	51.3	3.20	0.719
13C12-4-MoCB	3L			2000	1120	56.1	3.26	0.859
13C12-2,2'-DiCB	4L			2000	1220	60.9	1.59	0.874
13C12-4,4'-DiCB	15L			2000	1560	77.9	1.55	1.253
13C12-2,2',6-TriCB	19L			2000	1150	57.7	1.06	1.072
13C12-3,4,4'-TriCB	37L			2000	1760	88.2	1.00	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1250	62.7	0.81	0.810
13C12-3,3',4,4'-TeCB	77L			2000	2130	107	0.76	1.398
13C12-3,4,4',5-TeCB	81L			2000	2120	106	0.74	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	1200	60.2	1.59	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1910	95.7	1.57	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1940	96.8	1.60	1.180
13C12-2,3',4,4',5-PeCB	118L			2000	1950	97.5	1.58	1.163
13C12-2',3,4,4',5-PeCB	123L			2000	1940	97.2	1.57	1.152
13C12-3,3',4,4',5-PeCB	126L			2000	2100	105	1.57	1.303
13C12-2,2',4,4',6,6'-HxCB	155L			2000	1090	54.3	1.27	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	3440	86.1	1.29	1.108
13C12-2,3,3',4,4',5-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			2000	1670	83.7	1.23	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1710	85.7	1.25	1.193
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	2290	114	1.05	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	2240	112	1.04	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1350	67.7	1.07	0.711
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1690	84.5	1.03	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	1100	55.2	0.94	0.816
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1830	91.3	0.88	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1770	88.3	0.80	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1670	83.7	0.78	0.948
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	1350	67.4	1.17	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1750	87.6	1.06	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1710	85.6	1.58	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1390	69.7	1.08	1.012

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB085
Sample Collection:
18-Aug-2018 10:15

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-2
Sample Receipt Date:	21-Aug-2018	Sample Size:	9.87 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	03-Oct-2018 Time: 04:09:24	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_332C S: 9
Dilution Factor:	N/A	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_332C S: 1
		% Lipid:	5.46

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1			5.38	0.0736 (Q)	3.19	1.001
3-MoCB	2			0.894	0.0736 (Q)	3.29	0.988
4-MoCB	3			2.67	0.0736 (Q)	3.17	1.001
2,2'-DiCB	4			114	0.583 (S)	1.52	1.001
2,3-DiCB	5			1.89	0.431 (S)	1.60	1.198
2,3'-DiCB	6			33.8	0.399 (S)	1.53	1.175
2,4-DiCB	7			6.25	0.404 (S)	1.57	1.158
2,4'-DiCB	8			153	0.375 (S)	1.52	1.207
2,5-DiCB	9			10.2	0.390 (S)	1.53	1.146
2,6-DiCB	10			5.67	0.399 (S)	1.49	1.013
3,3'-DiCB	11			87.9	0.403 (S)	1.47	0.968
3,4-DiCB	12	12 + 13	C	2.56	0.408 (S)	1.62	0.983
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.408 (S)		
4,4'-DiCB	15			171	0.414 (S)	1.49	1.001
2,2',3-TriCB	16			171	0.0846 (S)	1.06	1.165
2,2',4-TriCB	17			329	0.0736 (Q)	1.08	1.138
2,2',5-TriCB	18	18 + 30	C	473	0.0736 (Q)	1.06	1.113
2,2',6-TriCB	19			258	0.0900 (S)	1.05	1.001
2,3,3'-TriCB	20	20 + 28	C	1410	0.616 (S)	0.98	0.848
2,3,4-TriCB	21	21 + 33	C	538	0.615 (S)	1.00	0.857
2,3,4'-TriCB	22			355	0.677 (S)	0.97	0.872
2,3,5-TriCB	23			1.73	0.664 (S)	1.09	1.282
2,3,6-TriCB	24			6.03	0.0736 (Q)	1.13	1.158
2,3',4-TriCB	25			95.4	0.559 (S)	0.99	0.824
2,3',5-TriCB	26	26 + 29	C	228	0.627 (S)	1.00	1.302
2,3',6-TriCB	27			50.9	0.0736 (Q)	1.07	1.151
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31			1010	0.598 (S)	0.98	0.837
2,4',6-TriCB	32			198	0.617 (S)	0.98	1.197
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			5.44	0.649 (S)	0.94	1.273
3,3',4-TriCB	35		U		0.630 (S)		
3,3',5-TriCB	36		U		0.600 (S)		
3,4,4'-TriCB	37			516	0.621 (S)	0.99	1.001
3,4,5-TriCB	38			0.976	0.629 (S)	1.14	0.968
3,4',5-TriCB	39			9.52	0.600 (S)	1.00	0.946

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C	720	0.101 (S)	0.79	1.336
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			418	0.107 (S)	0.79	1.311
2,2',3,5'-TeCB	43			73.3	0.112 (S)	0.78	1.245
2,2',3,5'-TeCB	44	44 + 47 + 65	C	2400	0.0931 (S)	0.79	1.286
2,2',3,6'-TeCB	45	45 + 51	C	357	0.102 (S)	0.79	1.147
2,2',3,6'-TeCB	46			61.6	0.115 (S)	0.81	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			334	0.102 (S)	0.80	1.273
2,2',4,5'-TeCB	49	49 + 69	C	1550	0.0861 (S)	0.80	1.259
2,2',4,6'-TeCB	50	50 + 53	C	252	0.0999 (S)	0.79	1.110
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			2270	0.0966 (S)	0.80	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			54.0	0.0850 (S)	0.81	1.001
2,3,3',4'-TeCB	55		U		2.11 (S)		
2,3,3',4'-TeCB	56			169	2.08 (S)	0.78	0.904
2,3,3',5'-TeCB	57			8.35	1.94 (S)	0.72	0.842
2,3,3',5'-TeCB	58			5.25	1.98 (S)	0.71	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	177	0.0759 (S)	0.79	1.301
2,3,4,4'-TeCB	60			245	2.08 (S)	0.77	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	2100	1.96 (S)	0.77	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			154	1.92 (S)	0.77	0.863
2,3,4',6'-TeCB	64			735	0.0743 (S)	0.79	1.348
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			1670	1.86 (S)	0.76	0.883
2,3',4,5'-TeCB	67			36.9	1.76 (S)	0.77	0.855
2,3',4,5'-TeCB	68			35.4	1.90 (S)	0.76	0.830
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72			36.7	1.86 (S)	0.78	0.822
2,3',5',6'-TeCB	73		U		0.0818 (S)		
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77			62.6	2.05 (S)	0.75	1.000
3,3',4,5'-TeCB	78		U		2.01 (S)		
3,3',4,5'-TeCB	79			40.0	1.72 (S)	0.75	0.972
3,3',5,5'-TeCB	80		U		1.82 (S)		
3,4,4',5'-TeCB	81		K	2.47	2.08 (S)	0.73	1.001
2,2',3,3',4'-PeCB	82			124	1.45 (S)	1.59	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	4100	1.27 (S)	1.61	0.885
2,2',3,3',6'-PeCB	84			271	1.41 (S)	1.59	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1190	1.09 (S)	1.58	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C	1710	1.12 (S)	1.56	0.901
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C	431	1.25 (S)	1.61	1.155
2,2',3,4,6'-PeCB	89			9.87	1.32 (S)	1.58	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	4160	1.10 (S)	1.56	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			983	1.25 (S)	1.56	0.852
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	2140	1.22 (S)	1.57	1.122
2,2',3,5,6'-PeCB	94			16.4	1.38 (S)	1.62	1.102
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			24.4	0.139 (S)	1.57	1.016
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103			97.3	1.12 (S)	1.60	1.094
2,2',4,6,6'-PeCB	104			6.20	0.142 (S)	1.50	1.001
2,3,3',4,4'-PeCB	105			1770	8.21 (S)	1.48	1.000
2,3,3',4,5-PeCB	106		U		8.05 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	115	8.47 (S)	1.51	0.991
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109			443	7.84 (S)	1.47	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	3060	0.975 (S)	1.60	0.925
2,3,3',5,5'-PeCB	111			14.0	0.970 (S)	1.55	0.945
2,3,3',5,6-PeCB	112		U		0.939 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			136	8.04 (S)	1.49	1.000
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118			5340	7.95 (S)	1.53	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120			52.0	0.910 (S)	1.63	0.958
2,3',4,5',6-PeCB	121			13.3	0.946 (S)	1.61	1.200
2',3,3',4,5-PeCB	122			19.7	9.33 (S)	1.38	1.010
2',3,4,4',5-PeCB	123		K	93.3	8.63 (S)	1.56	1.001
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		K	89.1	8.44 (S)	1.78	1.001
3,3',4,5,5'-PeCB	127			17.6	8.75 (S)	1.50	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	2180	2.44 (S)	1.28	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	19400	2.51 (S)	1.27	0.928
2,2',3,3',4,5'-HxCB	130			571	3.07 (S)	1.27	0.913
2,2',3,3',4,6-HxCB	131			27.7	2.90 (S)	1.24	1.161
2,2',3,3',4,6'-HxCB	132			961	3.04 (S)	1.27	1.176
2,2',3,3',5,5'-HxCB	133			369	2.85 (S)	1.27	1.193
2,2',3,3',5,6-HxCB	134	134 + 143	C	182	2.91 (S)	1.26	1.142
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	5130	0.202 (S)	1.26	1.105
2,2',3,3',6,6'-HxCB	136			508	0.152 (S)	1.26	1.025
2,2',3,4,4',5-HxCB	137			573	3.09 (S)	1.27	0.918
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C	174	2.62 (S)	1.26	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			2120	2.72 (S)	1.26	0.903
2,2',3,4,5,6-HxCB	142		U		3.00 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			323	0.203 (S)	1.25	1.123
2,2',3,4,6,6'-HxCB	145		U		0.165 (S)		
2,2',3,4',5,5'-HxCB	146			4000	2.57 (S)	1.28	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C	4850	2.57 (S)	1.26	1.135
2,2',3,4',5,6'-HxCB	148			40.0	0.208 (S)	1.29	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			15.8	0.152 (S)	1.15	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			6.01	0.147 (S)	1.14	1.008
2,2',4,4',5,5'-HxCB	153	153 + 168	C	21000	2.24 (S)	1.28	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155			13.4	0.145 (S)	1.24	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	1500	2.82 (S)	1.27	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			1300	1.91 (S)	1.26	0.937
2,3,3',4,4',6'-HxCB	159		U		2.06 (S)		
2,3,3',4,5,5'-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		U		1.98 (S)		
2,3,3',4',5,5'-HxCB	162			52.3	2.03 (S)	1.25	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			813	2.01 (S)	1.27	0.921
2,3,3',5,5',6-HxCB	165			17.9	2.34 (S)	1.28	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			658	2.22 (S)	1.29	1.000
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U		32.6 (S)		
2,2',3,3',4,4',5-HpCB	170			5330	0.234 (S)	1.05	1.001
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	1610	0.263 (S)	1.07	1.164
2,2',3,3',4,5,5'-HpCB	172			1270	0.269 (S)	1.04	0.896
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174			2110	0.250 (S)	1.07	1.134
2,2',3,3',4,5',6-HpCB	175			212	0.244 (S)	1.07	1.103
2,2',3,3',4,6,6'-HpCB	176			154	0.185 (S)	1.04	1.034
2,2',3,3',4',5,6-HpCB	177			2410	0.230 (S)	1.06	1.146
2,2',3,3',5,5',6-HpCB	178			1760	0.253 (S)	1.04	1.085
2,2',3,3',5,6,6'-HpCB	179			1040	0.182 (S)	1.05	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	18500	0.227 (S)	1.04	1.000
2,2',3,4,4',5,6-HpCB	181			44.5	0.247 (S)	1.02	1.157
2,2',3,4,4',5,6'-HpCB	182		U		0.234 (S)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	4620	0.242 (S)	1.06	1.127
2,2',3,4,4',6,6'-HpCB	184			12.7	0.179 (S)	1.08	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.196 (S)		
2,2',3,4',5,5',6-HpCB	187			18200	0.228 (S)	1.06	1.110
2,2',3,4',5,6,6'-HpCB	188			15.5	0.186 (S)	1.07	1.000
2,3,3',4,4',5,5'-HpCB	189			199	0.451 (S)	1.02	1.000
2,3,3',4,4',5,6-HpCB	190			1510	0.196 (S)	1.05	0.946
2,3,3',4,4',5',6-HpCB	191			282	0.198 (S)	1.03	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.216 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			1950	0.351 (S)	0.89	0.991
2,2',3,3',4,4',5,6-OxCB	195			1160	0.368 (S)	0.89	0.945
2,2',3,3',4,4',5,6'-OxCB	196			1460	0.0736 (Q)	0.90	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C G	218	0.0736 (Q)	0.90	1.045
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	4280	0.0736 (Q)	0.90	1.115
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5,6,6'-OxCB	201			323	0.0736 (Q)	0.89	1.023
2,2',3,3',5,5',6,6'-OxCB	202			781	0.0736 (Q)	0.92	1.000
2,2',3,4,4',5,5',6-OxCB	203			2410	0.0736 (Q)	0.91	0.919
2,2',3,4,4',5,6,6'-OxCB	204			1.79	0.0736 (Q)	0.91	1.039
2,3,3',4,4',5,5',6-OxCB	205			137	0.320 (S)	0.88	1.000
2,2',3,3',4,4',5,5',6-NoCB	206			571	0.120 (S)	0.80	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207			76.5	0.0842 (S)	0.79	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			178	0.102 (S)	0.78	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			161	0.0736 (Q)	1.17	1.000

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; G = lock mass interference present; C = co-eluting congener.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB085
Sample Collection:
18-Aug-2018 10:15

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 03-Oct-2018 Time: 04:09:24
 Extract Volume (uL): 20
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-2
 Sample Size: 9.87 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_332C S: 9
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_332C S: 1
 % Lipid: 5.46

This page is part of a total report that contains information necessary for accreditation compliance.
 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L			2000	1090	54.3	3.25	0.720
13C12-4-MoCB	3L			2000	1160	58.0	3.24	0.860
13C12-2,2'-DiCB	4L			2000	1240	62.2	1.55	0.874
13C12-4,4'-DiCB	15L			2000	1520	75.8	1.56	1.256
13C12-2,2',6-TriCB	19L			2000	1180	59.0	1.08	1.073
13C12-3,4,4'-TriCB	37L			2000	1840	92.1	1.03	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1210	60.6	0.82	0.811
13C12-3,3',4,4'-TeCB	77L			2000	2170	108	0.75	1.398
13C12-3,4,4',5-TeCB	81L			2000	2150	108	0.75	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	1220	60.8	1.61	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1950	97.4	1.58	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1970	98.5	1.58	1.180
13C12-2,3',4,4',5-PeCB	118L			2000	2060	103	1.59	1.163
13C12-2',3,4,4',5-PeCB	123L			2000	1990	99.5	1.59	1.152
13C12-3,3',4,4',5-PeCB	126L			2000	2200	110	1.57	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	1100	54.9	1.27	0.784
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	3360	83.9	1.24	1.108
13C12-2,3,3',4,4',5-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			2000	1670	83.4	1.25	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1740	86.9	1.27	1.193
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	2700	135	1.06	0.896
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	2610	130	1.07	0.871
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1560	78.2	1.07	0.711
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	2110	105	1.01	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	1260	63.2	0.91	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	2050	102	0.87	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1970	98.7	0.78	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1980	99.2	0.79	0.948
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	1620	81.1	1.17	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1840	92.0	1.04	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1760	88.0	1.65	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1410	70.6	1.04	1.012

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB089
Sample Collection:
18-Aug-2018 08:43

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-3 (A)
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.1 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	03-Oct-2018 Time: 11:09:44	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_333A S: 3
Dilution Factor:	N/A	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_333A S: 1
		% Lipid:	5.18

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1			3.32	0.0722 (Q)	2.96	1.001
3-MoCB	2			0.988	0.0722 (Q)	3.27	0.987
4-MoCB	3			2.05	0.0722 (Q)	3.16	1.001
2,2'-DiCB	4			47.0	0.291 (S)	1.53	1.001
2,3-DiCB	5			0.578	0.239 (S)	1.35	1.199
2,3'-DiCB	6			10.2	0.217 (S)	1.55	1.177
2,4-DiCB	7			1.77	0.222 (S)	1.60	1.159
2,4'-DiCB	8			36.4	0.205 (S)	1.52	1.209
2,5-DiCB	9			2.94	0.217 (S)	1.53	1.147
2,6-DiCB	10			2.52	0.222 (S)	1.41	1.014
3,3'-DiCB	11			71.6	0.224 (S)	1.53	0.969
3,4-DiCB	12	12 + 13	C	1.54	0.226 (S)	1.54	0.984
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.221 (S)		
4,4'-DiCB	15			12.0	0.241 (S)	1.51	1.001
2,2',3-TriCB	16			30.6	0.0722 (Q)	1.05	1.166
2,2',4-TriCB	17			96.3	0.0722 (Q)	1.06	1.138
2,2',5-TriCB	18	18 + 30	C	108	0.0722 (Q)	1.07	1.113
2,2',6-TriCB	19			125	0.0722 (Q)	1.09	1.001
2,3,3'-TriCB	20	20 + 28	C	497	0.360 (S)	0.99	0.847
2,3,4-TriCB	21	21 + 33	C	83.2	0.355 (S)	0.97	0.856
2,3,4'-TriCB	22			84.8	0.397 (S)	1.02	0.871
2,3,5-TriCB	23		J	0.398	0.389 (S)	1.07	1.282
2,3,6-TriCB	24			1.53	0.0722 (Q)	1.08	1.159
2,3',4-TriCB	25			27.8	0.323 (S)	0.99	0.824
2,3',5-TriCB	26	26 + 29	C	71.5	0.362 (S)	1.00	1.301
2,3',6-TriCB	27			25.2	0.0722 (Q)	1.09	1.151
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31			235	0.340 (S)	0.99	0.836
2,4',6-TriCB	32			61.5	0.353 (S)	0.99	1.197
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			2.40	0.371 (S)	0.95	1.273
3,3',4-TriCB	35		U		0.387 (S)		
3,3',5-TriCB	36		U		0.353 (S)		
3,4,4'-TriCB	37			27.5	0.376 (S)	1.01	1.001
3,4,5-TriCB	38		J	0.558	0.406 (S)	1.04	0.968
3,4',5-TriCB	39			3.24	0.378 (S)	1.10	0.945

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C	271	0.0722 (Q)	0.81	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			166	0.0722 (Q)	0.79	1.312
2,2',3,5'-TeCB	43			28.5	0.0722 (Q)	0.80	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	1570	0.0722 (Q)	0.80	1.287
2,2',3,6'-TeCB	45	45 + 51	C	148	0.0722 (Q)	0.79	1.148
2,2',3,6'-TeCB	46			15.8	0.0722 (Q)	0.77	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			114	0.0722 (Q)	0.80	1.273
2,2',4,5'-TeCB	49	49 + 69	C	973	0.0722 (Q)	0.80	1.259
2,2',4,6'-TeCB	50	50 + 53	C	136	0.0722 (Q)	0.79	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			1470	0.0722 (Q)	0.80	1.235
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			42.7	0.0722 (Q)	0.80	1.002
2,3,3',4'-TeCB	55		U		0.722 (S)		
2,3,3',4'-TeCB	56			137	0.726 (S)	0.78	0.904
2,3,3',5'-TeCB	57			5.41	0.676 (S)	0.77	0.843
2,3,3',5'-TeCB	58			8.09	0.707 (S)	0.73	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	90.8	0.0722 (Q)	0.80	1.303
2,3,4,4'-TeCB	60			206	0.720 (S)	0.75	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	1570	0.685 (S)	0.77	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			71.9	0.667 (S)	0.75	0.864
2,3,4',6'-TeCB	64			365	0.0722 (Q)	0.80	1.349
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			1270	0.663 (S)	0.77	0.884
2,3',4,5'-TeCB	67			18.7	0.594 (S)	0.76	0.855
2,3',4,5'-TeCB	68			31.6	0.668 (S)	0.78	0.830
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72			33.5	0.650 (S)	0.78	0.822
2,3',5',6'-TeCB	73			12.9	0.0722 (Q)	0.80	1.242
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77			57.4	0.669 (S)	0.78	1.000
3,3',4,5'-TeCB	78		U		0.677 (S)		
3,3',4,5'-TeCB	79			25.8	0.576 (S)	0.79	0.969
3,3',5,5'-TeCB	80			0.951	0.625 (S)	0.76	0.924
3,4,4',5'-TeCB	81		K	2.50	0.659 (S)	0.72	1.001
2,2',3,3',4'-PeCB	82		X				
2,2',3,3',5'-PeCB	83	83 + 99	C X				
2,2',3,3',6'-PeCB	84		X				
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C X				
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C X				
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C X				
2,2',3,4,6'-PeCB	89		X				
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C X				
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		X				
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C X				
2,2',3,5,6'-PeCB	94		X				
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		X				
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		X				
2,2',4,6,6'-PeCB	104		X				
2,3,3',4,4'-PeCB	105		X				
2,3,3',4,5-PeCB	106		X				
2,3,3',4',5-PeCB	107	107 + 124	C X				
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		X				
2,3,3',4',6-PeCB	110	110 + 115	C X				
2,3,3',5,5'-PeCB	111		X				
2,3,3',5,6-PeCB	112		X				
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		X				
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		X				
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		X				
2,3',4,5',6-PeCB	121		X				
2',3,3',4,5-PeCB	122		X				
2',3,4,4',5-PeCB	123		X				
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		X				
3,3',4,5,5'-PeCB	127		X				
2,2',3,3',4,4'-HxCB	128	128 + 166	C X				
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C X				
2,2',3,3',4,5'-HxCB	130		X				
2,2',3,3',4,6-HxCB	131		X				
2,2',3,3',4,6'-HxCB	132		X				
2,2',3,3',5,5'-HxCB	133		X				
2,2',3,3',5,6-HxCB	134	134 + 143	C X				
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C X				
2,2',3,3',6,6'-HxCB	136		X				
2,2',3,4,4',5-HxCB	137		X				
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C X				
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		X				
2,2',3,4,5,6-HxCB	142		X				
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		X				
2,2',3,4,6,6'-HxCB	145		X				
2,2',3,4',5,5'-HxCB	146		X				
2,2',3,4',5,6-HxCB	147	147 + 149	C X				
2,2',3,4',5,6'-HxCB	148		X				
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		X				
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		X				
2,2',4,4',5,5'-HxCB	153	153 + 168	C X				
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		X				
2,3,3',4,4',5-HxCB	156	156 + 157	C X				
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		X				
2,3,3',4,5,5'-HxCB	159		X				
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		X				
2,3,3',4',5,5'-HxCB	162		X				
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		X				
2,3,3',5,5',6-HxCB	165		X				
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		X				
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		X				
2,2',3,3',4,4',5-HpCB	170		X				
2,2',3,3',4,4',6-HpCB	171	171 + 173	C X				
2,2',3,3',4,5,5'-HpCB	172		X				
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		X				
2,2',3,3',4,5',6-HpCB	175		X				
2,2',3,3',4,6,6'-HpCB	176		X				
2,2',3,3',4',5,6-HpCB	177		X				
2,2',3,3',5,5',6-HpCB	178		X				
2,2',3,3',5,6,6'-HpCB	179		X				
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C X				
2,2',3,4,4',5,6-HpCB	181		X				
2,2',3,4,4',5,6'-HpCB	182		X				
2,2',3,4,4',5',6-HpCB	183	183 + 185	C X				
2,2',3,4,4',6,6'-HpCB	184		X				
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		X				
2,2',3,4',5,5',6-HpCB	187		X				
2,2',3,4',5,6,6'-HpCB	188		X				
2,3,3',4,4',5,5'-HpCB	189		X				
2,3,3',4,4',5,6-HpCB	190		X				
2,3,3',4,4',5',6-HpCB	191		X				
2,3,3',4,5,5',6-HpCB	192		X				
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		X				
2,2',3,3',4,4',5,6-OxCB	195		X				
2,2',3,3',4,4',5,6'-OxCB	196		X				
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C X				
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C X				
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5',6,6'-OxCB	201		X				
2,2',3,3',5,5',6,6'-OxCB	202		X				
2,2',3,4,4',5,5',6-OxCB	203		X				
2,2',3,4,4',5,6,6'-OxCB	204		X				
2,3,3',4,4',5,5',6-OxCB	205		X				
2,2',3,3',4,4',5,5',6-NoCB	206		X				
2,2',3,3',4,4',5,6,6'-NoCB	207		X				
2,2',3,3',4,5,5',6,6'-NoCB	208		X				
2,2',3,3',4,4',5,5',6,6'-DeCB	209		X				

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent; C = co-eluting congener; X = result reported separately.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB089
Sample Collection:
18-Aug-2018 08:43

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 03-Oct-2018 Time: 11:09:44
 Extract Volume (uL): 20
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-3 (A)
 Sample Size: 10.1 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_333A S: 3
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_333A S: 1
 % Lipid: 5.18

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LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L			2000	1070	53.5	3.27	0.720
13C12-4-MoCB	3L			2000	1160	58.0	3.23	0.859
13C12-2,2'-DiCB	4L			2000	1370	68.4	1.60	0.872
13C12-4,4'-DiCB	15L			2000	1480	74.1	1.61	1.253
13C12-2,2',6-TriCB	19L			2000	1070	53.3	1.07	1.072
13C12-3,4,4'-TriCB	37L			2000	2020	101	1.02	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1500	74.9	0.80	0.810
13C12-3,3',4,4'-TeCB	77L			2000	2440	122	0.75	1.398
13C12-3,4,4',5-TeCB	81L			2000	2430	121	0.77	1.374
13C12-2,2',4,6,6'-PeCB	104L		X					
13C12-2,3,3',4,4'-PeCB	105L		X					
13C12-2,3,4,4',5-PeCB	114L		X					
13C12-2,3',4,4',5-PeCB	118L		X					
13C12-2',3,4,4',5-PeCB	123L		X					
13C12-3,3',4,4',5-PeCB	126L		X					
13C12-2,2',4,4',6,6'-HxCB	155L		X					
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C X					
13C12-2,3,3',4,4',5-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		X					
13C12-3,3',4,4',5,5'-HxCB	169L		X					
13C12-2,2',3,3',4,4',5-HpCB	170L		X					
13C12-2,2',3,4,4',5,5'-HpCB	180L		X					
13C12-2,2',3,4',5,6,6'-HpCB	188L		X					
13C12-2,3,3',4,4',5,5'-HpCB	189L		X					
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		X					
13C12-2,3,3',4,4',5,5',6-OxCB	205L		X					
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		X					
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		X					
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		X					
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	2160	108	1.05	0.924
13C12-2,3,3',5,5'-PeCB	111L		X					
13C12-2,2',3,3',5,5',6-HpCB	178L		X					

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB089
Sample Collection:
18-Aug-2018 08:43

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-3 W (A)
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.1 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	17-Oct-2018 Time: 15:45:12	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_355D S: 2
Dilution Factor:	5	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_355C S: 1
		% Lipid:	5.18

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1		X				
3-MoCB	2		X				
4-MoCB	3		X				
2,2'-DiCB	4		X				
2,3-DiCB	5		X				
2,3'-DiCB	6		X				
2,4-DiCB	7		X				
2,4'-DiCB	8		X				
2,5-DiCB	9		X				
2,6-DiCB	10		X				
3,3'-DiCB	11		X				
3,4-DiCB	12	12 + 13	C X				
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		X				
4,4'-DiCB	15		X				
2,2',3-TriCB	16		X				
2,2',4-TriCB	17		X				
2,2',5-TriCB	18	18 + 30	C X				
2,2',6-TriCB	19		X				
2,3,3'-TriCB	20	20 + 28	C X				
2,3,4-TriCB	21	21 + 33	C X				
2,3,4'-TriCB	22		X				
2,3,5-TriCB	23		X				
2,3,6-TriCB	24		X				
2,3',4-TriCB	25		X				
2,3',5-TriCB	26	26 + 29	C X				
2,3',6-TriCB	27		X				
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31		X				
2,4',6-TriCB	32		X				
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34		X				
3,3',4-TriCB	35		X				
3,3',5-TriCB	36		X				
3,4,4'-TriCB	37		X				
3,4,5-TriCB	38		X				
3,4',5-TriCB	39		X				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C X				
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		X				
2,2',3,5'-TeCB	43		X				
2,2',3,5'-TeCB	44	44 + 47 + 65	C X				
2,2',3,6'-TeCB	45	45 + 51	C X				
2,2',3,6'-TeCB	46		X				
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		X				
2,2',4,5'-TeCB	49	49 + 69	C X				
2,2',4,6'-TeCB	50	50 + 53	C X				
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52		X				
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		X				
2,3,3',4'-TeCB	55		X				
2,3,3',4'-TeCB	56		X				
2,3,3',5'-TeCB	57		X				
2,3,3',5'-TeCB	58		X				
2,3,3',6'-TeCB	59	59 + 62 + 75	C X				
2,3,4,4'-TeCB	60		X				
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C X				
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		X				
2,3,4',6'-TeCB	64		X				
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		X				
2,3',4,5'-TeCB	67		X				
2,3',4,5'-TeCB	68		X				
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72		X				
2,3',5',6'-TeCB	73		X				
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77		X				
3,3',4,5'-TeCB	78		X				
3,3',4,5'-TeCB	79		X				
3,3',5,5'-TeCB	80		X				
3,4,4',5'-TeCB	81		X				
2,2',3,3',4'-PeCB	82		D	166	2.40 (S)	1.54	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C D	4020	2.26 (S)	1.58	0.885
2,2',3,3',6'-PeCB	84		D	306	2.41 (S)	1.60	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C D	948	1.79 (S)	1.59	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C D	1920	1.83 (S)	1.57	0.901
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C D	427	2.18 (S)	1.53	1.155
2,2',3,4,6'-PeCB	89		K D	9.45	2.27 (S)	1.87	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C D	4530	1.89 (S)	1.57	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		D	918	2.19 (S)	1.53	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C D	2290	2.11 (S)	1.56	1.122
2,2',3,5,6'-PeCB	94		D	10.7	2.38 (S)	1.77	1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		D	19.2	0.177 (S)	1.70	1.016
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		D	86.1	1.99 (S)	1.60	1.094
2,2',4,6,6'-PeCB	104		D	3.11	0.195 (S)	1.39	1.001
2,3,3',4,4'-PeCB	105		D	1490	7.83 (S)	1.52	1.000
2,3,3',4,5-PeCB	106		U D		10.1 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C D	117	10.5 (S)	1.54	0.990
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		D	494	10.7 (S)	1.53	0.997
2,3,3',4',6-PeCB	110	110 + 115	C D	3300	1.61 (S)	1.58	0.925
2,3,3',5,5'-PeCB	111		K D	12.3	1.63 (S)	1.26	0.945
2,3,3',5,6-PeCB	112		U D		1.55 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		D	128	10.4 (S)	1.52	1.000
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		D	5030	9.22 (S)	1.51	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		D	46.7	1.53 (S)	1.58	0.958
2,3',4,5',6-PeCB	121		K D	14.8	1.66 (S)	1.87	1.200
2',3,3',4,5-PeCB	122		D	22.9	11.4 (S)	1.51	1.010
2',3,4,4',5-PeCB	123		K D	93.4	10.1 (S)	1.65	1.001
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		K D	20.2	10.6 (S)	1.54	1.001
3,3',4,5,5'-PeCB	127		D	15.5	10.6 (S)	1.70	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C D	2340	12.0 (S)	1.25	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C D	21200	12.0 (S)	1.24	0.928
2,2',3,3',4,5'-HxCB	130		D	653	15.3 (S)	1.22	0.912
2,2',3,3',4,6-HxCB	131		D	43.5	14.9 (S)	1.13	1.161
2,2',3,3',4,6'-HxCB	132		D	1340	15.5 (S)	1.27	1.176
2,2',3,3',5,5'-HxCB	133		D	362	14.3 (S)	1.26	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C D	258	14.8 (S)	1.28	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C D	4180	0.300 (S)	1.30	1.105
2,2',3,3',6,6'-HxCB	136		D	614	0.242 (S)	1.23	1.025
2,2',3,4,4',5-HxCB	137		D	561	14.9 (S)	1.20	0.918
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C D	173	13.2 (S)	1.27	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		D	2080	13.3 (S)	1.25	0.903
2,2',3,4,5,6-HxCB	142		U D		14.3 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		D	356	0.310 (S)	1.22	1.122
2,2',3,4,6,6'-HxCB	145		D J	0.843	0.258 (S)	1.42	1.032
2,2',3,4',5,5'-HxCB	146		D	4210	12.6 (S)	1.25	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C D	6600	13.1 (S)	1.24	1.134
2,2',3,4',5,6'-HxCB	148		D	39.4	0.321 (S)	1.37	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		D	16.5	0.242 (S)	1.37	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		D	5.96	0.226 (S)	1.12	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C D	24600	10.9 (S)	1.24	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		D	16.7	0.220 (S)	1.08	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C D	1370	12.1 (S)	1.21	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		D	1330	9.40 (S)	1.23	0.938
2,3,3',4,5,5'-HxCB	159		U D		10.3 (S)		
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		U D		9.94 (S)		
2,3,3',4',5,5'-HxCB	162		D	39.1	8.98 (S)	1.13	0.988
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		D	681	9.93 (S)	1.24	0.921
2,3,3',5,5',6-HxCB	165		K D	13.6	11.6 (S)	1.56	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		D	607	9.97 (S)	1.27	1.000
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U D		20.2 (S)		
2,2',3,3',4,4',5-HpCB	170		D	5330	0.494 (S)	1.03	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C D	1490	0.573 (S)	1.06	1.163
2,2',3,3',4,5,5'-HpCB	172		D	1110	0.587 (S)	1.04	0.897
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		D	2120	0.541 (S)	1.06	1.134
2,2',3,3',4,5',6-HpCB	175		D	214	0.535 (S)	1.05	1.103
2,2',3,3',4,6,6'-HpCB	176		D	193	0.416 (S)	1.08	1.034
2,2',3,3',4',5,6-HpCB	177		D	1910	0.386 (S)	1.05	1.146
2,2',3,3',5,5',6-HpCB	178		D	1520	0.553 (S)	1.06	1.085
2,2',3,3',5,6,6'-HpCB	179		D	991	0.407 (S)	1.05	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C D	18200	0.426 (S)	1.05	1.000
2,2',3,4,4',5,6-HpCB	181		D	34.7	0.539 (S)	1.19	1.157
2,2',3,4,4',5,6'-HpCB	182		U D		0.529 (S)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C D	4370	0.529 (S)	1.06	1.127
2,2',3,4,4',6,6'-HpCB	184		D	18.1	0.404 (S)	1.15	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U D		0.440 (S)		
2,2',3,4',5,5',6-HpCB	187		D	18100	0.507 (S)	1.04	1.111
2,2',3,4',5,6,6'-HpCB	188		D	18.2	0.418 (S)	1.00	1.000
2,3,3',4,4',5,5'-HpCB	189		D	166	0.959 (S)	0.99	1.000
2,3,3',4,4',5,6-HpCB	190		D	1170	0.412 (S)	1.05	0.946
2,3,3',4,4',5',6-HpCB	191		D	276	0.435 (S)	1.03	0.917
2,3,3',4,5,5',6-HpCB	192		U D		0.483 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		D	2650	0.630 (S)	0.89	0.991
2,2',3,3',4,4',5,6-OxCB	195		D	1080	0.699 (S)	0.89	0.945
2,2',3,3',4,4',5,6'-OxCB	196		D	1420	0.284 (S)	0.90	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C D	220	0.208 (S)	0.92	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C D	2990	0.285 (S)	0.90	1.115
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5,6,6'-OxCB	201		D	285	0.210 (S)	0.92	1.023
2,2',3,3',5,5',6,6'-OxCB	202		D	769	0.320 (S)	0.90	1.001
2,2',3,4,4',5,5',6-OxCB	203		D	1850	0.270 (S)	0.92	0.919
2,2',3,4,4',5,6,6'-OxCB	204		K D J	2.08	0.214 (S)	1.31	1.039
2,3,3',4,4',5,5',6-OxCB	205		D	111	0.454 (S)	0.92	1.000
2,2',3,3',4,4',5,5',6-NoCB	206		D	624	0.310 (S)	0.79	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207		D	104	0.253 (S)	0.80	1.019
2,2',3,3',4,5,5',6,6'-NoCB	208		D	201	0.286 (S)	0.83	1.000
2,2',3,3',4,4',5,5',6,6'-DeCB	209		D	211	0.179 (S)	1.21	1.000

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; D = dilution data; J = concentration less than lowest calibration equivalent; C = co-eluting congener; X = result reported separately.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB089
Sample Collection:
18-Aug-2018 08:43

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 17-Oct-2018 Time: 15:45:12
 Extract Volume (uL): 100
 Injection Volume (uL): 1.0
 Dilution Factor: 5
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-3 W (A)
 Sample Size: 10.1 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_355D S: 2
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_355C S: 1
 % Lipid: 5.18

This page is part of a total report that contains information necessary for accreditation compliance.
 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L		X					
13C12-4-MoCB	3L		X					
13C12-2,2'-DiCB	4L		X					
13C12-4,4'-DiCB	15L		X					
13C12-2,2',6-TriCB	19L		X					
13C12-3,4,4'-TriCB	37L		X					
13C12-2,2',6,6'-TeCB	54L		X					
13C12-3,3',4,4'-TeCB	77L		X					
13C12-3,4,4',5-TeCB	81L		X					
13C12-2,2',4,6,6'-PeCB	104L		D	2000	1250	62.4	1.63	0.808
13C12-2,3,3',4,4'-PeCB	105L		D	2000	1840	91.9	1.58	1.201
13C12-2,3,4,4',5-PeCB	114L		D	2000	1460	73.1	1.50	1.179
13C12-2,3',4,4',5-PeCB	118L		D	2000	1620	81.2	1.57	1.162
13C12-2',3,4,4',5-PeCB	123L		D	2000	1580	78.8	1.57	1.151
13C12-3,3',4,4',5-PeCB	126L		D	2000	1630	81.3	1.54	1.302
13C12-2,2',4,4',6,6'-HxCB	155L		D	2000	1060	53.1	1.29	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C D	4000	2890	72.3	1.28	1.108
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		D	2000	1390	69.3	1.29	1.078
13C12-3,3',4,4',5,5'-HxCB	169L		D	2000	1500	74.8	1.31	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L		D	2000	1650	82.7	1.04	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L		D	2000	1910	95.3	1.05	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L		D	2000	1130	56.4	1.02	0.711
13C12-2,3,3',4,4',5,5'-HpCB	189L		D	2000	1190	59.5	1.06	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		D	2000	861	43.1	0.89	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L		D	2000	1770	88.7	0.94	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		D	2000	1570	78.7	0.76	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		D	2000	1380	69.0	0.80	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		D	2000	1140	56.9	1.27	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L		X					
13C12-2,3,3',5,5'-PeCB	111L		D	2000	1820	90.9	1.66	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L		D	2000	1340	67.2	1.03	1.011

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; D = dilution data; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB089 (Duplicate)
Sample Collection:
18-Aug-2018 08:43

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	WG65146-103 (DUP L29915-3)
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.2 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	03-Oct-2018 Time: 12:13:28	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_333A S: 4
Dilution Factor:	N/A	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_333A S: 1
		% Lipid:	5.47

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This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1			3.44	0.0717 (Q)	3.13	1.001
3-MoCB	2			1.09	0.0717 (Q)	3.02	0.988
4-MoCB	3			1.97	0.0717 (Q)	3.40	1.001
2,2'-DiCB	4			48.4	0.306 (S)	1.49	1.001
2,3-DiCB	5		J	0.566	0.246 (S)	1.49	1.199
2,3'-DiCB	6			10.6	0.224 (S)	1.51	1.177
2,4-DiCB	7			1.78	0.228 (S)	1.57	1.159
2,4'-DiCB	8			38.2	0.211 (S)	1.53	1.209
2,5-DiCB	9			3.04	0.224 (S)	1.39	1.147
2,6-DiCB	10			2.53	0.228 (S)	1.47	1.016
3,3'-DiCB	11			75.3	0.231 (S)	1.51	0.969
3,4-DiCB	12	12 + 13	C	1.54	0.233 (S)	1.47	0.984
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.228 (S)		
4,4'-DiCB	15			12.5	0.246 (S)	1.55	1.001
2,2',3-TriCB	16			31.1	0.0717 (Q)	1.13	1.166
2,2',4-TriCB	17			99.8	0.0717 (Q)	1.08	1.139
2,2',5-TriCB	18	18 + 30	C	110	0.0717 (Q)	1.06	1.113
2,2',6-TriCB	19			131	0.0717 (Q)	1.11	1.001
2,3,3'-TriCB	20	20 + 28	C	527	0.261 (S)	1.00	0.847
2,3,4-TriCB	21	21 + 33	C	87.1	0.257 (S)	0.99	0.856
2,3,4'-TriCB	22			90.6	0.288 (S)	0.99	0.872
2,3,5-TriCB	23		J	0.429	0.282 (S)	1.04	1.282
2,3,6-TriCB	24			1.51	0.0717 (Q)	1.09	1.159
2,3',4-TriCB	25			29.3	0.234 (S)	0.99	0.824
2,3',5-TriCB	26	26 + 29	C	76.0	0.262 (S)	1.00	1.301
2,3',6-TriCB	27			26.3	0.0717 (Q)	1.05	1.151
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31			247	0.247 (S)	1.00	0.836
2,4',6-TriCB	32			64.4	0.256 (S)	0.99	1.197
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			2.64	0.269 (S)	1.00	1.273
3,3',4-TriCB	35		U		0.281 (S)		
3,3',5-TriCB	36		U		0.256 (S)		
3,4,4'-TriCB	37			28.4	0.263 (S)	0.98	1.001
3,4,5-TriCB	38			0.631	0.295 (S)	0.91	0.968
3,4',5-TriCB	39			3.40	0.274 (S)	1.09	0.946

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C	283	0.130 (S)	0.79	1.338
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			174	0.139 (S)	0.79	1.312
2,2',3,5'-TeCB	43			30.2	0.159 (S)	0.80	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	1660	0.119 (S)	0.80	1.287
2,2',3,6'-TeCB	45	45 + 51	C	152	0.124 (S)	0.80	1.148
2,2',3,6'-TeCB	46			16.2	0.142 (S)	0.81	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			119	0.131 (S)	0.80	1.274
2,2',4,5'-TeCB	49	49 + 69	C	1020	0.108 (S)	0.80	1.259
2,2',4,6'-TeCB	50	50 + 53	C	139	0.120 (S)	0.80	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			1540	0.118 (S)	0.80	1.235
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			44.5	0.100 (S)	0.80	1.002
2,3,3',4'-TeCB	55		U		0.643 (S)		
2,3,3',4'-TeCB	56			145	0.646 (S)	0.77	0.904
2,3,3',5'-TeCB	57			5.47	0.602 (S)	0.73	0.843
2,3,3',5'-TeCB	58			7.18	0.630 (S)	0.79	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	96.1	0.0982 (S)	0.79	1.304
2,3,4,4'-TeCB	60			215	0.641 (S)	0.77	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	1630	0.610 (S)	0.78	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			75.8	0.594 (S)	0.76	0.864
2,3,4',6'-TeCB	64			384	0.0930 (S)	0.80	1.349
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			1320	0.590 (S)	0.75	0.883
2,3',4,5'-TeCB	67			20.6	0.529 (S)	0.76	0.855
2,3',4,5'-TeCB	68			33.6	0.595 (S)	0.77	0.830
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72			35.6	0.579 (S)	0.77	0.822
2,3',5',6'-TeCB	73			14.2	0.0921 (S)	0.80	1.242
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77			59.8	0.588 (S)	0.78	1.000
3,3',4,5'-TeCB	78		U		0.603 (S)		
3,3',4,5'-TeCB	79			26.2	0.513 (S)	0.74	0.969
3,3',5,5'-TeCB	80			1.12	0.556 (S)	0.86	0.924
3,4,4',5'-TeCB	81		K	2.72	0.594 (S)	0.77	1.000
2,2',3,3',4'-PeCB	82			162	1.61 (S)	1.58	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	3910	1.48 (S)	1.61	0.885
2,2',3,3',6'-PeCB	84			298	1.64 (S)	1.62	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	992	1.20 (S)	1.62	0.920
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C	1810	1.25 (S)	1.59	0.901
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C	418	1.48 (S)	1.57	1.155
2,2',3,4,6'-PeCB	89			8.92	1.57 (S)	1.61	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	4640	1.29 (S)	1.60	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			922	1.48 (S)	1.61	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	2270	1.45 (S)	1.61	1.122
2,2',3,5,6'-PeCB	94			10.3	1.62 (S)	1.57	1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			19.3	0.196 (S)	1.63	1.017
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103			82.1	1.31 (S)	1.55	1.094
2,2',4,6,6'-PeCB	104			4.40	0.215 (S)	1.59	1.001
2,3,3',4,4'-PeCB	105			1810	7.90 (S)	1.52	1.000
2,3,3',4,5-PeCB	106		U		8.49 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	138	8.50 (S)	1.53	0.991
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109			525	8.32 (S)	1.53	0.998
2,3,3',4',6-PeCB	110	110 + 115	C	3260	1.07 (S)	1.56	0.925
2,3,3',5,5'-PeCB	111			13.1	1.07 (S)	1.43	0.945
2,3,3',5,6-PeCB	112		U		1.05 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			140	8.04 (S)	1.55	1.000
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118			5580	7.79 (S)	1.50	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120			49.3	0.993 (S)	1.58	0.959
2,3',4,5',6-PeCB	121			13.4	1.15 (S)	1.61	1.201
2',3,3',4,5-PeCB	122			22.2	9.01 (S)	1.55	1.010
2',3,4,4',5-PeCB	123		K	114	8.25 (S)	1.57	1.001
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		K	23.0	8.47 (S)	1.41	1.000
3,3',4,5,5'-PeCB	127			16.8	7.99 (S)	1.62	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C G	2050	7.25 (S)	1.27	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C G	18000	7.25 (S)	1.27	0.929
2,2',3,3',4,5'-HxCB	130			684	9.04 (S)	1.28	0.913
2,2',3,3',4,6-HxCB	131			45.6	9.25 (S)	1.31	1.161
2,2',3,3',4,6'-HxCB	132			1380	9.30 (S)	1.27	1.175
2,2',3,3',5,5'-HxCB	133			391	8.74 (S)	1.28	1.193
2,2',3,3',5,6-HxCB	134	134 + 143	C	271	9.03 (S)	1.27	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	4210	0.268 (S)	1.27	1.104
2,2',3,3',6,6'-HxCB	136			624	0.212 (S)	1.26	1.025
2,2',3,4,4',5-HxCB	137			538	8.49 (S)	1.27	0.918
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C	186	8.08 (S)	1.28	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			2130	7.86 (S)	1.27	0.903
2,2',3,4,5,6-HxCB	142		U		8.86 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			371	0.268 (S)	1.24	1.123
2,2',3,4,6,6'-HxCB	145		U		0.223 (S)		
2,2',3,4',5,5'-HxCB	146			3930	7.41 (S)	1.28	0.884
2,2',3,4',5,6-HxCB	147	147 + 149	C	6480	7.94 (S)	1.27	1.134
2,2',3,4',5,6'-HxCB	148			38.6	0.281 (S)	1.26	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			16.5	0.213 (S)	1.27	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			6.44	0.206 (S)	1.37	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C	22200	6.68 (S)	1.28	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155			18.7	0.205 (S)	1.27	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	1630	8.00 (S)	1.28	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			1370	5.61 (S)	1.28	0.937
2,3,3',4,4',6'-HxCB	159		U		6.01 (S)		
2,3,3',4,5,5'-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		U		6.16 (S)		
2,3,3',4',5,5'-HxCB	162			47.0	6.06 (S)	1.23	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			775	6.10 (S)	1.28	0.921
2,3,3',5,5',6-HxCB	165			17.1	7.04 (S)	1.21	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			715	6.55 (S)	1.27	1.000
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U		16.0 (S)		
2,2',3,3',4,4',5-HpCB	170			5550	0.465 (S)	1.07	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	1700	0.518 (S)	1.07	1.163
2,2',3,3',4,5,5'-HpCB	172			1240	0.510 (S)	1.04	0.896
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174			2300	0.476 (S)	1.05	1.134
2,2',3,3',4,5',6-HpCB	175			241	0.479 (S)	1.05	1.103
2,2',3,3',4,6,6'-HpCB	176			208	0.362 (S)	1.05	1.034
2,2',3,3',4',5,6-HpCB	177			2780	0.477 (S)	1.06	1.146
2,2',3,3',5,5',6-HpCB	178			1630	0.494 (S)	1.06	1.086
2,2',3,3',5,6,6'-HpCB	179			1100	0.356 (S)	1.05	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C G	20300	0.515 (S)	1.04	1.000
2,2',3,4,4',5,6-HpCB	181			43.1	0.495 (S)	1.05	1.157
2,2',3,4,4',5,6'-HpCB	182		U		0.470 (S)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	4860	0.478 (S)	1.04	1.127
2,2',3,4,4',6,6'-HpCB	184			20.5	0.358 (S)	1.09	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.380 (S)		
2,2',3,4',5,5',6-HpCB	187		G	14600	0.455 (S)	1.04	1.110
2,2',3,4',5,6,6'-HpCB	188			18.6	0.359 (S)	1.03	1.000
2,3,3',4,4',5,5'-HpCB	189			207	0.478 (S)	1.03	1.000
2,3,3',4,4',5,6-HpCB	190			1360	0.365 (S)	1.06	0.946
2,3,3',4,4',5',6-HpCB	191			292	0.378 (S)	1.05	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.413 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			2080	1.06 (S)	0.90	0.991
2,2',3,3',4,4',5,6-OxCB	195			1220	1.10 (S)	0.90	0.945
2,2',3,3',4,4',5,6'-OxCB	196			1720	0.118 (S)	0.90	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C G	260	0.0878 (S)	0.90	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	3980	0.123 (S)	0.89	1.115
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5,6,6'-OxCB	201			383	0.0894 (S)	0.90	1.023
2,2',3,3',5,5',6,6'-OxCB	202			792	0.0994 (S)	0.91	1.000
2,2',3,4,4',5,5',6-OxCB	203			2460	0.115 (S)	0.91	0.918
2,2',3,4,4',5,6,6'-OxCB	204			2.06	0.0902 (S)	0.98	1.039
2,3,3',4,4',5,5',6-OxCB	205			136	1.03 (S)	0.89	1.000
2,2',3,3',4,4',5,5',6-NoCB	206			692	0.145 (S)	0.79	1.001
2,2',3,3',4,4',5,6,6'-NoCB	207			97.2	0.0988 (S)	0.78	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			218	0.119 (S)	0.79	1.000
2,2',3,3',4,4',5,5',6,6'-DeCB	209			211	0.0717 (Q)	1.19	1.001

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent; G = lock mass interference present; C = co-eluting congener.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB089 (Duplicate)
Sample Collection:
18-Aug-2018 08:43

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 03-Oct-2018 Time: 12:13:28
 Extract Volume (uL): 20
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: WG65146-103 (DUP L29915-3)
 Sample Size: 10.2 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_333A S: 4
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_333A S: 1
 % Lipid: 5.47

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 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L			2000	971	48.5	3.27	0.720
13C12-4-MoCB	3L			2000	1070	53.3	3.21	0.859
13C12-2,2'-DiCB	4L			2000	1250	62.7	1.59	0.872
13C12-4,4'-DiCB	15L			2000	1400	70.1	1.61	1.253
13C12-2,2',6-TriCB	19L			2000	953	47.6	1.06	1.072
13C12-3,4,4'-TriCB	37L			2000	1930	96.5	1.01	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1370	68.6	0.79	0.810
13C12-3,3',4,4'-TeCB	77L			2000	2320	116	0.74	1.398
13C12-3,4,4',5-TeCB	81L			2000	2330	116	0.75	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	1100	54.8	1.60	0.807
13C12-2,3,3',4,4'-PeCB	105L			2000	2210	110	1.57	1.200
13C12-2,3,4,4',5-PeCB	114L			2000	2140	107	1.56	1.180
13C12-2,3',4,4',5-PeCB	118L			2000	2280	114	1.55	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	2270	113	1.57	1.151
13C12-3,3',4,4',5-PeCB	126L			2000	2350	118	1.55	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	1020	50.9	1.27	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	3470	86.7	1.28	1.109
13C12-2,3,3',4,4',5-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			2000	1690	84.4	1.25	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1730	86.4	1.27	1.193
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	2950	148	1.07	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L		G	2000	2370	119	1.05	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1770	88.3	1.06	0.711
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	2440	122	1.01	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	1430	71.5	0.92	0.816
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	2130	107	0.90	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	2050	102	0.77	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	2150	108	0.78	0.948
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	1670	83.6	1.21	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	2060	103	1.03	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1720	85.8	1.59	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1360	67.9	1.07	1.012

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; G = lock mass interference present; C = co-eluting congener.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

PCB CONGENER ANALYSIS REPORT
RELATIVE PERCENT DIFFERENCE

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Project No.

PORTLAND HARBOR PDI AND
BASELINE TISSUE

Contract No.: 4972

Client ID: PDI-TF-SMB089

Concentration Units:

pg/g (wet weight basis)

COMPOUND	IUPAC NO.	L29915-3 (A)		WG65146-103		MEAN	RELATIVE PERCENT DIFFERENCE
		LAB FLAG ¹	CONC. FOUND	LAB FLAG ¹	CONC. FOUND		
2-MoCB	1		3.32		3.44	3.38	3.31
3-MoCB	2		0.988		1.09	1.04	9.91
4-MoCB	3		2.05		1.97	2.01	4.08
2,2'-DiCB	4		47.0		48.4	47.7	2.95
2,3-DiCB	5		0.578	J	0.566	0.572	2.10
2,3'-DiCB	6		10.2		10.6	10.4	3.76
2,4-DiCB	7		1.77		1.78	1.78	0.506
2,4'-DiCB	8		36.4		38.2	37.3	4.64
2,5-DiCB	9		2.94		3.04	2.99	3.32
2,6-DiCB	10		2.52		2.53	2.53	0.237
3,3'-DiCB	11		71.6		75.3	73.4	5.10
3,4-DiCB	12	C	1.54	C	1.54	1.54	0.130
3,4'-DiCB	13	C12		C12			
3,5-DiCB	14	U		U			
4,4'-DiCB	15		12.0		12.5	12.2	4.03
2,2',3-TriCB	16		30.6		31.1	30.8	1.74
2,2',4-TriCB	17		96.3		99.8	98.1	3.61
2,2',5-TriCB	18	C	108	C	110	109	2.53
2,2',6-TriCB	19		125		131	128	4.82
2,3,3'-TriCB	20	C	497	C	527	512	5.81
2,3,4-TriCB	21	C	83.2	C	87.1	85.2	4.57
2,3,4'-TriCB	22		84.8		90.6	87.7	6.56
2,3,5-TriCB	23	J	0.398	J	0.429	0.414	7.50
2,3,6-TriCB	24		1.53		1.51	1.52	1.39
2,3',4-TriCB	25		27.8		29.3	28.6	5.17
2,3',5-TriCB	26	C	71.5	C	76.0	73.8	6.08
2,3',6-TriCB	27		25.2		26.3	25.8	4.25
2,4,4'-TriCB	28	C20		C20			
2,4,5-TriCB	29	C26		C26			
2,4,6-TriCB	30	C18		C18			
2,4',5-TriCB	31		235		247	241	4.77
2,4',6-TriCB	32		61.5		64.4	63.0	4.72
2',3,4-TriCB	33	C21		C21			
2',3,5-TriCB	34		2.40		2.64	2.52	9.76
3,3',4-TriCB	35	U		U			
3,3',5-TriCB	36	U		U			
3,4,4'-TriCB	37		27.5		28.4	28.0	3.10
3,4,5-TriCB	38	J	0.558		0.631	0.595	12.3
3,4',5-TriCB	39		3.24		3.40	3.32	4.94
2,2',3,3'-TeCB	40	C	271	C	283	277	4.47
2,2',3,4-TeCB	41	C40		C40			
2,2',3,4'-TeCB	42		166		174	170	4.69
2,2',3,5-TeCB	43		28.5		30.2	29.4	5.74
2,2',3,5'-TeCB	44	C	1570	C	1660	1610	5.65
2,2',3,6-TeCB	45	C	148	C	152	150	2.61
2,2',3,6'-TeCB	46		15.8		16.2	16.0	2.60
2,2',4,4'-TeCB	47	C44		C44			
2,2',4,5-TeCB	48		114		119	117	4.05
2,2',4,5'-TeCB	49	C	973	C	1020	999	5.09
2,2',4,6-TeCB	50	C	136	C	139	137	2.79
2,2',4,6'-TeCB	51	C45		C45			
2,2',5,5'-TeCB	52		1470		1540	1500	4.82
2,2',5,6'-TeCB	53	C50		C50			
2,2',6,6'-TeCB	54		42.7		44.5	43.6	4.25
2,3,3',4-TeCB	55	U		U			

COMPOUND	IUPAC NO.	L29915-3 (A)		WG65146-103		MEAN	RELATIVE PERCENT DIFFERENCE
		LAB FLAG ¹	CONC. FOUND	LAB FLAG ¹	CONC. FOUND		
2,3,3',4'-TeCB	56		137		145	141	5.29
2,3,3',5'-TeCB	57		5.41		5.47	5.44	1.05
2,3,3',5'-TeCB	58		8.09		7.18	7.63	11.8
2,3,3',6'-TeCB	59	C	90.8	C	96.1	93.5	5.65
2,3,4,4'-TeCB	60		206		215	210	4.61
2,3,4,5'-TeCB	61	C	1570	C	1630	1600	3.48
2,3,4,6'-TeCB	62	C59		C59			
2,3,4',5'-TeCB	63		71.9		75.8	73.8	5.35
2,3,4',6'-TeCB	64		365		384	374	5.17
2,3,5,6'-TeCB	65	C44		C44			
2,3',4,4'-TeCB	66		1270		1320	1290	3.71
2,3',4,5'-TeCB	67		18.7		20.6	19.7	9.72
2,3',4,5'-TeCB	68		31.6		33.6	32.6	6.12
2,3',4,6'-TeCB	69	C49		C49			
2,3',4',5'-TeCB	70	C61		C61			
2,3',4',6'-TeCB	71	C40		C40			
2,3',5,5'-TeCB	72		33.5		35.6	34.5	6.10
2,3',5',6'-TeCB	73		12.9		14.2	13.6	9.43
2,4,4',5'-TeCB	74	C61		C61			
2,4,4',6'-TeCB	75	C59		C59			
2',3,4,5'-TeCB	76	C61		C61			
3,3',4,4'-TeCB	77		57.4		59.8	58.6	4.11
3,3',4,5'-TeCB	78	U		U			
3,3',4,5'-TeCB	79		25.8		26.2	26.0	1.61
3,3',5,5'-TeCB	80		0.951		1.12	1.04	16.2
3,4,4',5'-TeCB	81	K	2.50	K	2.72		
2,2',3,3',4'-PeCB	82	D	166		162	164	2.15
2,2',3,3',5'-PeCB	83	C D	4020	C	3910	3970	2.85
2,2',3,3',6'-PeCB	84	D	306		298	302	2.66
2,2',3,4,4'-PeCB	85	C D	948	C	992	970	4.53
2,2',3,4,5'-PeCB	86	C D	1920	C	1810	1860	6.01
2,2',3,4,5'-PeCB	87	C86		C86			
2,2',3,4,6'-PeCB	88	C D	427	C	418	423	1.92
2,2',3,4,6'-PeCB	89	K D	9.45		8.92		
2,2',3,4',5'-PeCB	90	C D	4530	C	4640	4590	2.41
2,2',3,4',6'-PeCB	91	C88		C88			
2,2',3,5,5'-PeCB	92	D	918		922	920	0.378
2,2',3,5,6'-PeCB	93	C D	2290	C	2270	2280	0.686
2,2',3,5,6'-PeCB	94	D	10.7		10.3	10.5	4.60
2,2',3,5',6'-PeCB	95	C93		C93			
2,2',3,6,6'-PeCB	96	D	19.2		19.3	19.2	0.208
2,2',3',4,5'-PeCB	97	C86		C86			
2,2',3',4,6'-PeCB	98	C93		C93			
2,2',4,4',5'-PeCB	99	C83		C83			
2,2',4,4',6'-PeCB	100	C93		C93			
2,2',4,5,5'-PeCB	101	C90		C90			
2,2',4,5,6'-PeCB	102	C93		C93			
2,2',4,5',6'-PeCB	103	D	86.1		82.1	84.1	4.78
2,2',4,6,6'-PeCB	104	D	3.11		4.40	3.76	34.4
2,3,3',4,4'-PeCB	105	D	1490		1810	1650	19.0
2,3,3',4,5'-PeCB	106	U D		U			
2,3,3',4',5'-PeCB	107	C D	117	C	138	127	15.9
2,3,3',4,5'-PeCB	108	C86		C86			
2,3,3',4,6'-PeCB	109	D	494		525	509	6.02
2,3,3',4',6'-PeCB	110	C D	3300	C	3260	3280	1.16
2,3,3',5,5'-PeCB	111	K D	12.3		13.1		
2,3,3',5,6'-PeCB	112	U D		U			
2,3,3',5',6'-PeCB	113	C90		C90			
2,3,4,4',5'-PeCB	114	D	128		140	134	9.45
2,3,4,4',6'-PeCB	115	C110		C110			
2,3,4,5,6'-PeCB	116	C85		C85			
2,3,4',5,6'-PeCB	117	C85		C85			
2,3',4,4',5'-PeCB	118	D	5030		5580	5300	10.4
2,3',4,4',6'-PeCB	119	C86		C86			

COMPOUND	IUPAC NO.	L29915-3 (A)		WG65146-103		MEAN	RELATIVE PERCENT DIFFERENCE
		LAB FLAG ¹	CONC. FOUND	LAB FLAG ¹	CONC. FOUND		
2,3',4,5,5'-PeCB	120	D	46.7		49.3	48.0	5.38
2,3',4,5',6-PeCB	121	K D	14.8		13.4		
2',3,3',4,5-PeCB	122	D	22.9		22.2	22.6	3.12
2',3,4,4',5-PeCB	123	K D	93.4	K	114		
2',3,4,5,5'-PeCB	124	C107		C107			
2',3,4,5,6'-PeCB	125	C86		C86			
3,3',4,4',5-PeCB	126	K D	20.2	K	23.0		
3,3',4,5,5'-PeCB	127	D	15.5		16.8	16.1	8.30
2,2',3,3',4,4'-HxCB	128	C D	2340	C G	2050	2190	13.3
2,2',3,3',4,5-HxCB	129	C D	21200	C G	18000	19600	16.1
2,2',3,3',4,5'-HxCB	130	D	653		684	669	4.58
2,2',3,3',4,6-HxCB	131	D	43.5		45.6	44.5	4.85
2,2',3,3',4,6'-HxCB	132	D	1340		1380	1360	3.39
2,2',3,3',5,5'-HxCB	133	D	362		391	376	7.48
2,2',3,3',5,6-HxCB	134	C D	258	C	271	264	4.76
2,2',3,3',5,6'-HxCB	135	C D	4180	C	4210	4190	0.817
2,2',3,3',6,6'-HxCB	136	D	614		624	619	1.49
2,2',3,4,4',5-HxCB	137	D	561		538	549	4.18
2,2',3,4,4',5'-HxCB	138	C129		C129			
2,2',3,4,4',6-HxCB	139	C D	173	C	186	179	7.38
2,2',3,4,4',6'-HxCB	140	C139		C139			
2,2',3,4,5,5'-HxCB	141	D	2080		2130	2110	2.26
2,2',3,4,5,6-HxCB	142	U D		U			
2,2',3,4,5,6'-HxCB	143	C134		C134			
2,2',3,4,5',6-HxCB	144	D	356		371	363	4.18
2,2',3,4,6,6'-HxCB	145	D J	0.843	U			
2,2',3,4',5,5'-HxCB	146	D	4210		3930	4070	6.85
2,2',3,4',5,6-HxCB	147	C D	6600	C	6480	6540	1.84
2,2',3,4',5,6'-HxCB	148	D	39.4		38.6	39.0	2.09
2,2',3,4',5',6-HxCB	149	C147		C147			
2,2',3,4',6,6'-HxCB	150	D	16.5		16.5	16.5	0.109
2,2',3,5,5',6-HxCB	151	C135		C135			
2,2',3,5,6,6'-HxCB	152	D	5.96		6.44	6.20	7.87
2,2',4,4',5,5'-HxCB	153	C D	24600	C	22200	23400	9.92
2,2',4,4',5,6'-HxCB	154	C135		C135			
2,2',4,4',6,6'-HxCB	155	D	16.7		18.7	17.7	11.2
2,3,3',4,4',5-HxCB	156	C D	1370	C	1630	1500	17.3
2,3,3',4,4',5'-HxCB	157	C156		C156			
2,3,3',4,4',6-HxCB	158	D	1330		1370	1350	2.46
2,3,3',4,5,5'-HxCB	159	U D		U			
2,3,3',4,5,6-HxCB	160	C129		C129			
2,3,3',4,5',6-HxCB	161	U D		U			
2,3,3',4',5,5'-HxCB	162	D	39.1		47.0	43.0	18.2
2,3,3',4',5,6-HxCB	163	C129		C129			
2,3,3',4',5',6-HxCB	164	D	681		775	728	12.9
2,3,3',5,5',6-HxCB	165	K D	13.6		17.1		
2,3,4,4',5,6-HxCB	166	C128		C128			
2,3',4,4',5,5'-HxCB	167	D	607		715	661	16.3
2,3',4,4',5',6-HxCB	168	C153		C153			
3,3',4,4',5,5'-HxCB	169	U D		U			
2,2',3,3',4,4',5-HpCB	170	D	5330		5550	5440	4.05
2,2',3,3',4,4',6-HpCB	171	C D	1490	C	1700	1590	13.2
2,2',3,3',4,5,5'-HpCB	172	D	1110		1240	1170	11.2
2,2',3,3',4,5,6-HpCB	173	C171		C171			
2,2',3,3',4,5,6'-HpCB	174	D	2120		2300	2210	8.08
2,2',3,3',4,5',6-HpCB	175	D	214		241	228	11.7
2,2',3,3',4,6'-HpCB	176	D	193		208	200	7.30
2,2',3,3',4',5,6-HpCB	177	D	1910		2780	2340	37.1
2,2',3,3',5,5',6-HpCB	178	D	1520		1630	1570	7.40
2,2',3,3',5,6,6'-HpCB	179	D	991		1100	1040	10.1
2,2',3,4,4',5,5'-HpCB	180	C D	18200	C G	20300	19200	11.0
2,2',3,4,4',5,6-HpCB	181	D	34.7		43.1	38.9	21.4
2,2',3,4,4',5,6'-HpCB	182	U D		U			
2,2',3,4,4',5',6-HpCB	183	C D	4370	C	4860	4620	10.6

COMPOUND	IUPAC NO.	L29915-3 (A)		WG65146-103		MEAN	RELATIVE PERCENT DIFFERENCE
		LAB FLAG ¹	CONC. FOUND	LAB FLAG ¹	CONC. FOUND		
2,2',3,4,4',6,6'-HpCB	184	D	18.1		20.5	19.3	12.3
2,2',3,4,5,5',6-HpCB	185	C183		C183			
2,2',3,4,5,6,6'-HpCB	186	U D		U			
2,2',3,4',5,5',6-HpCB	187	D	18100	G	14600	16300	21.3
2,2',3,4',5,6,6'-HpCB	188	D	18.2		18.6	18.4	2.30
2,3,3',4,4',5,5'-HpCB	189	D	166		207	187	22.2
2,3,3',4,4',5,6-HpCB	190	D	1170		1360	1270	15.1
2,3,3',4,4',5',6-HpCB	191	D	276		292	284	5.69
2,3,3',4,5,5',6-HpCB	192	U D		U			
2,3,3',4',5,5',6-HpCB	193	C180		C180			
2,2',3,3',4,4',5,5'-OcCB	194	D	2650		2080	2360	24.0
2,2',3,3',4,4',5,6-OcCB	195	D	1080		1220	1150	12.3
2,2',3,3',4,4',5,6'-OcCB	196	D	1420		1720	1570	18.8
2,2',3,3',4,4',6,6'-OcCB	197	C D	220	C G	260	240	16.7
2,2',3,3',4,5,5',6-OcCB	198	C D	2990	C	3980	3480	28.3
2,2',3,3',4,5,5',6'-OcCB	199	C198		C198			
2,2',3,3',4,5,6,6'-OcCB	200	C197		C197			
2,2',3,3',4,5,6,6'-OcCB	201	D	285		383	334	29.3
2,2',3,3',5,5',6,6'-OcCB	202	D	769		792	781	3.05
2,2',3,4,4',5,5',6-OcCB	203	D	1850		2460	2150	28.4
2,2',3,4,4',5,6,6'-OcCB	204	K D J	2.08		2.06		
2,3,3',4,4',5,5',6-OcCB	205	D	111		136	124	20.2
2,2',3,3',4,4',5,5',6-NoCB	206	D	624		692	658	10.4
2,2',3,3',4,4',5,6,6'-NoCB	207	D	104		97.2	101	6.94
2,2',3,3',4,5,5',6,6'-NoCB	208	D	201		218	210	7.81
2,2',3,3',4,4',5,5',6,6'-DeCB	209	D	211		211	211	0.054

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; D = dilution data; J = concentration less than lowest calibration equivalent; G = lock mass interference present; C = co-eluting congener.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

For Axys Internal Use Only [XSL Template: RPD.xml; Created: 26-Oct-2018 08:42:57; Application: XMLTransformer-1.16.50; Report Filename: RPD_PCB1668_RPD_WG65146-103_L29915-3_.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB092
Sample Collection:
18-Aug-2018 07:30

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-4
Sample Receipt Date:	21-Aug-2018	Sample Size:	9.97 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	03-Oct-2018 Time: 05:13:07	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_332C S: 10
Dilution Factor:	N/A	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_332C S: 1
		% Lipid:	7.75

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1			6.91	0.0734 (Q)	3.04	1.003
3-MoCB	2			1.45	0.0734 (Q)	3.26	0.988
4-MoCB	3			3.31	0.0734 (Q)	3.29	1.001
2,2'-DiCB	4			175	0.568 (S)	1.49	1.001
2,3-DiCB	5			1.25	0.393 (S)	1.62	1.198
2,3'-DiCB	6			19.4	0.364 (S)	1.56	1.175
2,4-DiCB	7			3.97	0.368 (S)	1.49	1.158
2,4'-DiCB	8			79.4	0.342 (S)	1.51	1.207
2,5-DiCB	9			5.71	0.356 (S)	1.45	1.145
2,6-DiCB	10			8.25	0.364 (S)	1.49	1.013
3,3'-DiCB	11			187	0.368 (S)	1.52	0.969
3,4-DiCB	12	12 + 13	C	3.70	0.373 (S)	1.67	0.984
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.373 (S)		
4,4'-DiCB	15			34.6	0.366 (S)	1.55	1.000
2,2',3-TriCB	16			83.3	0.141 (S)	1.06	1.165
2,2',4-TriCB	17			234	0.112 (S)	1.07	1.137
2,2',5-TriCB	18	18 + 30	C	248	0.0946 (S)	1.07	1.112
2,2',6-TriCB	19			462	0.155 (S)	1.07	1.000
2,3,3'-TriCB	20	20 + 28	C	896	0.471 (S)	0.99	0.848
2,3,4-TriCB	21	21 + 33	C	136	0.471 (S)	0.99	0.856
2,3,4'-TriCB	22			209	0.518 (S)	0.99	0.871
2,3,5-TriCB	23			0.800	0.508 (S)	0.91	1.281
2,3,6-TriCB	24			3.53	0.0811 (S)	1.18	1.158
2,3',4-TriCB	25			77.9	0.428 (S)	1.00	0.824
2,3',5-TriCB	26	26 + 29	C	153	0.480 (S)	0.97	1.301
2,3',6-TriCB	27			45.5	0.0795 (S)	1.08	1.150
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31			586	0.457 (S)	0.98	0.837
2,4',6-TriCB	32			111	0.473 (S)	1.02	1.196
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			6.15	0.497 (S)	0.98	1.272
3,3',4-TriCB	35		U		0.483 (S)		
3,3',5-TriCB	36		U		0.459 (S)		
3,4,4'-TriCB	37			91.4	0.470 (S)	0.98	1.001
3,4,5-TriCB	38			1.51	0.482 (S)	0.94	0.968
3,4',5-TriCB	39			6.05	0.460 (S)	0.99	0.946

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C	522	0.168 (S)	0.79	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			476	0.178 (S)	0.79	1.312
2,2',3,5'-TeCB	43			60.4	0.187 (S)	0.78	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	3470	0.155 (S)	0.79	1.286
2,2',3,6'-TeCB	45	45 + 51	C	488	0.169 (S)	0.79	1.148
2,2',3,6'-TeCB	46			49.8	0.192 (S)	0.79	1.162
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			216	0.169 (S)	0.79	1.274
2,2',4,5'-TeCB	49	49 + 69	C	2120	0.144 (S)	0.79	1.260
2,2',4,6'-TeCB	50	50 + 53	C	264	0.167 (S)	0.80	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			3030	0.161 (S)	0.79	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			112	0.152 (S)	0.80	1.001
2,3,3',4'-TeCB	55		U		3.36 (S)		
2,3,3',4'-TeCB	56			554	3.30 (S)	0.77	0.904
2,3,3',5'-TeCB	57			9.18	3.08 (S)	0.78	0.842
2,3,3',5'-TeCB	58			15.1	3.15 (S)	0.74	0.850
2,3,3',6'-TeCB	59	59 + 62 + 75	C	202	0.126 (S)	0.79	1.303
2,3,4,4'-TeCB	60			393	3.30 (S)	0.78	0.910
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	3210	3.11 (S)	0.76	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			116	3.06 (S)	0.76	0.863
2,3,4',6'-TeCB	64			861	0.124 (S)	0.79	1.350
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			2110	2.96 (S)	0.77	0.883
2,3',4,5'-TeCB	67			58.1	2.79 (S)	0.75	0.855
2,3',4,5'-TeCB	68			63.5	3.03 (S)	0.79	0.830
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72			65.0	2.96 (S)	0.77	0.822
2,3',5',6'-TeCB	73		U		0.136 (S)		
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77			142	3.22 (S)	0.78	1.000
3,3',4,5'-TeCB	78		U		3.19 (S)		
3,3',4,5'-TeCB	79			48.4	2.73 (S)	0.76	0.969
3,3',5,5'-TeCB	80		U		2.89 (S)		
3,4,4',5'-TeCB	81		K	6.34	3.21 (S)	0.86	1.000
2,2',3,3',4'-PeCB	82			379	3.46 (S)	1.64	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	5350	3.04 (S)	1.55	0.884
2,2',3,3',6'-PeCB	84			806	3.38 (S)	1.59	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1360	2.60 (S)	1.55	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C	3530	2.68 (S)	1.57	0.901
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C	1020	2.99 (S)	1.58	1.154
2,2',3,4,6'-PeCB	89			20.7	3.16 (S)	1.53	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	7310	2.64 (S)	1.60	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			1500	3.00 (S)	1.61	0.852
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	4100	2.93 (S)	1.57	1.122
2,2',3,5,6'-PeCB	94			45.2	3.30 (S)	1.57	1.102
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			38.5	0.125 (S)	1.57	1.016
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103			211	2.69 (S)	1.56	1.093
2,2',4,6,6'-PeCB	104			20.8	0.130 (S)	1.63	1.001
2,3,3',4,4'-PeCB	105			1870	6.90 (S)	1.51	1.000
2,3,3',4,5-PeCB	106		U		6.71 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	199	7.07 (S)	1.52	0.991
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109			555	6.54 (S)	1.51	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	6070	2.33 (S)	1.58	0.925
2,3,3',5,5'-PeCB	111			18.1	2.32 (S)	1.62	0.945
2,3,3',5,6-PeCB	112		U		2.25 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			127	6.74 (S)	1.52	1.000
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118			5580	6.67 (S)	1.51	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120			74.3	2.18 (S)	1.57	0.958
2,3',4,5',6-PeCB	121			19.3	2.27 (S)	1.63	1.200
2',3,3',4,5-PeCB	122			52.0	7.78 (S)	1.51	1.010
2',3,4,4',5-PeCB	123		K	98.3	6.96 (S)	1.50	1.001
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		K	68.6	7.11 (S)	1.56	1.001
3,3',4,5,5'-PeCB	127			14.1	7.30 (S)	1.53	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1500	8.84 (S)	1.26	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	12600	9.09 (S)	1.28	0.928
2,2',3,3',4,5'-HxCB	130			656	11.1 (S)	1.28	0.913
2,2',3,3',4,6-HxCB	131			61.4	10.5 (S)	1.27	1.161
2,2',3,3',4,6'-HxCB	132			1970	11.0 (S)	1.26	1.176
2,2',3,3',5,5'-HxCB	133			309	10.3 (S)	1.26	1.193
2,2',3,3',5,6-HxCB	134	134 + 143	C	305	10.5 (S)	1.26	1.142
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	4110	0.244 (S)	1.29	1.105
2,2',3,3',6,6'-HxCB	136			798	0.184 (S)	1.25	1.025
2,2',3,4,4',5-HxCB	137			446	11.2 (S)	1.26	0.918
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C	187	9.47 (S)	1.26	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			1720	9.84 (S)	1.28	0.903
2,2',3,4,5,6-HxCB	142		U		10.8 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			405	0.245 (S)	1.27	1.123
2,2',3,4,6,6'-HxCB	145			1.75	0.199 (S)	1.17	1.035
2,2',3,4',5,5'-HxCB	146			2740	9.29 (S)	1.26	0.884
2,2',3,4',5,6-HxCB	147	147 + 149	C	6880	9.29 (S)	1.26	1.134
2,2',3,4',5,6'-HxCB	148			74.6	0.251 (S)	1.31	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			43.7	0.183 (S)	1.27	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			14.3	0.178 (S)	1.25	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C	14300	8.13 (S)	1.25	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155			17.8	0.179 (S)	1.23	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	986	10.1 (S)	1.27	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			951	6.93 (S)	1.26	0.937
2,3,3',4,5,5'-HxCB	159		U		7.47 (S)		
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		U		7.17 (S)		
2,3,3',4',5,5'-HxCB	162			35.7	7.34 (S)	1.29	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			569	7.29 (S)	1.26	0.921
2,3,3',5,5',6-HxCB	165			14.6	8.48 (S)	1.26	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			463	7.92 (S)	1.26	1.000
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U		19.0 (S)		
2,2',3,3',4,4',5-HpCB	170			2590	0.305 (S)	1.05	1.001
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	978	0.354 (S)	1.05	1.164
2,2',3,3',4,5,5'-HpCB	172			636	0.361 (S)	1.06	0.896
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174			2100	0.336 (S)	1.06	1.134
2,2',3,3',4,5',6-HpCB	175			144	0.328 (S)	1.05	1.103
2,2',3,3',4,6,6'-HpCB	176			247	0.248 (S)	1.08	1.034
2,2',3,3',4',5,6-HpCB	177			1730	0.308 (S)	1.07	1.147
2,2',3,3',5,5',6-HpCB	178			968	0.340 (S)	1.06	1.086
2,2',3,3',5,6,6'-HpCB	179			976	0.244 (S)	1.04	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	8590	0.295 (S)	1.05	1.000
2,2',3,4,4',5,6-HpCB	181			30.3	0.332 (S)	0.95	1.157
2,2',3,4,4',5,6'-HpCB	182			28.8	0.314 (S)	1.05	1.117
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	2690	0.325 (S)	1.06	1.128
2,2',3,4,4',6,6'-HpCB	184			13.9	0.241 (S)	1.11	1.025
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.263 (S)		
2,2',3,4',5,5',6-HpCB	187			6150	0.307 (S)	1.03	1.110
2,2',3,4',5,6,6'-HpCB	188			18.3	0.244 (S)	1.03	1.000
2,3,3',4,4',5,5'-HpCB	189			82.7	0.405 (S)	1.04	1.000
2,3,3',4,4',5,6-HpCB	190			612	0.263 (S)	1.03	0.946
2,3,3',4,4',5',6-HpCB	191			132	0.265 (S)	1.05	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.290 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			838	0.283 (S)	0.91	0.991
2,2',3,3',4,4',5,6-OxCB	195			474	0.297 (S)	0.90	0.945
2,2',3,3',4,4',5,6'-OxCB	196			773	0.116 (S)	0.90	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C G	171	0.0848 (S)	0.89	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	1890	0.121 (S)	0.92	1.115
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5,6,6'-OxCB	201			193	0.0842 (S)	0.90	1.023
2,2',3,3',5,5',6,6'-OxCB	202			437	0.0961 (S)	0.89	1.000
2,2',3,4,4',5,5',6-OxCB	203			1210	0.110 (S)	0.90	0.919
2,2',3,4,4',5,6,6'-OxCB	204			1.52	0.0865 (S)	0.99	1.039
2,3,3',4,4',5,5',6-OxCB	205			53.6	0.264 (S)	0.88	1.001
2,2',3,3',4,4',5,5',6-NoCB	206			348	0.126 (S)	0.81	1.001
2,2',3,3',4,4',5,6,6'-NoCB	207			46.9	0.0904 (S)	0.78	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			142	0.111 (S)	0.79	1.000
2,2',3,3',4,4',5,5',6,6'-DeCB	209			139	0.0734 (Q)	1.19	1.000

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; G = lock mass interference present; C = co-eluting congener.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB092
Sample Collection:
18-Aug-2018 07:30

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 03-Oct-2018 Time: 05:13:07
 Extract Volume (uL): 20
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-4
 Sample Size: 9.97 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_332C S: 10
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_332C S: 1
 % Lipid: 7.75

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 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L			2000	952	47.6	3.25	0.719
13C12-4-MoCB	3L			2000	1040	52.2	3.21	0.858
13C12-2,2'-DiCB	4L			2000	1120	56.2	1.58	0.874
13C12-4,4'-DiCB	15L			2000	1500	75.0	1.58	1.255
13C12-2,2',6-TriCB	19L			2000	1090	54.6	1.07	1.073
13C12-3,4,4'-TriCB	37L			2000	1800	89.8	1.02	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1110	55.7	0.81	0.811
13C12-3,3',4,4'-TeCB	77L			2000	2150	108	0.74	1.398
13C12-3,4,4',5-TeCB	81L			2000	2180	109	0.74	1.375
13C12-2,2',4,6,6'-PeCB	104L			2000	1140	57.0	1.60	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1850	92.4	1.56	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1890	94.4	1.54	1.180
13C12-2,3',4,4',5-PeCB	118L			2000	1950	97.3	1.54	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1940	96.8	1.57	1.152
13C12-3,3',4,4',5-PeCB	126L			2000	2070	103	1.56	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	1080	54.2	1.28	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	3420	85.6	1.27	1.108
13C12-2,3,3',4,4',5-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			2000	1680	83.8	1.25	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1720	85.8	1.28	1.193
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	2850	143	1.04	0.896
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	2740	137	1.06	0.871
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1680	84.0	1.05	0.711
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	2110	106	1.01	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	1360	67.8	0.94	0.816
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	2040	102	0.88	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	2130	107	0.79	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	2050	102	0.78	0.948
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	1740	87.0	1.18	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1760	87.9	1.03	0.924
13C12-2,3,3',5,5'-PeCB	111L			2000	1700	85.0	1.65	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1430	71.6	1.04	1.012

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB075
Sample Collection:
17-Aug-2018 09:48

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-5
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.1 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	03-Oct-2018 Time: 13:17:20	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_333A S: 5
Dilution Factor:	N/A	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_333A S: 1
		% Lipid:	6.77

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1		NQ				
3-MoCB	2		NQ				
4-MoCB	3		NQ				
2,2'-DiCB	4		NQ				
2,3-DiCB	5		NQ				
2,3'-DiCB	6		NQ				
2,4-DiCB	7		NQ				
2,4'-DiCB	8		NQ				
2,5-DiCB	9		NQ				
2,6-DiCB	10		NQ				
3,3'-DiCB	11		NQ				
3,4-DiCB	12	12 + 13	C NQ				
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		NQ				
4,4'-DiCB	15		NQ				
2,2',3-TriCB	16		T	28.7	0.133 (S)	1.00	1.165
2,2',4-TriCB	17		T	70.5	0.107 (S)	1.09	1.137
2,2',5-TriCB	18	18 + 30	C T	65.0	0.0919 (S)	1.06	1.112
2,2',6-TriCB	19		NQ				
2,3,3'-TriCB	20	20 + 28	C T	414	0.373 (S)	0.99	0.847
2,3,4-TriCB	21	21 + 33	C T	69.9	0.367 (S)	0.99	0.856
2,3,4'-TriCB	22		T	116	0.411 (S)	0.98	0.871
2,3,5-TriCB	23		U T		0.403 (S)		
2,3,6-TriCB	24		K T	1.12	0.0791 (S)	1.81	1.158
2,3',4-TriCB	25		T	36.2	0.335 (S)	0.98	0.824
2,3',5-TriCB	26	26 + 29	C T	68.8	0.375 (S)	0.99	1.300
2,3',6-TriCB	27		T	16.5	0.0788 (S)	1.07	1.151
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31		T	253	0.352 (S)	1.00	0.836
2,4',6-TriCB	32		T	41.4	0.365 (S)	0.97	1.197
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34		T	2.63	0.384 (S)	1.03	1.273
3,3',4-TriCB	35		U T		0.401 (S)		
3,3',5-TriCB	36		U T		0.366 (S)		
3,4,4'-TriCB	37			49.2	0.300 (S)	0.98	1.001
3,4,5-TriCB	38		T	0.868	0.420 (S)	1.09	0.967
3,4',5-TriCB	39		T	3.89	0.391 (S)	0.91	0.945

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C	451	0.189 (S)	0.79	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			402	0.203 (S)	0.80	1.312
2,2',3,5'-TeCB	43			51.3	0.231 (S)	0.82	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	2960	0.174 (S)	0.80	1.286
2,2',3,6'-TeCB	45	45 + 51	C	358	0.181 (S)	0.80	1.148
2,2',3,6'-TeCB	46			39.3	0.207 (S)	0.83	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			166	0.191 (S)	0.80	1.273
2,2',4,5'-TeCB	49	49 + 69	C	1630	0.157 (S)	0.79	1.258
2,2',4,6'-TeCB	50	50 + 53	C	188	0.175 (S)	0.80	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			2240	0.171 (S)	0.79	1.235
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			111	0.263 (S)	0.80	1.001
2,3,3',4'-TeCB	55		U		4.52 (S)		
2,3,3',4'-TeCB	56			496	4.54 (S)	0.76	0.904
2,3,3',5'-TeCB	57		K	9.75	4.24 (S)	0.99	0.843
2,3,3',5'-TeCB	58			12.1	4.43 (S)	0.80	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	165	0.143 (S)	0.79	1.303
2,3,4,4'-TeCB	60			348	4.51 (S)	0.79	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	3040	4.29 (S)	0.75	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			116	4.18 (S)	0.75	0.864
2,3,4',6'-TeCB	64			693	0.135 (S)	0.79	1.349
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			2170	4.15 (S)	0.76	0.884
2,3',4,5'-TeCB	67			55.2	3.72 (S)	0.79	0.855
2,3',4,5'-TeCB	68			81.3	4.18 (S)	0.80	0.831
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72			65.3	4.07 (S)	0.78	0.822
2,3',5',6'-TeCB	73			26.6	0.134 (S)	0.79	1.242
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77			116	3.62 (S)	0.76	1.000
3,3',4,5'-TeCB	78		U		4.24 (S)		
3,3',4,5'-TeCB	79			58.3	3.61 (S)	0.74	0.969
3,3',5,5'-TeCB	80		U		3.91 (S)		
3,4,4',5'-TeCB	81		K	5.01	3.61 (S)	0.73	1.000
2,2',3,3',4'-PeCB	82			347	2.88 (S)	1.58	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	5260	2.64 (S)	1.61	0.885
2,2',3,3',6'-PeCB	84			693	2.93 (S)	1.59	1.165
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1250	2.15 (S)	1.57	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C	3400	2.23 (S)	1.56	0.901
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C	880	2.64 (S)	1.61	1.155
2,2',3,4,6'-PeCB	89			15.0	2.80 (S)	1.55	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	6870	2.30 (S)	1.61	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			1360	2.64 (S)	1.56	0.852
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	3450	2.58 (S)	1.58	1.121
2,2',3,5,6'-PeCB	94			33.3	2.88 (S)	1.61	1.102
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			26.8	0.445 (S)	1.58	1.016
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103			164	2.34 (S)	1.62	1.093
2,2',4,6,6'-PeCB	104			18.1	0.611 (S)	1.48	1.001
2,3,3',4,4'-PeCB	105			2390	9.56 (S)	1.53	1.000
2,3,3',4,5-PeCB	106		U		11.0 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	222	11.1 (S)	1.51	0.991
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109			765	10.8 (S)	1.53	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	5370	1.91 (S)	1.56	0.925
2,3,3',5,5'-PeCB	111			16.6	1.91 (S)	1.69	0.945
2,3,3',5,6-PeCB	112		U		1.87 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			185	10.7 (S)	1.47	1.001
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118			7860	9.76 (S)	1.52	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120			67.8	1.77 (S)	1.63	0.958
2,3',4,5',6-PeCB	121			15.1	2.04 (S)	1.70	1.200
2',3,3',4,5-PeCB	122			48.6	11.7 (S)	1.42	1.010
2',3,4,4',5-PeCB	123		K	143	10.6 (S)	1.56	1.001
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		K	16.6	10.8 (S)	1.48	1.000
3,3',4,5,5'-PeCB	127			22.6	10.4 (S)	1.75	1.042
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1930	8.38 (S)	1.27	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	16200	8.38 (S)	1.27	0.928
2,2',3,3',4,5'-HxCB	130			831	10.5 (S)	1.27	0.913
2,2',3,3',4,6-HxCB	131			88.7	10.7 (S)	1.28	1.160
2,2',3,3',4,6'-HxCB	132			2300	10.8 (S)	1.26	1.176
2,2',3,3',5,5'-HxCB	133			348	10.1 (S)	1.26	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	375	10.4 (S)	1.25	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	3860	0.495 (S)	1.27	1.104
2,2',3,3',6,6'-HxCB	136			742	0.392 (S)	1.28	1.025
2,2',3,4,4',5-HxCB	137			769	9.82 (S)	1.27	0.918
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C	231	9.35 (S)	1.26	1.153
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			1730	9.09 (S)	1.28	0.903
2,2',3,4,5,6-HxCB	142		U		10.2 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			437	0.495 (S)	1.27	1.122
2,2',3,4,6,6'-HxCB	145		K	1.34	0.413 (S)	2.13	1.035
2,2',3,4',5,5'-HxCB	146			3310	8.57 (S)	1.27	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C	8010	9.18 (S)	1.27	1.134
2,2',3,4',5,6'-HxCB	148			49.7	0.519 (S)	1.15	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			38.9	0.394 (S)	1.27	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			11.1	0.380 (S)	1.20	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C	17200	7.72 (S)	1.26	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155			16.6	0.410 (S)	1.24	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	1820	9.14 (S)	1.27	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			1200	6.48 (S)	1.27	0.937
2,3,3',4,5,5'-HxCB	159			78.1	6.95 (S)	1.30	0.981
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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2,3,3',4,5',6-HxCB	161		U		7.12 (S)		
2,3,3',4',5,5'-HxCB	162			46.7	7.01 (S)	1.29	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			642	7.06 (S)	1.27	0.921
2,3,3',5,5',6-HxCB	165			14.2	8.15 (S)	1.34	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			744	7.52 (S)	1.27	1.000
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U		8.07 (S)		
2,2',3,3',4,4',5-HpCB	170			2900	0.393 (S)	1.06	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	890	0.425 (S)	1.04	1.164
2,2',3,3',4,5,5'-HpCB	172			622	0.418 (S)	1.04	0.896
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174			1860	0.391 (S)	1.06	1.134
2,2',3,3',4,5',6-HpCB	175			137	0.393 (S)	1.07	1.103
2,2',3,3',4,6,6'-HpCB	176			229	0.297 (S)	1.06	1.035
2,2',3,3',4',5,6-HpCB	177			1950	0.391 (S)	1.06	1.146
2,2',3,3',5,5',6-HpCB	178			937	0.405 (S)	1.07	1.086
2,2',3,3',5,6,6'-HpCB	179			834	0.292 (S)	1.06	1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	10100	0.365 (S)	1.06	1.000
2,2',3,4,4',5,6-HpCB	181			43.7	0.406 (S)	1.04	1.157
2,2',3,4,4',5,6'-HpCB	182		U		0.385 (S)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	2660	0.392 (S)	1.06	1.128
2,2',3,4,4',6,6'-HpCB	184			11.0	0.293 (S)	1.11	1.025
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.312 (S)		
2,2',3,4',5,5',6-HpCB	187			7540	0.373 (S)	1.05	1.111
2,2',3,4',5,6,6'-HpCB	188			19.2	0.308 (S)	1.08	1.001
2,3,3',4,4',5,5'-HpCB	189			110	0.602 (S)	1.01	1.000
2,3,3',4,4',5,6-HpCB	190			668	0.299 (S)	1.06	0.947
2,3,3',4,4',5',6-HpCB	191			144	0.310 (S)	1.05	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.339 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			939	0.666 (S)	0.90	0.991
2,2',3,3',4,4',5,6-OxCB	195			499	0.690 (S)	0.91	0.945
2,2',3,3',4,4',5,6'-OxCB	196			768	0.175 (S)	0.90	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C	169	0.130 (S)	0.87	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	1900	0.183 (S)	0.90	1.115
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5,6,6'-OxCB	201			206	0.133 (S)	0.89	1.023
2,2',3,3',5,5',6,6'-OxCB	202			424	0.150 (S)	0.90	1.001
2,2',3,4,4',5,5',6-OxCB	203			1150	0.171 (S)	0.90	0.919
2,2',3,4,4',5,6,6'-OxCB	204			1.63	0.134 (S)	0.90	1.039
2,3,3',4,4',5,5',6-OxCB	205			55.7	0.638 (S)	0.90	1.001
2,2',3,3',4,4',5,5',6-NoCB	206			387	0.252 (S)	0.80	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207			51.6	0.177 (S)	0.76	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			171	0.217 (S)	0.79	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			179	0.0719 (Q)	1.17	1.000

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; C = co-eluting congener; T = result recalculated against alternate labeled compound(s) or internal standard; NQ = data not quantifiable.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB075
Sample Collection:
17-Aug-2018 09:48

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 03-Oct-2018 Time: 13:17:20
 Extract Volume (uL): 20
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-5
 Sample Size: 10.1 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_333A S: 5
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_333A S: 1
 % Lipid: 6.77

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LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L		NQ					
13C12-4-MoCB	3L		NQ					
13C12-2,2'-DiCB	4L		NQ					
13C12-4,4'-DiCB	15L		NQ					
13C12-2,2',6-TriCB	19L		NQ					
13C12-3,4,4'-TriCB	37L			2000	935	46.8	1.03	1.093
13C12-2,2',6,6'-TeCB	54L		V	2000	348	17.4	0.80	0.811
13C12-3,3',4,4'-TeCB	77L			2000	1230	61.4	0.76	1.399
13C12-3,4,4',5-TeCB	81L			2000	1210	60.5	0.75	1.374
13C12-2,2',4,6,6'-PeCB	104L		V	2000	478	23.9	1.59	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1290	64.5	1.59	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1170	58.6	1.59	1.180
13C12-2,3',4,4',5-PeCB	118L			2000	1260	63.2	1.59	1.163
13C12-2',3,4,4',5-PeCB	123L			2000	1230	61.3	1.53	1.152
13C12-3,3',4,4',5-PeCB	126L			2000	1310	65.4	1.60	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	501	25.1	1.26	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	1850	46.4	1.25	1.108
13C12-2,3,3',4,4',5-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			2000	908	45.4	1.28	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	950	47.5	1.29	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1510	75.5	1.02	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1560	78.2	1.05	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	896	44.8	1.06	0.711
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1340	67.0	1.05	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	714	35.7	0.89	0.816
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1140	57.0	0.87	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1130	56.6	0.79	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1100	55.0	0.74	0.948
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	876	43.8	1.13	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	642	32.1	1.04	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	954	47.7	1.62	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	742	37.1	1.03	1.012

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; V = surrogate recovery is not within method/contract control limits; C = co-eluting congener; NQ = data not quantifiable.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB046
Sample Collection:
18-Aug-2018 13:50

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-6
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.2 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	03-Oct-2018 Time: 14:21:05	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_333A S: 6
Dilution Factor:	N/A	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_333A S: 1
		% Lipid:	5.35

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1			5.27	0.0720 (Q)	3.12	1.001
3-MoCB	2			1.11	0.0720 (Q)	2.99	0.988
4-MoCB	3			2.38	0.0720 (Q)	3.13	1.001
2,2'-DiCB	4			189	0.314 (S)	1.49	1.002
2,3-DiCB	5			0.949	0.243 (S)	1.54	1.199
2,3'-DiCB	6			13.4	0.220 (S)	1.53	1.176
2,4-DiCB	7			2.87	0.225 (S)	1.54	1.158
2,4'-DiCB	8			61.0	0.208 (S)	1.50	1.208
2,5-DiCB	9			4.41	0.220 (S)	1.62	1.146
2,6-DiCB	10			11.3	0.225 (S)	1.54	1.014
3,3'-DiCB	11			95.3	0.227 (S)	1.52	0.969
3,4-DiCB	12	12 + 13	C	2.40	0.230 (S)	1.48	0.984
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.225 (S)		
4,4'-DiCB	15			24.3	0.235 (S)	1.54	1.001
2,2',3-TriCB	16			55.1	0.0874 (S)	1.11	1.166
2,2',4-TriCB	17			183	0.0720 (Q)	1.07	1.139
2,2',5-TriCB	18	18 + 30	C	174	0.0720 (Q)	1.07	1.113
2,2',6-TriCB	19			500	0.0983 (S)	1.09	1.001
2,3,3'-TriCB	20	20 + 28	C	619	0.449 (S)	1.00	0.847
2,3,4-TriCB	21	21 + 33	C	104	0.443 (S)	1.01	0.856
2,3,4'-TriCB	22			138	0.496 (S)	1.00	0.871
2,3,5-TriCB	23		J	0.575	0.485 (S)	1.02	1.283
2,3,6-TriCB	24			2.53	0.0720 (Q)	1.16	1.160
2,3',4-TriCB	25			55.7	0.403 (S)	0.99	0.824
2,3',5-TriCB	26	26 + 29	C	105	0.451 (S)	1.00	1.301
2,3',6-TriCB	27			41.9	0.0720 (Q)	1.08	1.151
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31			386	0.424 (S)	1.00	0.836
2,4',6-TriCB	32			89.6	0.440 (S)	1.00	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			4.61	0.463 (S)	1.02	1.274
3,3',4-TriCB	35		U		0.483 (S)		
3,3',5-TriCB	36		U		0.441 (S)		
3,4,4'-TriCB	37			58.3	0.464 (S)	1.00	1.001
3,4,5-TriCB	38			1.23	0.507 (S)	0.96	0.967
3,4',5-TriCB	39			4.37	0.471 (S)	1.07	0.945

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C	370	0.160 (S)	0.79	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			322	0.171 (S)	0.79	1.312
2,2',3,5'-TeCB	43			46.2	0.195 (S)	0.79	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	2670	0.147 (S)	0.80	1.286
2,2',3,6'-TeCB	45	45 + 51	C	397	0.153 (S)	0.80	1.148
2,2',3,6'-TeCB	46			35.7	0.174 (S)	0.78	1.160
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			143	0.161 (S)	0.78	1.273
2,2',4,5'-TeCB	49	49 + 69	C	1570	0.133 (S)	0.80	1.259
2,2',4,6'-TeCB	50	50 + 53	C	225	0.147 (S)	0.80	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			2060	0.144 (S)	0.79	1.235
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			107	0.116 (S)	0.81	1.001
2,3,3',4'-TeCB	55		U		0.842 (S)		
2,3,3',4'-TeCB	56			351	0.847 (S)	0.74	0.904
2,3,3',5'-TeCB	57			6.62	0.789 (S)	0.76	0.843
2,3,3',5'-TeCB	58			20.9	0.825 (S)	0.76	0.852
2,3,3',6'-TeCB	59	59 + 62 + 75	C	147	0.121 (S)	0.79	1.303
2,3,4,4'-TeCB	60			285	0.840 (S)	0.78	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	2250	0.799 (S)	0.77	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			87.6	0.779 (S)	0.77	0.864
2,3,4',6'-TeCB	64			562	0.114 (S)	0.79	1.349
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			1650	0.774 (S)	0.77	0.884
2,3',4,5'-TeCB	67			35.6	0.693 (S)	0.78	0.855
2,3',4,5'-TeCB	68			55.3	0.779 (S)	0.77	0.831
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72			52.8	0.758 (S)	0.77	0.822
2,3',5',6'-TeCB	73			25.2	0.113 (S)	0.78	1.242
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77			95.6	0.792 (S)	0.74	1.000
3,3',4,5'-TeCB	78		U		0.790 (S)		
3,3',4,5'-TeCB	79			38.6	0.672 (S)	0.71	0.969
3,3',5,5'-TeCB	80		U		0.729 (S)		
3,4,4',5'-TeCB	81		K	4.24	0.789 (S)	0.74	1.000
2,2',3,3',4'-PeCB	82			267	2.80 (S)	1.56	0.933
2,2',3,3',5'-PeCB	83	83 + 99	C	4580	2.56 (S)	1.61	0.885
2,2',3,3',6'-PeCB	84			566	2.85 (S)	1.61	1.165
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1050	2.09 (S)	1.56	0.920
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C	2730	2.17 (S)	1.61	0.901
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C	799	2.57 (S)	1.58	1.155
2,2',3,4,6'-PeCB	89			14.7	2.72 (S)	1.63	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	6350	2.23 (S)	1.57	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			1260	2.57 (S)	1.59	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	3250	2.51 (S)	1.61	1.122
2,2',3,5,6'-PeCB	94			32.7	2.80 (S)	1.66	1.102
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			29.9	0.184 (S)	1.59	1.016
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103			187	2.28 (S)	1.58	1.094
2,2',4,6,6'-PeCB	104			16.9	0.186 (S)	1.61	1.001
2,3,3',4,4'-PeCB	105			1630	6.39 (S)	1.54	1.001
2,3,3',4,5-PeCB	106		U		6.86 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	166	6.87 (S)	1.52	0.991
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109			535	6.72 (S)	1.51	0.998
2,3,3',4',6-PeCB	110	110 + 115	C	4520	1.86 (S)	1.62	0.925
2,3,3',5,5'-PeCB	111			16.7	1.85 (S)	1.53	0.945
2,3,3',5,6-PeCB	112		U		1.82 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			120	6.82 (S)	1.50	1.001
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118			5030	6.12 (S)	1.52	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120			62.5	1.72 (S)	1.60	0.958
2,3',4,5',6-PeCB	121			19.8	1.99 (S)	1.61	1.200
2',3,3',4,5-PeCB	122			35.8	7.28 (S)	1.56	1.010
2',3,4,4',5-PeCB	123		K	78.9	6.85 (S)	1.54	1.001
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		K	16.4	6.92 (S)	1.50	1.000
3,3',4,5,5'-PeCB	127			12.2	6.46 (S)	1.56	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C G	1470	4.09 (S)	1.28	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	13100	4.09 (S)	1.27	0.928
2,2',3,3',4,5'-HxCB	130			615	5.11 (S)	1.28	0.913
2,2',3,3',4,6-HxCB	131			60.5	5.22 (S)	1.24	1.160
2,2',3,3',4,6'-HxCB	132			1920	5.25 (S)	1.28	1.176
2,2',3,3',5,5'-HxCB	133			313	4.94 (S)	1.30	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	306	5.10 (S)	1.27	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	3820	0.229 (S)	1.26	1.105
2,2',3,3',6,6'-HxCB	136			783	0.181 (S)	1.25	1.025
2,2',3,4,4',5-HxCB	137			450	4.79 (S)	1.27	0.918
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C	186	4.56 (S)	1.28	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			1680	4.44 (S)	1.27	0.903
2,2',3,4,5,6-HxCB	142		U		5.01 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			390	0.229 (S)	1.23	1.122
2,2',3,4,6,6'-HxCB	145		K	1.51	0.191 (S)	1.47	1.034
2,2',3,4',5,5'-HxCB	146			2750	4.18 (S)	1.28	0.884
2,2',3,4',5,6-HxCB	147	147 + 149	C	7690	4.48 (S)	1.26	1.134
2,2',3,4',5,6'-HxCB	148			68.3	0.240 (S)	1.25	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			49.5	0.183 (S)	1.26	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			17.2	0.176 (S)	1.24	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C	15500	3.77 (S)	1.27	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155			20.4	0.167 (S)	1.22	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	1020	4.56 (S)	1.28	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			983	3.17 (S)	1.28	0.937
2,3,3',4,5,5'-HxCB	159			85.1	3.39 (S)	1.32	0.981
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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2,3,3',4,5',6-HxCB	161		U		3.48 (S)		
2,3,3',4',5,5'-HxCB	162			32.3	3.42 (S)	1.21	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			548	3.45 (S)	1.27	0.921
2,3,3',5,5',6-HxCB	165			17.2	3.98 (S)	1.36	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			473	3.77 (S)	1.27	1.000
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U		7.70 (S)		
2,2',3,3',4,4',5-HpCB	170			3060	0.294 (S)	1.05	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	1050	0.324 (S)	1.05	1.164
2,2',3,3',4,5,5'-HpCB	172			648	0.319 (S)	1.04	0.896
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174			2190	0.298 (S)	1.05	1.134
2,2',3,3',4,5',6-HpCB	175			158	0.300 (S)	1.04	1.103
2,2',3,3',4,6,6'-HpCB	176			278	0.227 (S)	1.07	1.035
2,2',3,3',4',5,6-HpCB	177			2040	0.298 (S)	1.06	1.146
2,2',3,3',5,5',6-HpCB	178			1000	0.309 (S)	1.04	1.086
2,2',3,3',5,6,6'-HpCB	179			1020	0.222 (S)	1.05	1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	9950	0.281 (S)	1.06	1.000
2,2',3,4,4',5,6-HpCB	181			34.1	0.310 (S)	1.10	1.157
2,2',3,4,4',5,6'-HpCB	182			25.4	0.294 (S)	1.02	1.116
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	2980	0.299 (S)	1.07	1.128
2,2',3,4,4',6,6'-HpCB	184			16.3	0.224 (S)	1.01	1.025
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.238 (S)		
2,2',3,4',5,5',6-HpCB	187		G	6370	0.284 (S)	1.04	1.111
2,2',3,4',5,6,6'-HpCB	188			20.8	0.230 (S)	1.02	1.001
2,3,3',4,4',5,5'-HpCB	189			103	0.510 (S)	1.04	1.001
2,3,3',4,4',5,6-HpCB	190			682	0.228 (S)	1.06	0.947
2,3,3',4,4',5',6-HpCB	191			145	0.236 (S)	1.09	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.259 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			1040	0.703 (S)	0.90	0.991
2,2',3,3',4,4',5,6-OxCB	195			632	0.729 (S)	0.89	0.945
2,2',3,3',4,4',5,6'-OxCB	196			903	0.0856 (S)	0.90	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C G	198	0.0720 (Q)	0.90	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	2000	0.0894 (S)	0.91	1.115
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5,6,6'-OxCB	201			232	0.0720 (Q)	0.89	1.023
2,2',3,3',5,5',6,6'-OxCB	202			453	0.0720 (Q)	0.89	1.000
2,2',3,4,4',5,5',6-OxCB	203			1350	0.0836 (S)	0.91	0.918
2,2',3,4,4',5,6,6'-OxCB	204			1.94	0.0720 (Q)	0.96	1.039
2,3,3',4,4',5,5',6-OxCB	205			70.2	0.693 (S)	0.92	1.000
2,2',3,3',4,4',5,5',6-NoCB	206			384	0.431 (S)	0.80	1.001
2,2',3,3',4,4',5,6,6'-NoCB	207			53.0	0.297 (S)	0.77	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			145	0.360 (S)	0.79	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			146	0.0720 (Q)	1.20	1.000

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent; G = lock mass interference present; C = co-eluting congener.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB046
Sample Collection:
18-Aug-2018 13:50

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 03-Oct-2018 Time: 14:21:05
 Extract Volume (uL): 20
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-6
 Sample Size: 10.2 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_333A S: 6
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_333A S: 1
 % Lipid: 5.35

This page is part of a total report that contains information necessary for accreditation compliance.
 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L			2000	1050	52.3	3.26	0.720
13C12-4-MoCB	3L			2000	1130	56.6	3.22	0.859
13C12-2,2'-DiCB	4L			2000	1310	65.4	1.60	0.873
13C12-4,4'-DiCB	15L			2000	1510	75.5	1.56	1.254
13C12-2,2',6-TriCB	19L			2000	1020	50.9	1.07	1.072
13C12-3,4,4'-TriCB	37L			2000	1990	99.5	1.04	1.093
13C12-2,2',6,6'-TeCB	54L			2000	1450	72.5	0.81	0.811
13C12-3,3',4,4'-TeCB	77L			2000	2280	114	0.76	1.399
13C12-3,4,4',5-TeCB	81L			2000	2250	113	0.77	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	1130	56.7	1.59	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	2140	107	1.57	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	2020	101	1.56	1.180
13C12-2,3',4,4',5-PeCB	118L			2000	2180	109	1.55	1.163
13C12-2',3,4,4',5-PeCB	123L			2000	2100	105	1.55	1.152
13C12-3,3',4,4',5-PeCB	126L			2000	2230	111	1.55	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	989	49.5	1.27	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	3200	80.1	1.28	1.108
13C12-2,3,3',4,4',5-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			2000	1580	78.9	1.27	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1640	81.8	1.27	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	2800	140	1.09	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	2800	140	1.06	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1670	83.7	1.05	0.711
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	2460	123	1.01	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	1400	69.9	0.93	0.816
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1990	99.5	0.89	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	2050	103	0.79	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	2060	103	0.78	0.948
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	1610	80.4	1.23	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	2130	106	1.03	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1710	85.7	1.60	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1270	63.5	1.02	1.012

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB052
Sample Collection:
18-Aug-2018 11:22

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-7
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.3 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	03-Oct-2018 Time: 15:24:49	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_333A S: 7
Dilution Factor:	N/A	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_333A S: 1
		% Lipid:	4.50

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This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1			4.91	0.0715 (Q)	3.14	1.001
3-MoCB	2			0.877	0.0715 (Q)	3.31	0.989
4-MoCB	3			2.06	0.0715 (Q)	3.23	1.002
2,2'-DiCB	4			119	0.298 (S)	1.51	1.001
2,3-DiCB	5		K	0.967	0.224 (S)	1.26	1.198
2,3'-DiCB	6			20.3	0.204 (S)	1.57	1.176
2,4-DiCB	7			3.09	0.208 (S)	1.61	1.158
2,4'-DiCB	8			93.4	0.192 (S)	1.52	1.207
2,5-DiCB	9			5.09	0.204 (S)	1.52	1.146
2,6-DiCB	10			5.64	0.208 (S)	1.56	1.013
3,3'-DiCB	11			60.4	0.210 (S)	1.50	0.970
3,4-DiCB	12	12 + 13	C	2.06	0.212 (S)	1.66	0.985
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.208 (S)		
4,4'-DiCB	15			21.9	0.215 (S)	1.47	1.000
2,2',3-TriCB	16			129	0.0763 (S)	1.06	1.166
2,2',4-TriCB	17			248	0.0715 (Q)	1.08	1.139
2,2',5-TriCB	18	18 + 30	C	389	0.0715 (Q)	1.07	1.113
2,2',6-TriCB	19			283	0.0989 (S)	1.08	1.001
2,3,3'-TriCB	20	20 + 28	C	1530	0.680 (S)	1.00	0.847
2,3,4-TriCB	21	21 + 33	C	274	0.671 (S)	1.00	0.856
2,3,4'-TriCB	22			257	0.751 (S)	0.99	0.872
2,3,5-TriCB	23			0.795	0.735 (S)	1.03	1.282
2,3,6-TriCB	24			4.41	0.0715 (Q)	1.00	1.159
2,3',4-TriCB	25			74.9	0.611 (S)	1.03	0.825
2,3',5-TriCB	26	26 + 29	C	164	0.684 (S)	1.00	1.301
2,3',6-TriCB	27			58.3	0.0715 (Q)	1.04	1.151
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31			590	0.643 (S)	1.01	0.836
2,4',6-TriCB	32			331	0.666 (S)	1.01	1.197
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			7.43	0.701 (S)	1.02	1.273
3,3',4-TriCB	35		U		0.731 (S)		
3,3',5-TriCB	36		U		0.667 (S)		
3,4,4'-TriCB	37			76.3	0.663 (S)	0.99	1.001
3,4,5-TriCB	38			4.86	0.767 (S)	0.99	0.968
3,4',5-TriCB	39			27.9	0.713 (S)	1.02	0.946

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C	2990	0.118 (S)	0.80	1.338
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			1810	0.126 (S)	0.80	1.313
2,2',3,5'-TeCB	43			267	0.144 (S)	0.80	1.247
2,2',3,5'-TeCB	44	44 + 47 + 65	C	7870	0.108 (S)	0.80	1.287
2,2',3,6'-TeCB	45	45 + 51	C	746	0.113 (S)	0.80	1.147
2,2',3,6'-TeCB	46			162	0.129 (S)	0.79	1.162
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			998	0.119 (S)	0.79	1.274
2,2',4,5'-TeCB	49	49 + 69	C	5360	0.0980 (S)	0.80	1.260
2,2',4,6'-TeCB	50	50 + 53	C	629	0.109 (S)	0.79	1.112
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			8260	0.107 (S)	0.80	1.236
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			54.5	0.0945 (S)	0.80	1.002
2,3,3',4'-TeCB	55		U		3.12 (S)		
2,3,3',4'-TeCB	56			1090	3.14 (S)	0.79	0.904
2,3,3',5'-TeCB	57			22.0	2.93 (S)	0.70	0.843
2,3,3',5'-TeCB	58			18.2	3.06 (S)	0.71	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	565	0.0889 (S)	0.80	1.303
2,3,4,4'-TeCB	60			2810	3.12 (S)	0.77	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	7830	2.96 (S)	0.77	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			482	2.89 (S)	0.77	0.864
2,3,4',6'-TeCB	64			3840	0.0843 (S)	0.80	1.350
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			9880	2.87 (S)	0.79	0.883
2,3',4,5'-TeCB	67			70.5	2.57 (S)	0.74	0.856
2,3',4,5'-TeCB	68			52.2	2.89 (S)	0.80	0.830
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72			90.0	2.81 (S)	0.78	0.822
2,3',5',6'-TeCB	73		U		0.0834 (S)		
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77			203	2.88 (S)	0.77	1.000
3,3',4,5'-TeCB	78		U		2.93 (S)		
3,3',4,5'-TeCB	79			75.1	2.49 (S)	0.78	0.969
3,3',5,5'-TeCB	80		U		2.70 (S)		
3,4,4',5'-TeCB	81		K	8.86	2.79 (S)	0.75	1.001
2,2',3,3',4'-PeCB	82		X				
2,2',3,3',5'-PeCB	83	83 + 99	C X				
2,2',3,3',6'-PeCB	84		X				
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C X				
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C X				
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C X				
2,2',3,4,6'-PeCB	89		X				
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C X				
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		X				
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C X				
2,2',3,5,6'-PeCB	94		X				
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		X				
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		X				
2,2',4,6,6'-PeCB	104		X				
2,3,3',4,4'-PeCB	105		X				
2,3,3',4,5-PeCB	106		X				
2,3,3',4',5-PeCB	107	107 + 124	C X				
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		X				
2,3,3',4',6-PeCB	110	110 + 115	C X				
2,3,3',5,5'-PeCB	111		X				
2,3,3',5,6-PeCB	112		X				
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		X				
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		X				
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		X				
2,3',4,5',6-PeCB	121		X				
2',3,3',4,5-PeCB	122		X				
2',3,4,4',5-PeCB	123		X				
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		X				
3,3',4,5,5'-PeCB	127		X				
2,2',3,3',4,4'-HxCB	128	128 + 166	C X				
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C X				
2,2',3,3',4,5'-HxCB	130		X				
2,2',3,3',4,6-HxCB	131		X				
2,2',3,3',4,6'-HxCB	132		X				
2,2',3,3',5,5'-HxCB	133		X				
2,2',3,3',5,6-HxCB	134	134 + 143	C X				
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C X				
2,2',3,3',6,6'-HxCB	136		X				
2,2',3,4,4',5-HxCB	137		X				
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C X				
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		X				
2,2',3,4,5,6-HxCB	142		X				
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		X				
2,2',3,4,6,6'-HxCB	145		X				
2,2',3,4',5,5'-HxCB	146		X				
2,2',3,4',5,6-HxCB	147	147 + 149	C X				
2,2',3,4',5,6'-HxCB	148		X				
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		X				
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		X				
2,2',4,4',5,5'-HxCB	153	153 + 168	C X				
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		X				
2,3,3',4,4',5-HxCB	156	156 + 157	C X				
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		X				
2,3,3',4,5,5'-HxCB	159		X				
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		X				
2,3,3',4',5,5'-HxCB	162		X				
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		X				
2,3,3',5,5',6-HxCB	165		X				
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		X				
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		X				
2,2',3,3',4,4',5-HpCB	170		X				
2,2',3,3',4,4',6-HpCB	171	171 + 173	C X				
2,2',3,3',4,5,5'-HpCB	172		X				
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		X				
2,2',3,3',4,5',6-HpCB	175		X				
2,2',3,3',4,6,6'-HpCB	176		X				
2,2',3,3',4',5,6-HpCB	177		X				
2,2',3,3',5,5',6-HpCB	178		X				
2,2',3,3',5,6,6'-HpCB	179		X				
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C X				
2,2',3,4,4',5,6-HpCB	181		X				
2,2',3,4,4',5,6'-HpCB	182		X				
2,2',3,4,4',5',6-HpCB	183	183 + 185	C X				
2,2',3,4,4',6,6'-HpCB	184		X				
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		X				
2,2',3,4',5,5',6-HpCB	187		X				
2,2',3,4',5,6,6'-HpCB	188		X				
2,3,3',4,4',5,5'-HpCB	189		X				
2,3,3',4,4',5,6-HpCB	190		X				
2,3,3',4,4',5',6-HpCB	191		X				
2,3,3',4,5,5',6-HpCB	192		X				
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		X				
2,2',3,3',4,4',5,6-OxCB	195		X				
2,2',3,3',4,4',5,6'-OxCB	196		X				
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C X				
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C X				
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5',6,6'-OxCB	201		X				
2,2',3,3',5,5',6,6'-OxCB	202		X				
2,2',3,4,4',5,5',6-OxCB	203		X				
2,2',3,4,4',5,6,6'-OxCB	204		X				
2,3,3',4,4',5,5',6-OxCB	205		X				
2,2',3,3',4,4',5,5',6-NoCB	206		X				
2,2',3,3',4,4',5,6,6'-NoCB	207		X				
2,2',3,3',4,5,5',6,6'-NoCB	208		X				
2,2',3,3',4,4',5,5',6,6'-DeCB	209		X				

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; C = co-eluting congener; X = result reported separately.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB052
Sample Collection:
18-Aug-2018 11:22

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 03-Oct-2018 Time: 15:24:49
 Extract Volume (uL): 20
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-7
 Sample Size: 10.3 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_333A S: 7
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_333A S: 1
 % Lipid: 4.50

This page is part of a total report that contains information necessary for accreditation compliance.
 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L			2000	878	43.9	3.25	0.719
13C12-4-MoCB	3L			2000	981	49.0	3.19	0.858
13C12-2,2'-DiCB	4L			2000	1170	58.7	1.62	0.873
13C12-4,4'-DiCB	15L			2000	1450	72.3	1.56	1.253
13C12-2,2',6-TriCB	19L			2000	909	45.5	1.08	1.072
13C12-3,4,4'-TriCB	37L			2000	2160	108	1.03	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1430	71.4	0.80	0.810
13C12-3,3',4,4'-TeCB	77L			2000	2450	122	0.77	1.399
13C12-3,4,4',5-TeCB	81L			2000	2530	126	0.75	1.374
13C12-2,2',4,6,6'-PeCB	104L		X					
13C12-2,3,3',4,4'-PeCB	105L		X					
13C12-2,3,4,4',5-PeCB	114L		X					
13C12-2,3',4,4',5-PeCB	118L		X					
13C12-2',3,4,4',5-PeCB	123L		X					
13C12-3,3',4,4',5-PeCB	126L		X					
13C12-2,2',4,4',6,6'-HxCB	155L		X					
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C X					
13C12-2,3,3',4,4',5-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		X					
13C12-3,3',4,4',5,5'-HxCB	169L		X					
13C12-2,2',3,3',4,4',5-HpCB	170L		X					
13C12-2,2',3,4,4',5,5'-HpCB	180L		X					
13C12-2,2',3,4',5,6,6'-HpCB	188L		X					
13C12-2,3,3',4,4',5,5'-HpCB	189L		X					
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		X					
13C12-2,3,3',4,4',5,5',6-OxCB	205L		X					
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		X					
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		X					
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		X					
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	2190	109	1.07	0.925
13C12-2,3,3',5,5'-PeCB	111L		X					
13C12-2,2',3,3',5,5',6-HpCB	178L		X					

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB052
Sample Collection:
18-Aug-2018 11:22

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-7 W
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.3 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	17-Oct-2018 Time: 16:48:57	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_355D S: 3
Dilution Factor:	5	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_355C S: 1
		% Lipid:	4.50

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This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1		X				
3-MoCB	2		X				
4-MoCB	3		X				
2,2'-DiCB	4		X				
2,3-DiCB	5		X				
2,3'-DiCB	6		X				
2,4-DiCB	7		X				
2,4'-DiCB	8		X				
2,5-DiCB	9		X				
2,6-DiCB	10		X				
3,3'-DiCB	11		X				
3,4-DiCB	12	12 + 13	C X				
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		X				
4,4'-DiCB	15		X				
2,2',3-TriCB	16		X				
2,2',4-TriCB	17		X				
2,2',5-TriCB	18	18 + 30	C X				
2,2',6-TriCB	19		X				
2,3,3'-TriCB	20	20 + 28	C X				
2,3,4-TriCB	21	21 + 33	C X				
2,3,4'-TriCB	22		X				
2,3,5-TriCB	23		X				
2,3,6-TriCB	24		X				
2,3',4-TriCB	25		X				
2,3',5-TriCB	26	26 + 29	C X				
2,3',6-TriCB	27		X				
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31		X				
2,4',6-TriCB	32		X				
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34		X				
3,3',4-TriCB	35		X				
3,3',5-TriCB	36		X				
3,4,4'-TriCB	37		X				
3,4,5-TriCB	38		X				
3,4',5-TriCB	39		X				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C X				
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		X				
2,2',3,5'-TeCB	43		X				
2,2',3,5'-TeCB	44	44 + 47 + 65	C X				
2,2',3,6'-TeCB	45	45 + 51	C X				
2,2',3,6'-TeCB	46		X				
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		X				
2,2',4,5'-TeCB	49	49 + 69	C X				
2,2',4,6'-TeCB	50	50 + 53	C X				
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52		X				
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		X				
2,3,3',4'-TeCB	55		X				
2,3,3',4'-TeCB	56		X				
2,3,3',5'-TeCB	57		X				
2,3,3',5'-TeCB	58		X				
2,3,3',6'-TeCB	59	59 + 62 + 75	C X				
2,3,4,4'-TeCB	60		X				
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C X				
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		X				
2,3,4',6'-TeCB	64		X				
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		X				
2,3',4,5'-TeCB	67		X				
2,3',4,5'-TeCB	68		X				
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72		X				
2,3',5',6'-TeCB	73		X				
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77		X				
3,3',4,5'-TeCB	78		X				
3,3',4,5'-TeCB	79		X				
3,3',5,5'-TeCB	80		X				
3,4,4',5'-TeCB	81		X				
2,2',3,3',4'-PeCB	82		D	699	7.50 (S)	1.59	0.933
2,2',3,3',5'-PeCB	83	83 + 99	C D	9880	7.06 (S)	1.58	0.885
2,2',3,3',6'-PeCB	84		D	1030	7.53 (S)	1.57	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C D	3080	5.60 (S)	1.57	0.920
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C D	6030	5.72 (S)	1.56	0.901
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C D	1260	6.80 (S)	1.59	1.155
2,2',3,4,6'-PeCB	89		D	79.0	7.08 (S)	1.53	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C D	10600	5.89 (S)	1.58	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		D	2000	6.83 (S)	1.57	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C D	4770	6.58 (S)	1.57	1.121
2,2',3,5,6'-PeCB	94		D	36.9	7.44 (S)	1.34	1.102
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		D	60.1	0.290 (S)	1.67	1.015
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		D	138	6.23 (S)	1.57	1.093
2,2',4,6,6'-PeCB	104		K D	6.16	0.323 (S)	2.41	1.001
2,3,3',4,4'-PeCB	105		D	4200	16.4 (S)	1.52	1.000
2,3,3',4,5-PeCB	106		U D		19.3 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C D	241	20.2 (S)	1.54	0.991
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		D	1010	20.5 (S)	1.50	0.997
2,3,3',4',6-PeCB	110	110 + 115	C D	8550	5.01 (S)	1.59	0.925
2,3,3',5,5'-PeCB	111		D	12.3	5.09 (S)	1.53	0.946
2,3,3',5,6-PeCB	112		U D		4.84 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		D	311	19.0 (S)	1.55	1.000
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		D	10400	17.2 (S)	1.52	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		D	62.1	4.77 (S)	1.60	0.958
2,3',4,5',6-PeCB	121		D	14.3	5.18 (S)	1.60	1.199
2',3,3',4,5-PeCB	122		K D	42.8	21.9 (S)	2.10	1.010
2',3,4,4',5-PeCB	123		K D	192	18.7 (S)	1.43	1.001
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		K D	25.5	21.1 (S)	1.42	1.000
3,3',4,5,5'-PeCB	127		D	21.8	20.4 (S)	1.62	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C D	2490	16.0 (S)	1.26	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C D	22100	16.1 (S)	1.23	0.928
2,2',3,3',4,5'-HxCB	130		D	736	20.4 (S)	1.26	0.913
2,2',3,3',4,6-HxCB	131		D	56.8	19.9 (S)	1.20	1.160
2,2',3,3',4,6'-HxCB	132		D	1970	20.7 (S)	1.25	1.175
2,2',3,3',5,5'-HxCB	133		D	388	19.1 (S)	1.29	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C D	345	19.8 (S)	1.26	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C D	4380	0.537 (S)	1.24	1.104
2,2',3,3',6,6'-HxCB	136		D	765	0.432 (S)	1.31	1.025
2,2',3,4,4',5-HxCB	137		D	695	20.0 (S)	1.31	0.918
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C D	289	17.7 (S)	1.23	1.153
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		D	3040	17.9 (S)	1.22	0.903
2,2',3,4,5,6-HxCB	142		U D		19.1 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		D	432	0.555 (S)	1.31	1.122
2,2',3,4,6,6'-HxCB	145		K D J	2.27	0.461 (S)	1.83	1.035
2,2',3,4',5,5'-HxCB	146		D	3940	16.8 (S)	1.23	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C D	7280	17.6 (S)	1.24	1.134
2,2',3,4',5,6'-HxCB	148		K D	50.6	0.574 (S)	1.54	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		D	27.0	0.433 (S)	1.41	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		D	12.5	0.405 (S)	1.18	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C D	25400	14.6 (S)	1.25	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		D	20.7	0.413 (S)	1.26	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C D	1540	16.5 (S)	1.24	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		D	1580	12.6 (S)	1.24	0.938
2,3,3',4,5,5'-HxCB	159		D	82.1	13.8 (S)	1.23	0.981
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		U D		13.3 (S)		
2,3,3',4',5,5'-HxCB	162		U D		12.0 (S)		
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		D	748	13.3 (S)	1.25	0.921
2,3,3',5,5',6-HxCB	165		D	16.6	15.6 (S)	1.21	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		D	644	13.2 (S)	1.25	1.000
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U D		13.4 (S)		
2,2',3,3',4,4',5-HpCB	170		D	4100	0.674 (S)	1.04	1.001
2,2',3,3',4,4',6-HpCB	171	171 + 173	C D	1280	0.680 (S)	1.06	1.164
2,2',3,3',4,5,5'-HpCB	172		D	791	0.697 (S)	1.03	0.896
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		D	1830	0.643 (S)	1.05	1.134
2,2',3,3',4,5',6-HpCB	175		D	144	0.636 (S)	1.05	1.103
2,2',3,3',4,6,6'-HpCB	176		D	192	0.494 (S)	1.03	1.035
2,2',3,3',4',5,6-HpCB	177		D	1310	0.458 (S)	1.06	1.146
2,2',3,3',5,5',6-HpCB	178		D	1100	0.656 (S)	1.05	1.086
2,2',3,3',5,6,6'-HpCB	179		D	904	0.483 (S)	1.03	1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C D	13000	0.600 (S)	1.06	1.000
2,2',3,4,4',5,6-HpCB	181		D	125	0.640 (S)	1.02	1.157
2,2',3,4,4',5,6'-HpCB	182		D	30.0	0.628 (S)	1.09	1.116
2,2',3,4,4',5',6-HpCB	183	183 + 185	C D	3410	0.628 (S)	1.05	1.128
2,2',3,4,4',6,6'-HpCB	184		D	22.9	0.479 (S)	1.18	1.025
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U D		0.523 (S)		
2,2',3,4',5,5',6-HpCB	187		D	8890	0.602 (S)	1.05	1.111
2,2',3,4',5,6,6'-HpCB	188		K D	18.2	0.496 (S)	1.31	1.001
2,3,3',4,4',5,5'-HpCB	189		D	126	0.807 (S)	1.02	1.000
2,3,3',4,4',5,6-HpCB	190		D	968	0.489 (S)	1.05	0.947
2,3,3',4,4',5',6-HpCB	191		D	193	0.516 (S)	1.03	0.917
2,3,3',4,5,5',6-HpCB	192		U D		0.574 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		D	1480	0.856 (S)	0.87	0.991
2,2',3,3',4,4',5,6-OxCB	195		D	725	0.950 (S)	0.86	0.945
2,2',3,3',4,4',5,6'-OxCB	196		D	861	0.305 (S)	0.91	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C D	157	0.224 (S)	0.88	1.045
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C D	1720	0.307 (S)	0.93	1.115
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5,6,6'-OxCB	201		D	164	0.226 (S)	0.92	1.023
2,2',3,3',5,5',6,6'-OxCB	202		D	560	0.328 (S)	0.91	1.001
2,2',3,4,4',5,5',6-OxCB	203		D	1410	0.291 (S)	0.90	0.919
2,2',3,4,4',5,6,6'-OxCB	204		D	4.82	0.230 (S)	0.87	1.039
2,3,3',4,4',5,5',6-OxCB	205		D	77.9	0.643 (S)	0.93	1.001
2,2',3,3',4,4',5,5',6-NoCB	206		D	579	0.270 (S)	0.79	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207		D	103	0.219 (S)	0.78	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208		D	178	0.247 (S)	0.76	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209		D	287	0.203 (S)	1.18	1.001

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; D = dilution data; J = concentration less than lowest calibration equivalent; C = co-eluting congener; X = result reported separately.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB052
Sample Collection:
18-Aug-2018 11:22

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 17-Oct-2018 Time: 16:48:57
 Extract Volume (uL): 100
 Injection Volume (uL): 1.0
 Dilution Factor: 5
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-7 W
 Sample Size: 10.3 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_355D S: 3
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_355C S: 1
 % Lipid: 4.50

This page is part of a total report that contains information necessary for accreditation compliance.
 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L		X					
13C12-4-MoCB	3L		X					
13C12-2,2'-DiCB	4L		X					
13C12-4,4'-DiCB	15L		X					
13C12-2,2',6-TriCB	19L		X					
13C12-3,4,4'-TriCB	37L		X					
13C12-2,2',6,6'-TeCB	54L		X					
13C12-3,3',4,4'-TeCB	77L		X					
13C12-3,4,4',5-TeCB	81L		X					
13C12-2,2',4,6,6'-PeCB	104L		D	2000	1180	58.9	1.58	0.808
13C12-2,3,3',4,4'-PeCB	105L		D	2000	1580	79.2	1.61	1.201
13C12-2,3,4,4',5-PeCB	114L		D	2000	1420	70.9	1.66	1.179
13C12-2,3',4,4',5-PeCB	118L		D	2000	1540	77.2	1.60	1.162
13C12-2',3,4,4',5-PeCB	123L		D	2000	1490	74.7	1.64	1.151
13C12-3,3',4,4',5-PeCB	126L		D	2000	1460	72.9	1.58	1.302
13C12-2,2',4,4',6,6'-HxCB	155L		D	2000	1030	51.4	1.27	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C D	4000	2930	73.3	1.33	1.108
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		D	2000	1460	73.0	1.22	1.078
13C12-3,3',4,4',5,5'-HxCB	169L		D	2000	1610	80.5	1.35	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L		D	2000	1590	79.6	1.07	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L		D	2000	1730	86.6	1.01	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L		D	2000	1190	59.5	1.04	0.711
13C12-2,3,3',4,4',5,5'-HpCB	189L		D	2000	1290	64.3	0.99	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		D	2000	903	45.2	0.94	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L		D	2000	1800	89.9	0.84	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		D	2000	1660	83.0	0.72	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		D	2000	1560	77.9	0.76	0.948
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		D	2000	1320	65.9	1.19	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L		X					
13C12-2,3,3',5,5'-PeCB	111L		D	2000	1590	79.6	1.49	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L		D	2000	1450	72.7	0.92	1.011

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; D = dilution data; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB093
Sample Collection:
18-Aug-2018 08:13

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-8
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.2 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	03-Oct-2018 Time: 16:28:37	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_333A S: 8
Dilution Factor:	N/A	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_333A S: 1
		% Lipid:	5.12

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1			2.65	0.0718 (Q)	3.20	1.000
3-MoCB	2			0.667	0.0718 (Q)	3.18	0.988
4-MoCB	3			1.47	0.0718 (Q)	3.15	1.000
2,2'-DiCB	4			75.9	0.340 (S)	1.52	1.001
2,3-DiCB	5		K J	0.404	0.245 (S)	0.95	1.197
2,3'-DiCB	6			6.58	0.222 (S)	1.43	1.175
2,4-DiCB	7			1.21	0.227 (S)	1.46	1.158
2,4'-DiCB	8			22.7	0.210 (S)	1.53	1.207
2,5-DiCB	9			1.74	0.222 (S)	1.63	1.145
2,6-DiCB	10			4.47	0.227 (S)	1.54	1.013
3,3'-DiCB	11			39.5	0.229 (S)	1.51	0.968
3,4-DiCB	12	12 + 13	C	0.894	0.231 (S)	1.77	0.983
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.226 (S)		
4,4'-DiCB	15			7.61	0.229 (S)	1.52	1.001
2,2',3-TriCB	16			15.4	0.0901 (S)	1.08	1.165
2,2',4-TriCB	17			55.5	0.0727 (S)	1.07	1.137
2,2',5-TriCB	18	18 + 30	C	52.2	0.0718 (Q)	1.08	1.112
2,2',6-TriCB	19			235	0.111 (S)	1.08	1.000
2,3,3'-TriCB	20	20 + 28	C	271	0.237 (S)	1.00	0.847
2,3,4-TriCB	21	21 + 33	C	33.0	0.234 (S)	1.00	0.856
2,3,4'-TriCB	22			46.7	0.262 (S)	1.01	0.871
2,3,5-TriCB	23		U		0.257 (S)		
2,3,6-TriCB	24			0.761	0.0718 (Q)	1.07	1.158
2,3',4-TriCB	25			19.5	0.213 (S)	1.01	0.825
2,3',5-TriCB	26	26 + 29	C	38.9	0.239 (S)	1.01	1.300
2,3',6-TriCB	27			18.2	0.0718 (Q)	1.08	1.151
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31			102	0.224 (S)	1.01	0.836
2,4',6-TriCB	32			42.1	0.233 (S)	1.00	1.197
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			1.27	0.245 (S)	0.95	1.273
3,3',4-TriCB	35		U		0.255 (S)		
3,3',5-TriCB	36		U		0.233 (S)		
3,4,4'-TriCB	37			36.5	0.236 (S)	0.99	1.001
3,4,5-TriCB	38		J	0.535	0.268 (S)	1.04	0.967
3,4',5-TriCB	39			1.41	0.249 (S)	1.01	0.946

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C	137	0.156 (S)	0.80	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			101	0.168 (S)	0.80	1.313
2,2',3,5'-TeCB	43			9.61	0.191 (S)	0.83	1.247
2,2',3,5'-TeCB	44	44 + 47 + 65	C	1240	0.144 (S)	0.80	1.287
2,2',3,6'-TeCB	45	45 + 51	C	126	0.149 (S)	0.80	1.149
2,2',3,6'-TeCB	46			12.3	0.171 (S)	0.81	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			42.8	0.158 (S)	0.80	1.274
2,2',4,5'-TeCB	49	49 + 69	C	607	0.130 (S)	0.80	1.260
2,2',4,6'-TeCB	50	50 + 53	C	131	0.144 (S)	0.80	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			941	0.141 (S)	0.80	1.235
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			44.6	0.124 (S)	0.80	1.001
2,3,3',4'-TeCB	55		U		0.458 (S)		
2,3,3',4'-TeCB	56			102	0.460 (S)	0.77	0.904
2,3,3',5'-TeCB	57			4.38	0.429 (S)	0.79	0.843
2,3,3',5'-TeCB	58			10.5	0.449 (S)	0.73	0.852
2,3,3',6'-TeCB	59	59 + 62 + 75	C	55.2	0.118 (S)	0.79	1.304
2,3,4,4'-TeCB	60			183	0.457 (S)	0.76	0.910
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	1160	0.435 (S)	0.77	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			63.4	0.424 (S)	0.75	0.864
2,3,4',6'-TeCB	64			197	0.112 (S)	0.79	1.350
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			1100	0.421 (S)	0.77	0.883
2,3',4,5'-TeCB	67			16.2	0.377 (S)	0.78	0.856
2,3',4,5'-TeCB	68			40.2	0.424 (S)	0.75	0.831
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72			27.5	0.412 (S)	0.78	0.821
2,3',5',6'-TeCB	73			13.5	0.111 (S)	0.76	1.242
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77			66.1	0.416 (S)	0.79	1.000
3,3',4,5'-TeCB	78		U		0.430 (S)		
3,3',4,5'-TeCB	79			23.1	0.365 (S)	0.76	0.969
3,3',5,5'-TeCB	80			0.805	0.397 (S)	0.81	0.924
3,4,4',5'-TeCB	81		K	3.83	0.419 (S)	0.76	1.001
2,2',3,3',4'-PeCB	82		X				
2,2',3,3',5'-PeCB	83	83 + 99	C X				
2,2',3,3',6'-PeCB	84		X				
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C X				
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C X				
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C X				
2,2',3,4,6'-PeCB	89		X				
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C X				
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		X				
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C X				
2,2',3,5,6'-PeCB	94		X				
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		X				
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		X				
2,2',4,6,6'-PeCB	104		X				
2,3,3',4,4'-PeCB	105		X				
2,3,3',4,5-PeCB	106		X				
2,3,3',4',5-PeCB	107	107 + 124	C X				
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		X				
2,3,3',4',6-PeCB	110	110 + 115	C X				
2,3,3',5,5'-PeCB	111		X				
2,3,3',5,6-PeCB	112		X				
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		X				
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		X				
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		X				
2,3',4,5',6-PeCB	121		X				
2',3,3',4,5-PeCB	122		X				
2',3,4,4',5-PeCB	123		X				
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		X				
3,3',4,5,5'-PeCB	127		X				
2,2',3,3',4,4'-HxCB	128	128 + 166	C X				
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C X				
2,2',3,3',4,5'-HxCB	130		X				
2,2',3,3',4,6-HxCB	131		X				
2,2',3,3',4,6'-HxCB	132		X				
2,2',3,3',5,5'-HxCB	133		X				
2,2',3,3',5,6-HxCB	134	134 + 143	C X				
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C X				
2,2',3,3',6,6'-HxCB	136		X				
2,2',3,4,4',5-HxCB	137		X				
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C X				
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		X				
2,2',3,4,5,6-HxCB	142		X				
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		X				
2,2',3,4,6,6'-HxCB	145		X				
2,2',3,4',5,5'-HxCB	146		X				
2,2',3,4',5,6-HxCB	147	147 + 149	C X				
2,2',3,4',5,6'-HxCB	148		X				
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		X				
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		X				
2,2',4,4',5,5'-HxCB	153	153 + 168	C X				
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		X				
2,3,3',4,4',5-HxCB	156	156 + 157	C X				
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		X				
2,3,3',4,5,5'-HxCB	159		X				
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		X				
2,3,3',4',5,5'-HxCB	162		X				
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		X				
2,3,3',5,5',6-HxCB	165		X				
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		X				
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		X				
2,2',3,3',4,4',5-HpCB	170		X				
2,2',3,3',4,4',6-HpCB	171	171 + 173	C X				
2,2',3,3',4,5,5'-HpCB	172		X				
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		X				
2,2',3,3',4,5',6-HpCB	175		X				
2,2',3,3',4,6,6'-HpCB	176		X				
2,2',3,3',4',5,6-HpCB	177		X				
2,2',3,3',5,5',6-HpCB	178		X				
2,2',3,3',5,6,6'-HpCB	179		X				
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C X				
2,2',3,4,4',5,6-HpCB	181		X				
2,2',3,4,4',5,6'-HpCB	182		X				
2,2',3,4,4',5',6-HpCB	183	183 + 185	C X				
2,2',3,4,4',6,6'-HpCB	184		X				
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		X				
2,2',3,4',5,5',6-HpCB	187		X				
2,2',3,4',5,6,6'-HpCB	188		X				
2,3,3',4,4',5,5'-HpCB	189		X				
2,3,3',4,4',5,6-HpCB	190		X				
2,3,3',4,4',5',6-HpCB	191		X				
2,3,3',4,5,5',6-HpCB	192		X				
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		X				
2,2',3,3',4,4',5,6-OxCB	195		X				
2,2',3,3',4,4',5,6'-OxCB	196		X				
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C X				
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C X				
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5',6,6'-OxCB	201		X				
2,2',3,3',5,5',6,6'-OxCB	202		X				
2,2',3,4,4',5,5',6-OxCB	203		X				
2,2',3,4,4',5,6,6'-OxCB	204		X				
2,3,3',4,4',5,5',6-OxCB	205		X				
2,2',3,3',4,4',5,5',6-NoCB	206		X				
2,2',3,3',4,4',5,6,6'-NoCB	207		X				
2,2',3,3',4,5,5',6,6'-NoCB	208		X				
2,2',3,3',4,4',5,5',6,6'-DeCB	209		X				

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent; C = co-eluting congener; X = result reported separately.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB093
Sample Collection:
18-Aug-2018 08:13

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 03-Oct-2018 Time: 16:28:37
 Extract Volume (uL): 20
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-8
 Sample Size: 10.2 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_333A S: 8
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_333A S: 1
 % Lipid: 5.12

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 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L			2000	925	46.2	3.27	0.720
13C12-4-MoCB	3L			2000	1010	50.4	3.30	0.859
13C12-2,2'-DiCB	4L			2000	1180	58.9	1.60	0.874
13C12-4,4'-DiCB	15L			2000	1530	76.4	1.62	1.255
13C12-2,2',6-TriCB	19L			2000	957	47.8	1.08	1.073
13C12-3,4,4'-TriCB	37L			2000	2150	107	1.04	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1410	70.4	0.80	0.811
13C12-3,3',4,4'-TeCB	77L			2000	2410	120	0.76	1.398
13C12-3,4,4',5-TeCB	81L			2000	2410	120	0.76	1.374
13C12-2,2',4,6,6'-PeCB	104L		X					
13C12-2,3,3',4,4'-PeCB	105L		X					
13C12-2,3,4,4',5-PeCB	114L		X					
13C12-2,3',4,4',5-PeCB	118L		X					
13C12-2',3,4,4',5-PeCB	123L		X					
13C12-3,3',4,4',5-PeCB	126L		X					
13C12-2,2',4,4',6,6'-HxCB	155L		X					
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C X					
13C12-2,3,3',4,4',5-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		X					
13C12-3,3',4,4',5,5'-HxCB	169L		X					
13C12-2,2',3,3',4,4',5-HpCB	170L		X					
13C12-2,2',3,4,4',5,5'-HpCB	180L		X					
13C12-2,2',3,4',5,6,6'-HpCB	188L		X					
13C12-2,3,3',4,4',5,5'-HpCB	189L		X					
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		X					
13C12-2,3,3',4,4',5,5',6-OxCB	205L		X					
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		X					
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		X					
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		X					
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	2160	108	1.03	0.925
13C12-2,3,3',5,5'-PeCB	111L		X					
13C12-2,2',3,3',5,5',6-HpCB	178L		X					

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB093
Sample Collection:
18-Aug-2018 08:13

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-8 W
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.2 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	17-Oct-2018 Time: 17:52:45	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_355D S: 4
Dilution Factor:	5	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_355C S: 1
		% Lipid:	5.12

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This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1		X				
3-MoCB	2		X				
4-MoCB	3		X				
2,2'-DiCB	4		X				
2,3-DiCB	5		X				
2,3'-DiCB	6		X				
2,4-DiCB	7		X				
2,4'-DiCB	8		X				
2,5-DiCB	9		X				
2,6-DiCB	10		X				
3,3'-DiCB	11		X				
3,4-DiCB	12	12 + 13	C X				
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		X				
4,4'-DiCB	15		X				
2,2',3-TriCB	16		X				
2,2',4-TriCB	17		X				
2,2',5-TriCB	18	18 + 30	C X				
2,2',6-TriCB	19		X				
2,3,3'-TriCB	20	20 + 28	C X				
2,3,4-TriCB	21	21 + 33	C X				
2,3,4'-TriCB	22		X				
2,3,5-TriCB	23		X				
2,3,6-TriCB	24		X				
2,3',4-TriCB	25		X				
2,3',5-TriCB	26	26 + 29	C X				
2,3',6-TriCB	27		X				
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31		X				
2,4',6-TriCB	32		X				
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34		X				
3,3',4-TriCB	35		X				
3,3',5-TriCB	36		X				
3,4,4'-TriCB	37		X				
3,4,5-TriCB	38		X				
3,4',5-TriCB	39		X				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C X				
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		X				
2,2',3,5'-TeCB	43		X				
2,2',3,5'-TeCB	44	44 + 47 + 65	C X				
2,2',3,6'-TeCB	45	45 + 51	C X				
2,2',3,6'-TeCB	46		X				
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		X				
2,2',4,5'-TeCB	49	49 + 69	C X				
2,2',4,6'-TeCB	50	50 + 53	C X				
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52		X				
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		X				
2,3,3',4'-TeCB	55		X				
2,3,3',4'-TeCB	56		X				
2,3,3',5'-TeCB	57		X				
2,3,3',5'-TeCB	58		X				
2,3,3',6'-TeCB	59	59 + 62 + 75	C X				
2,3,4,4'-TeCB	60		X				
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C X				
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		X				
2,3,4',6'-TeCB	64		X				
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		X				
2,3',4,5'-TeCB	67		X				
2,3',4,5'-TeCB	68		X				
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72		X				
2,3',5',6'-TeCB	73		X				
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77		X				
3,3',4,5'-TeCB	78		X				
3,3',4,5'-TeCB	79		X				
3,3',5,5'-TeCB	80		X				
3,4,4',5'-TeCB	81		X				
2,2',3,3',4'-PeCB	82		D	120	1.43 (S)	1.59	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C D	3020	1.34 (S)	1.54	0.886
2,2',3,3',6'-PeCB	84		D	234	1.43 (S)	1.60	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C D	672	1.07 (S)	1.61	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C D	1570	1.09 (S)	1.60	0.901
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C D	438	1.29 (S)	1.55	1.155
2,2',3,4,6'-PeCB	89		K D	4.25	1.35 (S)	2.07	1.184
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C D	4540	1.12 (S)	1.56	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		D	740	1.30 (S)	1.56	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C D	2190	1.25 (S)	1.59	1.123
2,2',3,5,6'-PeCB	94		D	12.3	1.42 (S)	1.51	1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		D	12.7	0.293 (S)	1.50	1.017
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		D	117	1.19 (S)	1.57	1.094
2,2',4,6,6'-PeCB	104		D	4.47	0.330 (S)	1.66	1.001
2,3,3',4,4'-PeCB	105		D	1140	6.16 (S)	1.53	1.000
2,3,3',4,5-PeCB	106		U D		8.03 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C D	94.3	8.38 (S)	1.45	0.991
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		D	386	8.52 (S)	1.53	0.997
2,3,3',4',6-PeCB	110	110 + 115	C D	2610	0.954 (S)	1.56	0.925
2,3,3',5,5'-PeCB	111		D	11.3	0.968 (S)	1.74	0.946
2,3,3',5,6-PeCB	112		U D		0.921 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		D	105	8.43 (S)	1.56	1.001
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		D	4260	7.36 (S)	1.51	1.001
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		D	35.9	0.909 (S)	1.60	0.958
2,3',4,5',6-PeCB	121		D	16.5	0.986 (S)	1.78	1.200
2',3,3',4,5-PeCB	122		K D	21.0	9.09 (S)	1.09	1.010
2',3,4,4',5-PeCB	123		K D	63.0	7.88 (S)	1.51	1.001
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		K D	48.3	9.00 (S)	1.51	1.001
3,3',4,5,5'-PeCB	127		D	11.7	8.46 (S)	1.52	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C D	2170	20.3 (S)	1.24	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C D	24300	20.3 (S)	1.26	0.928
2,2',3,3',4,5'-HxCB	130		D	753	25.8 (S)	1.28	0.912
2,2',3,3',4,6-HxCB	131		D	47.7	25.2 (S)	1.20	1.161
2,2',3,3',4,6'-HxCB	132		D	1590	26.1 (S)	1.23	1.176
2,2',3,3',5,5'-HxCB	133		D	375	24.1 (S)	1.29	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C D	331	25.0 (S)	1.25	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C D	4680	0.337 (S)	1.24	1.105
2,2',3,3',6,6'-HxCB	136		D	728	0.271 (S)	1.24	1.025
2,2',3,4,4',5-HxCB	137		D	403	25.2 (S)	1.24	0.918
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C D	133	22.3 (S)	1.24	1.153
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		D	2650	22.5 (S)	1.23	0.903
2,2',3,4,5,6-HxCB	142		U D		24.1 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		D	662	0.348 (S)	1.32	1.123
2,2',3,4,6,6'-HxCB	145		U D		0.289 (S)		
2,2',3,4',5,5'-HxCB	146		D	4780	21.2 (S)	1.25	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C D	10500	22.2 (S)	1.25	1.134
2,2',3,4',5,6'-HxCB	148		D	48.1	0.360 (S)	1.23	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		D	31.8	0.271 (S)	1.28	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		K D	4.61	0.254 (S)	1.53	1.008
2,2',4,4',5,5'-HxCB	153	153 + 168	C D	29800	18.4 (S)	1.25	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		D	14.3	0.247 (S)	1.42	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C D	1620	21.6 (S)	1.24	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		D	1490	15.9 (S)	1.26	0.938
2,3,3',4,5,5'-HxCB	159		U D		17.4 (S)		
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		U D		16.8 (S)		
2,3,3',4',5,5'-HxCB	162		U D		15.2 (S)		
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		D	891	16.8 (S)	1.25	0.921
2,3,3',5,5',6-HxCB	165		D	21.4	19.7 (S)	1.25	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		D	703	16.4 (S)	1.27	1.000
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U D		24.3 (S)		
2,2',3,3',4,4',5-HpCB	170		D	7130	0.506 (S)	1.05	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C D	1870	0.605 (S)	1.04	1.163
2,2',3,3',4,5,5'-HpCB	172		D	1490	0.621 (S)	1.06	0.897
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		D	4440	0.572 (S)	1.05	1.134
2,2',3,3',4,5',6-HpCB	175		D	348	0.566 (S)	1.10	1.103
2,2',3,3',4,6,6'-HpCB	176		D	423	0.440 (S)	1.06	1.034
2,2',3,3',4',5,6-HpCB	177		D	3550	0.408 (S)	1.05	1.146
2,2',3,3',5,5',6-HpCB	178		D	1970	0.584 (S)	1.06	1.085
2,2',3,3',5,6,6'-HpCB	179		D	1330	0.430 (S)	1.06	1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C D	27100	0.481 (S)	1.06	1.001
2,2',3,4,4',5,6-HpCB	181		D	41.3	0.570 (S)	1.00	1.157
2,2',3,4,4',5,6'-HpCB	182		U D		0.559 (S)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C D	6130	0.559 (S)	1.05	1.128
2,2',3,4,4',6,6'-HpCB	184		D	12.2	0.427 (S)	1.01	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U D		0.465 (S)		
2,2',3,4',5,5',6-HpCB	187		D	20500	0.536 (S)	1.06	1.111
2,2',3,4',5,6,6'-HpCB	188		D	23.7	0.444 (S)	1.18	1.000
2,3,3',4,4',5,5'-HpCB	189		D	231	0.870 (S)	0.97	1.001
2,3,3',4,4',5,6-HpCB	190		D	1690	0.436 (S)	1.06	0.947
2,3,3',4,4',5',6-HpCB	191		D	405	0.460 (S)	1.04	0.917
2,3,3',4,5,5',6-HpCB	192		U D		0.511 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		D	2960	1.12 (S)	0.88	0.991
2,2',3,3',4,4',5,6-OxCB	195		D	1580	1.24 (S)	0.88	0.945
2,2',3,3',4,4',5,6'-OxCB	196		D	2300	0.325 (S)	0.90	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C D	397	0.238 (S)	0.92	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C D	4210	0.327 (S)	0.91	1.115
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5,6,6'-OxCB	201		D	466	0.240 (S)	0.89	1.023
2,2',3,3',5,5',6,6'-OxCB	202		D	847	0.326 (S)	0.92	1.001
2,2',3,4,4',5,5',6-OxCB	203		D	2470	0.309 (S)	0.93	0.919
2,2',3,4,4',5,6,6'-OxCB	204		K D J	1.31	0.245 (S)	2.03	1.039
2,3,3',4,4',5,5',6-OxCB	205		D	135	0.875 (S)	0.90	1.000
2,2',3,3',4,4',5,5',6-NoCB	206		D	621	0.299 (S)	0.79	1.001
2,2',3,3',4,4',5,6,6'-NoCB	207		D	122	0.249 (S)	0.81	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208		D	207	0.287 (S)	0.82	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209		D	189	0.185 (S)	1.22	1.001

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; D = dilution data; J = concentration less than lowest calibration equivalent; C = co-eluting congener; X = result reported separately.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB093
Sample Collection:
18-Aug-2018 08:13

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 17-Oct-2018 Time: 17:52:45
 Extract Volume (uL): 100
 Injection Volume (uL): 1.0
 Dilution Factor: 5
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-8 W
 Sample Size: 10.2 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_355D S: 4
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_355C S: 1
 % Lipid: 5.12

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 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L		X					
13C12-4-MoCB	3L		X					
13C12-2,2'-DiCB	4L		X					
13C12-4,4'-DiCB	15L		X					
13C12-2,2',6'-TriCB	19L		X					
13C12-3,4,4'-TriCB	37L		X					
13C12-2,2',6,6'-TeCB	54L		X					
13C12-3,3',4,4'-TeCB	77L		X					
13C12-3,4,4',5'-TeCB	81L		X					
13C12-2,2',4,6,6'-PeCB	104L		D	2000	1180	59.2	1.56	0.808
13C12-2,3,3',4,4'-PeCB	105L		D	2000	1760	88.1	1.50	1.201
13C12-2,3,4,4',5'-PeCB	114L		D	2000	1360	67.8	1.52	1.179
13C12-2,3',4,4',5'-PeCB	118L		D	2000	1520	76.2	1.47	1.162
13C12-2',3,4,4',5'-PeCB	123L		D	2000	1500	75.0	1.54	1.151
13C12-3,3',4,4',5'-PeCB	126L		D	2000	1490	74.4	1.53	1.302
13C12-2,2',4,4',6,6'-HxCB	155L		D	2000	938	46.9	1.39	0.785
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C D	4000	2560	64.1	1.28	1.108
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		D	2000	1280	64.0	1.27	1.078
13C12-3,3',4,4',5,5'-HxCB	169L		D	2000	1450	72.5	1.32	1.192
13C12-2,2',3,3',4,4',5'-HpCB	170L		D	2000	2010	101	1.16	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L		D	2000	2090	105	1.02	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L		D	2000	1320	66.2	1.08	0.711
13C12-2,3,3',4,4',5,5'-HpCB	189L		D	2000	1410	70.5	0.99	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		D	2000	1090	54.5	0.99	0.817
13C12-2,3,3',4,4',5,5',6'-OxCB	205L		D	2000	1900	95.0	0.92	1.009
13C12-2,2',3,3',4,4',5,5',6'-NoCB	206L		D	2000	2160	108	0.81	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		D	2000	1910	95.6	0.80	0.948
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		D	2000	1630	81.4	1.26	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L		X					
13C12-2,3,3',5,5'-PeCB	111L		D	2000	1710	85.3	1.60	1.088
13C12-2,2',3,3',5,5',6'-HpCB	178L		D	2000	1310	65.3	1.06	1.011

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; D = dilution data; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB087
Sample Collection:
18-Aug-2018 09:37

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-9
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.0 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	03-Oct-2018 Time: 17:32:27	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_333A S: 9
Dilution Factor:	N/A	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_333A S: 1
		% Lipid:	6.17

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This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1			4.30	0.0734 (Q)	3.09	1.001
3-MoCB	2			0.981	0.0734 (Q)	2.93	0.988
4-MoCB	3			2.20	0.0734 (Q)	3.14	1.001
2,2'-DiCB	4			122	0.316 (S)	1.51	1.001
2,3-DiCB	5			0.726	0.258 (S)	1.65	1.198
2,3'-DiCB	6			13.5	0.234 (S)	1.54	1.176
2,4-DiCB	7			2.55	0.239 (S)	1.51	1.158
2,4'-DiCB	8			48.6	0.222 (S)	1.53	1.207
2,5-DiCB	9			3.94	0.234 (S)	1.50	1.146
2,6-DiCB	10			6.96	0.239 (S)	1.55	1.013
3,3'-DiCB	11			121	0.242 (S)	1.49	0.969
3,4-DiCB	12	12 + 13	C	2.17	0.244 (S)	1.72	0.985
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.239 (S)		
4,4'-DiCB	15			17.4	0.259 (S)	1.50	1.001
2,2',3-TriCB	16			41.7	0.111 (S)	1.09	1.166
2,2',4-TriCB	17			166	0.0896 (S)	1.08	1.139
2,2',5-TriCB	18	18 + 30	C	148	0.0768 (S)	1.10	1.113
2,2',6-TriCB	19			378	0.128 (S)	1.07	1.001
2,3,3'-TriCB	20	20 + 28	C	633	0.340 (S)	0.99	0.847
2,3,4-TriCB	21	21 + 33	C	92.2	0.335 (S)	1.00	0.856
2,3,4'-TriCB	22			127	0.375 (S)	0.99	0.872
2,3,5-TriCB	23		J	0.541	0.367 (S)	0.94	1.282
2,3,6-TriCB	24			2.01	0.0734 (Q)	0.97	1.159
2,3',4-TriCB	25			53.0	0.305 (S)	1.02	0.825
2,3',5-TriCB	26	26 + 29	C	111	0.341 (S)	0.99	1.301
2,3',6-TriCB	27			39.6	0.0734 (Q)	1.07	1.151
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31			363	0.321 (S)	1.00	0.836
2,4',6-TriCB	32			99.3	0.333 (S)	1.00	1.197
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			4.32	0.350 (S)	1.02	1.273
3,3',4-TriCB	35		U		0.365 (S)		
3,3',5-TriCB	36		U		0.333 (S)		
3,4,4'-TriCB	37			48.2	0.346 (S)	0.99	1.001
3,4,5-TriCB	38			1.45	0.383 (S)	1.08	0.968
3,4',5-TriCB	39			4.16	0.356 (S)	1.06	0.946

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C	381	0.152 (S)	0.79	1.338
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			292	0.163 (S)	0.80	1.313
2,2',3,5'-TeCB	43			44.3	0.186 (S)	0.82	1.247
2,2',3,5'-TeCB	44	44 + 47 + 65	C	3170	0.140 (S)	0.80	1.287
2,2',3,6'-TeCB	45	45 + 51	C	435	0.145 (S)	0.80	1.149
2,2',3,6'-TeCB	46			28.6	0.166 (S)	0.80	1.162
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			137	0.153 (S)	0.79	1.274
2,2',4,5'-TeCB	49	49 + 69	C	1890	0.127 (S)	0.79	1.260
2,2',4,6'-TeCB	50	50 + 53	C	242	0.140 (S)	0.80	1.112
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			2430	0.138 (S)	0.80	1.236
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			107	0.118 (S)	0.80	1.002
2,3,3',4'-TeCB	55		U		0.929 (S)		
2,3,3',4'-TeCB	56			300	0.933 (S)	0.78	0.904
2,3,3',5'-TeCB	57			8.19	0.870 (S)	0.67	0.843
2,3,3',5'-TeCB	58			20.4	0.909 (S)	0.82	0.852
2,3,3',6'-TeCB	59	59 + 62 + 75	C	162	0.115 (S)	0.80	1.304
2,3,4,4'-TeCB	60			354	0.926 (S)	0.76	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	2540	0.881 (S)	0.76	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			106	0.858 (S)	0.76	0.864
2,3,4',6'-TeCB	64			580	0.109 (S)	0.80	1.350
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			1890	0.853 (S)	0.78	0.883
2,3',4,5'-TeCB	67			34.6	0.764 (S)	0.71	0.856
2,3',4,5'-TeCB	68			69.1	0.859 (S)	0.75	0.830
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72			58.1	0.836 (S)	0.77	0.822
2,3',5',6'-TeCB	73			31.3	0.108 (S)	0.81	1.243
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77			83.1	0.851 (S)	0.76	1.000
3,3',4,5'-TeCB	78		U		0.871 (S)		
3,3',4,5'-TeCB	79			39.3	0.740 (S)	0.73	0.969
3,3',5,5'-TeCB	80		K	1.59	0.804 (S)	0.57	0.923
3,4,4',5'-TeCB	81		K	3.65	0.848 (S)	0.74	1.001
2,2',3,3',4'-PeCB	82		X				
2,2',3,3',5'-PeCB	83	83 + 99	C X				
2,2',3,3',6'-PeCB	84		X				
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C X				
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C X				
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C X				
2,2',3,4,6'-PeCB	89		X				
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C X				
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		X				
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C X				
2,2',3,5,6'-PeCB	94		X				
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		X				
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		X				
2,2',4,6,6'-PeCB	104		X				
2,3,3',4,4'-PeCB	105		X				
2,3,3',4,5-PeCB	106		X				
2,3,3',4',5-PeCB	107	107 + 124	C X				
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		X				
2,3,3',4',6-PeCB	110	110 + 115	C X				
2,3,3',5,5'-PeCB	111		X				
2,3,3',5,6-PeCB	112		X				
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		X				
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		X				
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		X				
2,3',4,5',6-PeCB	121		X				
2',3,3',4,5-PeCB	122		X				
2',3,4,4',5-PeCB	123		X				
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		X				
3,3',4,5,5'-PeCB	127		X				
2,2',3,3',4,4'-HxCB	128	128 + 166	C X				
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C X				
2,2',3,3',4,5'-HxCB	130		X				
2,2',3,3',4,6-HxCB	131		X				
2,2',3,3',4,6'-HxCB	132		X				
2,2',3,3',5,5'-HxCB	133		X				
2,2',3,3',5,6-HxCB	134	134 + 143	C X				
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C X				
2,2',3,3',6,6'-HxCB	136		X				
2,2',3,4,4',5-HxCB	137		X				
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C X				
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		X				
2,2',3,4,5,6-HxCB	142		X				
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		X				
2,2',3,4,6,6'-HxCB	145		X				
2,2',3,4',5,5'-HxCB	146		X				
2,2',3,4',5,6-HxCB	147	147 + 149	C X				
2,2',3,4',5,6'-HxCB	148		X				
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		X				
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		X				
2,2',4,4',5,5'-HxCB	153	153 + 168	C X				
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		X				
2,3,3',4,4',5-HxCB	156	156 + 157	C X				
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		X				
2,3,3',4,5,5'-HxCB	159		X				
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		X				
2,3,3',4',5,5'-HxCB	162		X				
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		X				
2,3,3',5,5',6-HxCB	165		X				
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		X				
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		X				
2,2',3,3',4,4',5-HpCB	170		X				
2,2',3,3',4,4',6-HpCB	171	171 + 173	C X				
2,2',3,3',4,5,5'-HpCB	172		X				
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		X				
2,2',3,3',4,5',6-HpCB	175		X				
2,2',3,3',4,6,6'-HpCB	176		X				
2,2',3,3',4,5,6-HpCB	177		X				
2,2',3,3',5,5',6-HpCB	178		X				
2,2',3,3',5,6,6'-HpCB	179		X				
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C E				
2,2',3,4,4',5,6-HpCB	181		X				
2,2',3,4,4',5,6'-HpCB	182		X				
2,2',3,4,4',5',6-HpCB	183	183 + 185	C X				
2,2',3,4,4',6,6'-HpCB	184		X				
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		X				
2,2',3,4',5,5',6-HpCB	187		X				
2,2',3,4',5,6,6'-HpCB	188		X				
2,3,3',4,4',5,5'-HpCB	189		X				
2,3,3',4,4',5,6-HpCB	190		X				
2,3,3',4,4',5',6-HpCB	191		X				
2,3,3',4,5,5',6-HpCB	192		X				
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		X				
2,2',3,3',4,4',5,6-OxCB	195		X				
2,2',3,3',4,4',5,6'-OxCB	196		X				
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C X				
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C X				
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5',6,6'-OxCB	201		X				
2,2',3,3',5,5',6,6'-OxCB	202		X				
2,2',3,4,4',5,5',6-OxCB	203		X				
2,2',3,4,4',5,6,6'-OxCB	204		X				
2,3,3',4,4',5,5',6-OxCB	205		X				
2,2',3,3',4,4',5,5',6-NoCB	206		X				
2,2',3,3',4,4',5,6,6'-NoCB	207		X				
2,2',3,3',4,5,5',6,6'-NoCB	208		X				
2,2',3,3',4,4',5,5',6,6'-DeCB	209		X				

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent; C = co-eluting congener; X = result reported separately; E = exceeds calibrated linear range, see dilution data.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB087
Sample Collection:
18-Aug-2018 09:37

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 03-Oct-2018 Time: 17:32:27
 Extract Volume (uL): 20
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-9
 Sample Size: 10.0 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_333A S: 9
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_333A S: 1
 % Lipid: 6.17

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 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L			2000	918	45.9	3.25	0.719
13C12-4-MoCB	3L			2000	981	49.0	3.20	0.858
13C12-2,2'-DiCB	4L			2000	1190	59.5	1.59	0.873
13C12-4,4'-DiCB	15L			2000	1280	63.8	1.59	1.253
13C12-2,2',6-TriCB	19L			2000	945	47.3	1.07	1.072
13C12-3,4,4'-TriCB	37L			2000	1910	95.4	1.04	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1340	66.9	0.81	0.810
13C12-3,3',4,4'-TeCB	77L			2000	2200	110	0.74	1.398
13C12-3,4,4',5-TeCB	81L			2000	2240	112	0.76	1.374
13C12-2,2',4,6,6'-PeCB	104L		X					
13C12-2,3,3',4,4'-PeCB	105L		X					
13C12-2,3,4,4',5-PeCB	114L		X					
13C12-2,3',4,4',5-PeCB	118L		X					
13C12-2',3,4,4',5-PeCB	123L		X					
13C12-3,3',4,4',5-PeCB	126L		X					
13C12-2,2',4,4',6,6'-HxCB	155L		X					
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C X					
13C12-2,3,3',4,4',5-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		X					
13C12-3,3',4,4',5,5'-HxCB	169L		X					
13C12-2,2',3,3',4,4',5-HpCB	170L		X					
13C12-2,2',3,4,4',5,5'-HpCB	180L		X					
13C12-2,2',3,4',5,6,6'-HpCB	188L		X					
13C12-2,3,3',4,4',5,5'-HpCB	189L		X					
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		X					
13C12-2,3,3',4,4',5,5',6-OxCB	205L		X					
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		X					
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		X					
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		X					
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1930	96.5	1.05	0.925
13C12-2,3,3',5,5'-PeCB	111L		X					
13C12-2,2',3,3',5,5',6-HpCB	178L		X					

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB087
Sample Collection:
18-Aug-2018 09:37

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-9 W
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.0 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	18-Oct-2018 Time: 17:02:22	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_357A S: 7
Dilution Factor:	5	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_357A S: 1
		% Lipid:	6.17

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This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1		X				
3-MoCB	2		X				
4-MoCB	3		X				
2,2'-DiCB	4		X				
2,3-DiCB	5		X				
2,3'-DiCB	6		X				
2,4-DiCB	7		X				
2,4'-DiCB	8		X				
2,5-DiCB	9		X				
2,6-DiCB	10		X				
3,3'-DiCB	11		X				
3,4-DiCB	12	12 + 13	C X				
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		X				
4,4'-DiCB	15		X				
2,2',3-TriCB	16		X				
2,2',4-TriCB	17		X				
2,2',5-TriCB	18	18 + 30	C X				
2,2',6-TriCB	19		X				
2,3,3'-TriCB	20	20 + 28	C X				
2,3,4-TriCB	21	21 + 33	C X				
2,3,4'-TriCB	22		X				
2,3,5-TriCB	23		X				
2,3,6-TriCB	24		X				
2,3',4-TriCB	25		X				
2,3',5-TriCB	26	26 + 29	C X				
2,3',6-TriCB	27		X				
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31		X				
2,4',6-TriCB	32		X				
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34		X				
3,3',4-TriCB	35		X				
3,3',5-TriCB	36		X				
3,4,4'-TriCB	37		X				
3,4,5-TriCB	38		X				
3,4',5-TriCB	39		X				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C X				
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		X				
2,2',3,5'-TeCB	43		X				
2,2',3,5'-TeCB	44	44 + 47 + 65	C X				
2,2',3,6'-TeCB	45	45 + 51	C X				
2,2',3,6'-TeCB	46		X				
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		X				
2,2',4,5'-TeCB	49	49 + 69	C X				
2,2',4,6'-TeCB	50	50 + 53	C X				
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52		X				
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		X				
2,3,3',4'-TeCB	55		X				
2,3,3',4'-TeCB	56		X				
2,3,3',5'-TeCB	57		X				
2,3,3',5'-TeCB	58		X				
2,3,3',6'-TeCB	59	59 + 62 + 75	C X				
2,3,4,4'-TeCB	60		X				
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C X				
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		X				
2,3,4',6'-TeCB	64		X				
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		X				
2,3',4,5'-TeCB	67		X				
2,3',4,5'-TeCB	68		X				
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72		X				
2,3',5',6'-TeCB	73		X				
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77		X				
3,3',4,5'-TeCB	78		X				
3,3',4,5'-TeCB	79		X				
3,3',5,5'-TeCB	80		X				
3,4,4',5'-TeCB	81		X				
2,2',3,3',4'-PeCB	82		D	211	3.77 (S)	1.59	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C D	4780	3.55 (S)	1.60	0.885
2,2',3,3',6'-PeCB	84		D	436	3.59 (S)	1.56	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C D	1240	2.88 (S)	1.61	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C D G	2720	2.91 (S)	1.59	0.901
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C D	736	3.22 (S)	1.58	1.155
2,2',3,4,6'-PeCB	89		D	10.9	3.46 (S)	1.63	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C D	6350	2.88 (S)	1.59	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		D	1220	3.31 (S)	1.57	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C D	3020	3.11 (S)	1.58	1.122
2,2',3,5,6'-PeCB	94		D	26.7	3.46 (S)	1.45	1.102
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		D	36.4	0.167 (S)	1.56	1.016
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		D	183	2.88 (S)	1.52	1.093
2,2',4,6,6'-PeCB	104		D	15.7	0.198 (S)	1.51	1.001
2,3,3',4,4'-PeCB	105		D	2130	13.3 (S)	1.56	1.000
2,3,3',4,5-PeCB	106		U D		13.4 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C D	166	14.2 (S)	1.55	0.990
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		D	601	13.6 (S)	1.54	0.997
2,3,3',4',6-PeCB	110	110 + 115	C D	4550	2.58 (S)	1.56	0.924
2,3,3',5,5'-PeCB	111		K D	16.7	2.61 (S)	1.96	0.945
2,3,3',5,6-PeCB	112		U D		2.36 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		D	161	15.4 (S)	1.42	1.000
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		D	6450	12.7 (S)	1.53	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		D	60.4	2.54 (S)	1.65	0.958
2,3',4,5',6-PeCB	121		D	21.3	2.56 (S)	1.66	1.200
2',3,3',4,5-PeCB	122		D	39.8	16.0 (S)	1.38	1.010
2',3,4,4',5-PeCB	123		K D	104	13.7 (S)	1.53	1.001
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		K D	40.6	19.1 (S)	1.42	1.001
3,3',4,5,5'-PeCB	127		D	22.1	15.2 (S)	1.35	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C D	2940	17.4 (S)	1.24	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C D	30100	18.0 (S)	1.26	0.928
2,2',3,3',4,5'-HxCB	130		D	827	22.3 (S)	1.23	0.913
2,2',3,3',4,6-HxCB	131		D	68.3	20.3 (S)	1.27	1.161
2,2',3,3',4,6'-HxCB	132		D	2140	20.7 (S)	1.26	1.176
2,2',3,3',5,5'-HxCB	133		D	533	20.0 (S)	1.26	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C D	357	19.7 (S)	1.23	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C D	5190	0.258 (S)	1.25	1.104
2,2',3,3',6,6'-HxCB	136		D	754	0.194 (S)	1.25	1.025
2,2',3,4,4',5-HxCB	137		D	574	21.8 (S)	1.24	0.918
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C D	245	17.7 (S)	1.22	1.153
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		D	3000	19.3 (S)	1.26	0.903
2,2',3,4,5,6-HxCB	142		U D		19.5 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		D	528	0.267 (S)	1.28	1.122
2,2',3,4,6,6'-HxCB	145		U D		0.206 (S)		
2,2',3,4',5,5'-HxCB	146		D	6050	17.3 (S)	1.25	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C D	10800	17.5 (S)	1.25	1.134
2,2',3,4',5,6'-HxCB	148		D	58.2	0.266 (S)	1.31	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		D	38.5	0.192 (S)	1.38	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		D	14.2	0.188 (S)	1.06	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C D	40700	15.5 (S)	1.26	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		D	28.0	0.190 (S)	1.31	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C D	2240	19.7 (S)	1.26	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		D	1640	13.9 (S)	1.26	0.938
2,3,3',4,5,5'-HxCB	159		D	150	15.6 (S)	1.20	0.981
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		U D		13.9 (S)		
2,3,3',4',5,5'-HxCB	162		D	47.2	13.9 (S)	1.23	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		D	805	14.4 (S)	1.28	0.921
2,3,3',5,5',6-HxCB	165		D	29.6	16.5 (S)	1.37	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		D	920	15.4 (S)	1.25	1.000
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U D		53.8 (S)		
2,2',3,3',4,4',5-HpCB	170		D	8020	0.240 (S)	1.05	1.001
2,2',3,3',4,4',6-HpCB	171	171 + 173	C D	1650	0.268 (S)	1.07	1.163
2,2',3,3',4,5,5'-HpCB	172		D	1620	0.280 (S)	1.08	0.897
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		D	2950	0.249 (S)	1.04	1.134
2,2',3,3',4,5',6-HpCB	175		D	310	0.250 (S)	1.11	1.103
2,2',3,3',4,6,6'-HpCB	176		D	252	0.181 (S)	1.04	1.034
2,2',3,3',4',5,6-HpCB	177		D	2710	0.187 (S)	1.04	1.146
2,2',3,3',5,5',6-HpCB	178		D	2130	0.247 (S)	1.05	1.085
2,2',3,3',5,6,6'-HpCB	179		D	1190	0.173 (S)	1.04	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C D	32800	0.203 (S)	1.04	1.001
2,2',3,4,4',5,6-HpCB	181		D	45.4	0.249 (S)	0.90	1.157
2,2',3,4,4',5,6'-HpCB	182		U D		0.238 (S)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C D	5850	0.241 (S)	1.05	1.127
2,2',3,4,4',6,6'-HpCB	184		D	19.6	0.173 (S)	1.15	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U D		0.194 (S)		
2,2',3,4',5,5',6-HpCB	187		D	24700	0.222 (S)	1.04	1.111
2,2',3,4',5,6,6'-HpCB	188		D	24.4	0.183 (S)	1.02	1.000
2,3,3',4,4',5,5'-HpCB	189		D	325	2.39 (S)	1.03	1.001
2,3,3',4,4',5,6-HpCB	190		D	1760	0.217 (S)	1.06	0.947
2,3,3',4,4',5',6-HpCB	191		D	435	0.214 (S)	1.06	0.917
2,3,3',4,5,5',6-HpCB	192		U D		0.230 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		D	4700	0.963 (S)	0.90	0.991
2,2',3,3',4,4',5,6-OxCB	195		D	1890	1.00 (S)	0.89	0.945
2,2',3,3',4,4',5,6'-OxCB	196		D	2460	0.305 (S)	0.91	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C D	298	0.211 (S)	0.91	1.045
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C D	4920	0.305 (S)	0.89	1.115
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5,6,6'-OxCB	201		D	395	0.207 (S)	0.94	1.023
2,2',3,3',5,5',6,6'-OxCB	202		D	1030	0.331 (S)	0.92	1.000
2,2',3,4,4',5,5',6-OxCB	203		D	2330	0.297 (S)	0.92	0.919
2,2',3,4,4',5,6,6'-OxCB	204		K D J	1.70	0.210 (S)	0.61	1.038
2,3,3',4,4',5,5',6-OxCB	205		D	154	0.721 (S)	0.90	1.001
2,2',3,3',4,4',5,5',6-NoCB	206		D	703	0.270 (S)	0.78	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207		D	136	0.205 (S)	0.79	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208		D	207	0.260 (S)	0.79	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209		D	165	0.206 (S)	1.08	1.001

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; D = dilution data; J = concentration less than lowest calibration equivalent; G = lock mass interference present; C = co-eluting congener; X = result reported separately.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB087
Sample Collection:
18-Aug-2018 09:37

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 18-Oct-2018 Time: 17:02:22
 Extract Volume (uL): 100
 Injection Volume (uL): 1.0
 Dilution Factor: 5
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-9 W
 Sample Size: 10.0 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_357A S: 7
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_357A S: 1
 % Lipid: 6.17

This page is part of a total report that contains information necessary for accreditation compliance.
 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L		X					
13C12-4-MoCB	3L		X					
13C12-2,2'-DiCB	4L		X					
13C12-4,4'-DiCB	15L		X					
13C12-2,2',6-TriCB	19L		X					
13C12-3,4,4'-TriCB	37L		X					
13C12-2,2',6,6'-TeCB	54L		X					
13C12-3,3',4,4'-TeCB	77L		X					
13C12-3,4,4',5-TeCB	81L		X					
13C12-2,2',4,6,6'-PeCB	104L		D	2000	1170	58.6	1.60	0.808
13C12-2,3,3',4,4'-PeCB	105L		D	2000	1810	90.7	1.64	1.201
13C12-2,3,4,4',5-PeCB	114L		D	2000	1680	83.8	1.59	1.180
13C12-2,3',4,4',5-PeCB	118L		D	2000	1890	94.7	1.60	1.162
13C12-2',3,4,4',5-PeCB	123L		D	2000	1930	96.4	1.54	1.152
13C12-3,3',4,4',5-PeCB	126L		D	2000	1530	76.3	1.58	1.302
13C12-2,2',4,4',6,6'-HxCB	155L		D	2000	922	46.1	1.23	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C D	4000	2420	60.5	1.26	1.108
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		D	2000	1250	62.7	1.27	1.078
13C12-3,3',4,4',5,5'-HxCB	169L		D	2000	1310	65.6	1.34	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L		D	2000	1690	84.7	1.08	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L		D	2000	2010	101	1.06	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L		D	2000	1140	56.9	1.03	0.711
13C12-2,3,3',4,4',5,5'-HpCB	189L		D	2000	1330	66.4	1.03	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		D	2000	755	37.7	0.93	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L		D	2000	1790	89.5	0.91	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		D	2000	1650	82.5	0.80	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		D	2000	1490	74.3	0.85	0.948
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		D	2000	1010	50.5	1.31	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L		X					
13C12-2,3,3',5,5'-PeCB	111L		D	2000	1490	74.5	1.66	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L		D	2000	1140	56.8	0.99	1.011

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; D = dilution data; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB091
Sample Collection:
18-Aug-2018 07:32

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-10
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.1 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	03-Oct-2018 Time: 18:36:11	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_333A S: 10
Dilution Factor:	N/A	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_333A S: 1
		% Lipid:	4.56

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This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1			6.42	0.0718 (Q)	3.17	1.001
3-MoCB	2			0.877	0.0718 (Q)	3.59	0.988
4-MoCB	3			2.98	0.0718 (Q)	3.20	1.001
2,2'-DiCB	4			419	0.517 (S)	1.52	1.001
2,3-DiCB	5		U		0.446 (S)		
2,3'-DiCB	6			9.25	0.405 (S)	1.47	1.175
2,4-DiCB	7			1.91	0.413 (S)	1.65	1.157
2,4'-DiCB	8			47.9	0.383 (S)	1.51	1.207
2,5-DiCB	9			2.78	0.405 (S)	1.46	1.145
2,6-DiCB	10			34.4	0.413 (S)	1.53	1.013
3,3'-DiCB	11			69.8	0.418 (S)	1.52	0.969
3,4-DiCB	12	12 + 13	C	2.36	0.422 (S)	1.71	0.984
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.413 (S)		
4,4'-DiCB	15			18.3	0.463 (S)	1.52	1.001
2,2',3-TriCB	16			19.6	0.108 (S)	1.08	1.166
2,2',4-TriCB	17			210	0.0868 (S)	1.07	1.139
2,2',5-TriCB	18	18 + 30	C	87.3	0.0743 (S)	1.09	1.113
2,2',6-TriCB	19			1560	0.118 (S)	1.06	1.001
2,3,3'-TriCB	20	20 + 28	C	578	0.252 (S)	0.99	0.847
2,3,4-TriCB	21	21 + 33	C	70.3	0.249 (S)	0.98	0.855
2,3,4'-TriCB	22			68.2	0.278 (S)	0.99	0.871
2,3,5-TriCB	23		U		0.272 (S)		
2,3,6-TriCB	24			1.18	0.0718 (Q)	0.99	1.159
2,3',4-TriCB	25			42.8	0.226 (S)	1.03	0.824
2,3',5-TriCB	26	26 + 29	C	61.1	0.253 (S)	1.00	1.301
2,3',6-TriCB	27			82.1	0.0718 (Q)	1.05	1.151
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31			210	0.238 (S)	0.99	0.836
2,4',6-TriCB	32			206	0.247 (S)	1.00	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			2.21	0.260 (S)	1.05	1.274
3,3',4-TriCB	35		U		0.271 (S)		
3,3',5-TriCB	36		U		0.247 (S)		
3,4,4'-TriCB	37			55.9	0.262 (S)	0.99	1.001
3,4,5-TriCB	38			2.36	0.284 (S)	1.01	0.968
3,4',5-TriCB	39			3.65	0.264 (S)	0.89	0.945

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C	406	0.181 (S)	0.80	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			286	0.194 (S)	0.80	1.312
2,2',3,5'-TeCB	43			21.4	0.221 (S)	0.81	1.247
2,2',3,5'-TeCB	44	44 + 47 + 65	C	6850	0.166 (S)	0.80	1.287
2,2',3,6'-TeCB	45	45 + 51	C	691	0.173 (S)	0.80	1.149
2,2',3,6'-TeCB	46			31.6	0.197 (S)	0.79	1.160
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			88.5	0.182 (S)	0.79	1.273
2,2',4,5'-TeCB	49	49 + 69	C	2530	0.150 (S)	0.80	1.259
2,2',4,6'-TeCB	50	50 + 53	C	540	0.167 (S)	0.80	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			2550	0.163 (S)	0.79	1.235
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			274	0.140 (S)	0.80	1.001
2,3,3',4'-TeCB	55		U		6.48 (S)		
2,3,3',4'-TeCB	56			239	6.51 (S)	0.76	0.904
2,3,3',5'-TeCB	57			7.46	6.07 (S)	0.78	0.843
2,3,3',5'-TeCB	58			62.7	6.34 (S)	0.79	0.852
2,3,3',6'-TeCB	59	59 + 62 + 75	C	216	0.137 (S)	0.79	1.304
2,3,4,4'-TeCB	60			423	6.46 (S)	0.75	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	2640	6.14 (S)	0.75	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			172	5.99 (S)	0.78	0.864
2,3,4',6'-TeCB	64			547	0.129 (S)	0.80	1.349
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			3050	5.95 (S)	0.79	0.884
2,3',4,5'-TeCB	67			24.8	5.33 (S)	0.74	0.856
2,3',4,5'-TeCB	68			162	5.99 (S)	0.74	0.831
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72			72.0	5.83 (S)	0.77	0.822
2,3',5',6'-TeCB	73			72.1	0.128 (S)	0.79	1.242
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77			134	6.24 (S)	0.77	1.000
3,3',4,5'-TeCB	78		U		6.07 (S)		
3,3',4,5'-TeCB	79			52.9	5.16 (S)	0.77	0.969
3,3',5,5'-TeCB	80		U		5.60 (S)		
3,4,4',5'-TeCB	81		K	6.65	5.68 (S)	0.71	1.001
2,2',3,3',4'-PeCB	82		X				
2,2',3,3',5'-PeCB	83	83 + 99	C X				
2,2',3,3',6'-PeCB	84		X				
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C X				
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C X				
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C X				
2,2',3,4,6'-PeCB	89		X				
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C X				
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		X				
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C X				
2,2',3,5,6'-PeCB	94		X				
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		X				
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		X				
2,2',4,6,6'-PeCB	104		X				
2,3,3',4,4'-PeCB	105		X				
2,3,3',4,5-PeCB	106		X				
2,3,3',4',5-PeCB	107	107 + 124	C X				
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		X				
2,3,3',4',6-PeCB	110	110 + 115	C X				
2,3,3',5,5'-PeCB	111		X				
2,3,3',5,6-PeCB	112		X				
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		X				
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		X				
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		X				
2,3',4,5',6-PeCB	121		X				
2',3,3',4,5-PeCB	122		X				
2',3,4,4',5-PeCB	123		X				
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		X				
3,3',4,5,5'-PeCB	127		X				
2,2',3,3',4,4'-HxCB	128	128 + 166	C X				
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C E				
2,2',3,3',4,5'-HxCB	130		X				
2,2',3,3',4,6-HxCB	131		X				
2,2',3,3',4,6'-HxCB	132		X				
2,2',3,3',5,5'-HxCB	133		X				
2,2',3,3',5,6-HxCB	134	134 + 143	C X				
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C X				
2,2',3,3',6,6'-HxCB	136		X				
2,2',3,4,4',5-HxCB	137		X				
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C X				
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		X				
2,2',3,4,5,6-HxCB	142		X				
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		X				
2,2',3,4,6,6'-HxCB	145		X				
2,2',3,4',5,5'-HxCB	146		X				
2,2',3,4',5,6-HxCB	147	147 + 149	C X				
2,2',3,4',5,6'-HxCB	148		X				
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		X				
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		X				
2,2',4,4',5,5'-HxCB	153	153 + 168	C E				
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		X				
2,3,3',4,4',5-HxCB	156	156 + 157	C X				
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		X				
2,3,3',4,5,5'-HxCB	159		X				
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		X				
2,3,3',4',5,5'-HxCB	162		X				
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		X				
2,3,3',5,5',6-HxCB	165		X				
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		X				
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		X				
2,2',3,3',4,4',5-HpCB	170		X				
2,2',3,3',4,4',6-HpCB	171	171 + 173	C X				
2,2',3,3',4,5,5'-HpCB	172		X				
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		X				
2,2',3,3',4,5',6-HpCB	175		X				
2,2',3,3',4,6,6'-HpCB	176		X				
2,2',3,3',4,5,6-HpCB	177		X				
2,2',3,3',5,5',6-HpCB	178		X				
2,2',3,3',5,6,6'-HpCB	179		X				
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C E				
2,2',3,4,4',5,6-HpCB	181		X				
2,2',3,4,4',5,6'-HpCB	182		X				
2,2',3,4,4',5',6-HpCB	183	183 + 185	C X				
2,2',3,4,4',6,6'-HpCB	184		X				
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		X				
2,2',3,4',5,5',6-HpCB	187		E				
2,2',3,4',5,6,6'-HpCB	188		X				
2,3,3',4,4',5,5'-HpCB	189		X				
2,3,3',4,4',5,6-HpCB	190		X				
2,3,3',4,4',5',6-HpCB	191		X				
2,3,3',4,5,5',6-HpCB	192		X				
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		X				
2,2',3,3',4,4',5,6-OxCB	195		X				
2,2',3,3',4,4',5,6'-OxCB	196		X				
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C X				
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C X				
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5',6,6'-OxCB	201		X				
2,2',3,3',5,5',6,6'-OxCB	202		X				
2,2',3,4,4',5,5',6-OxCB	203		X				
2,2',3,4,4',5,6,6'-OxCB	204		X				
2,3,3',4,4',5,5',6-OxCB	205		X				
2,2',3,3',4,4',5,5',6-NoCB	206		X				
2,2',3,3',4,4',5,6,6'-NoCB	207		X				
2,2',3,3',4,5,5',6,6'-NoCB	208		X				
2,2',3,3',4,4',5,5',6,6'-DeCB	209		X				

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; C = co-eluting congener; X = result reported separately; E = exceeds calibrated linear range, see dilution data.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB091
Sample Collection:
18-Aug-2018 07:32

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 03-Oct-2018 Time: 18:36:11
 Extract Volume (uL): 20
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-10
 Sample Size: 10.1 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_333A S: 10
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_333A S: 1
 % Lipid: 4.56

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LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L			2000	939	47.0	3.26	0.720
13C12-4-MoCB	3L			2000	906	45.3	3.24	0.859
13C12-2,2'-DiCB	4L			2000	1240	62.0	1.61	0.874
13C12-4,4'-DiCB	15L			2000	1220	60.9	1.58	1.254
13C12-2,2',6-TriCB	19L			2000	1010	50.6	1.10	1.072
13C12-3,4,4'-TriCB	37L			2000	1880	93.8	1.02	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1460	72.8	0.81	0.811
13C12-3,3',4,4'-TeCB	77L			2000	2310	115	0.73	1.398
13C12-3,4,4',5-TeCB	81L			2000	2530	127	0.77	1.374
13C12-2,2',4,6,6'-PeCB	104L		X					
13C12-2,3,3',4,4'-PeCB	105L		X					
13C12-2,3,4,4',5-PeCB	114L		X					
13C12-2,3',4,4',5-PeCB	118L		X					
13C12-2',3,4,4',5-PeCB	123L		X					
13C12-3,3',4,4',5-PeCB	126L		X					
13C12-2,2',4,4',6,6'-HxCB	155L		X					
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C X					
13C12-2,3,3',4,4',5-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		X					
13C12-3,3',4,4',5,5'-HxCB	169L		X					
13C12-2,2',3,3',4,4',5-HpCB	170L		X					
13C12-2,2',3,4,4',5,5'-HpCB	180L		X					
13C12-2,2',3,4',5,6,6'-HpCB	188L		X					
13C12-2,3,3',4,4',5,5'-HpCB	189L		X					
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		X					
13C12-2,3,3',4,4',5,5',6-OxCB	205L		X					
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		X					
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		X					
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		X					
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	2110	106	1.06	0.924
13C12-2,3,3',5,5'-PeCB	111L		X					
13C12-2,2',3,3',5,5',6-HpCB	178L		X					

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB091
Sample Collection:
18-Aug-2018 07:32

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-10 W
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.1 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	18-Oct-2018 Time: 18:06:08	Instrument ID:	HR GC/MS
Extract Volume (uL):	200	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_357A S: 8
Dilution Factor:	10	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_357A S: 1
		% Lipid:	4.56

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1		X				
3-MoCB	2		X				
4-MoCB	3		X				
2,2'-DiCB	4		X				
2,3-DiCB	5		X				
2,3'-DiCB	6		X				
2,4-DiCB	7		X				
2,4'-DiCB	8		X				
2,5-DiCB	9		X				
2,6-DiCB	10		X				
3,3'-DiCB	11		X				
3,4-DiCB	12	12 + 13	C X				
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		X				
4,4'-DiCB	15		X				
2,2',3-TriCB	16		X				
2,2',4-TriCB	17		X				
2,2',5-TriCB	18	18 + 30	C X				
2,2',6-TriCB	19		X				
2,3,3'-TriCB	20	20 + 28	C X				
2,3,4-TriCB	21	21 + 33	C X				
2,3,4'-TriCB	22		X				
2,3,5-TriCB	23		X				
2,3,6-TriCB	24		X				
2,3',4-TriCB	25		X				
2,3',5-TriCB	26	26 + 29	C X				
2,3',6-TriCB	27		X				
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31		X				
2,4',6-TriCB	32		X				
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34		X				
3,3',4-TriCB	35		X				
3,3',5-TriCB	36		X				
3,4,4'-TriCB	37		X				
3,4,5-TriCB	38		X				
3,4',5-TriCB	39		X				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C X				
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		X				
2,2',3,5'-TeCB	43		X				
2,2',3,5'-TeCB	44	44 + 47 + 65	C X				
2,2',3,6'-TeCB	45	45 + 51	C X				
2,2',3,6'-TeCB	46		X				
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		X				
2,2',4,5'-TeCB	49	49 + 69	C X				
2,2',4,6'-TeCB	50	50 + 53	C X				
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52		X				
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		X				
2,3,3',4'-TeCB	55		X				
2,3,3',4'-TeCB	56		X				
2,3,3',5'-TeCB	57		X				
2,3,3',5'-TeCB	58		X				
2,3,3',6'-TeCB	59	59 + 62 + 75	C X				
2,3,4,4'-TeCB	60		X				
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C X				
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		X				
2,3,4',6'-TeCB	64		X				
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		X				
2,3',4,5'-TeCB	67		X				
2,3',4,5'-TeCB	68		X				
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72		X				
2,3',5',6'-TeCB	73		X				
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77		X				
3,3',4,5'-TeCB	78		X				
3,3',4,5'-TeCB	79		X				
3,3',5,5'-TeCB	80		X				
3,4,4',5'-TeCB	81		X				
2,2',3,3',4'-PeCB	82		D	287	10.6 (S)	1.46	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C D	8120	10.0 (S)	1.57	0.885
2,2',3,3',6'-PeCB	84		D	450	10.1 (S)	1.58	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C D	1640	8.11 (S)	1.57	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C D	3660	8.20 (S)	1.60	0.901
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C D	1650	9.06 (S)	1.62	1.155
2,2',3,4,6'-PeCB	89		U D		9.75 (S)		
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C D	12700	8.12 (S)	1.60	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		D	2070	9.32 (S)	1.56	0.852
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C D	6520	8.78 (S)	1.60	1.123
2,2',3,5,6'-PeCB	94		D	46.1	9.74 (S)	1.53	1.102
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		D	59.2	0.621 (S)	1.72	1.017
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		D	487	8.11 (S)	1.62	1.094
2,2',4,6,6'-PeCB	104		D	24.7	0.664 (S)	1.34	1.001
2,3,3',4,4'-PeCB	105		D	2740	29.1 (S)	1.52	1.000
2,3,3',4,5-PeCB	106		U D		30.1 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C D	182	31.8 (S)	1.49	0.990
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		D	829	30.4 (S)	1.51	0.997
2,3,3',4',6-PeCB	110	110 + 115	C D	6040	7.27 (S)	1.59	0.925
2,3,3',5,5'-PeCB	111		K D	38.2	7.37 (S)	1.22	0.945
2,3,3',5,6-PeCB	112		U D		6.66 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		D	230	32.5 (S)	1.59	1.000
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		D	9710	30.1 (S)	1.53	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		D	111	7.15 (S)	1.54	0.958
2,3',4,5',6-PeCB	121		D	78.8	7.20 (S)	1.72	1.200
2',3,3',4,5-PeCB	122		D	51.5	35.8 (S)	1.57	1.010
2',3,4,4',5-PeCB	123		K D	153	34.1 (S)	1.61	1.001
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		K D	118	39.0 (S)	1.68	1.001
3,3',4,5,5'-PeCB	127		D	36.0	34.1 (S)	1.55	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C D	6370	48.9 (S)	1.27	0.960
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C D	77600	50.7 (S)	1.26	0.928
2,2',3,3',4,5'-HxCB	130		D	1950	62.7 (S)	1.27	0.913
2,2',3,3',4,6-HxCB	131		D	127	57.2 (S)	1.32	1.161
2,2',3,3',4,6'-HxCB	132		D	5460	58.2 (S)	1.27	1.176
2,2',3,3',5,5'-HxCB	133		D	1280	56.3 (S)	1.25	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C D	982	55.3 (S)	1.27	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C D	18200	0.914 (S)	1.27	1.104
2,2',3,3',6,6'-HxCB	136		D	2050	0.688 (S)	1.25	1.025
2,2',3,4,4',5-HxCB	137		D	967	61.3 (S)	1.35	0.918
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C D	334	49.9 (S)	1.23	1.153
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		D	9230	54.3 (S)	1.27	0.903
2,2',3,4,5,6-HxCB	142		U D		54.9 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		D	2030	0.946 (S)	1.24	1.122
2,2',3,4,6,6'-HxCB	145		U D		0.728 (S)		
2,2',3,4',5,5'-HxCB	146		D	15100	48.5 (S)	1.27	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C D	33500	49.3 (S)	1.26	1.134
2,2',3,4',5,6'-HxCB	148		D	178	0.944 (S)	1.25	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		D	138	0.679 (S)	1.15	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		D	26.5	0.666 (S)	1.33	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C D	96900	43.5 (S)	1.26	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		D	62.2	0.605 (S)	1.16	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C D	4750	57.4 (S)	1.26	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		D	4160	39.0 (S)	1.27	0.938
2,3,3',4,5,5'-HxCB	159		D	669	43.9 (S)	1.29	0.981
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		U D		39.1 (S)		
2,3,3',4',5,5'-HxCB	162		D	75.5	39.2 (S)	1.23	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		D	2550	40.5 (S)	1.25	0.921
2,3,3',5,5',6-HxCB	165		D	114	46.4 (S)	1.18	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		D	1940	43.0 (S)	1.26	1.000
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U D		188 (S)		
2,2',3,3',4,4',5-HpCB	170		D	20600	1.29 (S)	1.05	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C D	5180	1.28 (S)	1.07	1.163
2,2',3,3',4,5,5'-HpCB	172		D	3970	1.34 (S)	1.04	0.896
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		D	12900	1.19 (S)	1.06	1.133
2,2',3,3',4,5',6-HpCB	175		D	919	1.20 (S)	1.06	1.103
2,2',3,3',4,6,6'-HpCB	176		D	1250	0.869 (S)	1.08	1.034
2,2',3,3',4',5,6-HpCB	177		D	9480	0.898 (S)	1.04	1.146
2,2',3,3',5,5',6-HpCB	178		D	5300	1.18 (S)	1.05	1.085
2,2',3,3',5,6,6'-HpCB	179		D	3680	0.831 (S)	1.06	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C D	89800	1.11 (S)	1.06	1.000
2,2',3,4,4',5,6-HpCB	181		D	93.9	1.19 (S)	1.08	1.157
2,2',3,4,4',5,6'-HpCB	182		U D		1.14 (S)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C D	17800	1.15 (S)	1.05	1.127
2,2',3,4,4',6,6'-HpCB	184		K D	15.8	0.829 (S)	1.64	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U D		0.932 (S)		
2,2',3,4',5,5',6-HpCB	187		D	64800	1.06 (S)	1.05	1.110
2,2',3,4',5,6,6'-HpCB	188		D	111	1.03 (S)	1.08	1.000
2,3,3',4,4',5,5'-HpCB	189		D	852	3.51 (S)	0.97	1.001
2,3,3',4,4',5,6-HpCB	190		D	5400	1.04 (S)	1.06	0.947
2,3,3',4,4',5',6-HpCB	191		D	1150	1.02 (S)	1.02	0.917
2,3,3',4,5,5',6-HpCB	192		U D		1.10 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		D	13000	2.72 (S)	0.89	0.991
2,2',3,3',4,4',5,6-OxCB	195		D	5040	2.83 (S)	0.90	0.945
2,2',3,3',4,4',5,6'-OxCB	196		D	6470	0.900 (S)	0.89	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C D	1110	0.625 (S)	0.89	1.045
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C D	12100	0.901 (S)	0.90	1.115
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5,6,6'-OxCB	201		D	1230	0.611 (S)	0.92	1.023
2,2',3,3',5,5',6,6'-OxCB	202		D	2330	0.911 (S)	0.93	1.000
2,2',3,4,4',5,5',6-OxCB	203		D	7250	0.877 (S)	0.92	0.919
2,2',3,4,4',5,6,6'-OxCB	204		K D J	1.72	0.620 (S)	1.53	1.038
2,3,3',4,4',5,5',6-OxCB	205		D	548	2.10 (S)	0.88	1.000
2,2',3,3',4,4',5,5',6-NoCB	206		D	1480	0.704 (S)	0.79	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207		D	300	0.506 (S)	0.77	1.019
2,2',3,3',4,5,5',6,6'-NoCB	208		D	359	0.610 (S)	0.79	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209		D	172	0.625 (S)	1.15	1.001

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; D = dilution data; J = concentration less than lowest calibration equivalent; C = co-eluting congener; X = result reported separately.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB091
Sample Collection:
18-Aug-2018 07:32

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 18-Oct-2018 Time: 18:06:08
 Extract Volume (uL): 200
 Injection Volume (uL): 1.0
 Dilution Factor: 10
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-10 W
 Sample Size: 10.1 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_357A S: 8
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_357A S: 1
 % Lipid: 4.56

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 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L		X					
13C12-4-MoCB	3L		X					
13C12-2,2'-DiCB	4L		X					
13C12-4,4'-DiCB	15L		X					
13C12-2,2',6-TriCB	19L		X					
13C12-3,4,4'-TriCB	37L		X					
13C12-2,2',6,6'-TeCB	54L		X					
13C12-3,3',4,4'-TeCB	77L		X					
13C12-3,4,4',5-TeCB	81L		X					
13C12-2,2',4,6,6'-PeCB	104L		D	2000	1200	59.9	1.64	0.808
13C12-2,3,3',4,4'-PeCB	105L		D	2000	1800	90.1	1.54	1.201
13C12-2,3,4,4',5-PeCB	114L		D	2000	1640	82.2	1.60	1.180
13C12-2,3',4,4',5-PeCB	118L		D	2000	1770	88.3	1.60	1.162
13C12-2',3,4,4',5-PeCB	123L		D	2000	1660	82.8	1.51	1.152
13C12-3,3',4,4',5-PeCB	126L		D	2000	1570	78.4	1.62	1.302
13C12-2,2',4,4',6,6'-HxCB	155L		D	2000	1070	53.5	1.22	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C D	4000	2520	62.9	1.25	1.108
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		D	2000	1370	68.4	1.17	1.078
13C12-3,3',4,4',5,5'-HxCB	169L		D	2000	1280	63.9	1.32	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L		D	2000	1480	74.2	1.09	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L		D	2000	1640	82.0	1.14	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L		D	2000	1000	50.1	1.02	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L		D	2000	1510	75.4	1.11	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		D	2000	746	37.3	0.93	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L		D	2000	1540	76.8	0.96	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		D	2000	1420	70.8	0.76	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		D	2000	1350	67.7	0.69	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		D	2000	978	48.9	1.05	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L		X					
13C12-2,3,3',5,5'-PeCB	111L		D	2000	1510	75.5	1.64	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L		D	2000	1230	61.5	1.08	1.011

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; D = dilution data; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB067
Sample Collection:
17-Aug-2018 09:10

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-11 W
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.2 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	18-Oct-2018 Time: 19:09:54	Instrument ID:	HR GC/MS
Extract Volume (uL):	300	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_357A S: 9
Dilution Factor:	15	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_357A S: 1
		% Lipid:	7.37

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This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1		D J	8.07	0.619 (S)	3.10	1.001
3-MoCB	2		K D J	1.60	0.824 (S)	1.55	0.988
4-MoCB	3		D J	3.63	0.851 (S)	2.91	1.000
2,2'-DiCB	4		D	329	4.96 (S)	1.52	1.001
2,3-DiCB	5		U D		4.74 (S)		
2,3'-DiCB	6		D	33.9	4.16 (S)	1.48	1.177
2,4-DiCB	7		D J	6.31	4.23 (S)	1.35	1.158
2,4'-DiCB	8		D	124	3.73 (S)	1.47	1.208
2,5-DiCB	9		D	9.58	4.17 (S)	1.33	1.147
2,6-DiCB	10		D	17.5	4.10 (S)	1.50	1.014
3,3'-DiCB	11		D	172	4.44 (S)	1.44	0.969
3,4-DiCB	12	12 + 13	C K D J	7.52	4.41 (S)	1.29	0.984
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U D		4.30 (S)		
4,4'-DiCB	15		D	38.3	5.08 (S)	1.41	1.001
2,2',3-TriCB	16		D	94.6	0.832 (S)	0.93	1.166
2,2',4-TriCB	17		D	284	0.733 (S)	1.09	1.137
2,2',5-TriCB	18	18 + 30	C D	317	0.624 (S)	1.11	1.113
2,2',6-TriCB	19		D	543	0.609 (S)	1.04	1.001
2,3,3'-TriCB	20	20 + 28	C D	898	3.89 (S)	1.00	0.847
2,3,4-TriCB	21	21 + 33	C D	156	3.75 (S)	1.06	0.855
2,3,4'-TriCB	22		D	207	4.25 (S)	0.99	0.871
2,3,5-TriCB	23		U D		3.99 (S)		
2,3,6-TriCB	24		K D J	5.21	0.564 (S)	1.63	1.158
2,3',4-TriCB	25		D	81.9	3.31 (S)	0.99	0.824
2,3',5-TriCB	26	26 + 29	C D	164	3.89 (S)	1.01	1.302
2,3',6-TriCB	27		D	64.6	0.538 (S)	1.09	1.150
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31		D	563	3.67 (S)	1.00	0.836
2,4',6-TriCB	32		D	153	3.64 (S)	1.00	1.197
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34		D J	7.11	4.05 (S)	1.01	1.274
3,3',4-TriCB	35		U D		4.20 (S)		
3,3',5-TriCB	36		D	77.2	3.68 (S)	0.96	0.934
3,4,4'-TriCB	37		D	95.4	5.38 (S)	1.06	1.001
3,4,5-TriCB	38		U D		4.01 (S)		
3,4',5-TriCB	39		K D J	7.71	4.00 (S)	0.80	0.945

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C D	506	0.848 (S)	0.80	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		D	406	0.852 (S)	0.80	1.313
2,2',3,5'-TeCB	43		K D	67.0	0.895 (S)	0.99	1.247
2,2',3,5'-TeCB	44	44 + 47 + 65	C D	2910	0.760 (S)	0.79	1.286
2,2',3,6'-TeCB	45	45 + 51	C D	452	0.799 (S)	0.77	1.148
2,2',3,6'-TeCB	46		D	57.8	0.898 (S)	0.74	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		D	202	0.831 (S)	0.78	1.273
2,2',4,5'-TeCB	49	49 + 69	C D	2040	0.708 (S)	0.77	1.259
2,2',4,6'-TeCB	50	50 + 53	C D	274	0.765 (S)	0.79	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52		D	3190	0.790 (S)	0.79	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		D	94.3	0.491 (S)	0.75	1.001
2,3,3',4'-TeCB	55		D	47.5	7.74 (S)	0.70	0.889
2,3,3',4'-TeCB	56		D	420	7.68 (S)	0.77	0.904
2,3,3',5'-TeCB	57		D	9.29	7.03 (S)	0.87	0.843
2,3,3',5'-TeCB	58		D	17.9	7.21 (S)	0.80	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C D	183	0.627 (S)	0.81	1.303
2,3,4,4'-TeCB	60		D	359	7.83 (S)	0.76	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C D	2920	7.01 (S)	0.75	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		D	115	7.07 (S)	0.75	0.864
2,3,4',6'-TeCB	64		D	765	0.611 (S)	0.83	1.349
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		D	2050	7.13 (S)	0.76	0.884
2,3',4,5'-TeCB	67		D	50.7	6.18 (S)	0.76	0.855
2,3',4,5'-TeCB	68		D	57.8	6.89 (S)	0.88	0.831
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72		D	56.0	6.65 (S)	0.87	0.822
2,3',5',6'-TeCB	73		D	77.3	0.657 (S)	0.79	1.241
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77		D	118	8.32 (S)	0.82	1.000
3,3',4,5'-TeCB	78		U D		7.58 (S)		
3,3',4,5'-TeCB	79		D	129	6.29 (S)	0.87	0.972
3,3',5,5'-TeCB	80		U D		6.79 (S)		
3,4,4',5'-TeCB	81		K D	8.87	7.94 (S)	0.82	1.000
2,2',3,3',4'-PeCB	82		D	407	10.6 (S)	1.44	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C D	6270	9.95 (S)	1.59	0.886
2,2',3,3',6'-PeCB	84		D	790	10.1 (S)	1.58	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C D	1550	8.05 (S)	1.56	0.920
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C D	4350	8.14 (S)	1.58	0.902
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C D	999	9.00 (S)	1.56	1.155
2,2',3,4,6'-PeCB	89		K D	25.7	9.68 (S)	1.24	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C D	10700	8.06 (S)	1.58	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		D	1930	9.25 (S)	1.61	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C D	5060	8.72 (S)	1.57	1.122
2,2',3,5,6'-PeCB	94		D	41.1	9.67 (S)	1.76	1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		K D	36.0	0.643 (S)	2.02	1.016
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		D	181	8.06 (S)	1.50	1.094
2,2',4,6,6'-PeCB	104		D	18.7	0.716 (S)	1.65	1.001
2,3,3',4,4'-PeCB	105		D	2660	19.6 (S)	1.52	1.000
2,3,3',4,5-PeCB	106		U D		21.6 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C D	243	22.8 (S)	1.48	0.991
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		D	761	21.8 (S)	1.55	0.998
2,3,3',4',6-PeCB	110	110 + 115	C D	8280	7.21 (S)	1.58	0.925
2,3,3',5,5'-PeCB	111		D	23.3	7.32 (S)	1.47	0.945
2,3,3',5,6-PeCB	112		U D		6.61 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		D	195	23.1 (S)	1.61	1.000
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		D	8450	23.1 (S)	1.53	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		D	75.8	7.10 (S)	1.49	0.958
2,3',4,5',6-PeCB	121		K D	16.0	7.15 (S)	2.08	1.200
2',3,3',4,5-PeCB	122		K D	61.8	25.7 (S)	1.95	1.010
2',3,4,4',5-PeCB	123		K D	146	23.8 (S)	1.55	1.001
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		K D	153	28.6 (S)	1.65	1.001
3,3',4,5,5'-PeCB	127		D	29.4	24.4 (S)	1.41	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C D	4120	68.6 (S)	1.27	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C D	41600	71.1 (S)	1.27	0.928
2,2',3,3',4,5'-HxCB	130		D	1360	87.9 (S)	1.26	0.913
2,2',3,3',4,6-HxCB	131		D	110	80.2 (S)	1.31	1.160
2,2',3,3',4,6'-HxCB	132		D	3740	81.7 (S)	1.25	1.175
2,2',3,3',5,5'-HxCB	133		D	714	79.0 (S)	1.24	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C D	559	77.5 (S)	1.18	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C D	9450	0.846 (S)	1.29	1.104
2,2',3,3',6,6'-HxCB	136		D	1360	0.637 (S)	1.33	1.025
2,2',3,4,4',5-HxCB	137		D	759	85.9 (S)	1.27	0.918
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C D	300	70.0 (S)	1.26	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		D	5240	76.1 (S)	1.24	0.903
2,2',3,4,5,6-HxCB	142		U D		77.0 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		D	934	0.875 (S)	1.33	1.122
2,2',3,4,6,6'-HxCB	145		U D		0.674 (S)		
2,2',3,4',5,5'-HxCB	146		D	8450	68.1 (S)	1.28	0.884
2,2',3,4',5,6-HxCB	147	147 + 149	C D	16200	69.1 (S)	1.26	1.134
2,2',3,4',5,6'-HxCB	148		D	53.7	0.873 (S)	1.17	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		D	41.1	0.628 (S)	1.40	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		D	13.1	0.617 (S)	1.10	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C D	44300	61.0 (S)	1.26	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		K D	15.3	0.580 (S)	1.55	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C D	2550	77.8 (S)	1.26	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		D	2550	54.6 (S)	1.25	0.938
2,3,3',4,5,5'-HxCB	159		U D		61.5 (S)		
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		U D		54.8 (S)		
2,3,3',4',5,5'-HxCB	162		D	71.3	55.0 (S)	1.28	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		D	1630	56.7 (S)	1.27	0.921
2,3,3',5,5',6-HxCB	165		U D		65.1 (S)		
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		D	1200	65.1 (S)	1.25	1.000
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U D		81.8 (S)		
2,2',3,3',4,4',5-HpCB	170		D	9390	1.85 (S)	1.08	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C D	2390	1.73 (S)	1.01	1.163
2,2',3,3',4,5,5'-HpCB	172		D	1740	1.81 (S)	1.08	0.897
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		D	4070	1.61 (S)	1.03	1.133
2,2',3,3',4,5',6-HpCB	175		D	330	1.62 (S)	1.06	1.103
2,2',3,3',4,6,6'-HpCB	176		D	405	1.17 (S)	1.05	1.034
2,2',3,3',4',5,6-HpCB	177		D	3050	1.21 (S)	1.06	1.146
2,2',3,3',5,5',6-HpCB	178		D	1960	1.60 (S)	1.11	1.085
2,2',3,3',5,6,6'-HpCB	179		D	1680	1.12 (S)	1.04	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C D	31200	1.64 (S)	1.05	1.000
2,2',3,4,4',5,6-HpCB	181		D	53.0	1.61 (S)	0.92	1.156
2,2',3,4,4',5,6'-HpCB	182		K D	44.0	1.54 (S)	0.71	1.116
2,2',3,4,4',5',6-HpCB	183	183 + 185	C D	6730	1.56 (S)	1.05	1.127
2,2',3,4,4',6,6'-HpCB	184		K D	12.8	1.12 (S)	1.53	1.025
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U D		1.26 (S)		
2,2',3,4',5,5',6-HpCB	187		D	25300	1.43 (S)	1.05	1.110
2,2',3,4',5,6,6'-HpCB	188		D	26.8	1.28 (S)	1.08	1.000
2,3,3',4,4',5,5'-HpCB	189		D	346	2.36 (S)	0.96	1.001
2,3,3',4,4',5,6-HpCB	190		D	2110	1.41 (S)	1.08	0.947
2,3,3',4,4',5',6-HpCB	191		D	419	1.38 (S)	1.05	0.917
2,3,3',4,5,5',6-HpCB	192		U D		1.49 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		D	4790	1.95 (S)	0.90	0.991
2,2',3,3',4,4',5,6-OxCB	195		D	1840	2.04 (S)	0.88	0.945
2,2',3,3',4,4',5,6'-OxCB	196		D	2050	1.08 (S)	0.90	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C D	332	0.751 (S)	0.84	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C D	4530	1.08 (S)	0.93	1.115
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5,6,6'-OxCB	201		D	352	0.734 (S)	0.96	1.023
2,2',3,3',5,5',6,6'-OxCB	202		D	991	1.16 (S)	0.88	1.001
2,2',3,4,4',5,5',6-OxCB	203		D	2760	1.05 (S)	0.89	0.919
2,2',3,4,4',5,6,6'-OxCB	204		K D J	1.28	0.744 (S)	0.44	1.039
2,3,3',4,4',5,5',6-OxCB	205		D	226	1.46 (S)	0.87	1.000
2,2',3,3',4,4',5,5',6-NoCB	206		D	787	0.801 (S)	0.79	1.001
2,2',3,3',4,4',5,6,6'-NoCB	207		D	108	0.635 (S)	0.88	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208		D	258	0.840 (S)	0.80	1.000
2,2',3,3',4,4',5,5',6,6'-DeCB	209		D	234	0.845 (S)	1.22	1.000

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; D = dilution data; J = concentration less than lowest calibration equivalent; C = co-eluting congener.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB067
Sample Collection:
17-Aug-2018 09:10

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 18-Oct-2018 Time: 19:09:54
 Extract Volume (uL): 300
 Injection Volume (uL): 1.0
 Dilution Factor: 15
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-11 W
 Sample Size: 10.2 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_357A S: 9
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_357A S: 1
 % Lipid: 7.37

This page is part of a total report that contains information necessary for accreditation compliance.
 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L		D	2000	994	49.7	3.13	0.719
13C12-4-MoCB	3L		D	2000	948	47.4	3.49	0.859
13C12-2,2'-DiCB	4L		D	2000	1160	58.0	1.67	0.873
13C12-4,4'-DiCB	15L		D	2000	1150	57.5	1.42	1.255
13C12-2,2',6-TriCB	19L		D	2000	1630	81.5	1.10	1.072
13C12-3,4,4'-TriCB	37L		D	2000	1080	53.9	0.92	1.093
13C12-2,2',6,6'-TeCB	54L		D	2000	1520	76.2	0.78	0.811
13C12-3,3',4,4'-TeCB	77L		D	2000	1490	74.3	0.78	1.398
13C12-3,4,4',5-TeCB	81L		D	2000	1570	78.6	0.75	1.374
13C12-2,2',4,6,6'-PeCB	104L		D	2000	1170	58.6	1.55	0.808
13C12-2,3,3',4,4'-PeCB	105L		D	2000	1800	89.9	1.78	1.200
13C12-2,3,4,4',5-PeCB	114L		D	2000	1550	77.3	1.65	1.179
13C12-2,3',4,4',5-PeCB	118L		D	2000	1680	83.9	1.62	1.162
13C12-2',3,4,4',5-PeCB	123L		D	2000	1660	83.1	1.62	1.151
13C12-3,3',4,4',5-PeCB	126L		D	2000	1480	73.8	1.67	1.302
13C12-2,2',4,4',6,6'-HxCB	155L		D	2000	1070	53.3	1.21	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C D	4000	2520	63.1	1.25	1.108
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		D	2000	1320	65.8	1.18	1.078
13C12-3,3',4,4',5,5'-HxCB	169L		D	2000	1290	64.4	1.28	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L		D	2000	1340	67.2	0.97	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L		D	2000	1350	67.7	1.02	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L		D	2000	975	48.7	1.07	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L		D	2000	1320	66.1	1.00	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		D	2000	621	31.1	0.87	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L		D	2000	1410	70.3	1.02	1.010
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		D	2000	1290	64.7	0.71	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		D	2000	1120	56.0	0.68	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		D	2000	768	38.4	1.02	1.075
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L		D	2000	1370	68.3	1.00	0.925
13C12-2,3,3',5,5'-PeCB	111L		D	2000	1470	73.4	1.74	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L		D	2000	1170	58.4	1.18	1.012

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; D = dilution data; C = co-eluting congener.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB077
Sample Collection:
17-Aug-2018 13:05

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-12 i
Sample Receipt Date:	21-Aug-2018	Sample Size:	9.97 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	11-Oct-2018 Time: 22:58:40	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_344 S: 4
Dilution Factor:	N/A	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_344 S: 1
		% Lipid:	3.59

This page is part of a total report that contains information necessary for accreditation compliance.
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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1			15.6	0.0737 (Q)	3.12	1.003
3-MoCB	2			2.14	0.0737 (Q)	3.12	0.988
4-MoCB	3			4.57	0.0737 (Q)	3.19	1.001
2,2'-DiCB	4			384	0.249 (S)	1.51	1.001
2,3-DiCB	5			9.03	0.218 (S)	1.50	1.197
2,3'-DiCB	6			230	0.197 (S)	1.50	1.174
2,4-DiCB	7			29.5	0.204 (S)	1.47	1.158
2,4'-DiCB	8			841	0.183 (S)	1.50	1.207
2,5-DiCB	9			49.5	0.195 (S)	1.47	1.146
2,6-DiCB	10			21.1	0.197 (S)	1.55	1.013
3,3'-DiCB	11			46.2	0.202 (S)	1.47	0.968
3,4-DiCB	12	12 + 13	C	10.9	0.207 (S)	1.46	0.984
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		J	0.456	0.200 (S)	1.39	0.925
4,4'-DiCB	15			81.1	0.203 (S)	1.45	1.000
2,2',3-TriCB	16			491	0.0737 (Q)	1.08	1.166
2,2',4-TriCB	17			828	0.0737 (Q)	1.07	1.138
2,2',5-TriCB	18	18 + 30	C	1370	0.0737 (Q)	1.07	1.113
2,2',6-TriCB	19			395	0.0737 (Q)	1.07	1.001
2,3,3'-TriCB	20	20 + 28	C	2010	1.07 (S)	0.99	0.847
2,3,4-TriCB	21	21 + 33	C	600	1.09 (S)	0.99	0.856
2,3,4'-TriCB	22			433	1.20 (S)	0.98	0.871
2,3,5-TriCB	23			1.43	1.19 (S)	1.07	1.282
2,3,6-TriCB	24			14.6	0.0737 (Q)	1.10	1.159
2,3',4-TriCB	25			214	0.972 (S)	1.00	0.824
2,3',5-TriCB	26	26 + 29	C	417	1.11 (S)	0.99	1.301
2,3',6-TriCB	27			128	0.0737 (Q)	1.07	1.152
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31			1300	1.03 (S)	0.98	0.836
2,4',6-TriCB	32			635	1.07 (S)	1.00	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			16.0	1.14 (S)	1.00	1.274
3,3',4-TriCB	35		U		1.06 (S)		
3,3',5-TriCB	36		U		1.03 (S)		
3,4,4'-TriCB	37			115	0.999 (S)	0.98	1.000
3,4,5-TriCB	38			2.60	1.08 (S)	1.04	0.967
3,4',5-TriCB	39			10.6	1.08 (S)	0.98	0.945

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C X				
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		X				
2,2',3,5'-TeCB	43		X				
2,2',3,5'-TeCB	44	44 + 47 + 65	C X				
2,2',3,6'-TeCB	45	45 + 51	C X				
2,2',3,6'-TeCB	46		X				
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		X				
2,2',4,5'-TeCB	49	49 + 69	C X				
2,2',4,6'-TeCB	50	50 + 53	C X				
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52		X				
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		X				
2,3,3',4'-TeCB	55		X				
2,3,3',4'-TeCB	56		X				
2,3,3',5'-TeCB	57		X				
2,3,3',5'-TeCB	58		X				
2,3,3',6'-TeCB	59	59 + 62 + 75	C X				
2,3,4,4'-TeCB	60		X				
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C X				
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		X				
2,3,4',6'-TeCB	64		X				
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		X				
2,3',4,5'-TeCB	67		X				
2,3',4,5'-TeCB	68		X				
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72		X				
2,3',5',6'-TeCB	73		X				
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77		X				
3,3',4,5'-TeCB	78		X				
3,3',4,5'-TeCB	79		X				
3,3',5,5'-TeCB	80		X				
3,4,4',5'-TeCB	81		X				
2,2',3,3',4'-PeCB	82		X				
2,2',3,3',5'-PeCB	83	83 + 99	C X				
2,2',3,3',6'-PeCB	84		X				
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C X				
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C X				
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C X				
2,2',3,4,6'-PeCB	89		X				
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C E				
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		X				
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C X				
2,2',3,5,6'-PeCB	94		X				
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		X				
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		X				
2,2',4,6,6'-PeCB	104		X				
2,3,3',4,4'-PeCB	105		X				
2,3,3',4,5-PeCB	106		X				
2,3,3',4',5-PeCB	107	107 + 124	C X				
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		X				
2,3,3',4',6-PeCB	110	110 + 115	C X				
2,3,3',5,5'-PeCB	111		X				
2,3,3',5,6-PeCB	112		X				
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		X				
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		X				
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		X				
2,3',4,5',6-PeCB	121		X				
2',3,3',4,5-PeCB	122		X				
2',3,4,4',5-PeCB	123		X				
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		X				
3,3',4,5,5'-PeCB	127		X				
2,2',3,3',4,4'-HxCB	128	128 + 166	C X				
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C E				
2,2',3,3',4,5'-HxCB	130		X				
2,2',3,3',4,6-HxCB	131		X				
2,2',3,3',4,6'-HxCB	132		X				
2,2',3,3',5,5'-HxCB	133		X				
2,2',3,3',5,6-HxCB	134	134 + 143	C X				
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C X				
2,2',3,3',6,6'-HxCB	136		X				
2,2',3,4,4',5-HxCB	137		X				
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C X				
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		X				
2,2',3,4,5,6-HxCB	142		X				
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		X				
2,2',3,4,6,6'-HxCB	145		X				
2,2',3,4',5,5'-HxCB	146		X				
2,2',3,4',5,6-HxCB	147	147 + 149	C E				
2,2',3,4',5,6'-HxCB	148		X				
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		X				
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		X				
2,2',4,4',5,5'-HxCB	153	153 + 168	C E				
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		X				
2,3,3',4,4',5-HxCB	156	156 + 157	C X				
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		X				
2,3,3',4,5,5'-HxCB	159		X				
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		X				
2,3,3',4',5,5'-HxCB	162		X				
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		X				
2,3,3',5,5',6-HxCB	165		X				
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		X				
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		X				
2,2',3,3',4,4',5-HpCB	170		E				
2,2',3,3',4,4',6-HpCB	171	171 + 173	C X				
2,2',3,3',4,5,5'-HpCB	172		X				
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		X				
2,2',3,3',4,5',6-HpCB	175		X				
2,2',3,3',4,6,6'-HpCB	176		X				
2,2',3,3',4,5,6-HpCB	177		X				
2,2',3,3',5,5',6-HpCB	178		X				
2,2',3,3',5,6,6'-HpCB	179		X				
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C E				
2,2',3,4,4',5,6-HpCB	181		X				
2,2',3,4,4',5,6'-HpCB	182		X				
2,2',3,4,4',5',6-HpCB	183	183 + 185	C E				
2,2',3,4,4',6,6'-HpCB	184		X				
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		X				
2,2',3,4',5,5',6-HpCB	187		E				
2,2',3,4',5,6,6'-HpCB	188		X				
2,3,3',4,4',5,5'-HpCB	189		X				
2,3,3',4,4',5,6-HpCB	190		X				
2,3,3',4,4',5',6-HpCB	191		X				
2,3,3',4,5,5',6-HpCB	192		X				
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		X				
2,2',3,3',4,4',5,6-OxCB	195		X				
2,2',3,3',4,4',5,6'-OxCB	196		X				
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C X				
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C X				
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5',6,6'-OxCB	201		X				
2,2',3,3',5,5',6,6'-OxCB	202		X				
2,2',3,4,4',5,5',6-OxCB	203		X				
2,2',3,4,4',5,6,6'-OxCB	204		X				
2,3,3',4,4',5,5',6-OxCB	205		X				
2,2',3,3',4,4',5,5',6-NoCB	206		X				
2,2',3,3',4,4',5,6,6'-NoCB	207		X				
2,2',3,3',4,5,5',6,6'-NoCB	208		X				
2,2',3,3',4,4',5,5',6,6'-DeCB	209		X				

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; J = concentration less than lowest calibration equivalent; C = co-eluting congener; X = result reported separately; E = exceeds calibrated linear range, see dilution data.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB077
Sample Collection:
17-Aug-2018 13:05

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 11-Oct-2018 Time: 22:58:40
 Extract Volume (uL): 20
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-12 i
 Sample Size: 9.97 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_344 S: 4
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_344 S: 1
 % Lipid: 3.59

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LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L			2000	1010	50.5	3.26	0.718
13C12-4-MoCB	3L			2000	1120	55.9	3.23	0.858
13C12-2,2'-DiCB	4L			2000	1240	61.9	1.57	0.874
13C12-4,4'-DiCB	15L			2000	1340	67.1	1.57	1.254
13C12-2,2',6-TriCB	19L			2000	1150	57.3	1.06	1.072
13C12-3,4,4'-TriCB	37L			2000	1750	87.4	1.03	1.092
13C12-2,2',6,6'-TeCB	54L		X					
13C12-3,3',4,4'-TeCB	77L		X					
13C12-3,4,4',5-TeCB	81L		X					
13C12-2,2',4,6,6'-PeCB	104L		X					
13C12-2,3,3',4,4'-PeCB	105L		X					
13C12-2,3,4,4',5-PeCB	114L		X					
13C12-2,3',4,4',5-PeCB	118L		X					
13C12-2',3,4,4',5-PeCB	123L		X					
13C12-3,3',4,4',5-PeCB	126L		X					
13C12-2,2',4,4',6,6'-HxCB	155L		X					
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C X					
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		X					
13C12-3,3',4,4',5,5'-HxCB	169L		X					
13C12-2,2',3,3',4,4',5-HpCB	170L		X					
13C12-2,2',3,4,4',5,5'-HpCB	180L		X					
13C12-2,2',3,4',5,6,6'-HpCB	188L		X					
13C12-2,3,3',4,4',5,5'-HpCB	189L		X					
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		X					
13C12-2,3,3',4,4',5,5',6-OxCB	205L		X					
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		X					
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		X					
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		X					
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1840	92.0	1.05	0.924
13C12-2,3,3',5,5'-PeCB	111L		X					
13C12-2,2',3,3',5,5',6-HpCB	178L		X					

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB077
Sample Collection:
17-Aug-2018 13:05

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-12 W
Sample Receipt Date:	21-Aug-2018	Sample Size:	9.97 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	18-Oct-2018 Time: 20:13:38	Instrument ID:	HR GC/MS
Extract Volume (uL):	300	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_357A S: 10
Dilution Factor:	15	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_357A S: 1
		% Lipid:	3.59

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This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1		X				
3-MoCB	2		X				
4-MoCB	3		X				
2,2'-DiCB	4		X				
2,3-DiCB	5		X				
2,3'-DiCB	6		X				
2,4-DiCB	7		X				
2,4'-DiCB	8		X				
2,5-DiCB	9		X				
2,6-DiCB	10		X				
3,3'-DiCB	11		X				
3,4-DiCB	12	12 + 13	C X				
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		X				
4,4'-DiCB	15		X				
2,2',3-TriCB	16		X				
2,2',4-TriCB	17		X				
2,2',5-TriCB	18	18 + 30	C X				
2,2',6-TriCB	19		X				
2,3,3'-TriCB	20	20 + 28	C X				
2,3,4-TriCB	21	21 + 33	C X				
2,3,4'-TriCB	22		X				
2,3,5-TriCB	23		X				
2,3,6-TriCB	24		X				
2,3',4-TriCB	25		X				
2,3',5-TriCB	26	26 + 29	C X				
2,3',6-TriCB	27		X				
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31		X				
2,4',6-TriCB	32		X				
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34		X				
3,3',4-TriCB	35		X				
3,3',5-TriCB	36		X				
3,4,4'-TriCB	37		X				
3,4,5-TriCB	38		X				
3,4',5-TriCB	39		X				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C D	935	0.604 (S)	0.79	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		D	452	0.607 (S)	0.79	1.312
2,2',3,5'-TeCB	43		D	66.5	0.638 (S)	0.75	1.247
2,2',3,5'-TeCB	44	44 + 47 + 65	C D	5480	0.542 (S)	0.79	1.287
2,2',3,6'-TeCB	45	45 + 51	C D	1030	0.570 (S)	0.78	1.148
2,2',3,6'-TeCB	46		D	139	0.640 (S)	0.80	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		D	275	0.593 (S)	0.78	1.273
2,2',4,5'-TeCB	49	49 + 69	C D	4220	0.505 (S)	0.79	1.260
2,2',4,6'-TeCB	50	50 + 53	C D	1260	0.546 (S)	0.77	1.110
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52		D	5600	0.563 (S)	0.78	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		D	107	0.390 (S)	0.79	1.001
2,3,3',4'-TeCB	55		D	62.4	3.57 (S)	0.87	0.888
2,3,3',4'-TeCB	56		D	315	3.54 (S)	0.78	0.904
2,3,3',5'-TeCB	57		D	15.3	3.24 (S)	0.78	0.842
2,3,3',5'-TeCB	58		D	23.1	3.33 (S)	0.77	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C D	229	0.447 (S)	0.80	1.302
2,3,4,4'-TeCB	60		D	320	3.61 (S)	0.79	0.910
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C D	2640	3.23 (S)	0.76	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		D	126	3.26 (S)	0.68	0.864
2,3,4',6'-TeCB	64		D	658	0.436 (S)	0.76	1.349
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		D	2430	3.29 (S)	0.77	0.884
2,3',4,5'-TeCB	67		D	43.7	2.85 (S)	0.83	0.855
2,3',4,5'-TeCB	68		D	161	3.18 (S)	0.79	0.831
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72		D	147	3.07 (S)	0.79	0.822
2,3',5',6'-TeCB	73		D	157	0.468 (S)	0.76	1.242
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77		D	82.8	3.57 (S)	0.77	1.000
3,3',4,5'-TeCB	78		U D		3.50 (S)		
3,3',4,5'-TeCB	79		D	105	2.90 (S)	0.82	0.971
3,3',5,5'-TeCB	80		U D		3.13 (S)		
3,4,4',5'-TeCB	81		K D J	3.59	3.51 (S)	0.95	1.001
2,2',3,3',4'-PeCB	82		D	281	18.3 (S)	1.65	0.933
2,2',3,3',5'-PeCB	83	83 + 99	C D	12900	17.3 (S)	1.58	0.885
2,2',3,3',6'-PeCB	84		D	606	17.4 (S)	1.48	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C D	1560	14.0 (S)	1.59	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C D	4410	14.1 (S)	1.60	0.900
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C D	1760	15.6 (S)	1.62	1.155
2,2',3,4,6'-PeCB	89		K D	18.1	16.8 (S)	1.21	1.184
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C D	20100	14.0 (S)	1.58	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		D	5200	16.0 (S)	1.56	0.852
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C D	10300	15.1 (S)	1.57	1.121
2,2',3,5,6'-PeCB	94		D	102	16.8 (S)	1.68	1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		D	79.1	0.730 (S)	1.71	1.016
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		D	1020	14.0 (S)	1.62	1.093
2,2',4,6,6'-PeCB	104		D	15.5	0.820 (S)	1.37	1.001
2,3,3',4,4'-PeCB	105		D	3070	24.6 (S)	1.53	1.001
2,3,3',4,5-PeCB	106		U D		24.0 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C D	230	25.4 (S)	1.62	0.991
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		D	1160	24.3 (S)	1.51	0.997
2,3,3',4',6-PeCB	110	110 + 115	C D	8390	12.5 (S)	1.59	0.924
2,3,3',5,5'-PeCB	111		D	118	12.7 (S)	1.49	0.945
2,3,3',5,6-PeCB	112		U D		11.5 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		D	127	24.7 (S)	1.51	1.000
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		D	8580	24.1 (S)	1.55	1.001
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		D	419	12.3 (S)	1.55	0.958
2,3',4,5',6-PeCB	121		D	88.4	12.4 (S)	1.61	1.200
2',3,3',4,5-PeCB	122		U D		28.6 (S)		
2',3,4,4',5-PeCB	123		K D	157	26.0 (S)	1.47	1.000
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		K D	191	29.3 (S)	1.56	1.001
3,3',4,5,5'-PeCB	127		D	32.8	27.2 (S)	1.36	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C D	10800	113 (S)	1.26	0.960
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C D	147000	117 (S)	1.26	0.929
2,2',3,3',4,5'-HxCB	130		D	3550	145 (S)	1.25	0.913
2,2',3,3',4,6-HxCB	131		D	158	132 (S)	1.33	1.161
2,2',3,3',4,6'-HxCB	132		D	9690	135 (S)	1.26	1.175
2,2',3,3',5,5'-HxCB	133		D	3270	130 (S)	1.28	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C D	1640	128 (S)	1.25	1.140
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C D	42200	1.11 (S)	1.27	1.105
2,2',3,3',6,6'-HxCB	136		D	4520	0.833 (S)	1.24	1.025
2,2',3,4,4',5-HxCB	137		D	1090	142 (S)	1.06	0.918
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C D	876	116 (S)	1.31	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		D	17600	126 (S)	1.28	0.903
2,2',3,4,5,6-HxCB	142		U D		127 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		D	2940	1.14 (S)	1.31	1.122
2,2',3,4,6,6'-HxCB	145		U D		0.881 (S)		
2,2',3,4',5,5'-HxCB	146		D	31400	112 (S)	1.26	0.884
2,2',3,4',5,6-HxCB	147	147 + 149	C D	58900	114 (S)	1.25	1.134
2,2',3,4',5,6'-HxCB	148		D	539	1.14 (S)	1.24	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		D	238	0.822 (S)	1.25	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		K D	28.8	0.807 (S)	1.71	1.008
2,2',4,4',5,5'-HxCB	153	153 + 168	C D	187000	101 (S)	1.26	0.899
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		D	43.0	0.847 (S)	1.32	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C D	3810	123 (S)	1.26	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		D	6700	90.3 (S)	1.25	0.938
2,3,3',4,5,5'-HxCB	159		D	1100	102 (S)	1.28	0.981
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		U D		90.5 (S)		
2,3,3',4',5,5'-HxCB	162		D	151	90.8 (S)	1.08	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		D	4760	93.7 (S)	1.26	0.921
2,3,3',5,5',6-HxCB	165		D	182	107 (S)	1.34	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		D	2920	97.0 (S)	1.30	1.001
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U D		218 (S)		
2,2',3,3',4,4',5-HpCB	170		D	33500	1.99 (S)	1.05	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C D	8880	1.99 (S)	1.04	1.163
2,2',3,3',4,5,5'-HpCB	172		D	6260	2.08 (S)	1.06	0.897
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		D	19300	1.85 (S)	1.02	1.134
2,2',3,3',4,5',6-HpCB	175		D	1180	1.86 (S)	1.04	1.103
2,2',3,3',4,6,6'-HpCB	176		D	1810	1.35 (S)	1.06	1.035
2,2',3,3',4',5,6-HpCB	177		D	15600	1.39 (S)	1.06	1.146
2,2',3,3',5,5',6-HpCB	178		D	10200	1.84 (S)	1.06	1.085
2,2',3,3',5,6,6'-HpCB	179		D	8040	1.29 (S)	1.07	1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C D	111000	1.53 (S)	1.06	1.001
2,2',3,4,4',5,6-HpCB	181		D	126	1.85 (S)	1.11	1.157
2,2',3,4,4',5,6'-HpCB	182		U D		1.77 (S)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C D	27600	1.79 (S)	1.07	1.127
2,2',3,4,4',6,6'-HpCB	184		U D		1.29 (S)		
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U D		1.45 (S)		
2,2',3,4',5,5',6-HpCB	187		D	101000	1.65 (S)	1.05	1.111
2,2',3,4',5,6,6'-HpCB	188		D	152	1.57 (S)	1.06	1.001
2,3,3',4,4',5,5'-HpCB	189		D	1090	5.67 (S)	1.04	1.000
2,3,3',4,4',5,6-HpCB	190		D	8740	1.62 (S)	1.05	0.947
2,3,3',4,4',5',6-HpCB	191		D	1470	1.59 (S)	1.03	0.917
2,3,3',4,5,5',6-HpCB	192		U D		1.71 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		D	19800	4.87 (S)	0.90	0.991
2,2',3,3',4,4',5,6-OxCB	195		D	8060	5.07 (S)	0.89	0.945
2,2',3,3',4,4',5,6'-OxCB	196		D	7940	1.32 (S)	0.90	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C D	1510	0.917 (S)	0.88	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C D	18600	1.32 (S)	0.92	1.115
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5,6,6'-OxCB	201		D	1630	0.896 (S)	0.90	1.023
2,2',3,3',5,5',6,6'-OxCB	202		D	4140	1.35 (S)	0.90	1.000
2,2',3,4,4',5,5',6-OxCB	203		D	11600	1.29 (S)	0.90	0.919
2,2',3,4,4',5,6,6'-OxCB	204		K D J	2.99	0.909 (S)	1.69	1.039
2,3,3',4,4',5,5',6-OxCB	205		D	938	3.70 (S)	0.90	1.000
2,2',3,3',4,4',5,5',6-NoCB	206		D	2330	1.06 (S)	0.79	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207		D	368	0.789 (S)	0.80	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208		D	540	0.979 (S)	0.78	1.000
2,2',3,3',4,4',5,5',6,6'-DeCB	209		D	163	0.845 (S)	1.01	1.001

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; D = dilution data; J = concentration less than lowest calibration equivalent; C = co-eluting congener; X = result reported separately.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB077
Sample Collection:
17-Aug-2018 13:05

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 18-Oct-2018 Time: 20:13:38
 Extract Volume (uL): 300
 Injection Volume (uL): 1.0
 Dilution Factor: 15
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-12 W
 Sample Size: 9.97 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_357A S: 10
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_357A S: 1
 % Lipid: 3.59

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LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L		X					
13C12-4-MoCB	3L		X					
13C12-2,2'-DiCB	4L		X					
13C12-4,4'-DiCB	15L		X					
13C12-2,2',6'-TriCB	19L		X					
13C12-3,4,4'-TriCB	37L		X					
13C12-2,2',6,6'-TeCB	54L		D	2000	1530	76.7	0.70	0.811
13C12-3,3',4,4'-TeCB	77L		D	2000	1760	88.2	0.71	1.398
13C12-3,4,4',5'-TeCB	81L		D	2000	1830	91.4	0.83	1.374
13C12-2,2',4,6,6'-PeCB	104L		D	2000	1110	55.4	1.62	0.808
13C12-2,3,3',4,4'-PeCB	105L		D	2000	1600	79.8	1.51	1.201
13C12-2,3,4,4',5'-PeCB	114L		D	2000	1640	82.0	1.52	1.179
13C12-2,3',4,4',5'-PeCB	118L		D	2000	1660	82.8	1.51	1.162
13C12-2',3,4,4',5'-PeCB	123L		D	2000	1650	82.5	1.45	1.152
13C12-3,3',4,4',5'-PeCB	126L		D	2000	1600	80.1	1.56	1.302
13C12-2,2',4,4',6,6'-HxCB	155L		D	2000	811	40.6	1.28	0.785
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C D	4000	2150	53.9	1.33	1.108
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		D	2000	1110	55.4	1.42	1.078
13C12-3,3',4,4',5,5'-HxCB	169L		D	2000	1090	54.5	1.28	1.192
13C12-2,2',3,3',4,4',5'-HpCB	170L		D	2000	1440	71.9	1.04	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L		D	2000	1660	82.9	0.98	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L		D	2000	942	47.1	1.08	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L		D	2000	1460	73.1	1.09	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		D	2000	709	35.4	0.93	0.818
13C12-2,3,3',4,4',5,5',6-OxCB	205L		D	2000	1430	71.4	0.85	1.010
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		D	2000	1350	67.3	0.72	1.044
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		D	2000	1170	58.3	0.81	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		D	2000	953	47.7	1.14	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L		X					
13C12-2,3,3',5,5'-PeCB	111L		D	2000	1440	72.1	1.61	1.088
13C12-2,2',3,3',5,5',6'-HpCB	178L		D	2000	1100	55.1	0.90	1.011

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; D = dilution data; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB079
Sample Collection:
17-Aug-2018 13:53

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-13 i
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.1 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	12-Oct-2018 Time: 00:02:25	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_344 S: 5
Dilution Factor:	N/A	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_344 S: 1
		% Lipid:	8.81

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1			5.45	0.0724 (Q)	3.15	1.001
3-MoCB	2			1.36	0.0759 (S)	3.12	0.988
4-MoCB	3			2.53	0.0827 (S)	3.09	1.001
2,2'-DiCB	4			153	0.228 (S)	1.49	1.001
2,3-DiCB	5			1.12	0.205 (S)	1.48	1.198
2,3'-DiCB	6			20.0	0.185 (S)	1.49	1.176
2,4-DiCB	7			4.09	0.191 (S)	1.56	1.158
2,4'-DiCB	8			73.1	0.171 (S)	1.51	1.208
2,5-DiCB	9			6.00	0.183 (S)	1.48	1.146
2,6-DiCB	10			8.88	0.184 (S)	1.51	1.014
3,3'-DiCB	11			230	0.190 (S)	1.49	0.968
3,4-DiCB	12	12 + 13	C	3.90	0.194 (S)	1.53	0.983
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		J	0.304	0.188 (S)	1.79	0.925
4,4'-DiCB	15			28.4	0.193 (S)	1.52	1.000
2,2',3-TriCB	16			71.1	0.152 (S)	1.07	1.165
2,2',4-TriCB	17			245	0.132 (S)	1.07	1.138
2,2',5-TriCB	18	18 + 30	C	247	0.113 (S)	1.06	1.113
2,2',6-TriCB	19			411	0.165 (S)	1.06	1.001
2,3,3'-TriCB	20	20 + 28	C	953	0.641 (S)	0.99	0.848
2,3,4-TriCB	21	21 + 33	C	146	0.650 (S)	0.98	0.857
2,3,4'-TriCB	22			221	0.721 (S)	0.99	0.872
2,3,5-TriCB	23			0.909	0.711 (S)	0.89	1.281
2,3,6-TriCB	24			3.48	0.104 (S)	1.05	1.159
2,3',4-TriCB	25			87.3	0.581 (S)	0.99	0.825
2,3',5-TriCB	26	26 + 29	C	173	0.664 (S)	0.99	1.301
2,3',6-TriCB	27			46.9	0.0928 (S)	1.08	1.151
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31			634	0.619 (S)	0.99	0.837
2,4',6-TriCB	32			128	0.638 (S)	1.00	1.196
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			7.08	0.684 (S)	0.98	1.272
3,3',4-TriCB	35		U		0.632 (S)		
3,3',5-TriCB	36		U		0.614 (S)		
3,4,4'-TriCB	37			82.7	0.610 (S)	1.00	1.001
3,4,5-TriCB	38			2.50	0.645 (S)	1.17	0.968
3,4',5-TriCB	39			8.13	0.648 (S)	0.96	0.946

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C X				
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		X				
2,2',3,5'-TeCB	43		X				
2,2',3,5'-TeCB	44	44 + 47 + 65	C X				
2,2',3,6'-TeCB	45	45 + 51	C X				
2,2',3,6'-TeCB	46		X				
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		X				
2,2',4,5'-TeCB	49	49 + 69	C X				
2,2',4,6'-TeCB	50	50 + 53	C X				
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52		X				
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		X				
2,3,3',4'-TeCB	55		X				
2,3,3',4'-TeCB	56		X				
2,3,3',5'-TeCB	57		X				
2,3,3',5'-TeCB	58		X				
2,3,3',6'-TeCB	59	59 + 62 + 75	C X				
2,3,4,4'-TeCB	60		X				
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C X				
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		X				
2,3,4',6'-TeCB	64		X				
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		X				
2,3',4,5'-TeCB	67		X				
2,3',4,5'-TeCB	68		X				
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72		X				
2,3',5',6'-TeCB	73		X				
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77		X				
3,3',4,5'-TeCB	78		X				
3,3',4,5'-TeCB	79		X				
3,3',5,5'-TeCB	80		X				
3,4,4',5'-TeCB	81		X				
2,2',3,3',4'-PeCB	82		X				
2,2',3,3',5'-PeCB	83	83 + 99	C X				
2,2',3,3',6'-PeCB	84		X				
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C X				
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C X				
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C X				
2,2',3,4,6'-PeCB	89		X				
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C X				
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		X				
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C X				
2,2',3,5,6'-PeCB	94		X				
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		X				
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		X				
2,2',4,6,6'-PeCB	104		X				
2,3,3',4,4'-PeCB	105		X				
2,3,3',4,5-PeCB	106		X				
2,3,3',4',5-PeCB	107	107 + 124	C X				
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		X				
2,3,3',4',6-PeCB	110	110 + 115	C X				
2,3,3',5,5'-PeCB	111		X				
2,3,3',5,6-PeCB	112		X				
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		X				
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		X				
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		X				
2,3',4,5',6-PeCB	121		X				
2',3,3',4,5-PeCB	122		X				
2',3,4,4',5-PeCB	123		X				
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		X				
3,3',4,5,5'-PeCB	127		X				
2,2',3,3',4,4'-HxCB	128	128 + 166	C X				
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C X				
2,2',3,3',4,5'-HxCB	130		X				
2,2',3,3',4,6-HxCB	131		X				
2,2',3,3',4,6'-HxCB	132		X				
2,2',3,3',5,5'-HxCB	133		X				
2,2',3,3',5,6-HxCB	134	134 + 143	C X				
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C X				
2,2',3,3',6,6'-HxCB	136		X				
2,2',3,4,4',5-HxCB	137		X				
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C X				
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		X				
2,2',3,4,5,6-HxCB	142		X				
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		X				
2,2',3,4,6,6'-HxCB	145		X				
2,2',3,4',5,5'-HxCB	146		X				
2,2',3,4',5,6-HxCB	147	147 + 149	C X				
2,2',3,4',5,6'-HxCB	148		X				
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		X				
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		X				
2,2',4,4',5,5'-HxCB	153	153 + 168	C X				
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		X				
2,3,3',4,4',5-HxCB	156	156 + 157	C X				
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		X				
2,3,3',4,5,5'-HxCB	159		X				
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		X				
2,3,3',4',5,5'-HxCB	162		X				
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		X				
2,3,3',5,5',6-HxCB	165		X				
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		X				
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		X				
2,2',3,3',4,4',5-HpCB	170		X				
2,2',3,3',4,4',6-HpCB	171	171 + 173	C X				
2,2',3,3',4,5,5'-HpCB	172		X				
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		X				
2,2',3,3',4,5',6-HpCB	175		X				
2,2',3,3',4,6,6'-HpCB	176		X				
2,2',3,3',4,5,6-HpCB	177		X				
2,2',3,3',5,5',6-HpCB	178		X				
2,2',3,3',5,6,6'-HpCB	179		X				
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C X				
2,2',3,4,4',5,6-HpCB	181		X				
2,2',3,4,4',5,6'-HpCB	182		X				
2,2',3,4,4',5',6-HpCB	183	183 + 185	C X				
2,2',3,4,4',6,6'-HpCB	184		X				
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		X				
2,2',3,4',5,5',6-HpCB	187		X				
2,2',3,4',5,6,6'-HpCB	188		X				
2,3,3',4,4',5,5'-HpCB	189		X				
2,3,3',4,4',5,6-HpCB	190		X				
2,3,3',4,4',5',6-HpCB	191		X				
2,3,3',4,5,5',6-HpCB	192		X				
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		X				
2,2',3,3',4,4',5,6-OxCB	195		X				
2,2',3,3',4,4',5,6'-OxCB	196		X				
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C X				
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C X				
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5',6,6'-OxCB	201		X				
2,2',3,3',5,5',6,6'-OxCB	202		X				
2,2',3,4,4',5,5',6-OxCB	203		X				
2,2',3,4,4',5,6,6'-OxCB	204		X				
2,3,3',4,4',5,5',6-OxCB	205		X				
2,2',3,3',4,4',5,5',6-NoCB	206		X				
2,2',3,3',4,4',5,6,6'-NoCB	207		X				
2,2',3,3',4,5,5',6,6'-NoCB	208		X				
2,2',3,3',4,4',5,5',6,6'-DeCB	209		X				

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; J = concentration less than lowest calibration equivalent; C = co-eluting congener; X = result reported separately.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB079
Sample Collection:
17-Aug-2018 13:53

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 12-Oct-2018 Time: 00:02:25
 Extract Volume (uL): 20
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-13 i
 Sample Size: 10.1 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_344 S: 5
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_344 S: 1
 % Lipid: 8.81

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LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L			2000	984	49.2	3.23	0.718
13C12-4-MoCB	3L			2000	906	45.3	3.18	0.858
13C12-2,2'-DiCB	4L			2000	1180	58.8	1.60	0.873
13C12-4,4'-DiCB	15L			2000	1230	61.5	1.58	1.253
13C12-2,2',6-TriCB	19L			2000	1050	52.7	1.06	1.072
13C12-3,4,4'-TriCB	37L			2000	1510	75.4	1.04	1.092
13C12-2,2',6,6'-TeCB	54L		X					
13C12-3,3',4,4'-TeCB	77L		X					
13C12-3,4,4',5-TeCB	81L		X					
13C12-2,2',4,6,6'-PeCB	104L		X					
13C12-2,3,3',4,4'-PeCB	105L		X					
13C12-2,3,4,4',5-PeCB	114L		X					
13C12-2,3',4,4',5-PeCB	118L		X					
13C12-2',3,4,4',5-PeCB	123L		X					
13C12-3,3',4,4',5-PeCB	126L		X					
13C12-2,2',4,4',6,6'-HxCB	155L		X					
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C X					
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		X					
13C12-3,3',4,4',5,5'-HxCB	169L		X					
13C12-2,2',3,3',4,4',5-HpCB	170L		X					
13C12-2,2',3,4,4',5,5'-HpCB	180L		X					
13C12-2,2',3,4',5,6,6'-HpCB	188L		X					
13C12-2,3,3',4,4',5,5'-HpCB	189L		X					
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		X					
13C12-2,3,3',4,4',5,5',6-OxCB	205L		X					
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		X					
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		X					
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		X					
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1650	82.5	1.05	0.925
13C12-2,3,3',5,5'-PeCB	111L		X					
13C12-2,2',3,3',5,5',6-HpCB	178L		X					

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB079
Sample Collection:
17-Aug-2018 13:53

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-13 W
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.1 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	17-Oct-2018 Time: 23:18:19	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_356 S: 3
Dilution Factor:	5	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_356 S: 1
		% Lipid:	8.81

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This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1		X				
3-MoCB	2		X				
4-MoCB	3		X				
2,2'-DiCB	4		X				
2,3-DiCB	5		X				
2,3'-DiCB	6		X				
2,4-DiCB	7		X				
2,4'-DiCB	8		X				
2,5-DiCB	9		X				
2,6-DiCB	10		X				
3,3'-DiCB	11		X				
3,4-DiCB	12	12 + 13	C X				
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		X				
4,4'-DiCB	15		X				
2,2',3-TriCB	16		X				
2,2',4-TriCB	17		X				
2,2',5-TriCB	18	18 + 30	C X				
2,2',6-TriCB	19		X				
2,3,3'-TriCB	20	20 + 28	C X				
2,3,4-TriCB	21	21 + 33	C X				
2,3,4'-TriCB	22		X				
2,3,5-TriCB	23		X				
2,3,6-TriCB	24		X				
2,3',4-TriCB	25		X				
2,3',5-TriCB	26	26 + 29	C X				
2,3',6-TriCB	27		X				
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31		X				
2,4',6-TriCB	32		X				
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34		X				
3,3',4-TriCB	35		X				
3,3',5-TriCB	36		X				
3,4,4'-TriCB	37		X				
3,4,5-TriCB	38		X				
3,4',5-TriCB	39		X				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C D	584	0.541 (S)	0.77	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		D	476	0.552 (S)	0.79	1.311
2,2',3,5'-TeCB	43		D	80.5	0.622 (S)	0.75	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C D	3540	0.482 (S)	0.78	1.287
2,2',3,6'-TeCB	45	45 + 51	C D	537	0.530 (S)	0.79	1.148
2,2',3,6'-TeCB	46		D	53.0	0.597 (S)	0.80	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		D	233	0.541 (S)	0.77	1.274
2,2',4,5'-TeCB	49	49 + 69	C D	2340	0.456 (S)	0.78	1.259
2,2',4,6'-TeCB	50	50 + 53	C D	287	0.509 (S)	0.75	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52		D	3130	0.493 (S)	0.77	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		D	85.3	0.307 (S)	0.78	1.001
2,3,3',4'-TeCB	55		D	52.7	7.28 (S)	0.76	0.889
2,3,3',4'-TeCB	56		D	538	7.36 (S)	0.75	0.904
2,3,3',5'-TeCB	57		D	13.2	6.71 (S)	0.73	0.843
2,3,3',5'-TeCB	58		D	15.2	7.03 (S)	0.74	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C D	208	0.392 (S)	0.73	1.303
2,3,4,4'-TeCB	60		D	516	7.30 (S)	0.77	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C D	3570	6.57 (S)	0.75	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		D	140	6.84 (S)	0.74	0.864
2,3,4',6'-TeCB	64		D	947	0.390 (S)	0.79	1.348
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		D	2710	6.63 (S)	0.76	0.884
2,3',4,5'-TeCB	67		D	56.0	5.72 (S)	0.74	0.856
2,3',4,5'-TeCB	68		D	63.5	6.63 (S)	0.69	0.830
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72		D	62.9	6.44 (S)	0.76	0.822
2,3',5',6'-TeCB	73		D	44.6	0.419 (S)	0.74	1.242
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77		D	121	6.50 (S)	0.79	1.000
3,3',4,5'-TeCB	78		U D		7.00 (S)		
3,3',4,5'-TeCB	79		D	54.5	5.60 (S)	0.78	0.969
3,3',5,5'-TeCB	80		U D		6.56 (S)		
3,4,4',5'-TeCB	81		K D	6.97	6.46 (S)	0.88	1.001
2,2',3,3',4'-PeCB	82		D	349	6.53 (S)	1.53	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C D	5430	6.03 (S)	1.59	0.885
2,2',3,3',6'-PeCB	84		D	756	6.75 (S)	1.51	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C D	1450	4.91 (S)	1.61	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C D G	3800	5.03 (S)	1.58	0.901
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C D	1020	5.83 (S)	1.59	1.155
2,2',3,4,6'-PeCB	89		D	21.2	6.36 (S)	1.72	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C D	7430	5.06 (S)	1.55	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		D	1430	6.17 (S)	1.54	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C D	4120	5.68 (S)	1.54	1.122
2,2',3,5,6'-PeCB	94		D	42.4	6.44 (S)	1.72	1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		D	34.2	0.224 (S)	1.56	1.017
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		D	184	5.19 (S)	1.50	1.094
2,2',4,6,6'-PeCB	104		D	17.7	0.224 (S)	1.56	1.001
2,3,3',4,4'-PeCB	105		D	1840	7.43 (S)	1.51	1.000
2,3,3',4,5-PeCB	106		U D		9.91 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C D	194	10.4 (S)	1.57	0.990
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		D	514	9.60 (S)	1.51	0.997
2,3,3',4',6-PeCB	110	110 + 115	C D	6050	4.40 (S)	1.57	0.925
2,3,3',5,5'-PeCB	111		D	14.6	4.41 (S)	1.66	0.945
2,3,3',5,6-PeCB	112		U D		4.42 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		D	138	11.1 (S)	1.49	1.000
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		D	5630	9.30 (S)	1.51	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		D	51.4	4.21 (S)	1.39	0.958
2,3',4,5',6-PeCB	121		D	16.4	4.62 (S)	1.71	1.200
2',3,3',4,5-PeCB	122		D	48.3	11.7 (S)	1.37	1.010
2',3,4,4',5-PeCB	123		K D	96.1	10.1 (S)	1.45	1.001
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		K D	21.7	11.9 (S)	1.39	1.000
3,3',4,5,5'-PeCB	127		D	15.7	10.4 (S)	1.60	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C D	1850	15.0 (S)	1.28	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C D	17000	15.8 (S)	1.25	0.928
2,2',3,3',4,5'-HxCB	130		D	657	20.6 (S)	1.23	0.912
2,2',3,3',4,6-HxCB	131		D	60.8	18.7 (S)	1.23	1.161
2,2',3,3',4,6'-HxCB	132		D	2200	20.5 (S)	1.23	1.176
2,2',3,3',5,5'-HxCB	133		D	280	18.8 (S)	1.15	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C D	339	19.8 (S)	1.29	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C D	3820	0.412 (S)	1.26	1.105
2,2',3,3',6,6'-HxCB	136		D	890	0.314 (S)	1.24	1.025
2,2',3,4,4',5-HxCB	137		D	500	20.7 (S)	1.23	0.918
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C D	197	17.3 (S)	1.19	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		D	1830	18.5 (S)	1.26	0.903
2,2',3,4,5,6-HxCB	142		U D		19.6 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		D	364	0.421 (S)	1.23	1.122
2,2',3,4,6,6'-HxCB	145		U D		0.332 (S)		
2,2',3,4',5,5'-HxCB	146		D	3290	16.8 (S)	1.24	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C D	8680	17.3 (S)	1.25	1.134
2,2',3,4',5,6'-HxCB	148		D	56.4	0.421 (S)	1.33	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		D	44.2	0.324 (S)	1.42	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		D	12.7	0.299 (S)	1.16	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C D	18000	14.0 (S)	1.23	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		D	16.4	0.269 (S)	1.21	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C D	990	16.3 (S)	1.23	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		D	1080	12.1 (S)	1.24	0.938
2,3,3',4,5,5'-HxCB	159		U D		13.4 (S)		
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		U D		13.5 (S)		
2,3,3',4',5,5'-HxCB	162		D	31.3	11.3 (S)	1.15	0.988
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		D	630	13.8 (S)	1.23	0.921
2,3,3',5,5',6-HxCB	165		U D		15.8 (S)		
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		D	430	13.1 (S)	1.26	1.000
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U D		15.0 (S)		
2,2',3,3',4,4',5-HpCB	170		D	2920	0.313 (S)	1.04	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C D	837	0.381 (S)	1.06	1.163
2,2',3,3',4,5,5'-HpCB	172		D	589	0.391 (S)	1.04	0.897
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		D	1730	0.357 (S)	1.07	1.134
2,2',3,3',4,5',6-HpCB	175		D	127	0.344 (S)	1.07	1.103
2,2',3,3',4,6,6'-HpCB	176		D	208	0.264 (S)	1.00	1.034
2,2',3,3',4',5,6-HpCB	177		D	1400	0.234 (S)	1.04	1.146
2,2',3,3',5,5',6-HpCB	178		D	918	0.352 (S)	1.03	1.085
2,2',3,3',5,6,6'-HpCB	179		D	871	0.257 (S)	1.06	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C D	9400	0.301 (S)	1.04	1.000
2,2',3,4,4',5,6-HpCB	181		D	22.5	0.346 (S)	1.11	1.157
2,2',3,4,4',5,6'-HpCB	182		U D		0.337 (S)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C D	2480	0.346 (S)	1.04	1.127
2,2',3,4,4',6,6'-HpCB	184		D	13.6	0.254 (S)	1.14	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U D		0.275 (S)		
2,2',3,4',5,5',6-HpCB	187		D	8030	0.315 (S)	1.06	1.111
2,2',3,4',5,6,6'-HpCB	188		D	13.8	0.277 (S)	1.18	1.001
2,3,3',4,4',5,5'-HpCB	189		D	79.3	0.973 (S)	1.00	1.000
2,3,3',4,4',5,6-HpCB	190		D	603	0.288 (S)	1.03	0.947
2,3,3',4,4',5',6-HpCB	191		D	147	0.289 (S)	1.05	0.917
2,3,3',4,5,5',6-HpCB	192		U D		0.319 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		D	1180	0.717 (S)	0.89	0.991
2,2',3,3',4,4',5,6-OxCB	195		D	592	0.775 (S)	0.88	0.945
2,2',3,3',4,4',5,6'-OxCB	196		D	897	0.449 (S)	0.92	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C D G	162	0.314 (S)	0.91	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C D	1740	0.430 (S)	0.93	1.115
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5',6,6'-OxCB	201		D	161	0.307 (S)	0.88	1.023
2,2',3,3',5,5',6,6'-OxCB	202		D	450	0.438 (S)	0.92	1.001
2,2',3,4,4',5,5',6-OxCB	203		D	1160	0.432 (S)	0.95	0.919
2,2',3,4,4',5,6,6'-OxCB	204		K D J	1.44	0.321 (S)	3.63	1.039
2,3,3',4,4',5,5',6-OxCB	205		D	47.2	0.491 (S)	0.83	1.000
2,2',3,3',4,4',5,5',6-NoCB	206		D	326	0.223 (S)	0.78	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207		D	49.1	0.173 (S)	0.80	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208		D	134	0.208 (S)	0.78	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209		D	119	0.239 (S)	1.21	1.001

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; D = dilution data; J = concentration less than lowest calibration equivalent; G = lock mass interference present; C = co-eluting congener; X = result reported separately.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB079
Sample Collection:
17-Aug-2018 13:53

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 17-Oct-2018 Time: 23:18:19
 Extract Volume (uL): 100
 Injection Volume (uL): 1.0
 Dilution Factor: 5
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-13 W
 Sample Size: 10.1 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_356 S: 3
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_356 S: 1
 % Lipid: 8.81

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LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L		X					
13C12-4-MoCB	3L		X					
13C12-2,2'-DiCB	4L		X					
13C12-4,4'-DiCB	15L		X					
13C12-2,2',6'-TriCB	19L		X					
13C12-3,4,4'-TriCB	37L		X					
13C12-2,2',6,6'-TeCB	54L		D	2000	1380	68.8	0.79	0.811
13C12-3,3',4,4'-TeCB	77L		D	2000	1420	71.0	0.77	1.398
13C12-3,4,4',5'-TeCB	81L		D	2000	1390	69.5	0.76	1.374
13C12-2,2',4,6,6'-PeCB	104L		D	2000	1190	59.7	1.60	0.808
13C12-2,3,3',4,4'-PeCB	105L		D	2000	1600	80.0	1.53	1.201
13C12-2,3,4,4',5'-PeCB	114L		D	2000	1180	59.2	1.57	1.180
13C12-2,3',4,4',5'-PeCB	118L		D	2000	1330	66.5	1.42	1.162
13C12-2',3,4,4',5'-PeCB	123L		D	2000	1310	65.6	1.57	1.152
13C12-3,3',4,4',5'-PeCB	126L		D	2000	1250	62.5	1.52	1.303
13C12-2,2',4,4',6,6'-HxCB	155L		D	2000	935	46.7	1.26	0.785
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C D	4000	2290	57.3	1.36	1.108
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		D	2000	1140	57.2	1.28	1.078
13C12-3,3',4,4',5,5'-HxCB	169L		D	2000	1340	66.8	1.23	1.192
13C12-2,2',3,3',4,4',5'-HpCB	170L		D	2000	1900	95.1	1.07	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L		D	2000	1980	98.8	1.03	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L		D	2000	1180	59.2	0.99	0.711
13C12-2,3,3',4,4',5,5'-HpCB	189L		D	2000	1380	69.2	1.13	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		D	2000	975	48.7	0.98	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L		D	2000	1830	91.5	0.90	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		D	2000	2210	111	0.82	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		D	2000	1950	97.3	0.82	0.948
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		D	2000	1640	81.9	1.19	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L		X					
13C12-2,3,3',5,5'-PeCB	111L		D	2000	1450	72.3	1.69	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L		D	2000	1230	61.4	0.99	1.011

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; D = dilution data; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB086
Sample Collection:
18-Aug-2018 08:47

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-14 i
Sample Receipt Date:	21-Aug-2018	Sample Size:	9.98 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	12-Oct-2018 Time: 01:06:09	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_344 S: 6
Dilution Factor:	N/A	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_344 S: 1
		% Lipid:	6.85

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1			5.32	0.108 (S)	2.98	1.001
3-MoCB	2			1.60	0.111 (S)	3.08	0.987
4-MoCB	3			2.58	0.110 (S)	3.07	1.001
2,2'-DiCB	4			74.4	0.130 (S)	1.48	1.001
2,3-DiCB	5			0.894	0.103 (S)	1.54	1.198
2,3'-DiCB	6			27.1	0.0925 (S)	1.51	1.177
2,4-DiCB	7			3.79	0.0960 (S)	1.49	1.158
2,4'-DiCB	8			79.4	0.0858 (S)	1.50	1.208
2,5-DiCB	9			6.21	0.0917 (S)	1.49	1.147
2,6-DiCB	10			3.66	0.0924 (S)	1.47	1.014
3,3'-DiCB	11			112	0.0951 (S)	1.51	0.969
3,4-DiCB	12	12 + 13	C	2.75	0.0972 (S)	1.43	0.984
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		K J	0.196	0.0941 (S)	1.31	0.925
4,4'-DiCB	15			18.6	0.0900 (S)	1.50	1.001
2,2',3-TriCB	16			51.9	0.0740 (Q)	1.05	1.165
2,2',4-TriCB	17			187	0.0740 (Q)	1.06	1.138
2,2',5-TriCB	18	18 + 30	C	179	0.0740 (Q)	1.06	1.114
2,2',6-TriCB	19			180	0.0764 (S)	1.04	1.001
2,3,3'-TriCB	20	20 + 28	C	634	0.337 (S)	0.99	0.848
2,3,4-TriCB	21	21 + 33	C	126	0.342 (S)	0.99	0.857
2,3,4'-TriCB	22			134	0.379 (S)	1.01	0.871
2,3,5-TriCB	23		J	0.543	0.374 (S)	0.94	1.282
2,3,6-TriCB	24			3.19	0.0740 (Q)	1.08	1.159
2,3',4-TriCB	25			52.4	0.306 (S)	1.00	0.825
2,3',5-TriCB	26	26 + 29	C	116	0.349 (S)	1.00	1.301
2,3',6-TriCB	27			44.6	0.0740 (Q)	1.09	1.151
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31			373	0.325 (S)	0.99	0.837
2,4',6-TriCB	32			98.8	0.336 (S)	0.98	1.197
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			4.82	0.360 (S)	0.96	1.272
3,3',4-TriCB	35		U		0.333 (S)		
3,3',5-TriCB	36		U		0.323 (S)		
3,4,4'-TriCB	37			44.4	0.304 (S)	1.00	1.001
3,4,5-TriCB	38		K	1.22	0.340 (S)	0.87	0.968
3,4',5-TriCB	39			4.41	0.341 (S)	0.97	0.946

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C	335	0.126 (S)	0.79	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			214	0.135 (S)	0.79	1.312
2,2',3,5'-TeCB	43			31.0	0.168 (S)	0.81	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	1450	0.117 (S)	0.79	1.286
2,2',3,6'-TeCB	45	45 + 51	C	185	0.130 (S)	0.79	1.148
2,2',3,6'-TeCB	46			24.9	0.149 (S)	0.78	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			116	0.129 (S)	0.79	1.273
2,2',4,5'-TeCB	49	49 + 69	C	968	0.109 (S)	0.79	1.259
2,2',4,6'-TeCB	50	50 + 53	C	181	0.126 (S)	0.80	1.112
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			1510	0.120 (S)	0.79	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			40.3	0.110 (S)	0.80	1.001
2,3,3',4'-TeCB	55			7.79	0.945 (S)	0.73	0.889
2,3,3',4'-TeCB	56			282	0.949 (S)	0.75	0.905
2,3,3',5'-TeCB	57			5.29	0.883 (S)	0.72	0.843
2,3,3',5'-TeCB	58			9.51	0.919 (S)	0.77	0.852
2,3,3',6'-TeCB	59	59 + 62 + 75	C	93.6	0.0961 (S)	0.80	1.303
2,3,4,4'-TeCB	60			273	0.959 (S)	0.75	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	1900	0.876 (S)	0.76	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			83.7	0.879 (S)	0.75	0.864
2,3,4',6'-TeCB	64			407	0.0924 (S)	0.79	1.349
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		G	1250	0.852 (S)	0.77	0.884
2,3',4,5'-TeCB	67			26.6	0.790 (S)	0.75	0.856
2,3',4,5'-TeCB	68			36.4	0.863 (S)	0.76	0.831
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72			36.1	0.848 (S)	0.76	0.822
2,3',5',6'-TeCB	73			12.4	0.0934 (S)	0.76	1.241
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77			61.3	0.813 (S)	0.75	1.000
3,3',4,5'-TeCB	78		U		0.900 (S)		
3,3',4,5'-TeCB	79			32.5	0.736 (S)	0.75	0.969
3,3',5,5'-TeCB	80			0.876	0.827 (S)	0.81	0.923
3,4,4',5'-TeCB	81		K	3.39	0.831 (S)	0.81	1.000
2,2',3,3',4'-PeCB	82			220	0.748 (S)	1.57	0.933
2,2',3,3',5'-PeCB	83	83 + 99	C	3400	0.689 (S)	1.60	0.885
2,2',3,3',6'-PeCB	84			383	0.764 (S)	1.60	1.163
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	904	0.569 (S)	1.57	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	1960	0.592 (S)	1.59	0.901
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C	471	0.681 (S)	1.59	1.154
2,2',3,4,6'-PeCB	89			12.2	0.713 (S)	1.54	1.182
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	4300	0.607 (S)	1.58	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			854	0.692 (S)	1.61	0.852
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	2120	0.664 (S)	1.59	1.121
2,2',3,5,6'-PeCB	94			18.7	0.745 (S)	1.67	1.102
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			17.3	0.154 (S)	1.65	1.016
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103			76.7	0.608 (S)	1.59	1.093
2,2',4,6,6'-PeCB	104			5.55	0.168 (S)	1.58	1.001
2,3,3',4,4'-PeCB	105			1480	4.50 (S)	1.51	1.001
2,3,3',4,5-PeCB	106		U		4.36 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	132	4.45 (S)	1.53	0.990
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109			458	4.41 (S)	1.51	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	3400	0.512 (S)	1.57	0.925
2,3,3',5,5'-PeCB	111			9.44	0.509 (S)	1.42	0.945
2,3,3',5,6-PeCB	112		U		0.521 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			105	3.87 (S)	1.50	1.001
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118			4420	3.77 (S)	1.52	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120			39.4	0.480 (S)	1.54	0.958
2,3',4,5',6-PeCB	121			9.04	0.528 (S)	1.58	1.199
2',3,3',4,5-PeCB	122			26.7	4.77 (S)	1.46	1.010
2',3,4,4',5-PeCB	123		K	72.3	3.94 (S)	1.52	1.001
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		K	29.4	4.11 (S)	1.38	1.001
3,3',4,5,5'-PeCB	127			12.8	4.28 (S)	1.47	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1490	5.97 (S)	1.27	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	12200	6.10 (S)	1.26	0.929
2,2',3,3',4,5'-HxCB	130			508	7.72 (S)	1.27	0.913
2,2',3,3',4,6-HxCB	131			46.1	7.65 (S)	1.27	1.160
2,2',3,3',4,6'-HxCB	132			1220	7.78 (S)	1.27	1.176
2,2',3,3',5,5'-HxCB	133			259	7.23 (S)	1.25	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	211	7.40 (S)	1.20	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	2810	0.343 (S)	1.26	1.105
2,2',3,3',6,6'-HxCB	136			430	0.265 (S)	1.26	1.025
2,2',3,4,4',5-HxCB	137			453	7.33 (S)	1.27	0.918
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C	155	6.72 (S)	1.28	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			1320	6.59 (S)	1.27	0.904
2,2',3,4,5,6-HxCB	142		U		7.43 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			267	0.358 (S)	1.25	1.122
2,2',3,4,6,6'-HxCB	145			0.830	0.286 (S)	1.31	1.035
2,2',3,4',5,5'-HxCB	146			2240	6.12 (S)	1.26	0.884
2,2',3,4',5,6-HxCB	147	147 + 149	C	4760	6.63 (S)	1.26	1.134
2,2',3,4',5,6'-HxCB	148			31.3	0.352 (S)	1.30	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			19.4	0.275 (S)	1.27	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			7.49	0.260 (S)	1.28	1.008
2,2',4,4',5,5'-HxCB	153	153 + 168	C	13400	5.48 (S)	1.27	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155			13.9	0.260 (S)	1.26	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	1060	6.62 (S)	1.26	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			972	4.69 (S)	1.26	0.938
2,3,3',4,5,5'-HxCB	159			61.8	4.99 (S)	1.24	0.981
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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2,3,3',4,5',6-HxCB	161		U		5.13 (S)		
2,3,3',4',5,5'-HxCB	162			33.6	4.91 (S)	1.29	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			462	5.10 (S)	1.26	0.921
2,3,3',5,5',6-HxCB	165			12.9	5.87 (S)	1.26	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			460	5.27 (S)	1.27	1.001
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U		32.1 (S)		
2,2',3,3',4,4',5-HpCB	170			3410	0.341 (S)	1.05	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	1070	0.368 (S)	1.05	1.163
2,2',3,3',4,5,5'-HpCB	172			746	0.373 (S)	1.06	0.896
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174			1350	0.327 (S)	1.05	1.134
2,2',3,3',4,5',6-HpCB	175			140	0.340 (S)	1.05	1.103
2,2',3,3',4,6,6'-HpCB	176			152	0.259 (S)	1.06	1.035
2,2',3,3',4',5,6-HpCB	177			1540	0.324 (S)	1.05	1.146
2,2',3,3',5,5',6-HpCB	178			953	0.350 (S)	1.04	1.086
2,2',3,3',5,6,6'-HpCB	179			651	0.254 (S)	1.06	1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	11600	0.328 (S)	1.05	1.000
2,2',3,4,4',5,6-HpCB	181			30.1	0.347 (S)	1.08	1.157
2,2',3,4,4',5,6'-HpCB	182			19.3	0.332 (S)	1.05	1.117
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	2750	0.332 (S)	1.05	1.128
2,2',3,4,4',6,6'-HpCB	184			14.5	0.253 (S)	1.05	1.025
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.268 (S)		
2,2',3,4',5,5',6-HpCB	187			7140	0.313 (S)	1.05	1.111
2,2',3,4',5,6,6'-HpCB	188			13.4	0.276 (S)	1.05	1.001
2,3,3',4,4',5,5'-HpCB	189			125	0.484 (S)	1.01	1.000
2,3,3',4,4',5,6-HpCB	190			781	0.269 (S)	1.05	0.946
2,3,3',4,4',5',6-HpCB	191			164	0.269 (S)	1.06	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.300 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			1410	0.725 (S)	0.90	0.991
2,2',3,3',4,4',5,6-OxCB	195			892	0.777 (S)	0.90	0.945
2,2',3,3',4,4',5,6'-OxCB	196			1150	0.0774 (S)	0.90	0.914
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C G	174	0.0740 (Q)	0.90	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	2710	0.0831 (S)	0.90	1.115
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5,6,6'-OxCB	201			241	0.0740 (Q)	0.91	1.023
2,2',3,3',5,5',6,6'-OxCB	202			573	0.0740 (Q)	0.90	1.001
2,2',3,4,4',5,5',6-OxCB	203			1710	0.0772 (S)	0.91	0.918
2,2',3,4,4',5,6,6'-OxCB	204			1.71	0.0740 (Q)	0.93	1.039
2,3,3',4,4',5,5',6-OxCB	205			88.9	0.669 (S)	0.90	1.000
2,2',3,3',4,4',5,5',6-NoCB	206			525	0.191 (S)	0.80	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207			70.1	0.135 (S)	0.81	1.019
2,2',3,3',4,5,5',6,6'-NoCB	208			187	0.158 (S)	0.80	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			178	0.0740 (Q)	1.17	1.000

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent; G = lock mass interference present; C = co-eluting congener.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB086
Sample Collection:
18-Aug-2018 08:47

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 12-Oct-2018 Time: 01:06:09
 Extract Volume (uL): 20
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-14 i
 Sample Size: 9.98 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_344 S: 6
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_344 S: 1
 % Lipid: 6.85

This page is part of a total report that contains information necessary for accreditation compliance.
 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L			2000	1030	51.4	3.25	0.718
13C12-4-MoCB	3L			2000	1170	58.6	3.18	0.858
13C12-2,2'-DiCB	4L			2000	1260	63.1	1.59	0.873
13C12-4,4'-DiCB	15L			2000	1590	79.5	1.57	1.253
13C12-2,2',6-TriCB	19L			2000	1160	57.8	1.06	1.072
13C12-3,4,4'-TriCB	37L			2000	1910	95.3	1.05	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1390	69.6	0.82	0.811
13C12-3,3',4,4'-TeCB	77L			2000	2260	113	0.75	1.397
13C12-3,4,4',5-TeCB	81L			2000	2270	113	0.75	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	1200	59.8	1.60	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1820	90.9	1.57	1.200
13C12-2,3,4,4',5-PeCB	114L			2000	2040	102	1.59	1.179
13C12-2,3',4,4',5-PeCB	118L			2000	2070	103	1.55	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	2070	103	1.54	1.151
13C12-3,3',4,4',5-PeCB	126L			2000	2130	107	1.56	1.301
13C12-2,2',4,4',6,6'-HxCB	155L			2000	1070	53.3	1.29	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	3440	86.1	1.27	1.108
13C12-2,3,3',4,4',5-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			2000	1680	84.0	1.29	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1710	85.5	1.27	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	2980	149	1.05	0.896
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	2860	143	1.06	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1920	96.0	1.04	0.711
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	2320	116	1.02	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	1530	76.3	0.93	0.816
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	2140	107	0.90	1.010
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	2290	115	0.79	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	2330	117	0.77	0.948
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	1810	90.3	1.20	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1840	92.1	1.02	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1680	84.2	1.61	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1320	66.2	1.06	1.011

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB057
Sample Collection:
17-Aug-2018 11:12

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-15 i
Sample Receipt Date:	21-Aug-2018	Sample Size:	9.85 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	12-Oct-2018 Time: 02:09:55	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_344 S: 7
Dilution Factor:	N/A	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_344 S: 1
		% Lipid:	4.89

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1			8.84	0.0744 (Q)	3.08	1.001
3-MoCB	2			1.03	0.0744 (Q)	3.21	0.987
4-MoCB	3			2.60	0.0744 (Q)	2.98	1.001
2,2'-DiCB	4			183	0.137 (S)	1.49	1.001
2,3-DiCB	5			1.31	0.120 (S)	1.67	1.198
2,3'-DiCB	6			26.7	0.108 (S)	1.51	1.176
2,4-DiCB	7			5.70	0.112 (S)	1.52	1.158
2,4'-DiCB	8			100	0.100 (S)	1.50	1.208
2,5-DiCB	9			7.27	0.107 (S)	1.53	1.146
2,6-DiCB	10			12.1	0.108 (S)	1.51	1.014
3,3'-DiCB	11			59.4	0.111 (S)	1.50	0.968
3,4-DiCB	12	12 + 13	C	3.11	0.114 (S)	1.65	0.983
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		J	0.178	0.110 (S)	1.42	0.925
4,4'-DiCB	15			38.6	0.112 (S)	1.45	1.000
2,2',3-TriCB	16			99.5	0.0744 (Q)	1.06	1.165
2,2',4-TriCB	17			236	0.0744 (Q)	1.07	1.137
2,2',5-TriCB	18	18 + 30	C	360	0.0744 (Q)	1.07	1.113
2,2',6-TriCB	19			317	0.0744 (Q)	1.06	1.001
2,3,3'-TriCB	20	20 + 28	C	1190	0.538 (S)	1.00	0.848
2,3,4-TriCB	21	21 + 33	C	196	0.546 (S)	0.99	0.857
2,3,4'-TriCB	22			237	0.605 (S)	1.00	0.871
2,3,5-TriCB	23			1.03	0.597 (S)	1.05	1.281
2,3,6-TriCB	24			5.85	0.0744 (Q)	1.07	1.159
2,3',4-TriCB	25			65.1	0.488 (S)	0.98	0.825
2,3',5-TriCB	26	26 + 29	C	160	0.557 (S)	0.98	1.300
2,3',6-TriCB	27			62.6	0.0744 (Q)	1.07	1.151
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31			564	0.519 (S)	0.99	0.836
2,4',6-TriCB	32			205	0.536 (S)	0.98	1.196
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			6.13	0.574 (S)	1.00	1.272
3,3',4-TriCB	35		U		0.531 (S)		
3,3',5-TriCB	36		U		0.515 (S)		
3,4,4'-TriCB	37			68.5	0.505 (S)	0.98	1.001
3,4,5-TriCB	38			1.64	0.542 (S)	0.90	0.968
3,4',5-TriCB	39			7.35	0.544 (S)	1.02	0.946

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C X				
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		X				
2,2',3,5'-TeCB	43		X				
2,2',3,5'-TeCB	44	44 + 47 + 65	C X				
2,2',3,6'-TeCB	45	45 + 51	C X				
2,2',3,6'-TeCB	46		X				
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		X				
2,2',4,5'-TeCB	49	49 + 69	C X				
2,2',4,6'-TeCB	50	50 + 53	C X				
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52		X				
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		X				
2,3,3',4'-TeCB	55		X				
2,3,3',4'-TeCB	56		X				
2,3,3',5'-TeCB	57		X				
2,3,3',5'-TeCB	58		X				
2,3,3',6'-TeCB	59	59 + 62 + 75	C X				
2,3,4,4'-TeCB	60		X				
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C X				
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		X				
2,3,4',6'-TeCB	64		X				
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		X				
2,3',4,5'-TeCB	67		X				
2,3',4,5'-TeCB	68		X				
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72		X				
2,3',5',6'-TeCB	73		X				
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77		X				
3,3',4,5'-TeCB	78		X				
3,3',4,5'-TeCB	79		X				
3,3',5,5'-TeCB	80		X				
3,4,4',5'-TeCB	81		X				
2,2',3,3',4'-PeCB	82		X				
2,2',3,3',5'-PeCB	83	83 + 99	C X				
2,2',3,3',6'-PeCB	84		X				
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C X				
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C X				
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C X				
2,2',3,4,6'-PeCB	89		X				
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C X				
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		X				
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C X				
2,2',3,5,6'-PeCB	94		X				
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		X				
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		X				
2,2',4,6,6'-PeCB	104		X				
2,3,3',4,4'-PeCB	105		X				
2,3,3',4,5-PeCB	106		X				
2,3,3',4',5-PeCB	107	107 + 124	C X				
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		X				
2,3,3',4',6-PeCB	110	110 + 115	C X				
2,3,3',5,5'-PeCB	111		X				
2,3,3',5,6-PeCB	112		X				
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		X				
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		X				
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		X				
2,3',4,5',6-PeCB	121		X				
2',3,3',4,5-PeCB	122		X				
2',3,4,4',5-PeCB	123		X				
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		X				
3,3',4,5,5'-PeCB	127		X				
2,2',3,3',4,4'-HxCB	128	128 + 166	C X				
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C X				
2,2',3,3',4,5'-HxCB	130		X				
2,2',3,3',4,6-HxCB	131		X				
2,2',3,3',4,6'-HxCB	132		X				
2,2',3,3',5,5'-HxCB	133		X				
2,2',3,3',5,6-HxCB	134	134 + 143	C X				
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C X				
2,2',3,3',6,6'-HxCB	136		X				
2,2',3,4,4',5-HxCB	137		X				
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C X				
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		X				
2,2',3,4,5,6-HxCB	142		X				
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		X				
2,2',3,4,6,6'-HxCB	145		X				
2,2',3,4',5,5'-HxCB	146		X				
2,2',3,4',5,6-HxCB	147	147 + 149	C X				
2,2',3,4',5,6'-HxCB	148		X				
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		X				
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		X				
2,2',4,4',5,5'-HxCB	153	153 + 168	C X				
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		X				
2,3,3',4,4',5-HxCB	156	156 + 157	C X				
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		X				
2,3,3',4,5,5'-HxCB	159		X				
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		X				
2,3,3',4',5,5'-HxCB	162		X				
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		X				
2,3,3',5,5',6-HxCB	165		X				
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		X				
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		X				
2,2',3,3',4,4',5-HpCB	170		X				
2,2',3,3',4,4',6-HpCB	171	171 + 173	C X				
2,2',3,3',4,5,5'-HpCB	172		X				
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		X				
2,2',3,3',4,5',6-HpCB	175		X				
2,2',3,3',4,6,6'-HpCB	176		X				
2,2',3,3',4,5,6-HpCB	177		X				
2,2',3,3',5,5',6-HpCB	178		X				
2,2',3,3',5,6,6'-HpCB	179		X				
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C X				
2,2',3,4,4',5,6-HpCB	181		X				
2,2',3,4,4',5,6'-HpCB	182		X				
2,2',3,4,4',5',6-HpCB	183	183 + 185	C X				
2,2',3,4,4',6,6'-HpCB	184		X				
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		X				
2,2',3,4',5,5',6-HpCB	187		X				
2,2',3,4',5,6,6'-HpCB	188		X				
2,3,3',4,4',5,5'-HpCB	189		X				
2,3,3',4,4',5,6-HpCB	190		X				
2,3,3',4,4',5',6-HpCB	191		X				
2,3,3',4,5,5',6-HpCB	192		X				
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		X				
2,2',3,3',4,4',5,6-OxCB	195		X				
2,2',3,3',4,4',5,6'-OxCB	196		X				
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C X				
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C X				
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5',6,6'-OxCB	201		X				
2,2',3,3',5,5',6,6'-OxCB	202		X				
2,2',3,4,4',5,5',6-OxCB	203		X				
2,2',3,4,4',5,6,6'-OxCB	204		X				
2,3,3',4,4',5,5',6-OxCB	205		X				
2,2',3,3',4,4',5,5',6-NoCB	206		X				
2,2',3,3',4,4',5,6,6'-NoCB	207		X				
2,2',3,3',4,5,5',6,6'-NoCB	208		X				
2,2',3,3',4,4',5,5',6,6'-DeCB	209		X				

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; J = concentration less than lowest calibration equivalent; C = co-eluting congener; X = result reported separately.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB057
Sample Collection:
17-Aug-2018 11:12

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 12-Oct-2018 Time: 02:09:55
 Extract Volume (uL): 20
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-15 i
 Sample Size: 9.85 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_344 S: 7
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_344 S: 1
 % Lipid: 4.89

This page is part of a total report that contains information necessary for accreditation compliance.
 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L			2000	922	46.1	3.27	0.718
13C12-4-MoCB	3L			2000	956	47.8	3.18	0.858
13C12-2,2'-DiCB	4L			2000	1160	57.8	1.58	0.873
13C12-4,4'-DiCB	15L			2000	1290	64.4	1.57	1.253
13C12-2,2',6-TriCB	19L			2000	1120	56.1	1.08	1.072
13C12-3,4,4'-TriCB	37L			2000	1700	84.9	1.04	1.092
13C12-2,2',6,6'-TeCB	54L		X					
13C12-3,3',4,4'-TeCB	77L		X					
13C12-3,4,4',5-TeCB	81L		X					
13C12-2,2',4,6,6'-PeCB	104L		X					
13C12-2,3,3',4,4'-PeCB	105L		X					
13C12-2,3,4,4',5-PeCB	114L		X					
13C12-2,3',4,4',5-PeCB	118L		X					
13C12-2',3,4,4',5-PeCB	123L		X					
13C12-3,3',4,4',5-PeCB	126L		X					
13C12-2,2',4,4',6,6'-HxCB	155L		X					
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C X					
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		X					
13C12-3,3',4,4',5,5'-HxCB	169L		X					
13C12-2,2',3,3',4,4',5-HpCB	170L		X					
13C12-2,2',3,4,4',5,5'-HpCB	180L		X					
13C12-2,2',3,4',5,6,6'-HpCB	188L		X					
13C12-2,3,3',4,4',5,5'-HpCB	189L		X					
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		X					
13C12-2,3,3',4,4',5,5',6-OxCB	205L		X					
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		X					
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		X					
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		X					
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1830	91.4	1.03	0.925
13C12-2,3,3',5,5'-PeCB	111L		X					
13C12-2,2',3,3',5,5',6-HpCB	178L		X					

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB057
Sample Collection:
17-Aug-2018 11:12

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-15 W
Sample Receipt Date:	21-Aug-2018	Sample Size:	9.85 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	18-Oct-2018 Time: 00:22:10	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_356 S: 4
Dilution Factor:	5	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_356 S: 1
		% Lipid:	4.89

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This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1		X				
3-MoCB	2		X				
4-MoCB	3		X				
2,2'-DiCB	4		X				
2,3-DiCB	5		X				
2,3'-DiCB	6		X				
2,4-DiCB	7		X				
2,4'-DiCB	8		X				
2,5-DiCB	9		X				
2,6-DiCB	10		X				
3,3'-DiCB	11		X				
3,4-DiCB	12	12 + 13	C X				
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		X				
4,4'-DiCB	15		X				
2,2',3-TriCB	16		X				
2,2',4-TriCB	17		X				
2,2',5-TriCB	18	18 + 30	C X				
2,2',6-TriCB	19		X				
2,3,3'-TriCB	20	20 + 28	C X				
2,3,4-TriCB	21	21 + 33	C X				
2,3,4'-TriCB	22		X				
2,3,5-TriCB	23		X				
2,3,6-TriCB	24		X				
2,3',4-TriCB	25		X				
2,3',5-TriCB	26	26 + 29	C X				
2,3',6-TriCB	27		X				
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31		X				
2,4',6-TriCB	32		X				
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34		X				
3,3',4-TriCB	35		X				
3,3',5-TriCB	36		X				
3,4,4'-TriCB	37		X				
3,4,5-TriCB	38		X				
3,4',5-TriCB	39		X				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C D	499	0.554 (S)	0.75	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		D	368	0.565 (S)	0.74	1.311
2,2',3,5'-TeCB	43		D	69.4	0.638 (S)	0.80	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C D	3080	0.494 (S)	0.76	1.286
2,2',3,6'-TeCB	45	45 + 51	C D	262	0.543 (S)	0.81	1.147
2,2',3,6'-TeCB	46		D	39.6	0.612 (S)	0.74	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		D	207	0.554 (S)	0.73	1.274
2,2',4,5'-TeCB	49	49 + 69	C D	1730	0.467 (S)	0.78	1.259
2,2',4,6'-TeCB	50	50 + 53	C D	212	0.522 (S)	0.79	1.110
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52		D	3830	0.505 (S)	0.77	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		D	40.7	0.371 (S)	0.81	1.001
2,3,3',4'-TeCB	55		D	49.8	8.13 (S)	0.82	0.888
2,3,3',4'-TeCB	56		D	384	8.22 (S)	0.75	0.904
2,3,3',5'-TeCB	57		D	7.79	7.50 (S)	0.81	0.843
2,3,3',5'-TeCB	58		D	8.73	7.85 (S)	0.79	0.850
2,3,3',6'-TeCB	59	59 + 62 + 75	C D	154	0.402 (S)	0.71	1.302
2,3,4,4'-TeCB	60		D	471	8.16 (S)	0.76	0.910
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C D	3670	7.33 (S)	0.76	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		D	142	7.64 (S)	0.74	0.864
2,3,4',6'-TeCB	64		D	816	0.399 (S)	0.77	1.348
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		D	2930	7.41 (S)	0.75	0.884
2,3',4,5'-TeCB	67		D	31.4	6.39 (S)	0.82	0.855
2,3',4,5'-TeCB	68		D	50.8	7.41 (S)	0.81	0.831
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72		D	46.9	7.19 (S)	0.79	0.822
2,3',5',6'-TeCB	73		D	40.7	0.430 (S)	0.73	1.242
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77		D	107	6.90 (S)	0.70	1.000
3,3',4,5'-TeCB	78		U D		7.82 (S)		
3,3',4,5'-TeCB	79		D	159	6.26 (S)	0.71	0.972
3,3',5,5'-TeCB	80		U D		7.32 (S)		
3,4,4',5'-TeCB	81		K D	6.69	6.52 (S)	0.74	1.000
2,2',3,3',4'-PeCB	82		D	404	4.74 (S)	1.60	0.933
2,2',3,3',5'-PeCB	83	83 + 99	C D	7510	4.38 (S)	1.58	0.885
2,2',3,3',6'-PeCB	84		D	763	4.90 (S)	1.50	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C D	2180	3.56 (S)	1.59	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C D G	5100	3.65 (S)	1.57	0.901
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C D	850	4.23 (S)	1.60	1.155
2,2',3,4,6'-PeCB	89		D	17.7	4.61 (S)	1.49	1.184
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C D	9810	3.67 (S)	1.58	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		D	1800	4.48 (S)	1.54	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C D	4070	4.12 (S)	1.57	1.121
2,2',3,5,6'-PeCB	94		D	18.2	4.68 (S)	1.61	1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		D	18.6	0.215 (S)	1.40	1.016
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		D	90.6	3.77 (S)	1.61	1.093
2,2',4,6,6'-PeCB	104		D	4.95	0.236 (S)	1.32	1.001
2,3,3',4,4'-PeCB	105		D	3610	12.7 (S)	1.51	1.000
2,3,3',4,5-PeCB	106		U D		14.7 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C D	326	15.5 (S)	1.46	0.990
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		D	864	14.2 (S)	1.52	0.997
2,3,3',4',6-PeCB	110	110 + 115	C D	8360	3.19 (S)	1.56	0.924
2,3,3',5,5'-PeCB	111		K D	10.7	3.20 (S)	2.02	0.945
2,3,3',5,6-PeCB	112		U D		3.21 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		D	284	15.9 (S)	1.47	1.000
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		D	10900	12.0 (S)	1.51	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		D	33.5	3.06 (S)	1.54	0.958
2,3',4,5',6-PeCB	121		D	9.30	3.35 (S)	1.49	1.200
2',3,3',4,5-PeCB	122		K D	51.8	17.3 (S)	1.28	1.010
2',3,4,4',5-PeCB	123		K D	190	14.0 (S)	1.55	1.000
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		K D	17.0	16.8 (S)	1.63	1.000
3,3',4,5,5'-PeCB	127		D	28.0	15.4 (S)	1.43	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C D	2260	15.2 (S)	1.23	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C D	22000	16.0 (S)	1.24	0.928
2,2',3,3',4,5'-HxCB	130		D	810	20.8 (S)	1.24	0.913
2,2',3,3',4,6-HxCB	131		D	70.6	18.8 (S)	1.37	1.161
2,2',3,3',4,6'-HxCB	132		D	1910	20.7 (S)	1.26	1.176
2,2',3,3',5,5'-HxCB	133		D	286	18.9 (S)	1.20	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C D	365	19.9 (S)	1.21	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C D	3040	0.490 (S)	1.26	1.105
2,2',3,3',6,6'-HxCB	136		D	566	0.374 (S)	1.20	1.025
2,2',3,4,4',5-HxCB	137		D	982	20.8 (S)	1.22	0.918
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C D	292	17.4 (S)	1.25	1.153
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		D	1560	18.6 (S)	1.27	0.903
2,2',3,4,5,6-HxCB	142		U D		19.8 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		D	332	0.501 (S)	1.30	1.122
2,2',3,4,6,6'-HxCB	145		U D		0.395 (S)		
2,2',3,4',5,5'-HxCB	146		D	3200	16.9 (S)	1.25	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C D	7050	17.4 (S)	1.24	1.134
2,2',3,4',5,6'-HxCB	148		D	34.6	0.501 (S)	1.24	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		D	17.6	0.386 (S)	1.25	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		K D	8.26	0.356 (S)	0.84	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C D	16200	14.1 (S)	1.25	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		D	8.44	0.341 (S)	1.31	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C D	1750	15.6 (S)	1.25	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		D	1240	12.2 (S)	1.24	0.938
2,3,3',4,5,5'-HxCB	159		D	49.4	13.5 (S)	1.17	0.981
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		U D		13.6 (S)		
2,3,3',4',5,5'-HxCB	162		D	50.3	11.3 (S)	1.39	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		D	726	13.9 (S)	1.26	0.921
2,3,3',5,5',6-HxCB	165		U D		15.9 (S)		
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		D	614	12.9 (S)	1.24	1.000
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U D		13.2 (S)		
2,2',3,3',4,4',5-HpCB	170		D	2030	0.513 (S)	1.03	1.001
2,2',3,3',4,4',6-HpCB	171	171 + 173	C D	574	0.605 (S)	1.04	1.163
2,2',3,3',4,5,5'-HpCB	172		D	383	0.621 (S)	1.05	0.896
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		D	989	0.567 (S)	1.09	1.134
2,2',3,3',4,5',6-HpCB	175		D	75.4	0.546 (S)	1.12	1.103
2,2',3,3',4,6,6'-HpCB	176		D	96.7	0.419 (S)	1.08	1.034
2,2',3,3',4',5,6-HpCB	177		D	766	0.372 (S)	1.03	1.146
2,2',3,3',5,5',6-HpCB	178		D	602	0.558 (S)	1.04	1.085
2,2',3,3',5,6,6'-HpCB	179		D	436	0.407 (S)	1.08	1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C D	6170	0.480 (S)	1.06	1.000
2,2',3,4,4',5,6-HpCB	181		D	35.0	0.549 (S)	1.10	1.157
2,2',3,4,4',5,6'-HpCB	182		U D		0.535 (S)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C D	1550	0.549 (S)	1.06	1.127
2,2',3,4,4',6,6'-HpCB	184		D	8.74	0.404 (S)	1.10	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U D		0.437 (S)		
2,2',3,4',5,5',6-HpCB	187		D	5470	0.501 (S)	1.04	1.111
2,2',3,4',5,6,6'-HpCB	188		D	9.53	0.426 (S)	1.18	1.001
2,3,3',4,4',5,5'-HpCB	189		D	65.0	0.664 (S)	0.92	1.000
2,3,3',4,4',5,6-HpCB	190		D	496	0.457 (S)	1.07	0.947
2,3,3',4,4',5',6-HpCB	191		D	106	0.459 (S)	1.06	0.917
2,3,3',4,5,5',6-HpCB	192		U D		0.507 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		D	792	0.778 (S)	0.88	0.991
2,2',3,3',4,4',5,6-OxCB	195		D	380	0.841 (S)	0.91	0.945
2,2',3,3',4,4',5,6'-OxCB	196		D	525	0.409 (S)	0.92	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C D	82.4	0.287 (S)	0.94	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C D	1100	0.392 (S)	0.90	1.115
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5,6,6'-OxCB	201		D	87.1	0.280 (S)	0.87	1.023
2,2',3,3',5,5',6,6'-OxCB	202		D	268	0.397 (S)	0.93	1.000
2,2',3,4,4',5,5',6-OxCB	203		D	744	0.394 (S)	0.90	0.919
2,2',3,4,4',5,6,6'-OxCB	204		K D J	0.689	0.293 (S)	1.36	1.039
2,3,3',4,4',5,5',6-OxCB	205		D	37.5	0.532 (S)	0.90	1.000
2,2',3,3',4,4',5,5',6-NoCB	206		D	320	0.296 (S)	0.76	1.001
2,2',3,3',4,4',5,6,6'-NoCB	207		D	40.9	0.228 (S)	0.78	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208		D	110	0.274 (S)	0.82	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209		D	133	0.245 (S)	1.17	1.001

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; D = dilution data; J = concentration less than lowest calibration equivalent; G = lock mass interference present; C = co-eluting congener; X = result reported separately.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB057
Sample Collection:
17-Aug-2018 11:12

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 18-Oct-2018 Time: 00:22:10
 Extract Volume (uL): 100
 Injection Volume (uL): 1.0
 Dilution Factor: 5
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-15 W
 Sample Size: 9.85 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_356 S: 4
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_356 S: 1
 % Lipid: 4.89

This page is part of a total report that contains information necessary for accreditation compliance.
 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L		X					
13C12-4-MoCB	3L		X					
13C12-2,2'-DiCB	4L		X					
13C12-4,4'-DiCB	15L		X					
13C12-2,2',6'-TriCB	19L		X					
13C12-3,4,4'-TriCB	37L		X					
13C12-2,2',6,6'-TeCB	54L		D	2000	1330	66.5	0.83	0.811
13C12-3,3',4,4'-TeCB	77L		D	2000	1580	79.0	0.74	1.398
13C12-3,4,4',5'-TeCB	81L		D	2000	1710	85.3	0.78	1.374
13C12-2,2',4,6,6'-PeCB	104L		D	2000	1220	60.9	1.72	0.808
13C12-2,3,3',4,4'-PeCB	105L		D	2000	1570	78.6	1.61	1.201
13C12-2,3,4,4',5'-PeCB	114L		D	2000	1320	65.9	1.61	1.180
13C12-2,3',4,4',5'-PeCB	118L		D	2000	1600	80.2	1.63	1.162
13C12-2',3,4,4',5'-PeCB	123L		D	2000	1510	75.3	1.57	1.152
13C12-3,3',4,4',5'-PeCB	126L		D	2000	1340	67.0	1.63	1.302
13C12-2,2',4,4',6,6'-HxCB	155L		D	2000	845	42.3	1.25	0.785
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C D	4000	2290	57.3	1.30	1.108
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		D	2000	1170	58.5	1.29	1.078
13C12-3,3',4,4',5,5'-HxCB	169L		D	2000	1190	59.7	1.20	1.192
13C12-2,2',3,3',4,4',5'-HpCB	170L		D	2000	1960	98.0	1.12	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L		D	2000	2000	100	1.04	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L		D	2000	1230	61.7	1.04	0.711
13C12-2,3,3',4,4',5,5'-HpCB	189L		D	2000	1430	71.4	1.09	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		D	2000	1030	51.7	0.93	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L		D	2000	1870	93.7	0.92	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		D	2000	1900	95.2	0.80	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		D	2000	1790	89.3	0.83	0.948
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		D	2000	1570	78.3	1.25	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L		X					
13C12-2,3,3',5,5'-PeCB	111L		D	2000	1470	73.7	1.54	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L		D	2000	1190	59.6	1.05	1.011

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; D = dilution data; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB090
Sample Collection:
18-Aug-2018 07:50

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-16 i
Sample Receipt Date:	21-Aug-2018	Sample Size:	9.98 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	12-Oct-2018 Time: 05:20:58	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_344 S: 10
Dilution Factor:	N/A	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_344 S: 1
		% Lipid:	5.34

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This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1			4.40	0.0729 (Q)	3.05	1.000
3-MoCB	2			0.949	0.0729 (Q)	3.38	0.988
4-MoCB	3			1.71	0.0729 (Q)	3.35	1.001
2,2'-DiCB	4			277	0.194 (S)	1.49	1.001
2,3-DiCB	5		K	0.629	0.199 (S)	1.15	1.197
2,3'-DiCB	6			14.6	0.180 (S)	1.48	1.175
2,4-DiCB	7			2.79	0.187 (S)	1.48	1.158
2,4'-DiCB	8			64.8	0.167 (S)	1.50	1.206
2,5-DiCB	9			4.15	0.178 (S)	1.52	1.146
2,6-DiCB	10			23.3	0.180 (S)	1.50	1.013
3,3'-DiCB	11			111	0.185 (S)	1.48	0.969
3,4-DiCB	12	12 + 13	C	4.42	0.189 (S)	1.58	0.985
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.183 (S)		
4,4'-DiCB	15			14.9	0.207 (S)	1.51	1.001
2,2',3-TriCB	16			40.0	0.0729 (Q)	1.08	1.165
2,2',4-TriCB	17			587	0.0729 (Q)	1.06	1.137
2,2',5-TriCB	18	18 + 30	C	191	0.0729 (Q)	1.06	1.113
2,2',6-TriCB	19			1260	0.0729 (Q)	1.08	1.001
2,3,3'-TriCB	20	20 + 28	C	723	0.506 (S)	0.99	0.848
2,3,4-TriCB	21	21 + 33	C	180	0.513 (S)	0.99	0.855
2,3,4'-TriCB	22			111	0.569 (S)	0.98	0.871
2,3,5-TriCB	23		U		0.562 (S)		
2,3,6-TriCB	24			2.57	0.0729 (Q)	1.00	1.159
2,3',4-TriCB	25			104	0.459 (S)	1.02	0.825
2,3',5-TriCB	26	26 + 29	C	116	0.524 (S)	0.99	1.302
2,3',6-TriCB	27			156	0.0729 (Q)	1.07	1.151
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31			360	0.488 (S)	0.99	0.837
2,4',6-TriCB	32			415	0.504 (S)	1.00	1.196
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			4.62	0.540 (S)	1.04	1.273
3,3',4-TriCB	35		U		0.499 (S)		
3,3',5-TriCB	36		U		0.485 (S)		
3,4,4'-TriCB	37			52.2	0.491 (S)	1.00	1.001
3,4,5-TriCB	38			6.21	0.510 (S)	1.16	0.967
3,4',5-TriCB	39			14.9	0.512 (S)	1.04	0.946

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C	1270	0.268 (S)	0.79	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			562	0.287 (S)	0.80	1.312
2,2',3,5'-TeCB	43			83.2	0.356 (S)	0.79	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	11800	0.249 (S)	0.79	1.286
2,2',3,6'-TeCB	45	45 + 51	C	1590	0.275 (S)	0.79	1.149
2,2',3,6'-TeCB	46			63.1	0.317 (S)	0.79	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			373	0.274 (S)	0.79	1.273
2,2',4,5'-TeCB	49	49 + 69	C	7730	0.232 (S)	0.79	1.259
2,2',4,6'-TeCB	50	50 + 53	C	1320	0.269 (S)	0.79	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52		E				
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			467	0.237 (S)	0.79	1.002
2,3,3',4'-TeCB	55		U		9.98 (S)		
2,3,3',4'-TeCB	56			216	10.0 (S)	0.75	0.904
2,3,3',5'-TeCB	57			9.68	9.32 (S)	0.71	0.843
2,3,3',5'-TeCB	58			31.1	9.71 (S)	0.66	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	314	0.204 (S)	0.78	1.303
2,3,4,4'-TeCB	60			1360	10.1 (S)	0.76	0.910
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	9340	9.25 (S)	0.77	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			349	9.28 (S)	0.77	0.863
2,3,4',6'-TeCB	64			2350	0.196 (S)	0.79	1.349
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		G	6990	9.00 (S)	0.76	0.883
2,3',4,5'-TeCB	67			29.1	8.34 (S)	0.76	0.857
2,3',4,5'-TeCB	68			118	9.11 (S)	0.77	0.830
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72			72.6	8.95 (S)	0.79	0.822
2,3',5',6'-TeCB	73			160	0.199 (S)	0.78	1.241
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77			74.3	8.98 (S)	0.74	1.000
3,3',4,5'-TeCB	78		U		9.50 (S)		
3,3',4,5'-TeCB	79			367	7.77 (S)	0.77	0.970
3,3',5,5'-TeCB	80		U		8.73 (S)		
3,4,4',5'-TeCB	81		K	20.0	8.32 (S)	0.82	1.000
2,2',3,3',4'-PeCB	82		X				
2,2',3,3',5'-PeCB	83	83 + 99	C E				
2,2',3,3',6'-PeCB	84		X				
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C E				
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C E				
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C X				
2,2',3,4,6'-PeCB	89		X				
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C E				
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		X				
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C E				
2,2',3,5,6'-PeCB	94		X				
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		X				
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		X				
2,2',4,6,6'-PeCB	104		X				
2,3,3',4,4'-PeCB	105		E				
2,3,3',4,5-PeCB	106		X				
2,3,3',4',5-PeCB	107	107 + 124	C X				
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		X				
2,3,3',4',6-PeCB	110	110 + 115	C E				
2,3,3',5,5'-PeCB	111		X				
2,3,3',5,6-PeCB	112		X				
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		X				
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		E				
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		X				
2,3',4,5',6-PeCB	121		X				
2',3,3',4,5-PeCB	122		X				
2',3,4,4',5-PeCB	123		X				
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		X				
3,3',4,5,5'-PeCB	127		X				
2,2',3,3',4,4'-HxCB	128	128 + 166	C X				
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C E				
2,2',3,3',4,5'-HxCB	130		X				
2,2',3,3',4,6-HxCB	131		X				
2,2',3,3',4,6'-HxCB	132		X				
2,2',3,3',5,5'-HxCB	133		X				
2,2',3,3',5,6-HxCB	134	134 + 143	C X				
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C E				
2,2',3,3',6,6'-HxCB	136		X				
2,2',3,4,4',5-HxCB	137		X				
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C X				
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		X				
2,2',3,4,5,6-HxCB	142		X				
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		X				
2,2',3,4,6,6'-HxCB	145		X				
2,2',3,4',5,5'-HxCB	146		X				
2,2',3,4',5,6-HxCB	147	147 + 149	C E				
2,2',3,4',5,6'-HxCB	148		X				
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		X				
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		X				
2,2',4,4',5,5'-HxCB	153	153 + 168	C E				
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		X				
2,3,3',4,4',5-HxCB	156	156 + 157	C X				
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		X				
2,3,3',4,5,5'-HxCB	159		X				
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		X				
2,3,3',4',5,5'-HxCB	162		X				
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		X				
2,3,3',5,5',6-HxCB	165		X				
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		X				
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		X				
2,2',3,3',4,4',5-HpCB	170		E				
2,2',3,3',4,4',6-HpCB	171	171 + 173	C X				
2,2',3,3',4,5,5'-HpCB	172		X				
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		E				
2,2',3,3',4,5',6-HpCB	175		X				
2,2',3,3',4,6,6'-HpCB	176		X				
2,2',3,3',4',5,6-HpCB	177		E				
2,2',3,3',5,5',6-HpCB	178		X				
2,2',3,3',5,6,6'-HpCB	179		E				
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C E				
2,2',3,4,4',5,6-HpCB	181		X				
2,2',3,4,4',5,6'-HpCB	182		X				
2,2',3,4,4',5',6-HpCB	183	183 + 185	C E				
2,2',3,4,4',6,6'-HpCB	184		X				
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		X				
2,2',3,4',5,5',6-HpCB	187		E				
2,2',3,4',5,6,6'-HpCB	188		X				
2,3,3',4,4',5,5'-HpCB	189		X				
2,3,3',4,4',5,6-HpCB	190		X				
2,3,3',4,4',5',6-HpCB	191		X				
2,3,3',4,5,5',6-HpCB	192		X				
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		X				
2,2',3,3',4,4',5,6-OxCB	195		X				
2,2',3,3',4,4',5,6'-OxCB	196		X				
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C X				
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C E				
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5',6,6'-OxCB	201		X				
2,2',3,3',5,5',6,6'-OxCB	202		X				
2,2',3,4,4',5,5',6-OxCB	203		X				
2,2',3,4,4',5,6,6'-OxCB	204		X				
2,3,3',4,4',5,5',6-OxCB	205		X				
2,2',3,3',4,4',5,5',6-NoCB	206		X				
2,2',3,3',4,4',5,6,6'-NoCB	207		X				
2,2',3,3',4,5,5',6,6'-NoCB	208		X				
2,2',3,3',4,4',5,5',6,6'-DeCB	209		X				

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; G = lock mass interference present; C = co-eluting congener; X = result reported separately; E = exceeds calibrated linear range, see dilution data.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB090
Sample Collection:
18-Aug-2018 07:50

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 12-Oct-2018 Time: 05:20:58
 Extract Volume (uL): 20
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-16 i
 Sample Size: 9.98 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_344 S: 10
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_344 S: 1
 % Lipid: 5.34

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 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L			2000	999	49.9	3.24	0.719
13C12-4-MoCB	3L			2000	867	43.4	3.25	0.858
13C12-2,2'-DiCB	4L			2000	1190	59.6	1.59	0.874
13C12-4,4'-DiCB	15L			2000	1000	50.0	1.58	1.253
13C12-2,2',6-TriCB	19L			2000	1140	57.2	1.07	1.072
13C12-3,4,4'-TriCB	37L			2000	1510	75.3	1.03	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1350	67.6	0.82	0.811
13C12-3,3',4,4'-TeCB	77L			2000	2170	108	0.77	1.397
13C12-3,4,4',5-TeCB	81L			2000	2250	112	0.75	1.374
13C12-2,2',4,6,6'-PeCB	104L		X					
13C12-2,3,3',4,4'-PeCB	105L		X					
13C12-2,3,4,4',5-PeCB	114L		X					
13C12-2,3',4,4',5-PeCB	118L		X					
13C12-2',3,4,4',5-PeCB	123L		X					
13C12-3,3',4,4',5-PeCB	126L		X					
13C12-2,2',4,4',6,6'-HxCB	155L		X					
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C X					
13C12-2,3,3',4,4',5-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		X					
13C12-3,3',4,4',5,5'-HxCB	169L		X					
13C12-2,2',3,3',4,4',5-HpCB	170L		X					
13C12-2,2',3,4,4',5,5'-HpCB	180L		X					
13C12-2,2',3,4',5,6,6'-HpCB	188L		X					
13C12-2,3,3',4,4',5,5'-HpCB	189L		X					
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		X					
13C12-2,3,3',4,4',5,5',6-OxCB	205L		X					
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		X					
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		X					
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		X					
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1770	88.4	1.04	0.925
13C12-2,3,3',5,5'-PeCB	111L		X					
13C12-2,2',3,3',5,5',6-HpCB	178L		X					

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB090
Sample Collection:
18-Aug-2018 07:50

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-16 W
Sample Receipt Date:	21-Aug-2018	Sample Size:	9.98 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	18-Oct-2018 Time: 21:17:28	Instrument ID:	HR GC/MS
Extract Volume (uL):	400	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_357A S: 11
Dilution Factor:	20	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_357A S: 1
		% Lipid:	5.34

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1		X				
3-MoCB	2		X				
4-MoCB	3		X				
2,2'-DiCB	4		X				
2,3-DiCB	5		X				
2,3'-DiCB	6		X				
2,4-DiCB	7		X				
2,4'-DiCB	8		X				
2,5-DiCB	9		X				
2,6-DiCB	10		X				
3,3'-DiCB	11		X				
3,4-DiCB	12	12 + 13	C X				
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		X				
4,4'-DiCB	15		X				
2,2',3-TriCB	16		X				
2,2',4-TriCB	17		X				
2,2',5-TriCB	18	18 + 30	C X				
2,2',6-TriCB	19		X				
2,3,3'-TriCB	20	20 + 28	C X				
2,3,4-TriCB	21	21 + 33	C X				
2,3,4'-TriCB	22		X				
2,3,5-TriCB	23		X				
2,3,6-TriCB	24		X				
2,3',4-TriCB	25		X				
2,3',5-TriCB	26	26 + 29	C X				
2,3',6-TriCB	27		X				
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31		X				
2,4',6-TriCB	32		X				
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34		X				
3,3',4-TriCB	35		X				
3,3',5-TriCB	36		X				
3,4,4'-TriCB	37		X				
3,4,5-TriCB	38		X				
3,4',5-TriCB	39		X				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C X				
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		X				
2,2',3,5'-TeCB	43		X				
2,2',3,5'-TeCB	44	44 + 47 + 65	C X				
2,2',3,6'-TeCB	45	45 + 51	C X				
2,2',3,6'-TeCB	46		X				
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		X				
2,2',4,5'-TeCB	49	49 + 69	C X				
2,2',4,6'-TeCB	50	50 + 53	C X				
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52		D	21300	1.67 (S)	0.79	1.233
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		X				
2,3,3',4'-TeCB	55		X				
2,3,3',4'-TeCB	56		X				
2,3,3',5'-TeCB	57		X				
2,3,3',5'-TeCB	58		X				
2,3,3',6'-TeCB	59	59 + 62 + 75	C X				
2,3,4,4'-TeCB	60		X				
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C X				
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		X				
2,3,4',6'-TeCB	64		X				
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		X				
2,3',4,5'-TeCB	67		X				
2,3',4,5'-TeCB	68		X				
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72		X				
2,3',5',6'-TeCB	73		X				
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77		X				
3,3',4,5'-TeCB	78		X				
3,3',4,5'-TeCB	79		X				
3,3',5,5'-TeCB	80		X				
3,4,4',5'-TeCB	81		X				
2,2',3,3',4'-PeCB	82		D	1530	20.2 (S)	1.59	0.933
2,2',3,3',5'-PeCB	83	83 + 99	C D	65200	19.0 (S)	1.57	0.885
2,2',3,3',6'-PeCB	84		D	2010	19.2 (S)	1.61	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C D	18500	15.4 (S)	1.57	0.920
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C D	45400	15.6 (S)	1.58	0.902
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C D	4920	17.2 (S)	1.59	1.155
2,2',3,4,6'-PeCB	89		D	173	18.5 (S)	1.67	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C D	113000	15.4 (S)	1.60	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		D	17100	17.7 (S)	1.55	0.852
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C D	33100	16.7 (S)	1.59	1.121
2,2',3,5,6'-PeCB	94		K D	148	18.5 (S)	1.88	1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		D	279	0.688 (S)	1.57	1.017
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		D	776	15.4 (S)	1.49	1.094
2,2',4,6,6'-PeCB	104		D	58.7	0.812 (S)	1.55	1.001
2,3,3',4,4'-PeCB	105		D	44400	18.2 (S)	1.54	1.001
2,3,3',4,5-PeCB	106		U D		18.7 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C D	262	19.8 (S)	1.48	0.991
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		D	6200	18.9 (S)	1.53	0.997
2,3,3',4',6-PeCB	110	110 + 115	C D	86800	13.8 (S)	1.59	0.925
2,3,3',5,5'-PeCB	111		K D	16.6	14.0 (S)	2.29	0.945
2,3,3',5,6-PeCB	112		U D		12.7 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		D	2710	20.3 (S)	1.54	1.000
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		D	110000	16.7 (S)	1.53	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		D	92.2	13.6 (S)	1.67	0.958
2,3',4,5',6-PeCB	121		D	80.1	13.7 (S)	1.56	1.200
2',3,3',4,5-PeCB	122		U D		22.3 (S)		
2',3,4,4',5-PeCB	123		K D	497	22.0 (S)	1.45	1.001
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		K D	1020	24.7 (S)	1.56	1.001
3,3',4,5,5'-PeCB	127		D	328	21.2 (S)	1.66	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C D	36800	12.9 (S)	1.25	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C D	344000	13.4 (S)	1.26	0.929
2,2',3,3',4,5'-HxCB	130		D	8400	16.5 (S)	1.24	0.913
2,2',3,3',4,6-HxCB	131		D	661	15.1 (S)	1.27	1.160
2,2',3,3',4,6'-HxCB	132		D	21600	15.3 (S)	1.25	1.175
2,2',3,3',5,5'-HxCB	133		D	2940	14.8 (S)	1.25	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C D	4270	14.6 (S)	1.23	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C D	59500	1.46 (S)	1.29	1.104
2,2',3,3',6,6'-HxCB	136		D	13400	1.10 (S)	1.29	1.025
2,2',3,4,4',5-HxCB	137		D	9290	16.1 (S)	1.24	0.918
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C D	2890	13.1 (S)	1.27	1.153
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		D	46200	14.3 (S)	1.26	0.903
2,2',3,4,5,6-HxCB	142		U D		14.5 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		D	7390	1.51 (S)	1.30	1.122
2,2',3,4,6,6'-HxCB	145		U D		1.16 (S)		
2,2',3,4',5,5'-HxCB	146		D	36300	12.8 (S)	1.25	0.884
2,2',3,4',5,6-HxCB	147	147 + 149	C D	59800	13.0 (S)	1.25	1.133
2,2',3,4',5,6'-HxCB	148		D	213	1.51 (S)	1.32	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		D	128	1.08 (S)	1.29	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		D	170	1.07 (S)	1.42	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C D	313000	11.5 (S)	1.26	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		D	48.1	1.13 (S)	1.30	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C D	26400	14.0 (S)	1.25	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		D	24800	10.3 (S)	1.25	0.938
2,3,3',4,5,5'-HxCB	159		D	1450	11.5 (S)	1.31	0.981
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		U D		10.3 (S)		
2,3,3',4',5,5'-HxCB	162		D	372	10.3 (S)	1.25	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		D	10800	10.7 (S)	1.28	0.921
2,3,3',5,5',6-HxCB	165		D	92.4	12.2 (S)	1.32	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		D	6200	11.4 (S)	1.29	1.001
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U D		359 (S)		
2,2',3,3',4,4',5-HpCB	170		D	70400	2.24 (S)	1.05	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C D	20400	2.23 (S)	1.07	1.163
2,2',3,3',4,5,5'-HpCB	172		D	12600	2.33 (S)	1.05	0.897
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		D	28500	2.07 (S)	1.04	1.134
2,2',3,3',4,5',6-HpCB	175		D	2660	2.08 (S)	1.08	1.103
2,2',3,3',4,6,6'-HpCB	176		D	3040	1.51 (S)	1.05	1.034
2,2',3,3',4',5,6-HpCB	177		D	23600	1.56 (S)	1.05	1.146
2,2',3,3',5,5',6-HpCB	178		D	15400	2.06 (S)	1.05	1.085
2,2',3,3',5,6,6'-HpCB	179		D	17800	1.44 (S)	1.05	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C D	203000	1.72 (S)	1.05	1.000
2,2',3,4,4',5,6-HpCB	181		D	417	2.07 (S)	0.98	1.157
2,2',3,4,4',5,6'-HpCB	182		U D		1.98 (S)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C D	54800	2.00 (S)	1.05	1.127
2,2',3,4,4',6,6'-HpCB	184		U D		1.44 (S)		
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U D		1.62 (S)		
2,2',3,4',5,5',6-HpCB	187		D	128000	1.84 (S)	1.05	1.110
2,2',3,4',5,6,6'-HpCB	188		D	108	1.74 (S)	1.15	1.000
2,3,3',4,4',5,5'-HpCB	189		D	2620	12.0 (S)	0.98	1.001
2,3,3',4,4',5,6-HpCB	190		D	16800	1.81 (S)	1.05	0.947
2,3,3',4,4',5',6-HpCB	191		D	3110	1.78 (S)	1.06	0.917
2,3,3',4,5,5',6-HpCB	192		U D		1.91 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		D	37400	10.6 (S)	0.89	0.991
2,2',3,3',4,4',5,6-OxCB	195		D	14000	11.0 (S)	0.90	0.945
2,2',3,3',4,4',5,6'-OxCB	196		D	15000	1.60 (S)	0.91	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C D	2050	1.11 (S)	0.96	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C D	28800	1.60 (S)	0.91	1.115
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5,6,6'-OxCB	201		D	2640	1.08 (S)	0.92	1.023
2,2',3,3',5,5',6,6'-OxCB	202		D	6380	1.86 (S)	0.89	1.001
2,2',3,4,4',5,5',6-OxCB	203		D	19000	1.56 (S)	0.91	0.919
2,2',3,4,4',5,6,6'-OxCB	204		K D J	3.46	1.10 (S)	1.35	1.038
2,3,3',4,4',5,5',6-OxCB	205		D	1550	7.51 (S)	0.90	1.001
2,2',3,3',4,4',5,5',6-NoCB	206		D	4260	1.16 (S)	0.81	1.001
2,2',3,3',4,4',5,6,6'-NoCB	207		D	651	0.864 (S)	0.78	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208		D	842	1.08 (S)	0.79	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209		D	180	0.990 (S)	1.15	1.000

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; D = dilution data; J = concentration less than lowest calibration equivalent; C = co-eluting congener; X = result reported separately.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB090
Sample Collection:
18-Aug-2018 07:50

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 18-Oct-2018 Time: 21:17:28
 Extract Volume (uL): 400
 Injection Volume (uL): 1.0
 Dilution Factor: 20
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-16 W
 Sample Size: 9.98 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_357A S: 11
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_357A S: 1
 % Lipid: 5.34

This page is part of a total report that contains information necessary for accreditation compliance.
 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L		X					
13C12-4-MoCB	3L		X					
13C12-2,2'-DiCB	4L		X					
13C12-4,4'-DiCB	15L		X					
13C12-2,2',6'-TriCB	19L		X					
13C12-3,4,4'-TriCB	37L		X					
13C12-2,2',6,6'-TeCB	54L		D	2000	1450	72.5	0.72	0.811
13C12-3,3',4,4'-TeCB	77L		D	2000	1780	89.2	0.76	1.399
13C12-3,4,4',5'-TeCB	81L		D	2000	1900	94.8	0.78	1.374
13C12-2,2',4,6,6'-PeCB	104L		D	2000	1140	57.2	1.55	0.808
13C12-2,3,3',4,4'-PeCB	105L		D	2000	1690	84.5	1.55	1.200
13C12-2,3,4,4',5'-PeCB	114L		D	2000	1590	79.4	1.60	1.179
13C12-2,3',4,4',5'-PeCB	118L		D	2000	1910	95.7	1.53	1.162
13C12-2',3,4,4',5'-PeCB	123L		D	2000	1600	80.1	1.52	1.151
13C12-3,3',4,4',5'-PeCB	126L		D	2000	1570	78.4	1.59	1.302
13C12-2,2',4,4',6,6'-HxCB	155L		D	2000	766	38.3	1.31	0.785
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C D	4000	2160	54.1	1.22	1.108
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		D	2000	1100	55.1	1.11	1.078
13C12-3,3',4,4',5,5'-HxCB	169L		D	2000	1150	57.3	1.22	1.192
13C12-2,2',3,3',4,4',5'-HpCB	170L		D	2000	1280	64.1	0.92	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L		D	2000	1480	73.9	0.99	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L		D	2000	802	40.1	0.97	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L		D	2000	1170	58.6	1.08	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		D	2000	612	30.6	0.87	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L		D	2000	1520	76.0	0.92	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		D	2000	1350	67.4	0.89	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		D	2000	1200	60.2	0.72	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		D	2000	902	45.1	1.12	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L		X					
13C12-2,3,3',5,5'-PeCB	111L		D	2000	1410	70.6	1.62	1.088
13C12-2,2',3,3',5,5',6'-HpCB	178L		D	2000	1020	50.8	0.93	1.011

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; D = dilution data; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB105
Sample Collection:
16-Aug-2018 10:20

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-17 i
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.1 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	12-Oct-2018 Time: 03:13:32	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_344 S: 8
Dilution Factor:	N/A	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_344 S: 1
		% Lipid:	5.05

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This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1			2.52	0.0727 (Q)	3.12	1.001
3-MoCB	2			0.846	0.0727 (Q)	3.02	0.988
4-MoCB	3			1.34	0.0727 (Q)	3.09	1.001
2,2'-DiCB	4			25.7	0.137 (S)	1.49	1.001
2,3-DiCB	5		J	0.371	0.119 (S)	1.59	1.198
2,3'-DiCB	6			17.0	0.107 (S)	1.52	1.177
2,4-DiCB	7			2.15	0.111 (S)	1.37	1.159
2,4'-DiCB	8			45.2	0.0995 (S)	1.49	1.208
2,5-DiCB	9			3.50	0.106 (S)	1.44	1.147
2,6-DiCB	10			1.47	0.107 (S)	1.33	1.014
3,3'-DiCB	11			95.5	0.110 (S)	1.50	0.969
3,4-DiCB	12	12 + 13	C	1.54	0.113 (S)	1.64	0.983
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.109 (S)		
4,4'-DiCB	15			9.48	0.110 (S)	1.49	1.001
2,2',3-TriCB	16			24.3	0.0727 (Q)	1.09	1.165
2,2',4-TriCB	17			105	0.0727 (Q)	1.07	1.137
2,2',5-TriCB	18	18 + 30	C	95.4	0.0727 (Q)	1.05	1.113
2,2',6-TriCB	19			26.8	0.0727 (Q)	1.07	1.001
2,3,3'-TriCB	20	20 + 28	C	399	0.257 (S)	0.99	0.848
2,3,4-TriCB	21	21 + 33	C	40.9	0.261 (S)	0.98	0.856
2,3,4'-TriCB	22			73.6	0.289 (S)	0.98	0.871
2,3,5-TriCB	23		J	0.299	0.285 (S)	1.18	1.281
2,3,6-TriCB	24			1.61	0.0727 (Q)	1.01	1.159
2,3',4-TriCB	25			28.8	0.233 (S)	1.00	0.824
2,3',5-TriCB	26	26 + 29	C	75.3	0.266 (S)	1.00	1.301
2,3',6-TriCB	27			31.0	0.0727 (Q)	1.08	1.151
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31			201	0.248 (S)	0.99	0.837
2,4',6-TriCB	32			47.7	0.256 (S)	1.00	1.196
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			2.61	0.274 (S)	0.96	1.272
3,3',4-TriCB	35		U		0.254 (S)		
3,3',5-TriCB	36		U		0.246 (S)		
3,4,4'-TriCB	37			30.9	0.236 (S)	0.98	1.001
3,4,5-TriCB	38		J	0.478	0.259 (S)	0.99	0.967
3,4',5-TriCB	39			2.47	0.260 (S)	0.99	0.946

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C	166	0.0837 (S)	0.80	1.336
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			112	0.0895 (S)	0.80	1.312
2,2',3,5'-TeCB	43			20.4	0.111 (S)	0.80	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	768	0.0778 (S)	0.79	1.286
2,2',3,6'-TeCB	45	45 + 51	C	52.8	0.0859 (S)	0.80	1.147
2,2',3,6'-TeCB	46			10.5	0.0988 (S)	0.81	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			65.9	0.0855 (S)	0.80	1.273
2,2',4,5'-TeCB	49	49 + 69	C	540	0.0727 (Q)	0.79	1.259
2,2',4,6'-TeCB	50	50 + 53	C	60.9	0.0838 (S)	0.80	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			963	0.0794 (S)	0.79	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			2.76	0.0727 (Q)	0.81	1.001
2,3,3',4'-TeCB	55			6.07	0.965 (S)	0.85	0.889
2,3,3',4'-TeCB	56			135	0.970 (S)	0.78	0.904
2,3,3',5'-TeCB	57			3.91	0.902 (S)	0.74	0.843
2,3,3',5'-TeCB	58			4.87	0.939 (S)	0.78	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	57.9	0.0727 (Q)	0.81	1.302
2,3,4,4'-TeCB	60			199	0.980 (S)	0.77	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	1360	0.895 (S)	0.78	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			71.7	0.898 (S)	0.74	0.864
2,3,4',6'-TeCB	64			252	0.0727 (Q)	0.79	1.349
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		G	1090	0.871 (S)	0.77	0.884
2,3',4,5'-TeCB	67			14.5	0.807 (S)	0.75	0.856
2,3',4,5'-TeCB	68			21.6	0.882 (S)	0.75	0.830
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72			23.6	0.866 (S)	0.76	0.822
2,3',5',6'-TeCB	73			3.73	0.0727 (Q)	0.81	1.241
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77			55.7	0.851 (S)	0.76	1.000
3,3',4,5'-TeCB	78		U		0.919 (S)		
3,3',4,5'-TeCB	79			24.4	0.752 (S)	0.70	0.969
3,3',5,5'-TeCB	80		U		0.845 (S)		
3,4,4',5'-TeCB	81		K	2.66	0.851 (S)	0.79	1.000
2,2',3,3',4'-PeCB	82			120	0.754 (S)	1.59	0.933
2,2',3,3',5'-PeCB	83	83 + 99	C	3320	0.694 (S)	1.59	0.885
2,2',3,3',6'-PeCB	84			219	0.770 (S)	1.62	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	896	0.573 (S)	1.60	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	1350	0.597 (S)	1.58	0.901
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C	261	0.687 (S)	1.62	1.155
2,2',3,4,6'-PeCB	89			5.31	0.719 (S)	1.52	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	3040	0.612 (S)	1.57	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			691	0.697 (S)	1.57	0.852
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	1500	0.670 (S)	1.58	1.121
2,2',3,5,6'-PeCB	94			3.70	0.751 (S)	1.64	1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			5.32	0.137 (S)	1.63	1.016
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103			24.9	0.612 (S)	1.66	1.094
2,2',4,6,6'-PeCB	104		J	0.481	0.154 (S)	1.43	1.001
2,3,3',4,4'-PeCB	105			1540	4.50 (S)	1.52	1.000
2,3,3',4,5-PeCB	106		U		4.87 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	121	4.97 (S)	1.53	0.991
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109			549	4.93 (S)	1.48	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	2940	0.516 (S)	1.59	0.925
2,3,3',5,5'-PeCB	111			7.31	0.513 (S)	1.56	0.945
2,3,3',5,6-PeCB	112		U		0.525 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			141	4.48 (S)	1.50	1.000
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118			5500	4.32 (S)	1.51	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120			32.2	0.484 (S)	1.61	0.958
2,3',4,5',6-PeCB	121			3.54	0.532 (S)	1.53	1.200
2',3,3',4,5-PeCB	122			19.7	5.33 (S)	1.52	1.010
2',3,4,4',5-PeCB	123		K	94.0	4.52 (S)	1.53	1.001
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		K	27.5	4.81 (S)	1.60	1.000
3,3',4,5,5'-PeCB	127			22.2	4.78 (S)	1.53	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1680	5.97 (S)	1.27	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	13000	6.10 (S)	1.27	0.928
2,2',3,3',4,5'-HxCB	130			542	7.72 (S)	1.24	0.913
2,2',3,3',4,6-HxCB	131			31.0	7.65 (S)	1.30	1.160
2,2',3,3',4,6'-HxCB	132			859	7.79 (S)	1.25	1.176
2,2',3,3',5,5'-HxCB	133			258	7.23 (S)	1.25	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	171	7.40 (S)	1.25	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	2690	0.292 (S)	1.26	1.104
2,2',3,3',6,6'-HxCB	136			332	0.226 (S)	1.28	1.025
2,2',3,4,4',5-HxCB	137			676	7.34 (S)	1.26	0.917
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C	162	6.72 (S)	1.28	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			1150	6.59 (S)	1.26	0.903
2,2',3,4,5,6-HxCB	142		U		7.43 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			194	0.305 (S)	1.24	1.122
2,2',3,4,6,6'-HxCB	145		K J	0.420	0.244 (S)	1.59	1.035
2,2',3,4',5,5'-HxCB	146			2530	6.12 (S)	1.26	0.884
2,2',3,4',5,6-HxCB	147	147 + 149	C	4520	6.63 (S)	1.26	1.134
2,2',3,4',5,6'-HxCB	148			12.9	0.300 (S)	1.26	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			5.23	0.234 (S)	1.20	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			2.77	0.222 (S)	1.22	1.008
2,2',4,4',5,5'-HxCB	153	153 + 168	C	13300	5.48 (S)	1.26	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155			11.6	0.213 (S)	1.30	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	1390	6.42 (S)	1.26	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			932	4.69 (S)	1.27	0.938
2,3,3',4,5,5'-HxCB	159			56.8	4.99 (S)	1.22	0.981
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		U		5.13 (S)		
2,3,3',4',5,5'-HxCB	162			49.8	4.91 (S)	1.26	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			538	5.10 (S)	1.26	0.920
2,3,3',5,5',6-HxCB	165			7.40	5.87 (S)	1.28	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			583	5.04 (S)	1.26	1.000
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U		28.5 (S)		
2,2',3,3',4,4',5-HpCB	170		X				
2,2',3,3',4,4',6-HpCB	171	171 + 173	C X				
2,2',3,3',4,5,5'-HpCB	172		X				
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		X				
2,2',3,3',4,5',6-HpCB	175		X				
2,2',3,3',4,6,6'-HpCB	176		X				
2,2',3,3',4',5,6-HpCB	177		X				
2,2',3,3',5,5',6-HpCB	178		X				
2,2',3,3',5,6,6'-HpCB	179		X				
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C X				
2,2',3,4,4',5,6-HpCB	181		X				
2,2',3,4,4',5,6'-HpCB	182		X				
2,2',3,4,4',5',6-HpCB	183	183 + 185	C X				
2,2',3,4,4',6,6'-HpCB	184		X				
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		X				
2,2',3,4',5,5',6-HpCB	187		X				
2,2',3,4',5,6,6'-HpCB	188		X				
2,3,3',4,4',5,5'-HpCB	189		X				
2,3,3',4,4',5,6-HpCB	190		X				
2,3,3',4,4',5',6-HpCB	191		X				
2,3,3',4,5,5',6-HpCB	192		X				
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		X				
2,2',3,3',4,4',5,6-OxCB	195		X				
2,2',3,3',4,4',5,6'-OxCB	196		X				
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C X				
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C X				
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5',6,6'-OxCB	201		X				
2,2',3,3',5,5',6,6'-OxCB	202		X				
2,2',3,4,4',5,5',6-OxCB	203		X				
2,2',3,4,4',5,6,6'-OxCB	204		X				
2,3,3',4,4',5,5',6-OxCB	205		X				
2,2',3,3',4,4',5,5',6-NoCB	206		X				
2,2',3,3',4,4',5,6,6'-NoCB	207		X				
2,2',3,3',4,5,5',6,6'-NoCB	208		X				
2,2',3,3',4,4',5,5',6,6'-DeCB	209		X				

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent; G = lock mass interference present; C = co-eluting congener; X = result reported separately.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB105
Sample Collection:
16-Aug-2018 10:20

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 12-Oct-2018 Time: 03:13:32
 Extract Volume (uL): 20
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-17 i
 Sample Size: 10.1 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_344 S: 8
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_344 S: 1
 % Lipid: 5.05

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LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L			2000	1010	50.5	3.25	0.719
13C12-4-MoCB	3L			2000	1130	56.3	3.23	0.858
13C12-2,2'-DiCB	4L			2000	1220	60.8	1.60	0.873
13C12-4,4'-DiCB	15L			2000	1310	65.7	1.58	1.253
13C12-2,2',6-TriCB	19L			2000	1130	56.6	1.07	1.072
13C12-3,4,4'-TriCB	37L			2000	1830	91.7	1.02	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1390	69.7	0.81	0.811
13C12-3,3',4,4'-TeCB	77L			2000	2170	108	0.76	1.397
13C12-3,4,4',5'-TeCB	81L			2000	2170	109	0.75	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	1160	57.8	1.61	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1910	95.3	1.55	1.201
13C12-2,3,4,4',5'-PeCB	114L			2000	1920	95.9	1.59	1.179
13C12-2,3',4,4',5'-PeCB	118L			2000	2010	100	1.59	1.162
13C12-2',3,4,4',5'-PeCB	123L			2000	2010	101	1.55	1.151
13C12-3,3',4,4',5'-PeCB	126L			2000	2080	104	1.55	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	1060	53.1	1.27	0.785
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C	4000	3420	85.4	1.30	1.108
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			2000	1680	83.8	1.26	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1650	82.3	1.27	1.192
13C12-2,2',3,3',4,4',5'-HpCB	170L		X					
13C12-2,2',3,4,4',5,5'-HpCB	180L		X					
13C12-2,2',3,4',5,6,6'-HpCB	188L		X					
13C12-2,3,3',4,4',5,5'-HpCB	189L		X					
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		X					
13C12-2,3,3',4,4',5,5',6-OxCB	205L		X					
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		X					
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		X					
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		X					
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1860	93.1	1.04	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1670	83.7	1.63	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L		X					

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB105
Sample Collection:
16-Aug-2018 10:20

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-17 W2
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.1 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	23-Oct-2018 Time: 00:26:09	Instrument ID:	HR GC/MS
Extract Volume (uL):	300	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_362 S: 5
Dilution Factor:	15	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_362 S: 1
		% Lipid:	5.05

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1		X				
3-MoCB	2		X				
4-MoCB	3		X				
2,2'-DiCB	4		X				
2,3-DiCB	5		X				
2,3'-DiCB	6		X				
2,4-DiCB	7		X				
2,4'-DiCB	8		X				
2,5-DiCB	9		X				
2,6-DiCB	10		X				
3,3'-DiCB	11		X				
3,4-DiCB	12	12 + 13	C X				
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		X				
4,4'-DiCB	15		X				
2,2',3-TriCB	16		X				
2,2',4-TriCB	17		X				
2,2',5-TriCB	18	18 + 30	C X				
2,2',6-TriCB	19		X				
2,3,3'-TriCB	20	20 + 28	C X				
2,3,4-TriCB	21	21 + 33	C X				
2,3,4'-TriCB	22		X				
2,3,5-TriCB	23		X				
2,3,6-TriCB	24		X				
2,3',4-TriCB	25		X				
2,3',5-TriCB	26	26 + 29	C X				
2,3',6-TriCB	27		X				
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31		X				
2,4',6-TriCB	32		X				
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34		X				
3,3',4-TriCB	35		X				
3,3',5-TriCB	36		X				
3,4,4'-TriCB	37		X				
3,4,5-TriCB	38		X				
3,4',5-TriCB	39		X				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C X				
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		X				
2,2',3,5'-TeCB	43		X				
2,2',3,5'-TeCB	44	44 + 47 + 65	C X				
2,2',3,6'-TeCB	45	45 + 51	C X				
2,2',3,6'-TeCB	46		X				
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		X				
2,2',4,5'-TeCB	49	49 + 69	C X				
2,2',4,6'-TeCB	50	50 + 53	C X				
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52		X				
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		X				
2,3,3',4'-TeCB	55		X				
2,3,3',4'-TeCB	56		X				
2,3,3',5'-TeCB	57		X				
2,3,3',5'-TeCB	58		X				
2,3,3',6'-TeCB	59	59 + 62 + 75	C X				
2,3,4,4'-TeCB	60		X				
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C X				
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		X				
2,3,4',6'-TeCB	64		X				
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		X				
2,3',4,5'-TeCB	67		X				
2,3',4,5'-TeCB	68		X				
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72		X				
2,3',5',6'-TeCB	73		X				
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77		X				
3,3',4,5'-TeCB	78		X				
3,3',4,5'-TeCB	79		X				
3,3',5,5'-TeCB	80		X				
3,4,4',5'-TeCB	81		X				
2,2',3,3',4'-PeCB	82		X				
2,2',3,3',5'-PeCB	83	83 + 99	C X				
2,2',3,3',6'-PeCB	84		X				
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C X				
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C X				
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C X				
2,2',3,4,6'-PeCB	89		X				
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C X				
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		X				
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C X				
2,2',3,5,6'-PeCB	94		X				
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		X				
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		X				
2,2',4,6,6'-PeCB	104		X				
2,3,3',4,4'-PeCB	105		X				
2,3,3',4,5-PeCB	106		X				
2,3,3',4',5-PeCB	107	107 + 124	C X				
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		X				
2,3,3',4',6-PeCB	110	110 + 115	C X				
2,3,3',5,5'-PeCB	111		X				
2,3,3',5,6-PeCB	112		X				
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		X				
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		X				
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		X				
2,3',4,5',6-PeCB	121		X				
2',3,3',4,5-PeCB	122		X				
2',3,4,4',5-PeCB	123		X				
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		X				
3,3',4,5,5'-PeCB	127		X				
2,2',3,3',4,4'-HxCB	128	128 + 166	C X				
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C X				
2,2',3,3',4,5'-HxCB	130		X				
2,2',3,3',4,6-HxCB	131		X				
2,2',3,3',4,6'-HxCB	132		X				
2,2',3,3',5,5'-HxCB	133		X				
2,2',3,3',5,6-HxCB	134	134 + 143	C X				
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C X				
2,2',3,3',6,6'-HxCB	136		X				
2,2',3,4,4',5-HxCB	137		X				
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C X				
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		X				
2,2',3,4,5,6-HxCB	142		X				
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		X				
2,2',3,4,6,6'-HxCB	145		X				
2,2',3,4',5,5'-HxCB	146		X				
2,2',3,4',5,6-HxCB	147	147 + 149	C X				
2,2',3,4',5,6'-HxCB	148		X				
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		X				
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		X				
2,2',4,4',5,5'-HxCB	153	153 + 168	C X				
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		X				
2,3,3',4,4',5-HxCB	156	156 + 157	C X				
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		X				
2,3,3',4,5,5'-HxCB	159		X				
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		X				
2,3,3',4',5,5'-HxCB	162		X				
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		X				
2,3,3',5,5',6-HxCB	165		X				
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		X				
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		X				
2,2',3,3',4,4',5-HpCB	170		D	2400	2.00 (S)	1.06	1.001
2,2',3,3',4,4',6-HpCB	171	171 + 173	C D	760	2.34 (S)	1.10	1.163
2,2',3,3',4,5,5'-HpCB	172		D	620	2.40 (S)	0.93	0.896
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		D	1260	2.17 (S)	0.99	1.134
2,2',3,3',4,5',6-HpCB	175		D	101	2.23 (S)	0.95	1.103
2,2',3,3',4,6,6'-HpCB	176		K D	117	1.71 (S)	1.31	1.034
2,2',3,3',4',5,6-HpCB	177		D	1170	1.85 (S)	1.09	1.146
2,2',3,3',5,5',6-HpCB	178		D	887	2.22 (S)	1.03	1.085
2,2',3,3',5,6,6'-HpCB	179		D	760	1.72 (S)	0.97	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C D	9610	1.81 (S)	1.07	1.001
2,2',3,4,4',5,6-HpCB	181		D	41.7	2.27 (S)	0.99	1.157
2,2',3,4,4',5,6'-HpCB	182		K D	31.4	2.16 (S)	1.46	1.116
2,2',3,4,4',5',6-HpCB	183	183 + 185	C D	2230	2.27 (S)	1.04	1.127
2,2',3,4,4',6,6'-HpCB	184		K D	17.7	1.69 (S)	0.66	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U D		1.83 (S)		
2,2',3,4',5,5',6-HpCB	187		D	11400	2.13 (S)	1.05	1.110
2,2',3,4',5,6,6'-HpCB	188		D J	8.61	1.52 (S)	0.93	1.000
2,3,3',4,4',5,5'-HpCB	189		D	78.8	2.81 (S)	0.99	1.000
2,3,3',4,4',5,6-HpCB	190		D	807	1.80 (S)	1.05	0.947
2,3,3',4,4',5',6-HpCB	191		D	135	1.81 (S)	0.98	0.917
2,3,3',4,5,5',6-HpCB	192		U D		1.99 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		D	1150	2.96 (S)	0.96	0.991
2,2',3,3',4,4',5,6-OxCB	195		D	696	3.38 (S)	0.91	0.945
2,2',3,3',4,4',5,6'-OxCB	196		D	990	3.40 (S)	0.84	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C D	160	2.50 (S)	0.94	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C D	2560	3.50 (S)	0.91	1.115
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5,6,6'-OxCB	201		D	208	2.49 (S)	0.95	1.023
2,2',3,3',5,5',6,6'-OxCB	202		D	591	3.06 (S)	0.85	1.001
2,2',3,4,4',5,5',6-OxCB	203		D	1700	3.26 (S)	0.91	0.919
2,2',3,4,4',5,6,6'-OxCB	204		U D		2.54 (S)		
2,3,3',4,4',5,5',6-OxCB	205		D	68.3	2.58 (S)	0.88	1.000
2,2',3,3',4,4',5,5',6-NoCB	206		D	534	1.78 (S)	0.79	1.001
2,2',3,3',4,4',5,6,6'-NoCB	207		D	73.6	1.43 (S)	0.83	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208		D	190	1.86 (S)	0.86	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209		D	179	1.86 (S)	1.24	1.001

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; D = dilution data; J = concentration less than lowest calibration equivalent; C = co-eluting congener; X = result reported separately.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB105
Sample Collection:
16-Aug-2018 10:20

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 23-Oct-2018 Time: 00:26:09
 Extract Volume (uL): 300
 Injection Volume (uL): 1.0
 Dilution Factor: 15
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-17 W2
 Sample Size: 10.1 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_362 S: 5
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_362 S: 1
 % Lipid: 5.05

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 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L		X					
13C12-4-MoCB	3L		X					
13C12-2,2'-DiCB	4L		X					
13C12-4,4'-DiCB	15L		X					
13C12-2,2',6-TriCB	19L		X					
13C12-3,4,4'-TriCB	37L		X					
13C12-2,2',6,6'-TeCB	54L		X					
13C12-3,3',4,4'-TeCB	77L		X					
13C12-3,4,4',5-TeCB	81L		X					
13C12-2,2',4,6,6'-PeCB	104L		X					
13C12-2,3,3',4,4'-PeCB	105L		X					
13C12-2,3,4,4',5-PeCB	114L		X					
13C12-2,3',4,4',5-PeCB	118L		X					
13C12-2',3,4,4',5-PeCB	123L		X					
13C12-3,3',4,4',5-PeCB	126L		X					
13C12-2,2',4,4',6,6'-HxCB	155L		X					
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C X					
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		X					
13C12-3,3',4,4',5,5'-HxCB	169L		X					
13C12-2,2',3,3',4,4',5-HpCB	170L		D	2000	2430	121	1.10	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L		D	2000	2360	118	0.95	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L		D	2000	1820	90.9	1.20	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L		D	2000	1150	57.5	0.94	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		D	2000	1170	58.7	0.83	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L		D	2000	1770	88.4	0.89	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		D	2000	2380	119	0.68	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		D	2000	2050	102	0.73	0.948
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		D	2000	1700	84.9	1.22	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L		X					
13C12-2,3,3',5,5'-PeCB	111L		X					
13C12-2,2',3,3',5,5',6-HpCB	178L		D	2000	1470	73.7	1.01	1.011

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; D = dilution data; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB103
Sample Collection:
16-Aug-2018 13:17

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-18 i
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.0 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	12-Oct-2018 Time: 04:17:15	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_344 S: 9
Dilution Factor:	N/A	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_344 S: 1
		% Lipid:	3.93

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1			1.78	0.0731 (Q)	3.00	1.001
3-MoCB	2			0.642	0.0731 (Q)	2.94	0.987
4-MoCB	3			0.976	0.0731 (Q)	3.19	1.000
2,2'-DiCB	4			15.4	0.125 (S)	1.44	1.000
2,3-DiCB	5		J	0.269	0.102 (S)	1.62	1.197
2,3'-DiCB	6			6.94	0.0917 (S)	1.51	1.175
2,4-DiCB	7			1.13	0.0951 (S)	1.42	1.158
2,4'-DiCB	8			17.9	0.0850 (S)	1.45	1.208
2,5-DiCB	9			1.71	0.0908 (S)	1.49	1.146
2,6-DiCB	10			0.637	0.0915 (S)	1.58	1.012
3,3'-DiCB	11			44.6	0.0943 (S)	1.48	0.968
3,4-DiCB	12	12 + 13	C	0.766	0.0963 (S)	1.59	0.984
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.0933 (S)		
4,4'-DiCB	15			5.22	0.0907 (S)	1.51	1.001
2,2',3-TriCB	16			12.6	0.0731 (Q)	1.10	1.165
2,2',4-TriCB	17			36.7	0.0731 (Q)	1.09	1.137
2,2',5-TriCB	18	18 + 30	C	46.4	0.0731 (Q)	1.07	1.113
2,2',6-TriCB	19			11.3	0.0731 (Q)	1.11	1.001
2,3,3'-TriCB	20	20 + 28	C	174	0.140 (S)	0.99	0.847
2,3,4-TriCB	21	21 + 33	C	25.5	0.142 (S)	0.99	0.857
2,3,4'-TriCB	22			29.3	0.157 (S)	1.01	0.871
2,3,5-TriCB	23		J	0.168	0.155 (S)	0.92	1.282
2,3,6-TriCB	24			0.631	0.0731 (Q)	0.93	1.159
2,3',4-TriCB	25			14.3	0.127 (S)	0.99	0.824
2,3',5-TriCB	26	26 + 29	C	33.3	0.145 (S)	0.98	1.301
2,3',6-TriCB	27			11.3	0.0731 (Q)	1.03	1.151
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31			85.4	0.135 (S)	0.98	0.836
2,4',6-TriCB	32			16.3	0.139 (S)	0.98	1.197
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			1.29	0.149 (S)	0.94	1.273
3,3',4-TriCB	35		U		0.138 (S)		
3,3',5-TriCB	36		U		0.134 (S)		
3,4,4'-TriCB	37			15.7	0.129 (S)	0.98	1.001
3,4,5-TriCB	38		K J	0.395	0.141 (S)	0.53	0.967
3,4',5-TriCB	39			1.48	0.141 (S)	0.99	0.946

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C X				
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		X				
2,2',3,5'-TeCB	43		X				
2,2',3,5'-TeCB	44	44 + 47 + 65	C X				
2,2',3,6'-TeCB	45	45 + 51	C X				
2,2',3,6'-TeCB	46		X				
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		X				
2,2',4,5'-TeCB	49	49 + 69	C X				
2,2',4,6'-TeCB	50	50 + 53	C X				
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52		X				
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		X				
2,3,3',4'-TeCB	55		X				
2,3,3',4'-TeCB	56		X				
2,3,3',5'-TeCB	57		X				
2,3,3',5'-TeCB	58		X				
2,3,3',6'-TeCB	59	59 + 62 + 75	C X				
2,3,4,4'-TeCB	60		X				
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C X				
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		X				
2,3,4',6'-TeCB	64		X				
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		X				
2,3',4,5'-TeCB	67		X				
2,3',4,5'-TeCB	68		X				
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72		X				
2,3',5',6'-TeCB	73		X				
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77		X				
3,3',4,5'-TeCB	78		X				
3,3',4,5'-TeCB	79		X				
3,3',5,5'-TeCB	80		X				
3,4,4',5'-TeCB	81		X				
2,2',3,3',4'-PeCB	82		X				
2,2',3,3',5'-PeCB	83	83 + 99	C X				
2,2',3,3',6'-PeCB	84		X				
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C X				
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C X				
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C X				
2,2',3,4,6'-PeCB	89		X				
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C X				
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		X				
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C X				
2,2',3,5,6'-PeCB	94		X				
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		X				
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		X				
2,2',4,6,6'-PeCB	104		X				
2,3,3',4,4'-PeCB	105		X				
2,3,3',4,5-PeCB	106		X				
2,3,3',4',5-PeCB	107	107 + 124	C X				
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		X				
2,3,3',4',6-PeCB	110	110 + 115	C X				
2,3,3',5,5'-PeCB	111		X				
2,3,3',5,6-PeCB	112		X				
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		X				
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		X				
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		X				
2,3',4,5',6-PeCB	121		X				
2',3,3',4,5-PeCB	122		X				
2',3,4,4',5-PeCB	123		X				
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		X				
3,3',4,5,5'-PeCB	127		X				
2,2',3,3',4,4'-HxCB	128	128 + 166	C X				
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C X				
2,2',3,3',4,5'-HxCB	130		X				
2,2',3,3',4,6-HxCB	131		X				
2,2',3,3',4,6'-HxCB	132		X				
2,2',3,3',5,5'-HxCB	133		X				
2,2',3,3',5,6-HxCB	134	134 + 143	C X				
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C X				
2,2',3,3',6,6'-HxCB	136		X				
2,2',3,4,4',5-HxCB	137		X				
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C X				
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		X				
2,2',3,4,5,6-HxCB	142		X				
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		X				
2,2',3,4,6,6'-HxCB	145		X				
2,2',3,4',5,5'-HxCB	146		X				
2,2',3,4',5,6-HxCB	147	147 + 149	C X				
2,2',3,4',5,6'-HxCB	148		X				
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		X				
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		X				
2,2',4,4',5,5'-HxCB	153	153 + 168	C X				
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		X				
2,3,3',4,4',5-HxCB	156	156 + 157	C X				
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		X				
2,3,3',4,5,5'-HxCB	159		X				
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		X				
2,3,3',4',5,5'-HxCB	162		X				
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		X				
2,3,3',5,5',6-HxCB	165		X				
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		X				
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		X				
2,2',3,3',4,4',5-HpCB	170		X				
2,2',3,3',4,4',6-HpCB	171	171 + 173	C X				
2,2',3,3',4,5,5'-HpCB	172		X				
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		X				
2,2',3,3',4,5',6-HpCB	175		X				
2,2',3,3',4,6,6'-HpCB	176		X				
2,2',3,3',4,5,6-HpCB	177		X				
2,2',3,3',5,5',6-HpCB	178		X				
2,2',3,3',5,6,6'-HpCB	179		X				
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C X				
2,2',3,4,4',5,6-HpCB	181		X				
2,2',3,4,4',5,6'-HpCB	182		X				
2,2',3,4,4',5',6-HpCB	183	183 + 185	C X				
2,2',3,4,4',6,6'-HpCB	184		X				
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		X				
2,2',3,4',5,5',6-HpCB	187		X				
2,2',3,4',5,6,6'-HpCB	188		X				
2,3,3',4,4',5,5'-HpCB	189		X				
2,3,3',4,4',5,6-HpCB	190		X				
2,3,3',4,4',5',6-HpCB	191		X				
2,3,3',4,5,5',6-HpCB	192		X				
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		X				
2,2',3,3',4,4',5,6-OxCB	195		X				
2,2',3,3',4,4',5,6'-OxCB	196		X				
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C X				
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C X				
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5',6,6'-OxCB	201		X				
2,2',3,3',5,5',6,6'-OxCB	202		X				
2,2',3,4,4',5,5',6-OxCB	203		X				
2,2',3,4,4',5,6,6'-OxCB	204		X				
2,3,3',4,4',5,5',6-OxCB	205		X				
2,2',3,3',4,4',5,5',6-NoCB	206		X				
2,2',3,3',4,4',5,6,6'-NoCB	207		X				
2,2',3,3',4,5,5',6,6'-NoCB	208		X				
2,2',3,3',4,4',5,5',6,6'-DeCB	209		X				

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent; C = co-eluting congener; X = result reported separately.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB103
Sample Collection:
16-Aug-2018 13:17

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 12-Oct-2018 Time: 04:17:15
 Extract Volume (uL): 20
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-18 i
 Sample Size: 10.0 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_344 S: 9
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_344 S: 1
 % Lipid: 3.93

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LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L			2000	970	48.5	3.22	0.718
13C12-4-MoCB	3L			2000	1030	51.5	3.18	0.858
13C12-2,2'-DiCB	4L			2000	1160	58.1	1.55	0.874
13C12-4,4'-DiCB	15L			2000	1380	69.0	1.58	1.253
13C12-2,2',6-TriCB	19L			2000	1110	55.6	1.06	1.072
13C12-3,4,4'-TriCB	37L			2000	1750	87.5	1.02	1.092
13C12-2,2',6,6'-TeCB	54L		X					
13C12-3,3',4,4'-TeCB	77L		X					
13C12-3,4,4',5-TeCB	81L		X					
13C12-2,2',4,6,6'-PeCB	104L		X					
13C12-2,3,3',4,4'-PeCB	105L		X					
13C12-2,3,4,4',5-PeCB	114L		X					
13C12-2,3',4,4',5-PeCB	118L		X					
13C12-2',3,4,4',5-PeCB	123L		X					
13C12-3,3',4,4',5-PeCB	126L		X					
13C12-2,2',4,4',6,6'-HxCB	155L		X					
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C X					
13C12-2,3,3',4,4',5-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		X					
13C12-3,3',4,4',5,5'-HxCB	169L		X					
13C12-2,2',3,3',4,4',5-HpCB	170L		X					
13C12-2,2',3,4,4',5,5'-HpCB	180L		X					
13C12-2,2',3,4',5,6,6'-HpCB	188L		X					
13C12-2,3,3',4,4',5,5'-HpCB	189L		X					
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		X					
13C12-2,3,3',4,4',5,5',6-OxCB	205L		X					
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		X					
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		X					
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		X					
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1830	91.5	1.04	0.924
13C12-2,3,3',5,5'-PeCB	111L		X					
13C12-2,2',3,3',5,5',6-HpCB	178L		X					

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB103
Sample Collection:
16-Aug-2018 13:17

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-18 W
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.0 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	18-Oct-2018 Time: 02:29:52	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_356 S: 6
Dilution Factor:	5	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_356 S: 1
		% Lipid:	3.93

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1		X				
3-MoCB	2		X				
4-MoCB	3		X				
2,2'-DiCB	4		X				
2,3-DiCB	5		X				
2,3'-DiCB	6		X				
2,4-DiCB	7		X				
2,4'-DiCB	8		X				
2,5-DiCB	9		X				
2,6-DiCB	10		X				
3,3'-DiCB	11		X				
3,4-DiCB	12	12 + 13	C X				
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		X				
4,4'-DiCB	15		X				
2,2',3-TriCB	16		X				
2,2',4-TriCB	17		X				
2,2',5-TriCB	18	18 + 30	C X				
2,2',6-TriCB	19		X				
2,3,3'-TriCB	20	20 + 28	C X				
2,3,4-TriCB	21	21 + 33	C X				
2,3,4'-TriCB	22		X				
2,3,5-TriCB	23		X				
2,3,6-TriCB	24		X				
2,3',4-TriCB	25		X				
2,3',5-TriCB	26	26 + 29	C X				
2,3',6-TriCB	27		X				
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31		X				
2,4',6-TriCB	32		X				
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34		X				
3,3',4-TriCB	35		X				
3,3',5-TriCB	36		X				
3,4,4'-TriCB	37		X				
3,4,5-TriCB	38		X				
3,4',5-TriCB	39		X				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C D	97.9	0.209 (S)	0.80	1.338
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		D	83.9	0.213 (S)	0.81	1.312
2,2',3,5'-TeCB	43		K D	13.3	0.240 (S)	0.90	1.247
2,2',3,5'-TeCB	44	44 + 47 + 65	C D	623	0.186 (S)	0.76	1.287
2,2',3,6'-TeCB	45	45 + 51	C U D		0.205 (S)		
2,2',3,6'-TeCB	46		D	5.63	0.231 (S)	0.78	1.162
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		D	42.9	0.209 (S)	0.78	1.274
2,2',4,5'-TeCB	49	49 + 69	C D	450	0.176 (S)	0.80	1.260
2,2',4,6'-TeCB	50	50 + 53	C D	33.0	0.197 (S)	0.77	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52		D	1020	0.190 (S)	0.78	1.235
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		K D J	1.03	0.140 (S)	1.37	1.001
2,3,3',4'-TeCB	55		D	16.3	3.25 (S)	0.74	0.889
2,3,3',4'-TeCB	56		D	76.2	3.29 (S)	0.80	0.904
2,3,3',5'-TeCB	57		D	3.12	3.00 (S)	0.71	0.843
2,3,3',5'-TeCB	58		D	4.60	3.14 (S)	0.79	0.852
2,3,3',6'-TeCB	59	59 + 62 + 75	C D	41.9	0.151 (S)	0.81	1.303
2,3,4,4'-TeCB	60		D	127	3.26 (S)	0.79	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C D	1100	2.93 (S)	0.76	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		D	49.9	3.06 (S)	0.77	0.864
2,3,4',6'-TeCB	64		D	192	0.150 (S)	0.78	1.349
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		D	1000	2.96 (S)	0.76	0.884
2,3',4,5'-TeCB	67		D	7.97	2.56 (S)	0.84	0.856
2,3',4,5'-TeCB	68		D	23.9	2.96 (S)	0.73	0.831
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72		D	23.7	2.88 (S)	0.74	0.822
2,3',5',6'-TeCB	73		U D		0.162 (S)		
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77		D	36.5	2.69 (S)	0.73	1.000
3,3',4,5'-TeCB	78		U D		3.13 (S)		
3,3',4,5'-TeCB	79		D	42.2	2.50 (S)	0.76	0.969
3,3',5,5'-TeCB	80		U D		2.93 (S)		
3,4,4',5'-TeCB	81		K D	3.19	2.66 (S)	0.85	1.000
2,2',3,3',4'-PeCB	82		D	265	2.65 (S)	1.56	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C D	4910	2.45 (S)	1.57	0.885
2,2',3,3',6'-PeCB	84		D	316	2.74 (S)	1.59	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C D	1390	1.99 (S)	1.56	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C D G	3420	2.04 (S)	1.57	0.901
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C D	385	2.37 (S)	1.54	1.155
2,2',3,4,6'-PeCB	89		D	8.34	2.58 (S)	1.45	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C D	6890	2.05 (S)	1.55	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		D	1250	2.50 (S)	1.57	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C D	2340	2.30 (S)	1.58	1.121
2,2',3,5,6'-PeCB	94		D	3.64	2.61 (S)	1.56	1.102
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		K D	4.55	0.168 (S)	0.93	1.016
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		D	42.2	2.11 (S)	1.59	1.093
2,2',4,6,6'-PeCB	104		K D J	1.07	0.185 (S)	1.15	1.001
2,3,3',4,4'-PeCB	105		D	2330	11.4 (S)	1.50	1.000
2,3,3',4,5-PeCB	106		U D		13.5 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C D	165	14.2 (S)	1.45	0.991
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		D	805	13.0 (S)	1.51	0.997
2,3,3',4',6-PeCB	110	110 + 115	C D	6520	1.79 (S)	1.54	0.925
2,3,3',5,5'-PeCB	111		K D	8.50	1.79 (S)	2.14	0.945
2,3,3',5,6-PeCB	112		U D		1.79 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		D	280	13.2 (S)	1.55	1.000
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		D	9910	11.8 (S)	1.50	1.001
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		K D	38.5	1.71 (S)	2.01	0.958
2,3',4,5',6-PeCB	121		K D	4.65	1.87 (S)	1.10	1.199
2',3,3',4,5-PeCB	122		U D		15.9 (S)		
2',3,4,4',5-PeCB	123		K D	170	13.3 (S)	1.51	1.001
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		K D	21.9	13.5 (S)	1.36	1.000
3,3',4,5,5'-PeCB	127		D	36.7	14.1 (S)	1.61	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C D	2330	7.08 (S)	1.27	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C D	18700	7.46 (S)	1.25	0.928
2,2',3,3',4,5'-HxCB	130		D	637	9.71 (S)	1.28	0.913
2,2',3,3',4,6-HxCB	131		D	44.0	8.79 (S)	1.28	1.161
2,2',3,3',4,6'-HxCB	132		D	1430	9.66 (S)	1.25	1.176
2,2',3,3',5,5'-HxCB	133		D	271	8.83 (S)	1.26	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C D	253	9.31 (S)	1.27	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C D	3430	0.266 (S)	1.26	1.105
2,2',3,3',6,6'-HxCB	136		D	449	0.203 (S)	1.30	1.025
2,2',3,4,4',5-HxCB	137		D	1090	9.72 (S)	1.21	0.918
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C D	208	8.13 (S)	1.26	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		D	1760	8.69 (S)	1.26	0.903
2,2',3,4,5,6-HxCB	142		U D		9.24 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		D	290	0.272 (S)	1.22	1.123
2,2',3,4,6,6'-HxCB	145		K D J	1.39	0.214 (S)	2.37	1.035
2,2',3,4',5,5'-HxCB	146		D	4110	7.92 (S)	1.25	0.884
2,2',3,4',5,6-HxCB	147	147 + 149	C D	6570	8.15 (S)	1.24	1.134
2,2',3,4',5,6'-HxCB	148		D	34.4	0.272 (S)	1.35	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		K D	7.87	0.210 (S)	1.50	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		U D		0.194 (S)		
2,2',4,4',5,5'-HxCB	153	153 + 168	C D	18300	6.61 (S)	1.24	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		D	12.1	0.195 (S)	1.28	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C D	2160	7.52 (S)	1.25	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		D	1110	5.70 (S)	1.26	0.938
2,3,3',4,5,5'-HxCB	159		U D		6.33 (S)		
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		U D		6.37 (S)		
2,3,3',4',5,5'-HxCB	162		D	61.6	5.30 (S)	1.30	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		D	700	6.50 (S)	1.23	0.921
2,3,3',5,5',6-HxCB	165		K D	8.44	7.41 (S)	1.67	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		D	811	5.65 (S)	1.23	1.000
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U D		17.1 (S)		
2,2',3,3',4,4',5-HpCB	170		D	2260	0.402 (S)	1.04	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C D	754	0.469 (S)	1.03	1.163
2,2',3,3',4,5,5'-HpCB	172		D	537	0.482 (S)	1.03	0.897
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		D	1390	0.439 (S)	1.07	1.134
2,2',3,3',4,5',6-HpCB	175		D	99.4	0.424 (S)	1.03	1.103
2,2',3,3',4,6,6'-HpCB	176		D	129	0.325 (S)	1.03	1.034
2,2',3,3',4',5,6-HpCB	177		D	1030	0.289 (S)	1.06	1.146
2,2',3,3',5,5',6-HpCB	178		D	851	0.433 (S)	1.08	1.085
2,2',3,3',5,6,6'-HpCB	179		D	734	0.316 (S)	1.08	1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C D	8870	0.350 (S)	1.05	1.000
2,2',3,4,4',5,6-HpCB	181		D	39.4	0.426 (S)	0.95	1.157
2,2',3,4,4',5,6'-HpCB	182		U D		0.415 (S)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C D	2340	0.426 (S)	1.03	1.127
2,2',3,4,4',6,6'-HpCB	184		D	18.3	0.313 (S)	0.92	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U D		0.339 (S)		
2,2',3,4',5,5',6-HpCB	187		D	14000	0.388 (S)	1.05	1.111
2,2',3,4',5,6,6'-HpCB	188		D	10.0	0.303 (S)	1.17	1.001
2,3,3',4,4',5,5'-HpCB	189		D	86.8	0.671 (S)	0.97	1.001
2,3,3',4,4',5,6-HpCB	190		D	729	0.355 (S)	1.08	0.947
2,3,3',4,4',5',6-HpCB	191		D	137	0.356 (S)	1.11	0.917
2,3,3',4,5,5',6-HpCB	192		U D		0.393 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		D	1110	0.585 (S)	0.86	0.991
2,2',3,3',4,4',5,6-OxCB	195		D	585	0.631 (S)	0.87	0.945
2,2',3,3',4,4',5,6'-OxCB	196		D	834	0.497 (S)	0.91	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C D	165	0.348 (S)	0.89	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C D	2510	0.476 (S)	0.90	1.115
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5,6,6'-OxCB	201		D	178	0.340 (S)	0.96	1.023
2,2',3,3',5,5',6,6'-OxCB	202		D	627	0.448 (S)	0.91	1.000
2,2',3,4,4',5,5',6-OxCB	203		D	1560	0.479 (S)	0.93	0.919
2,2',3,4,4',5,6,6'-OxCB	204		K D J	1.84	0.356 (S)	0.70	1.039
2,3,3',4,4',5,5',6-OxCB	205		D	57.4	0.424 (S)	0.85	1.001
2,2',3,3',4,4',5,5',6-NoCB	206		D	537	0.310 (S)	0.79	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207		D	84.6	0.229 (S)	0.74	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208		D	199	0.265 (S)	0.78	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209		D	245	0.230 (S)	1.17	1.000

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; D = dilution data; J = concentration less than lowest calibration equivalent; G = lock mass interference present; C = co-eluting congener; X = result reported separately.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB103
Sample Collection:
16-Aug-2018 13:17

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 18-Oct-2018 Time: 02:29:52
 Extract Volume (uL): 100
 Injection Volume (uL): 1.0
 Dilution Factor: 5
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-18 W
 Sample Size: 10.0 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_356 S: 6
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_356 S: 1
 % Lipid: 3.93

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 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L		X					
13C12-4-MoCB	3L		X					
13C12-2,2'-DiCB	4L		X					
13C12-4,4'-DiCB	15L		X					
13C12-2,2',6'-TriCB	19L		X					
13C12-3,4,4'-TriCB	37L		X					
13C12-2,2',6,6'-TeCB	54L		D	2000	1420	71.0	0.86	0.811
13C12-3,3',4,4'-TeCB	77L		D	2000	1860	92.8	0.74	1.398
13C12-3,4,4',5'-TeCB	81L		D	2000	1770	88.4	0.78	1.374
13C12-2,2',4,6,6'-PeCB	104L		D	2000	1180	58.8	1.44	0.808
13C12-2,3,3',4,4'-PeCB	105L		D	2000	1560	77.9	1.48	1.201
13C12-2,3,4,4',5'-PeCB	114L		D	2000	1310	65.7	1.47	1.179
13C12-2,3',4,4',5'-PeCB	118L		D	2000	1530	76.5	1.52	1.162
13C12-2',3,4,4',5'-PeCB	123L		D	2000	1440	72.1	1.43	1.151
13C12-3,3',4,4',5'-PeCB	126L		D	2000	1550	77.7	1.52	1.302
13C12-2,2',4,4',6,6'-HxCB	155L		D	2000	1010	50.6	1.18	0.785
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C D	4000	2750	68.7	1.37	1.108
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		D	2000	1430	71.6	1.33	1.078
13C12-3,3',4,4',5,5'-HxCB	169L		D	2000	1480	73.8	1.20	1.192
13C12-2,2',3,3',4,4',5'-HpCB	170L		D	2000	2090	105	1.04	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L		D	2000	2200	110	1.05	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L		D	2000	1430	71.4	1.09	0.711
13C12-2,3,3',4,4',5,5'-HpCB	189L		D	2000	1360	68.2	1.08	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		D	2000	1140	57.0	0.91	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L		D	2000	1900	95.2	0.89	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		D	2000	2140	107	0.79	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		D	2000	2050	103	0.76	0.948
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		D	2000	1620	81.1	1.17	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L		X					
13C12-2,3,3',5,5'-PeCB	111L		D	2000	1760	88.1	1.65	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L		D	2000	1390	69.5	1.02	1.011

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; D = dilution data; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB101
Sample Collection:
16-Aug-2018 10:51

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-19
Sample Receipt Date:	21-Aug-2018	Sample Size:	9.91 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	04-Oct-2018 Time: 17:17:33	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_335 S: 9
Dilution Factor:	N/A	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_335 S: 1
		% Lipid:	4.00

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This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1			2.37	0.0746 (Q)	3.28	1.001
3-MoCB	2			0.783	0.0746 (Q)	3.29	0.988
4-MoCB	3			1.54	0.0746 (Q)	3.41	1.001
2,2'-DiCB	4			29.4	0.296 (S)	1.53	1.001
2,3-DiCB	5		J	0.329	0.225 (S)	1.44	1.197
2,3'-DiCB	6			7.77	0.202 (S)	1.57	1.175
2,4-DiCB	7			1.19	0.207 (S)	1.75	1.158
2,4'-DiCB	8			23.1	0.185 (S)	1.54	1.207
2,5-DiCB	9			2.05	0.198 (S)	1.45	1.145
2,6-DiCB	10			1.14	0.204 (S)	1.55	1.013
3,3'-DiCB	11			40.6	0.206 (S)	1.51	0.968
3,4-DiCB	12	12 + 13	C	0.838	0.205 (S)	1.40	0.983
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.202 (S)		
4,4'-DiCB	15			6.12	0.210 (S)	1.60	1.000
2,2',3-TriCB	16			19.0	0.0746 (Q)	1.10	1.165
2,2',4-TriCB	17			61.0	0.0746 (Q)	1.06	1.137
2,2',5-TriCB	18	18 + 30	C	71.8	0.0746 (Q)	1.07	1.112
2,2',6-TriCB	19			46.5	0.0746 (Q)	1.07	1.000
2,3,3'-TriCB	20	20 + 28	C	316	0.187 (S)	1.00	0.847
2,3,4-TriCB	21	21 + 33	C	42.8	0.187 (S)	1.01	0.856
2,3,4'-TriCB	22			62.5	0.208 (S)	1.00	0.871
2,3,5-TriCB	23		J	0.239	0.203 (S)	1.14	1.281
2,3,6-TriCB	24			1.11	0.0746 (Q)	1.01	1.159
2,3',4-TriCB	25			25.1	0.170 (S)	1.00	0.824
2,3',5-TriCB	26	26 + 29	C	61.7	0.194 (S)	1.01	1.300
2,3',6-TriCB	27			16.2	0.0746 (Q)	1.07	1.151
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31			171	0.178 (S)	1.00	0.836
2,4',6-TriCB	32			30.8	0.189 (S)	1.02	1.197
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			2.35	0.201 (S)	0.95	1.273
3,3',4-TriCB	35		U		0.186 (S)		
3,3',5-TriCB	36		U		0.179 (S)		
3,4,4'-TriCB	37			21.4	0.187 (S)	1.02	1.001
3,4,5-TriCB	38		J	0.510	0.193 (S)	1.05	0.967
3,4',5-TriCB	39			1.88	0.185 (S)	0.96	0.946

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C	141	0.0746 (Q)	0.79	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			128	0.0746 (Q)	0.80	1.313
2,2',3,5'-TeCB	43			17.4	0.0746 (Q)	0.81	1.247
2,2',3,5'-TeCB	44	44 + 47 + 65	C	884	0.0746 (Q)	0.80	1.286
2,2',3,6'-TeCB	45	45 + 51	C	81.3	0.0746 (Q)	0.78	1.148
2,2',3,6'-TeCB	46			10.2	0.0746 (Q)	0.81	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			61.3	0.0746 (Q)	0.79	1.274
2,2',4,5'-TeCB	49	49 + 69	C	616	0.0746 (Q)	0.79	1.259
2,2',4,6'-TeCB	50	50 + 53	C	54.4	0.0746 (Q)	0.78	1.112
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			981	0.0746 (Q)	0.80	1.235
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			10.0	0.0746 (Q)	0.85	1.001
2,3,3',4'-TeCB	55		U		0.420 (S)		
2,3,3',4'-TeCB	56			138	0.430 (S)	0.76	0.904
2,3,3',5'-TeCB	57			3.80	0.395 (S)	0.79	0.842
2,3,3',5'-TeCB	58			4.94	0.409 (S)	0.67	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	56.7	0.0746 (Q)	0.80	1.303
2,3,4,4'-TeCB	60			158	0.423 (S)	0.76	0.910
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	1110	0.401 (S)	0.78	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			49.5	0.400 (S)	0.76	0.863
2,3,4',6'-TeCB	64			262	0.0746 (Q)	0.79	1.350
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			872	0.391 (S)	0.76	0.883
2,3',4,5'-TeCB	67			17.0	0.350 (S)	0.78	0.855
2,3',4,5'-TeCB	68			25.8	0.389 (S)	0.78	0.831
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72			27.1	0.383 (S)	0.78	0.821
2,3',5',6'-TeCB	73			10.3	0.0746 (Q)	0.70	1.241
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77			48.4	0.414 (S)	0.76	1.000
3,3',4,5'-TeCB	78		U		0.390 (S)		
3,3',4,5'-TeCB	79			34.1	0.343 (S)	0.77	0.971
3,3',5,5'-TeCB	80		U		0.374 (S)		
3,4,4',5'-TeCB	81		K	2.33	0.410 (S)	0.81	1.000
2,2',3,3',4'-PeCB	82		X				
2,2',3,3',5'-PeCB	83	83 + 99	C X				
2,2',3,3',6'-PeCB	84		X				
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C X				
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C X				
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C X				
2,2',3,4,6'-PeCB	89		X				
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C X				
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		X				
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C X				
2,2',3,5,6'-PeCB	94		X				
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		X				
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		X				
2,2',4,6,6'-PeCB	104		X				
2,3,3',4,4'-PeCB	105		X				
2,3,3',4,5-PeCB	106		X				
2,3,3',4',5-PeCB	107	107 + 124	C X				
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		X				
2,3,3',4',6-PeCB	110	110 + 115	C X				
2,3,3',5,5'-PeCB	111		X				
2,3,3',5,6-PeCB	112		X				
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		X				
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		X				
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		X				
2,3',4,5',6-PeCB	121		X				
2',3,3',4,5-PeCB	122		X				
2',3,4,4',5-PeCB	123		X				
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		X				
3,3',4,5,5'-PeCB	127		X				
2,2',3,3',4,4'-HxCB	128	128 + 166	C X				
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C X				
2,2',3,3',4,5'-HxCB	130		X				
2,2',3,3',4,6-HxCB	131		X				
2,2',3,3',4,6'-HxCB	132		X				
2,2',3,3',5,5'-HxCB	133		X				
2,2',3,3',5,6-HxCB	134	134 + 143	C X				
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C X				
2,2',3,3',6,6'-HxCB	136		X				
2,2',3,4,4',5-HxCB	137		X				
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C X				
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		X				
2,2',3,4,5,6-HxCB	142		X				
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		X				
2,2',3,4,6,6'-HxCB	145		X				
2,2',3,4',5,5'-HxCB	146		X				
2,2',3,4',5,6-HxCB	147	147 + 149	C X				
2,2',3,4',5,6'-HxCB	148		X				
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		X				
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		X				
2,2',4,4',5,5'-HxCB	153	153 + 168	C X				
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		X				
2,3,3',4,4',5-HxCB	156	156 + 157	C X				
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		X				
2,3,3',4,5,5'-HxCB	159		X				
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		X				
2,3,3',4',5,5'-HxCB	162		X				
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		X				
2,3,3',5,5',6-HxCB	165		X				
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		X				
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		X				
2,2',3,3',4,4',5-HpCB	170		X				
2,2',3,3',4,4',6-HpCB	171	171 + 173	C X				
2,2',3,3',4,5,5'-HpCB	172		X				
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		X				
2,2',3,3',4,5',6-HpCB	175		X				
2,2',3,3',4,6,6'-HpCB	176		X				
2,2',3,3',4',5,6-HpCB	177		X				
2,2',3,3',5,5',6-HpCB	178		X				
2,2',3,3',5,6,6'-HpCB	179		X				
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C X				
2,2',3,4,4',5,6-HpCB	181		X				
2,2',3,4,4',5,6'-HpCB	182		X				
2,2',3,4,4',5',6-HpCB	183	183 + 185	C X				
2,2',3,4,4',6,6'-HpCB	184		X				
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		X				
2,2',3,4',5,5',6-HpCB	187		X				
2,2',3,4',5,6,6'-HpCB	188		X				
2,3,3',4,4',5,5'-HpCB	189		X				
2,3,3',4,4',5,6-HpCB	190		X				
2,3,3',4,4',5',6-HpCB	191		X				
2,3,3',4,5,5',6-HpCB	192		X				
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		X				
2,2',3,3',4,4',5,6-OxCB	195		X				
2,2',3,3',4,4',5,6'-OxCB	196		X				
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C X				
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C X				
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5',6,6'-OxCB	201		X				
2,2',3,3',5,5',6,6'-OxCB	202		X				
2,2',3,4,4',5,5',6-OxCB	203		X				
2,2',3,4,4',5,6,6'-OxCB	204		X				
2,3,3',4,4',5,5',6-OxCB	205		X				
2,2',3,3',4,4',5,5',6-NoCB	206		X				
2,2',3,3',4,4',5,6,6'-NoCB	207		X				
2,2',3,3',4,5,5',6,6'-NoCB	208		X				
2,2',3,3',4,4',5,5',6,6'-DeCB	209		X				

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent; C = co-eluting congener; X = result reported separately.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB101
Sample Collection:
16-Aug-2018 10:51

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 04-Oct-2018 Time: 17:17:33
 Extract Volume (uL): 20
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-19
 Sample Size: 9.91 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_335 S: 9
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_335 S: 1
 % Lipid: 4.00

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LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L			2000	933	46.6	3.25	0.720
13C12-4-MoCB	3L			2000	1120	55.9	3.31	0.859
13C12-2,2'-DiCB	4L			2000	1300	65.2	1.63	0.874
13C12-4,4'-DiCB	15L			2000	1590	79.6	1.58	1.255
13C12-2,2',6-TriCB	19L			2000	1010	50.5	1.07	1.073
13C12-3,4,4'-TriCB	37L			2000	2180	109	1.05	1.093
13C12-2,2',6,6'-TeCB	54L			2000	1460	72.9	0.80	0.811
13C12-3,3',4,4'-TeCB	77L			2000	2520	126	0.77	1.399
13C12-3,4,4',5-TeCB	81L			2000	2480	124	0.74	1.375
13C12-2,2',4,6,6'-PeCB	104L		X					
13C12-2,3,3',4,4'-PeCB	105L		X					
13C12-2,3,4,4',5-PeCB	114L		X					
13C12-2,3',4,4',5-PeCB	118L		X					
13C12-2',3,4,4',5-PeCB	123L		X					
13C12-3,3',4,4',5-PeCB	126L		X					
13C12-2,2',4,4',6,6'-HxCB	155L		X					
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C X					
13C12-2,3,3',4,4',5-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		X					
13C12-3,3',4,4',5,5'-HxCB	169L		X					
13C12-2,2',3,3',4,4',5-HpCB	170L		X					
13C12-2,2',3,4,4',5,5'-HpCB	180L		X					
13C12-2,2',3,4',5,6,6'-HpCB	188L		X					
13C12-2,3,3',4,4',5,5'-HpCB	189L		X					
13C12-2,2',3,3',5,5',6'-OxCB	202L		X					
13C12-2,3,3',4,4',5,5',6'-OxCB	205L		X					
13C12-2,2',3,3',4,4',5,5',6'-NoCB	206L		X					
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		X					
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		X					
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	2140	107	1.05	0.925
13C12-2,3,3',5,5'-PeCB	111L		X					
13C12-2,2',3,3',5,5',6-HpCB	178L		X					

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB101
Sample Collection:
16-Aug-2018 10:51

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-19 W
Sample Receipt Date:	21-Aug-2018	Sample Size:	9.91 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	17-Oct-2018 Time: 18:56:31	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_355D S: 5
Dilution Factor:	5	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_355C S: 1
		% Lipid:	4.00

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1		X				
3-MoCB	2		X				
4-MoCB	3		X				
2,2'-DiCB	4		X				
2,3-DiCB	5		X				
2,3'-DiCB	6		X				
2,4-DiCB	7		X				
2,4'-DiCB	8		X				
2,5-DiCB	9		X				
2,6-DiCB	10		X				
3,3'-DiCB	11		X				
3,4-DiCB	12	12 + 13	C X				
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		X				
4,4'-DiCB	15		X				
2,2',3-TriCB	16		X				
2,2',4-TriCB	17		X				
2,2',5-TriCB	18	18 + 30	C X				
2,2',6-TriCB	19		X				
2,3,3'-TriCB	20	20 + 28	C X				
2,3,4-TriCB	21	21 + 33	C X				
2,3,4'-TriCB	22		X				
2,3,5-TriCB	23		X				
2,3,6-TriCB	24		X				
2,3',4-TriCB	25		X				
2,3',5-TriCB	26	26 + 29	C X				
2,3',6-TriCB	27		X				
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31		X				
2,4',6-TriCB	32		X				
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34		X				
3,3',4-TriCB	35		X				
3,3',5-TriCB	36		X				
3,4,4'-TriCB	37		X				
3,4,5-TriCB	38		X				
3,4',5-TriCB	39		X				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C X				
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		X				
2,2',3,5'-TeCB	43		X				
2,2',3,5'-TeCB	44	44 + 47 + 65	C X				
2,2',3,6'-TeCB	45	45 + 51	C X				
2,2',3,6'-TeCB	46		X				
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		X				
2,2',4,5'-TeCB	49	49 + 69	C X				
2,2',4,6'-TeCB	50	50 + 53	C X				
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52		X				
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		X				
2,3,3',4'-TeCB	55		X				
2,3,3',4'-TeCB	56		X				
2,3,3',5'-TeCB	57		X				
2,3,3',5'-TeCB	58		X				
2,3,3',6'-TeCB	59	59 + 62 + 75	C X				
2,3,4,4'-TeCB	60		X				
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C X				
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		X				
2,3,4',6'-TeCB	64		X				
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		X				
2,3',4,5'-TeCB	67		X				
2,3',4,5'-TeCB	68		X				
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72		X				
2,3',5',6'-TeCB	73		X				
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77		X				
3,3',4,5'-TeCB	78		X				
3,3',4,5'-TeCB	79		X				
3,3',5,5'-TeCB	80		X				
3,4,4',5'-TeCB	81		X				
2,2',3,3',4'-PeCB	82		D	126	2.13 (S)	1.57	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C D	2400	2.01 (S)	1.56	0.885
2,2',3,3',6'-PeCB	84		D	240	2.14 (S)	1.56	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C D	649	1.59 (S)	1.56	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C D G	1480	1.63 (S)	1.59	0.901
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C D	320	1.94 (S)	1.60	1.155
2,2',3,4,6'-PeCB	89		D	5.61	2.01 (S)	1.69	1.184
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C D	3050	1.68 (S)	1.58	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		D	610	1.95 (S)	1.59	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C D	1390	1.87 (S)	1.56	1.121
2,2',3,5,6'-PeCB	94		D	6.95	2.12 (S)	1.73	1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		K D	7.97	0.271 (S)	1.27	1.017
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		D	56.5	1.77 (S)	1.53	1.094
2,2',4,6,6'-PeCB	104		D J	2.31	0.273 (S)	1.36	1.001
2,3,3',4,4'-PeCB	105		D	942	3.87 (S)	1.54	1.000
2,3,3',4,5-PeCB	106		U D		5.01 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C D	93.7	5.22 (S)	1.59	0.991
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		D	325	5.31 (S)	1.56	0.997
2,3,3',4',6-PeCB	110	110 + 115	C D	2380	1.43 (S)	1.58	0.925
2,3,3',5,5'-PeCB	111		D	7.67	1.45 (S)	1.65	0.945
2,3,3',5,6-PeCB	112		U D		1.38 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		D	74.2	5.26 (S)	1.65	1.000
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		D	3030	4.77 (S)	1.52	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		D	31.8	1.36 (S)	1.39	0.958
2,3',4,5',6-PeCB	121		D	5.28	1.47 (S)	1.73	1.200
2',3,3',4,5-PeCB	122		D	18.2	5.67 (S)	1.65	1.010
2',3,4,4',5-PeCB	123		K D	52.9	5.16 (S)	1.37	1.001
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		K D	7.36	5.48 (S)	1.53	1.000
3,3',4,5,5'-PeCB	127		K D	9.70	5.28 (S)	2.12	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C D	1190	8.61 (S)	1.24	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C D	11100	8.61 (S)	1.24	0.928
2,2',3,3',4,5'-HxCB	130		D	412	11.0 (S)	1.21	0.913
2,2',3,3',4,6-HxCB	131		K D	30.5	10.7 (S)	1.64	1.160
2,2',3,3',4,6'-HxCB	132		D	961	11.1 (S)	1.22	1.175
2,2',3,3',5,5'-HxCB	133		D	184	10.2 (S)	1.25	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C D	173	10.6 (S)	1.25	1.140
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C D	2040	0.298 (S)	1.31	1.105
2,2',3,3',6,6'-HxCB	136		D	313	0.240 (S)	1.30	1.025
2,2',3,4,4',5-HxCB	137		D	310	10.7 (S)	1.20	0.918
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C D	110	9.49 (S)	1.22	1.153
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		D	965	9.58 (S)	1.23	0.903
2,2',3,4,5,6-HxCB	142		U D		10.2 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		D	202	0.309 (S)	1.29	1.122
2,2',3,4,6,6'-HxCB	145		K D J	0.481	0.256 (S)	0.96	1.033
2,2',3,4',5,5'-HxCB	146		D	2000	9.02 (S)	1.25	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C D	4290	9.43 (S)	1.23	1.134
2,2',3,4',5,6'-HxCB	148		D	26.2	0.319 (S)	1.21	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		D	13.5	0.240 (S)	1.20	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		K D J	2.60	0.225 (S)	1.93	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C D	9980	7.82 (S)	1.25	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		D	10.7	0.228 (S)	1.24	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C D	626	8.87 (S)	1.25	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		D	673	6.75 (S)	1.26	0.938
2,3,3',4,5,5'-HxCB	159		U D		7.40 (S)		
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		U D		7.14 (S)		
2,3,3',4',5,5'-HxCB	162		D	21.7	6.45 (S)	1.30	0.988
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		D	365	7.13 (S)	1.23	0.921
2,3,3',5,5',6-HxCB	165		U D		8.36 (S)		
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		D	300	6.91 (S)	1.23	1.000
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U D		8.54 (S)		
2,2',3,3',4,4',5-HpCB	170		D	1990	0.360 (S)	1.05	1.001
2,2',3,3',4,4',6-HpCB	171	171 + 173	C D	557	0.399 (S)	1.06	1.163
2,2',3,3',4,5,5'-HpCB	172		D	415	0.409 (S)	1.06	0.897
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		D	1180	0.377 (S)	1.07	1.134
2,2',3,3',4,5',6-HpCB	175		D	78.0	0.373 (S)	1.04	1.103
2,2',3,3',4,6,6'-HpCB	176		D	123	0.290 (S)	1.01	1.035
2,2',3,3',4',5,6-HpCB	177		D	914	0.269 (S)	1.06	1.146
2,2',3,3',5,5',6-HpCB	178		D	744	0.385 (S)	1.06	1.085
2,2',3,3',5,6,6'-HpCB	179		D	532	0.283 (S)	1.03	1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C D	6440	0.313 (S)	1.04	1.000
2,2',3,4,4',5,6-HpCB	181		D	17.4	0.375 (S)	1.06	1.157
2,2',3,4,4',5,6'-HpCB	182		D	19.6	0.368 (S)	0.93	1.116
2,2',3,4,4',5',6-HpCB	183	183 + 185	C D	1610	0.368 (S)	1.06	1.128
2,2',3,4,4',6,6'-HpCB	184		D	11.9	0.281 (S)	0.97	1.025
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U D		0.306 (S)		
2,2',3,4',5,5',6-HpCB	187		D	6340	0.353 (S)	1.06	1.111
2,2',3,4',5,6,6'-HpCB	188		D	8.64	0.304 (S)	1.03	1.001
2,3,3',4,4',5,5'-HpCB	189		D	56.0	0.367 (S)	0.95	1.000
2,3,3',4,4',5,6-HpCB	190		D	453	0.287 (S)	1.05	0.947
2,3,3',4,4',5',6-HpCB	191		D	86.1	0.303 (S)	1.10	0.917
2,3,3',4,5,5',6-HpCB	192		U D		0.336 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		D	803	0.404 (S)	0.90	0.991
2,2',3,3',4,4',5,6-OxCB	195		D	392	0.448 (S)	0.89	0.945
2,2',3,3',4,4',5,6'-OxCB	196		D	478	0.265 (S)	0.87	0.915
2,2',3,3',4,4',6'-OxCB	197	197 + 200	C D	105	0.194 (S)	0.89	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C D	1220	0.266 (S)	0.88	1.115
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5,6,6'-OxCB	201		D	108	0.196 (S)	0.95	1.023
2,2',3,3',5,5',6,6'-OxCB	202		D	360	0.283 (S)	0.87	1.001
2,2',3,4,4',5,5',6-OxCB	203		D	774	0.252 (S)	0.93	0.919
2,2',3,4,4',5,6,6'-OxCB	204		K D J	0.760	0.200 (S)	2.79	1.038
2,3,3',4,4',5,5',6-OxCB	205		D	40.4	0.301 (S)	0.89	1.000
2,2',3,3',4,4',5,5',6-NoCB	206		D	310	0.340 (S)	0.79	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207		D	50.0	0.286 (S)	0.77	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208		D	126	0.331 (S)	0.81	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209		D	143	0.192 (S)	1.17	1.001

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; D = dilution data; J = concentration less than lowest calibration equivalent; G = lock mass interference present; C = co-eluting congener; X = result reported separately.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB101
Sample Collection:
16-Aug-2018 10:51

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 17-Oct-2018 Time: 18:56:31
 Extract Volume (uL): 100
 Injection Volume (uL): 1.0
 Dilution Factor: 5
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-19 W
 Sample Size: 9.91 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_355D S: 5
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_355C S: 1
 % Lipid: 4.00

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 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L		X					
13C12-4-MoCB	3L		X					
13C12-2,2'-DiCB	4L		X					
13C12-4,4'-DiCB	15L		X					
13C12-2,2',6-TriCB	19L		X					
13C12-3,4,4'-TriCB	37L		X					
13C12-2,2',6,6'-TeCB	54L		X					
13C12-3,3',4,4'-TeCB	77L		X					
13C12-3,4,4',5-TeCB	81L		X					
13C12-2,2',4,6,6'-PeCB	104L		D	2000	1300	65.2	1.65	0.808
13C12-2,3,3',4,4'-PeCB	105L		D	2000	1900	94.8	1.61	1.201
13C12-2,3,4,4',5-PeCB	114L		D	2000	1440	72.0	1.58	1.179
13C12-2,3',4,4',5-PeCB	118L		D	2000	1600	80.1	1.53	1.162
13C12-2',3,4,4',5-PeCB	123L		D	2000	1580	79.2	1.57	1.151
13C12-3,3',4,4',5-PeCB	126L		D	2000	1610	80.4	1.54	1.302
13C12-2,2',4,4',6,6'-HxCB	155L		D	2000	868	43.4	1.34	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C D	4000	2480	62.0	1.26	1.108
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		D	2000	1210	60.3	1.32	1.078
13C12-3,3',4,4',5,5'-HxCB	169L		D	2000	1290	64.5	1.25	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L		D	2000	1830	91.4	1.04	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L		D	2000	1920	95.9	1.14	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L		D	2000	1200	59.9	1.03	0.711
13C12-2,3,3',4,4',5,5'-HpCB	189L		D	2000	1320	66.0	1.08	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		D	2000	987	49.3	0.95	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L		D	2000	1870	93.6	0.97	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L		D	2000	1900	95.0	0.78	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L		D	2000	1620	81.2	0.78	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		D	2000	1390	69.5	1.19	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L		X					
13C12-2,3,3',5,5'-PeCB	111L		D	2000	1710	85.6	1.54	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L		D	2000	1340	67.0	1.05	1.011

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; D = dilution data; C = co-eluting congener; X = result reported separately.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB099
Sample Collection:
16-Aug-2018 11:26

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Project No.	PORTLAND HARBOR PDI AND BASELINE TISSUE
Matrix:	TISSUE	Lab Sample I.D.:	L29915-20
Sample Receipt Date:	21-Aug-2018	Sample Size:	10.1 g (wet)
Extraction Date:	11-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	04-Oct-2018 Time: 18:21:18	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_335 S: 10
Dilution Factor:	N/A	Blank Data Filename:	PB8C_332C S: 5
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_335 S: 1
		% Lipid:	4.64

This page is part of a total report that contains information necessary for accreditation compliance.
This test is not NELAP accredited. Sample results relate only to the sample tested.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1			2.65	0.0720 (Q)	2.99	1.001
3-MoCB	2			0.857	0.0720 (Q)	3.26	0.987
4-MoCB	3			1.73	0.0720 (Q)	3.06	1.000
2,2'-DiCB	4			41.2	0.358 (S)	1.53	1.001
2,3-DiCB	5		K J	0.507	0.272 (S)	1.30	1.198
2,3'-DiCB	6			7.56	0.244 (S)	1.49	1.176
2,4-DiCB	7			1.56	0.249 (S)	1.51	1.159
2,4'-DiCB	8			28.3	0.223 (S)	1.53	1.207
2,5-DiCB	9			2.45	0.240 (S)	1.53	1.146
2,6-DiCB	10			1.84	0.246 (S)	1.64	1.013
3,3'-DiCB	11			94.9	0.248 (S)	1.52	0.969
3,4-DiCB	12	12 + 13	C	1.55	0.247 (S)	1.78	0.984
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.244 (S)		
4,4'-DiCB	15			13.6	0.254 (S)	1.58	1.000
2,2',3-TriCB	16			27.2	0.0732 (S)	1.09	1.166
2,2',4-TriCB	17			88.2	0.0720 (Q)	1.06	1.139
2,2',5-TriCB	18	18 + 30	C	99.4	0.0720 (Q)	1.09	1.113
2,2',6-TriCB	19			104	0.0951 (S)	1.09	1.001
2,3,3'-TriCB	20	20 + 28	C	552	0.294 (S)	1.02	0.847
2,3,4-TriCB	21	21 + 33	C	90.9	0.293 (S)	1.02	0.856
2,3,4'-TriCB	22			115	0.326 (S)	1.01	0.871
2,3,5-TriCB	23		J	0.452	0.319 (S)	0.98	1.283
2,3,6-TriCB	24			1.41	0.0720 (Q)	0.96	1.159
2,3',4-TriCB	25			40.1	0.266 (S)	1.01	0.824
2,3',5-TriCB	26	26 + 29	C	87.1	0.304 (S)	1.02	1.301
2,3',6-TriCB	27			14.4	0.0720 (Q)	1.08	1.152
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31			308	0.279 (S)	1.00	0.836
2,4',6-TriCB	32			47.8	0.296 (S)	1.01	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			3.22	0.316 (S)	0.96	1.273
3,3',4-TriCB	35		U		0.292 (S)		
3,3',5-TriCB	36		U		0.281 (S)		
3,4,4'-TriCB	37			44.6	0.285 (S)	1.02	1.001
3,4,5-TriCB	38			1.23	0.304 (S)	0.99	0.967
3,4',5-TriCB	39			4.73	0.290 (S)	1.05	0.945

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C	333	0.0945 (S)	0.79	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			262	0.100 (S)	0.79	1.313
2,2',3,5'-TeCB	43			34.0	0.108 (S)	0.78	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	1820	0.0877 (S)	0.80	1.286
2,2',3,6'-TeCB	45	45 + 51	C	204	0.0968 (S)	0.79	1.147
2,2',3,6'-TeCB	46			19.8	0.111 (S)	0.81	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			145	0.0970 (S)	0.79	1.273
2,2',4,5'-TeCB	49	49 + 69	C	1190	0.0821 (S)	0.79	1.259
2,2',4,6'-TeCB	50	50 + 53	C	93.8	0.0946 (S)	0.81	1.110
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			1720	0.0918 (S)	0.80	1.235
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			32.9	0.0841 (S)	0.79	1.001
2,3,3',4'-TeCB	55		U		3.38 (S)		
2,3,3',4'-TeCB	56			273	3.46 (S)	0.80	0.904
2,3,3',5'-TeCB	57			6.57	3.19 (S)	0.75	0.843
2,3,3',5'-TeCB	58			10.3	3.29 (S)	0.77	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	115	0.0720 (Q)	0.79	1.303
2,3,4,4'-TeCB	60			319	3.41 (S)	0.77	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	2320	3.23 (S)	0.77	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			99.9	3.22 (S)	0.75	0.864
2,3,4',6'-TeCB	64			520	0.0720 (Q)	0.80	1.349
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			1690	3.15 (S)	0.79	0.883
2,3',4,5'-TeCB	67			33.8	2.82 (S)	0.75	0.856
2,3',4,5'-TeCB	68			43.6	3.13 (S)	0.80	0.830
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72			42.9	3.09 (S)	0.81	0.822
2,3',5',6'-TeCB	73			21.7	0.0771 (S)	0.75	1.240
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77			90.8	3.25 (S)	0.78	1.000
3,3',4,5'-TeCB	78		U		3.14 (S)		
3,3',4,5'-TeCB	79			35.2	2.76 (S)	0.78	0.969
3,3',5,5'-TeCB	80		U		3.02 (S)		
3,4,4',5'-TeCB	81		K	4.71	3.24 (S)	0.74	1.000
2,2',3,3',4'-PeCB	82			215	1.66 (S)	1.56	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	4230	1.55 (S)	1.60	0.885
2,2',3,3',6'-PeCB	84			432	1.77 (S)	1.59	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1060	1.27 (S)	1.59	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C	2230	1.32 (S)	1.59	0.901
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C	586	1.58 (S)	1.61	1.155
2,2',3,4,6'-PeCB	89			11.2	1.64 (S)	1.70	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	5060	1.35 (S)	1.61	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			1030	1.56 (S)	1.60	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	2350	1.53 (S)	1.61	1.121
2,2',3,5,6'-PeCB	94			20.1	1.73 (S)	1.58	1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			17.2	0.150 (S)	1.61	1.016
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103			105	1.39 (S)	1.62	1.093
2,2',4,6,6'-PeCB	104			8.74	0.179 (S)	1.64	1.001
2,3,3',4,4'-PeCB	105			2200	6.33 (S)	1.53	1.000
2,3,3',4,5-PeCB	106		U		6.14 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	175	6.58 (S)	1.50	0.991
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109			627	6.43 (S)	1.51	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	3840	1.13 (S)	1.61	0.925
2,3,3',5,5'-PeCB	111			12.0	1.13 (S)	1.67	0.945
2,3,3',5,6-PeCB	112		U		1.12 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			175	6.55 (S)	1.55	1.001
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118			6850	6.06 (S)	1.52	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120			51.4	1.05 (S)	1.61	0.958
2,3',4,5',6-PeCB	121			11.2	1.17 (S)	1.60	1.200
2',3,3',4,5-PeCB	122			37.2	7.29 (S)	1.63	1.009
2',3,4,4',5-PeCB	123		K	125	6.64 (S)	1.51	1.001
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		K	35.0	6.88 (S)	1.55	1.000
3,3',4,5,5'-PeCB	127			18.0	6.54 (S)	1.48	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C G	1830	9.75 (S)	1.27	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	15000	9.85 (S)	1.28	0.928
2,2',3,3',4,5'-HxCB	130			708	12.7 (S)	1.28	0.913
2,2',3,3',4,6-HxCB	131			51.5	12.2 (S)	1.29	1.160
2,2',3,3',4,6'-HxCB	132			1540	12.7 (S)	1.28	1.176
2,2',3,3',5,5'-HxCB	133			341	12.1 (S)	1.25	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	270	12.2 (S)	1.27	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	3100	0.285 (S)	1.27	1.105
2,2',3,3',6,6'-HxCB	136			528	0.228 (S)	1.26	1.025
2,2',3,4,4',5-HxCB	137			633	11.5 (S)	1.27	0.918
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C	195	11.0 (S)	1.27	1.153
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			1720	11.0 (S)	1.29	0.903
2,2',3,4,5,6-HxCB	142		U		12.4 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			329	0.287 (S)	1.26	1.122
2,2',3,4,6,6'-HxCB	145			0.693	0.239 (S)	1.28	1.035
2,2',3,4',5,5'-HxCB	146			3210	10.2 (S)	1.28	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C	6360	10.7 (S)	1.28	1.135
2,2',3,4',5,6'-HxCB	148			41.6	0.297 (S)	1.28	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			26.3	0.234 (S)	1.22	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			7.47	0.221 (S)	1.25	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C	17900	9.14 (S)	1.28	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155			22.9	0.234 (S)	1.29	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	1570	10.8 (S)	1.27	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			1180	7.57 (S)	1.27	0.938
2,3,3',4,5,5'-HxCB	159			98.3	8.19 (S)	1.29	0.981
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,3,3',4,5',6-HxCB	161		U		8.67 (S)		
2,3,3',4',5,5'-HxCB	162			47.7	8.19 (S)	1.22	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			614	8.66 (S)	1.28	0.921
2,3,3',5,5',6-HxCB	165			15.0	9.68 (S)	1.27	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			665	8.74 (S)	1.28	1.000
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U		28.2 (S)		
2,2',3,3',4,4',5-HpCB	170			3720	0.276 (S)	1.06	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	1140	0.308 (S)	1.07	1.164
2,2',3,3',4,5,5'-HpCB	172			851	0.311 (S)	1.07	0.896
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174			2160	0.275 (S)	1.06	1.134
2,2',3,3',4,5',6-HpCB	175			176	0.283 (S)	1.07	1.103
2,2',3,3',4,6,6'-HpCB	176			229	0.221 (S)	1.05	1.034
2,2',3,3',4',5,6-HpCB	177			2200	0.291 (S)	1.05	1.146
2,2',3,3',5,5',6-HpCB	178			1160	0.298 (S)	1.06	1.086
2,2',3,3',5,6,6'-HpCB	179			823	0.217 (S)	1.07	1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	14400	0.272 (S)	1.06	1.000
2,2',3,4,4',5,6-HpCB	181			34.0	0.295 (S)	1.03	1.157
2,2',3,4,4',5,6'-HpCB	182		U		0.275 (S)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	3400	0.280 (S)	1.07	1.128
2,2',3,4,4',6,6'-HpCB	184			22.4	0.215 (S)	1.04	1.025
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.232 (S)		
2,2',3,4',5,5',6-HpCB	187		G	9340	0.268 (S)	1.06	1.111
2,2',3,4',5,6,6'-HpCB	188			22.5	0.223 (S)	1.06	1.001
2,3,3',4,4',5,5'-HpCB	189			139	0.619 (S)	1.03	1.000
2,3,3',4,4',5,6-HpCB	190			871	0.218 (S)	1.06	0.946
2,3,3',4,4',5',6-HpCB	191			198	0.225 (S)	1.06	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.246 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			1470	0.321 (S)	0.89	0.991
2,2',3,3',4,4',5,6-OxCB	195			904	0.350 (S)	0.90	0.944
2,2',3,3',4,4',5,6'-OxCB	196			1310	0.0907 (S)	0.90	0.914
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C G	238	0.0720 (Q)	0.91	1.045
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	3370	0.0954 (S)	0.90	1.115
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5,6,6'-OxCB	201			359	0.0720 (Q)	0.90	1.022
2,2',3,3',5,5',6,6'-OxCB	202			694	0.0778 (S)	0.90	1.000
2,2',3,4,4',5,5',6-OxCB	203			1860	0.0879 (S)	0.91	0.918
2,2',3,4,4',5,6,6'-OxCB	204		K	2.10	0.0720 (Q)	1.34	1.038
2,3,3',4,4',5,5',6-OxCB	205			87.1	0.316 (S)	0.87	1.000
2,2',3,3',4,4',5,5',6-NoCB	206			563	0.0818 (S)	0.79	1.001
2,2',3,3',4,4',5,6,6'-NoCB	207			97.4	0.0720 (Q)	0.78	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			241	0.0720 (Q)	0.79	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			173	0.0720 (Q)	1.15	1.000

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent; G = lock mass interference present; C = co-eluting congener.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB099
Sample Collection:
16-Aug-2018 11:26

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: TISSUE
 Sample Receipt Date: 21-Aug-2018
 Extraction Date: 11-Sep-2018
 Analysis Date: 04-Oct-2018 Time: 18:21:18
 Extract Volume (uL): 20
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29915-20
 Sample Size: 10.1 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_335 S: 10
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_335 S: 1
 % Lipid: 4.64

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LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L			2000	850	42.5	3.29	0.719
13C12-4-MoCB	3L			2000	1010	50.3	3.25	0.859
13C12-2,2'-DiCB	4L			2000	1140	56.9	1.60	0.873
13C12-4,4'-DiCB	15L			2000	1410	70.4	1.60	1.254
13C12-2,2',6-TriCB	19L			2000	876	43.8	1.06	1.072
13C12-3,4,4'-TriCB	37L			2000	2030	101	1.05	1.093
13C12-2,2',6,6'-TeCB	54L			2000	1280	64.1	0.82	0.811
13C12-3,3',4,4'-TeCB	77L			2000	2380	119	0.77	1.399
13C12-3,4,4',5-TeCB	81L			2000	2390	119	0.78	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	1010	50.7	1.56	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	2120	106	1.57	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	2090	105	1.61	1.180
13C12-2,3',4,4',5-PeCB	118L			2000	2260	113	1.55	1.163
13C12-2',3,4,4',5-PeCB	123L			2000	2230	111	1.58	1.152
13C12-3,3',4,4',5-PeCB	126L			2000	2270	113	1.59	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	918	45.9	1.26	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	3220	80.4	1.27	1.108
13C12-2,3,3',4,4',5-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			2000	1600	80.2	1.28	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1630	81.6	1.27	1.193
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	2920	146	1.06	0.896
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	2880	144	1.06	0.871
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1740	87.2	1.07	0.710
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	2600	130	0.99	0.958
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	1420	71.2	0.90	0.816
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	2070	103	0.88	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	2130	106	0.77	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	2190	109	0.78	0.948
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	1650	82.6	1.18	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	2010	101	1.04	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1640	82.2	1.64	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1270	63.7	1.04	1.012

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972

Project No.

N/A

Lab Sample I.D.:

WG65146-101

Matrix: CANOLA OIL

Sample Size:

10.0 g

Sample Receipt Date: N/A

Initial Calibration Date:

07-Jul-2018

Extraction Date: 11-Sep-2018

Instrument ID:

HR GC/MS

Analysis Date: 02-Oct-2018 Time: 23:54:28

GC Column ID:

SPB OCTYL

Extract Volume (uL): 20

Sample Data Filename:

PB8C_332C S: 5

Injection Volume (uL): 1.0

Blank Data Filename:

PB8C_332C S: 5

Dilution Factor: N/A

Cal. Ver. Data Filename:

PB8C_332C S: 1

Concentration Units: pg/g

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2-MoCB	1		J	0.269	0.0730 (Q)	2.97	1.001
3-MoCB	2		J	0.177	0.0730 (Q)	2.76	0.988
4-MoCB	3		J	0.551	0.0730 (Q)	3.45	1.000
2,2'-DiCB	4		U		0.374 (S)		
2,3-DiCB	5		U		0.333 (S)		
2,3'-DiCB	6		U		0.308 (S)		
2,4-DiCB	7		U		0.312 (S)		
2,4'-DiCB	8		K	0.862	0.290 (S)	1.86	1.207
2,5-DiCB	9		U		0.301 (S)		
2,6-DiCB	10		U		0.308 (S)		
3,3'-DiCB	11			3.03	0.312 (S)	1.49	0.969
3,4-DiCB	12	12 + 13	C U		0.315 (S)		
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.315 (S)		
4,4'-DiCB	15		K J	0.513	0.360 (S)	1.05	1.001
2,2',3-TriCB	16		J	0.380	0.0730 (Q)	0.89	1.166
2,2',4-TriCB	17		J	0.429	0.0730 (Q)	1.08	1.139
2,2',5-TriCB	18	18 + 30	C	0.712	0.0730 (Q)	1.14	1.114
2,2',6-TriCB	19		K J	0.113	0.0730 (Q)	1.61	1.001
2,3,3'-TriCB	20	20 + 28	C	1.08	0.0730 (Q)	1.06	0.847
2,3,4-TriCB	21	21 + 33	C	0.620	0.0730 (Q)	1.05	0.857
2,3,4'-TriCB	22		J	0.402	0.0730 (Q)	1.11	0.871
2,3,5-TriCB	23		U		0.0730 (Q)		
2,3,6-TriCB	24		U		0.0730 (Q)		
2,3',4-TriCB	25		K J	0.100	0.0730 (Q)	0.80	0.824
2,3',5-TriCB	26	26 + 29	C J	0.183	0.0730 (Q)	0.97	1.303
2,3',6-TriCB	27		K J	0.073	0.0730 (Q)	0.55	1.152
2,4,4'-TriCB	28	20 + 28	C20				
2,4,5-TriCB	29	26 + 29	C26				
2,4,6-TriCB	30	18 + 30	C18				
2,4',5-TriCB	31			0.848	0.0730 (Q)	1.03	0.836
2,4',6-TriCB	32		J	0.198	0.0730 (Q)	1.08	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34		U		0.0730 (Q)		
3,3',4-TriCB	35		J	0.080	0.0730 (Q)	1.16	0.985
3,3',5-TriCB	36		U		0.0730 (Q)		
3,4,4'-TriCB	37		J	0.325	0.0730 (Q)	0.99	1.001
3,4,5-TriCB	38		U		0.0730 (Q)		
3,4',5-TriCB	39		U		0.0730 (Q)		

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C J	0.357	0.0730 (Q)	0.88	1.336
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		J	0.203	0.0730 (Q)	0.71	1.312
2,2',3,5'-TeCB	43		U		0.0730 (Q)		
2,2',3,5'-TeCB	44	44 + 47 + 65	C	0.939	0.0730 (Q)	0.78	1.287
2,2',3,6'-TeCB	45	45 + 51	C K J	0.192	0.0730 (Q)	1.06	1.147
2,2',3,6'-TeCB	46		U		0.0730 (Q)		
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		J	0.162	0.0730 (Q)	0.75	1.274
2,2',4,5'-TeCB	49	49 + 69	C J	0.292	0.0730 (Q)	0.79	1.260
2,2',4,6'-TeCB	50	50 + 53	C K J	0.103	0.0730 (Q)	1.00	1.110
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			0.661	0.0730 (Q)	0.66	1.235
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		U		0.0730 (Q)		
2,3,3',4'-TeCB	55		U		0.0730 (Q)		
2,3,3',4'-TeCB	56		J	0.179	0.0730 (Q)	0.86	0.904
2,3,3',5'-TeCB	57		U		0.0730 (Q)		
2,3,3',5'-TeCB	58		U		0.0730 (Q)		
2,3,3',6'-TeCB	59	59 + 62 + 75	C J	0.081	0.0730 (Q)	0.70	1.303
2,3,4,4'-TeCB	60		K J	0.142	0.0730 (Q)	0.64	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	0.809	0.0730 (Q)	0.74	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		U		0.0730 (Q)		
2,3,4',6'-TeCB	64		J	0.279	0.0730 (Q)	0.77	1.350
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		J	0.421	0.0730 (Q)	0.77	0.884
2,3',4,5'-TeCB	67		U		0.0730 (Q)		
2,3',4,5'-TeCB	68		K J	0.106	0.0730 (Q)	0.61	0.830
2,3',4,6'-TeCB	69	49 + 69	C49				
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61				
2,3',4',6'-TeCB	71	40 + 41 + 71	C40				
2,3',5,5'-TeCB	72		U		0.0730 (Q)		
2,3',5',6'-TeCB	73		U		0.0730 (Q)		
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61				
2,4,4',6'-TeCB	75	59 + 62 + 75	C59				
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61				
3,3',4,4'-TeCB	77		U		0.0730 (Q)		
3,3',4,5'-TeCB	78		U		0.0730 (Q)		
3,3',4,5'-TeCB	79		U		0.0730 (Q)		
3,3',5,5'-TeCB	80		U		0.0730 (Q)		
3,4,4',5'-TeCB	81		U		0.0730 (Q)		
2,2',3,3',4'-PeCB	82		K J	0.098	0.0751 (S)	1.14	0.933
2,2',3,3',5'-PeCB	83	83 + 99	C K J	0.337	0.0730 (Q)	2.15	0.885
2,2',3,3',6'-PeCB	84		J	0.131	0.0732 (S)	1.74	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C K J	0.163	0.0730 (Q)	1.26	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C K J	0.536	0.0730 (Q)	0.96	0.901
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C J	0.088	0.0730 (Q)	1.46	1.155
2,2',3,4,6'-PeCB	89		U		0.0730 (Q)		
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C K J	0.501	0.0730 (Q)	2.45	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		J	0.120	0.0730 (Q)	1.71	0.852
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C J	0.429	0.0730 (Q)	1.54	1.124
2,2',3,5,6'-PeCB	94		U		0.0730 (Q)		
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		U		0.0730 (Q)		
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86				
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93				
2,2',4,4',5'-PeCB	99	83 + 99	C83				

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2,2',4,4',6-PeCB	100	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90				
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93				
2,2',4,5',6-PeCB	103		U		0.0730 (Q)		
2,2',4,6,6'-PeCB	104		U		0.0730 (Q)		
2,3,3',4,4'-PeCB	105		K J	0.170	0.0730 (Q)	1.96	1.000
2,3,3',4,5-PeCB	106		U		0.0730 (Q)		
2,3,3',4',5-PeCB	107	107 + 124	C U		0.0730 (Q)		
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		U		0.0730 (Q)		
2,3,3',4',6-PeCB	110	110 + 115	C	0.586	0.0730 (Q)	1.53	0.925
2,3,3',5,5'-PeCB	111		U		0.0730 (Q)		
2,3,3',5,6-PeCB	112		U		0.0730 (Q)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		U		0.0730 (Q)		
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		J	0.560	0.0730 (Q)	1.55	1.001
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		U		0.0730 (Q)		
2,3',4,5',6-PeCB	121		U		0.0730 (Q)		
2',3,3',4,5-PeCB	122		U		0.0730 (Q)		
2',3,4,4',5-PeCB	123		U		0.0730 (Q)		
2',3,4,5,5'-PeCB	124	107 + 124	C107				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		U		0.0730 (Q)		
3,3',4,5,5'-PeCB	127		U		0.0730 (Q)		
2,2',3,3',4,4'-HxCB	128	128 + 166	C U		0.0730 (Q)		
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C K J	0.465	0.0730 (Q)	1.57	0.928
2,2',3,3',4,5'-HxCB	130		U		0.0888 (S)		
2,2',3,3',4,6-HxCB	131		U		0.0838 (S)		
2,2',3,3',4,6'-HxCB	132		J	0.103	0.0879 (S)	1.22	1.176
2,2',3,3',5,5'-HxCB	133		U		0.0824 (S)		
2,2',3,3',5,6-HxCB	134	134 + 143	C U		0.0840 (S)		
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C K J	0.222	0.0730 (Q)	3.98	1.106
2,2',3,3',6,6'-HxCB	136		U		0.0730 (Q)		
2,2',3,4,4',5-HxCB	137		U		0.0893 (S)		
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C U		0.0756 (S)		
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		U		0.0786 (S)		
2,2',3,4,5,6-HxCB	142		U		0.0866 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		U		0.0730 (Q)		
2,2',3,4,6,6'-HxCB	145		U		0.0730 (Q)		
2,2',3,4',5,5'-HxCB	146		J	0.104	0.0742 (S)	1.15	0.884
2,2',3,4',5,6-HxCB	147	147 + 149	C J	0.271	0.0742 (S)	1.06	1.135
2,2',3,4',5,6'-HxCB	148		U		0.0730 (Q)		
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		U		0.0730 (Q)		
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		U		0.0730 (Q)		
2,2',4,4',5,5'-HxCB	153	153 + 168	C J	0.508	0.0730 (Q)	1.40	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		U		0.0730 (Q)		
2,3,3',4,4',5-HxCB	156	156 + 157	C U		0.0812 (S)		
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		U		0.0730 (Q)		
2,3,3',4,5,5'-HxCB	159		U		0.0730 (Q)		
2,3,3',4,5,6-HxCB	160	129 + 138 + 160 + 163	C129				

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2,3,3',4,5',6-HxCB	161		U		0.0730 (Q)		
2,3,3',4',5,5'-HxCB	162		U		0.0730 (Q)		
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		U		0.0730 (Q)		
2,3,3',5,5',6-HxCB	165		U		0.0730 (Q)		
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		U		0.0730 (Q)		
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U		0.0730 (Q)		
2,2',3,3',4,4',5-HpCB	170		K J	0.080	0.0730 (Q)	1.34	1.001
2,2',3,3',4,4',6-HpCB	171	171 + 173	C U		0.0730 (Q)		
2,2',3,3',4,5,5'-HpCB	172		U		0.0730 (Q)		
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		J	0.081	0.0730 (Q)	0.98	1.134
2,2',3,3',4,5',6-HpCB	175		U		0.0730 (Q)		
2,2',3,3',4,6,6'-HpCB	176		U		0.0730 (Q)		
2,2',3,3',4',5,6-HpCB	177		U		0.0730 (Q)		
2,2',3,3',5,5',6-HpCB	178		U		0.0730 (Q)		
2,2',3,3',5,6,6'-HpCB	179		U		0.0730 (Q)		
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C K J	0.302	0.0730 (Q)	0.84	1.001
2,2',3,4,4',5,6-HpCB	181		U		0.0730 (Q)		
2,2',3,4,4',5,6'-HpCB	182		U		0.0730 (Q)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C K J	0.107	0.0730 (Q)	2.04	1.128
2,2',3,4,4',6,6'-HpCB	184		U		0.0730 (Q)		
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.0730 (Q)		
2,2',3,4',5,5',6-HpCB	187		K J	0.288	0.0730 (Q)	0.64	1.110
2,2',3,4',5,6,6'-HpCB	188		U		0.0730 (Q)		
2,3,3',4,4',5,5'-HpCB	189		U		0.0730 (Q)		
2,3,3',4,4',5,6-HpCB	190		U		0.0730 (Q)		
2,3,3',4,4',5',6-HpCB	191		U		0.0730 (Q)		
2,3,3',4,5,5',6-HpCB	192		U		0.0730 (Q)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		U		0.0730 (Q)		
2,2',3,3',4,4',5,6-OxCB	195		U		0.0730 (Q)		
2,2',3,3',4,4',5,6'-OxCB	196		U		0.0730 (Q)		
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C U		0.0730 (Q)		
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C U		0.0730 (Q)		
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5,6,6'-OxCB	201		U		0.0730 (Q)		
2,2',3,3',5,5',6,6'-OxCB	202		U		0.0730 (Q)		
2,2',3,4,4',5,5',6-OxCB	203		U		0.0730 (Q)		
2,2',3,4,4',5,6,6'-OxCB	204		U		0.0730 (Q)		
2,3,3',4,4',5,5',6-OxCB	205		U		0.0730 (Q)		
2,2',3,3',4,4',5,5',6-NoCB	206		U		0.0730 (Q)		
2,2',3,3',4,4',5,6,6'-NoCB	207		U		0.0730 (Q)		
2,2',3,3',4,5,5',6,6'-NoCB	208		K	0.836	0.0730 (Q)	0.30	1.000
2,2',3,3',4,4',5,5',6,6'-DeCB	209		K J	0.107	0.0730 (Q)	0.81	1.000

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; J = concentration less than lowest calibration equivalent; C = co-eluting congener.

(2) Reporting Limit (Code): S = sample detection limit; M = method detection limit; L = lowest calibration level equivalent; Q = minimum reporting level.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
Lab Blank
Sample Collection:
N/A

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.: 4972
 Matrix: CANOLA OIL
 Sample Receipt Date: N/A
 Extraction Date: 11-Sep-2018
 Analysis Date: 02-Oct-2018 Time: 23:54:28
 Extract Volume (uL): 20
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. N/A
 Lab Sample I.D.: WG65146-101
 Sample Size: 10.0 g
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_332C S: 5
 Blank Data Filename: PB8C_332C S: 5
 Cal. Ver. Data Filename: PB8C_332C S: 1

This page is part of a total report that contains information necessary for accreditation compliance.
 This test is not NELAP accredited. Sample results relate only to the sample tested.

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	SPIKE CONC.	CONC. FOUND	R(%) ³	ION ABUND. RATIO	RRT
13C12-2-MoCB	1L			2000	1200	59.9	3.21	0.719
13C12-4-MoCB	3L			2000	1170	58.5	3.22	0.859
13C12-2,2'-DiCB	4L			2000	1390	69.5	1.56	0.873
13C12-4,4'-DiCB	15L			2000	1310	65.6	1.55	1.253
13C12-2,2',6-TriCB	19L			2000	1220	61.2	1.07	1.071
13C12-3,4,4'-TriCB	37L			2000	1560	78.1	1.04	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1400	69.9	0.81	0.811
13C12-3,3',4,4'-TeCB	77L			2000	2010	100	0.75	1.398
13C12-3,4,4',5-TeCB	81L			2000	2080	104	0.74	1.375
13C12-2,2',4,6,6'-PeCB	104L			2000	1190	59.7	1.60	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	2120	106	1.55	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1910	95.3	1.63	1.179
13C12-2,3',4,4',5-PeCB	118L			2000	1940	97.2	1.56	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1950	97.7	1.52	1.152
13C12-3,3',4,4',5-PeCB	126L			2000	2030	101	1.58	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	1110	55.6	1.25	0.784
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	3380	84.4	1.28	1.108
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			2000	1670	83.6	1.29	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1710	85.3	1.25	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1920	95.9	1.04	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1830	91.5	1.07	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1220	60.8	1.09	0.711
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1690	84.4	1.02	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	923	46.1	0.91	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1720	85.9	0.87	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1430	71.3	0.80	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1500	75.0	0.79	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	1130	56.4	1.19	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1700	85.0	1.05	0.924
13C12-2,3,3',5,5'-PeCB	111L			2000	1740	87.0	1.61	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1380	68.8	1.06	1.011

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) R% = percent recovery of labeled compounds.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou_____

SGS AXYS METHOD MLA-010 Rev 12

Form 8A

PCB CONGENER ONGOING PRECISION AND RECOVERY (OPR)

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Lab Sample I.D.:	WG65146-102
Matrix:	CANOLA OIL	Initial Calibration Date:	07-Jul-2018
Extraction Date:	11-Sep-2018	Instrument ID:	HR GC/MS
Analysis Date:	02-Oct-2018 Time: 20:43:19	GC Column ID:	SPB OCTYL
Extract Volume (uL):	20	OPR Data Filename:	PB8C_332C S: 2
Injection Volume (uL):	1.0	Blank Data Filename:	PB8C_332C S: 5
Dilution Factor:	N/A	Cal. Ver. Data Filename:	PB8C_332C S: 1

CONCENTRATIONS REPORTED ARE CONCENTRATIONS IN EXTRACT, BASED ON A 20 uL EXTRACT VOLUME.

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	ION ABUND. RATIO	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS (ng/mL)	% RECOVERY
2-MoCB	1			3.12	50.0	53.0	25.0 - 75.0	106
4-MoCB	3			3.08	50.0	50.9	25.0 - 75.0	102
2,2'-DiCB	4			1.50	50.0	46.5	25.0 - 75.0	93.0
4,4'-DiCB	15			1.49	50.0	44.4	25.0 - 75.0	88.9
2,2',6-TriCB	19			1.08	50.0	56.2	25.0 - 75.0	112
3,4,4'-TriCB	37			0.99	50.0	44.4	25.0 - 75.0	88.7
2,2',6,6'-TeCB	54			0.79	50.0	55.6	25.0 - 75.0	111
3,3',4,4'-TeCB	77			0.78	50.0	47.6	25.0 - 75.0	95.3
3,4,4',5-TeCB	81			0.78	50.0	46.7	25.0 - 75.0	93.3
2,2',4,6,6'-PeCB	104			1.56	50.0	54.6	25.0 - 75.0	109
2,3,3',4,4'-PeCB	105			1.53	50.0	45.9	25.0 - 75.0	91.8
2,3,4,4',5-PeCB	114			1.53	50.0	46.0	25.0 - 75.0	91.9
2,3',4,4',5-PeCB	118			1.49	50.0	44.4	25.0 - 75.0	88.7
2',3,4,4',5-PeCB	123			1.54	50.0	45.6	25.0 - 75.0	91.2
3,3',4,4',5-PeCB	126			1.52	50.0	44.6	25.0 - 75.0	89.3
2,2',4,4',6,6'-HxCB	155			1.30	50.0	55.3	25.0 - 75.0	111
2,3,3',4,4',5-HxCB	156	156 + 157	C	1.25	100	105	50.0 - 150	105
2,3,3',4,4',5'-HxCB	157	156 + 157	C156					
2,3',4,4',5,5'-HxCB	167			1.25	50.0	53.6	25.0 - 75.0	107
3,3',4,4',5,5'-HxCB	169			1.27	50.0	52.5	25.0 - 75.0	105
2,2',3,4',5,6,6'-HpCB	188			1.01	50.0	53.6	25.0 - 75.0	107
2,3,3',4,4',5,5'-HpCB	189			1.01	50.0	41.7	25.0 - 75.0	83.3
2,2',3,3',5,5',6,6'-OxCB	202			0.90	50.0	55.6	25.0 - 75.0	111
2,3,3',4,4',5,5',6-OxCB	205			0.90	50.0	51.0	25.0 - 75.0	102
2,2',3,3',4,4',5,5',6-NoCB	206			0.81	50.0	51.9	25.0 - 75.0	104
2,2',3,3',4,5,5',6,6'-NoCB	208			0.78	50.0	53.7	25.0 - 75.0	107
2,2',3,3',4,4',5,5',6,6'-DeCB	209			1.22	50.0	49.7	25.0 - 75.0	99.5

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

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SGS AXYS METHOD MLA-010 Rev 12

Form 8B

PCB CONGENER ONGOING PRECISION AND RECOVERY (OPR)

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Contract No.:	4972	Lab Sample I.D.:	WG65146-102
Matrix:	CANOLA OIL	Initial Calibration Date:	07-Jul-2018
Extraction Date:	11-Sep-2018	Instrument ID:	HR GC/MS
Analysis Date:	02-Oct-2018 Time: 20:43:19	GC Column ID:	SPB OCTYL
Extract Volume (uL):	20	OPR Data Filename:	PB8C_332C S: 2
Injection Volume (uL):	1.0	Blank Data Filename:	PB8C_332C S: 5
Dilution Factor:	N/A	Cal. Ver. Data Filename:	PB8C_332C S: 1

CONCENTRATIONS REPORTED ARE CONCENTRATIONS IN EXTRACT, BASED ON A 20 uL EXTRACT VOLUME.

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	ION ABUND. RATIO	SPIKE CONC. (ng/mL)	CONC. FOUND (ng/mL)	OPR CONC. LIMITS (ng/mL)	% RECOVERY
13C12-2-MoCB	1L			3.22	100	49.9	15.0 - 140	49.9
13C12-4-MoCB	3L			3.20	100	52.6	15.0 - 140	52.6
13C12-2,2'-DiCB	4L			1.59	100	61.2	30.0 - 140	61.2
13C12-4,4'-DiCB	15L			1.60	100	69.3	30.0 - 140	69.3
13C12-2,2',6-TriCB	19L			1.08	100	55.7	30.0 - 140	55.7
13C12-3,4,4'-TriCB	37L			1.02	100	82.0	30.0 - 140	82.0
13C12-2,2',6,6'-TeCB	54L			0.80	100	68.4	30.0 - 140	68.4
13C12-3,3',4,4'-TeCB	77L			0.74	100	102	30.0 - 140	102
13C12-3,4,4',5-TeCB	81L			0.76	100	103	30.0 - 140	103
13C12-2,2',4,6,6'-PeCB	104L			1.61	100	56.1	30.0 - 140	56.1
13C12-2,3,3',4,4'-PeCB	105L			1.58	100	99.4	30.0 - 140	99.4
13C12-2,3,4,4',5-PeCB	114L			1.61	100	91.9	30.0 - 140	91.9
13C12-2,3',4,4',5-PeCB	118L			1.59	100	96.0	30.0 - 140	96.0
13C12-2',3,4,4',5-PeCB	123L			1.52	100	95.6	30.0 - 140	95.6
13C12-3,3',4,4',5-PeCB	126L			1.55	100	98.1	30.0 - 140	98.1
13C12-2,2',4,4',6,6'-HxCB	155L			1.31	100	52.1	30.0 - 140	52.1
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	1.24	200	159	60.0 - 280	79.4
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			1.23	100	77.7	30.0 - 140	77.7
13C12-3,3',4,4',5,5'-HxCB	169L			1.23	100	78.5	30.0 - 140	78.5
13C12-2,2',3,4',5,6,6'-HpCB	188L			1.07	100	56.1	30.0 - 140	56.1
13C12-2,3,3',4,4',5,5'-HpCB	189L			1.01	100	79.9	30.0 - 140	79.9
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			0.92	100	41.8	30.0 - 140	41.8
13C12-2,3,3',4,4',5,5',6-OxCB	205L			0.91	100	83.0	30.0 - 140	83.0
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			0.77	100	69.5	30.0 - 140	69.5
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			0.79	100	69.9	30.0 - 140	69.9
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			1.16	100	54.8	30.0 - 140	54.8

CLEANUP STANDARD

13C12-2,4,4'-TriCB	28L	1.05	100	87.2	40.0 - 125	87.2
13C12-2,3,3',5,5'-PeCB	111L	1.63	100	84.7	40.0 - 125	84.7
13C12-2,2',3,3',5,5',6-HpCB	178L	1.06	100	65.8	40.0 - 125	65.8

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Matthew Ou _____

These pages are part of a larger report that may contain information necessary for full data evaluation. Results reported relate only to the sample tested.

SGS AXYS METHOD MLA-010 Rev 12

Form 3A

PCB CONGENERS INITIAL CALIBRATION RELATIVE RESPONSES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

Instrument ID: HR GC/MS

GC Column ID: SPB OCTYL

CS0 Data Filename: PB8C_220 S: 1

CS1 Data Filename: PB8C_220 S: 4

CS2 Data Filename: PB8C_220A S: 4

CS3 Data Filename: PB8C_220A S: 3

CS4 Data Filename: PB8C_220A S: 2

CS5 Data Filename: PB8C_220A S: 1

CS6 Data Filename: PB8C_220A S: 6

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RELATIVE RESPONSE (RR)							MEAN RR	CV ² (%RSD)
				CS0	CS1	CS2	CS3	CS4	CS5	CS6		
2-MoCB	1			1.07	1.05	1.11	1.09	1.10	1.02		1.07	3.46
4-MoCB	3			1.11	1.01	1.07	1.09	1.10	1.10		1.08	3.55
2,2'-DiCB	4			0.97	0.94	0.98	0.99	1.03	1.05		0.99	4.14
4,4'-DiCB	15			0.85	0.89	0.90	0.92	0.93	0.96		0.91	4.50
2,2',6-TriCB	19			1.08	1.05	1.05	1.06	1.08	1.11	1.06	1.07	2.11
3,4,4'-TriCB	37			0.98	0.98	1.00	0.99	1.03	1.05	0.96	1.00	3.27
2,2',6,6'-TeCB	54			1.04	1.02	1.06	1.07	1.08	1.10	1.03	1.06	2.71
3,3',4,4'-TeCB	77			1.05	1.01	1.01	1.02	1.03	1.06	1.03	1.03	1.99
3,4,4',5-TeCB	81			1.02	0.96	1.04	1.02	1.05	1.07	1.04	1.03	3.35
2,2',4,6,6'-PeCB	104			1.03	1.05	1.08	1.05	1.07	1.11	1.07	1.07	2.30
2,3,3',4,4'-PeCB	105			1.03	0.95	1.04	1.03	1.03	1.07	1.04	1.03	3.45
2,3,4,4',5-PeCB	114			1.00	1.01	1.07	1.07	1.07	1.11	1.08	1.06	3.55
2,3',4,4',5-PeCB	118			1.08	0.98	1.05	1.03	1.04	1.09	1.05	1.04	3.33
2',3,4,4',5-PeCB	123			0.94	0.94	0.98	0.98	0.99	1.03	1.00	0.98	3.19
3,3',4,4',5-PeCB	126			1.01	1.01	1.06	1.03	1.05	1.09	1.05	1.04	2.59
2,2',4,4',6,6'-HxCB	155			1.07	0.96	0.98	1.01	1.04	1.06	1.03	1.02	4.12
2,3,3',4,4',5-HxCB	156	156 + 157	C	1.08	1.07	1.12	1.10	1.11	1.14	1.08	1.10	2.24
2,3,3',4,4',5'-HxCB	157	156 + 157	C156									
2,3',4,4',5,5'-HxCB	167			1.03	1.05	1.14	1.12	1.14	1.17	1.14	1.11	4.67
3,3',4,4',5,5'-HxCB	169			1.05	1.01	1.06	1.05	1.06	1.09	1.06	1.05	2.32
2,2',3,4',5,6,6'-HpCB	188			0.96	0.94	0.96	0.96	1.00	1.03	0.97	0.98	2.92
2,3,3',4,4',5,5'-HpCB	189			1.16	0.95	1.09	1.03	1.06	1.08	1.05	1.06	5.83
2,2',3,3',5,5',6,6'-OcCB	202			0.89	0.83	0.86	0.86	0.88	0.91	0.89	0.87	3.14
2,3,3',4,4',5,5',6-OcCB	205			0.97	0.92	1.00	0.99	0.99	1.03	1.00	0.99	3.45
2,2',3,3',4,4',5,5',6-NoCB	206			1.09	0.96	1.00	0.99	0.99	1.02	0.97	1.00	4.46
2,2',3,3',4,5,5',6,6'-NoCB	208			0.95	0.90	0.94	0.94	0.96	0.98	0.95	0.95	2.57
2,2',3,3',4,4',5,5',6,6'-DeCB	209			1.22	1.04	1.07	1.01	1.04	1.05	1.02	1.06	6.55

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) For contract CV specifications, see Section 10.4.4, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Bjorn Arvi _____

For Axy Internal Use Only [XSL Template: Form16683A.xsl; Created: 26-Oct-2018 08:38:31; Application: XMLTransformer-1.16.50;
Report Filename: 1668_PCB1668_07-Jul-2018_PB8C_Form3A_GS77997.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 3B

PCB CONGENERS INITIAL CALIBRATION RELATIVE RESPONSES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

Instrument ID: HR GC/MS

GC Column ID: SPB OCTYL

CS0 Data Filename: PB8C_220 S: 1

CS1 Data Filename: PB8C_220 S: 4

CS2 Data Filename: PB8C_220A S: 4

CS3 Data Filename: PB8C_220A S: 3

CS4 Data Filename: PB8C_220A S: 2

CS5 Data Filename: PB8C_220A S: 1

CS6 Data Filename: PB8C_220A S: 6

COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	RELATIVE RESPONSE (RR)							MEAN RR	CV ³ (%RSD)
				CS0	CS1	CS2	CS3	CS4	CS5	CS6		
13C12-2-MoCB	1L			1.06	1.05	1.08	1.09	1.14	1.18	1.29	1.13	7.50
13C12-4-MoCB	3L			0.99	1.00	1.00	1.02	1.07	1.13	1.31	1.07	10.6
13C12-2,2'-DiCB	4L			0.64	0.65	0.65	0.65	0.67	0.72	0.80	0.68	8.43
13C12-4,4'-DiCB	15L			1.02	1.01	0.99	1.00	1.02	1.10	1.32	1.07	11.1
13C12-2,2',6-TriCB	19L			0.53	0.52	0.54	0.54	0.56	0.58	0.67	0.56	9.42
13C12-3,4,4'-TriCB	37L			1.64	1.63	1.52	1.60	1.56	1.74	2.16	1.69	12.8
13C12-2,2',6,6'-TeCB	54L			1.40	1.41	1.42	1.43	1.48	1.53	1.70	1.48	7.14
13C12-3,3',4,4'-TeCB	77L			1.30	1.23	1.18	1.25	1.19	1.35	1.69	1.31	13.3
13C12-3,4,4',5-TeCB	81L			1.27	1.22	1.15	1.21	1.18	1.34	1.67	1.29	13.7
13C12-2,2',4,6,6'-PeCB	104L			1.36	1.32	1.40	1.45	1.52	1.57	1.70	1.47	9.00
13C12-2,3,3',4,4'-PeCB	105L			1.41	1.40	1.29	1.31	1.30	1.43	1.69	1.40	9.92
13C12-2,3,4,4',5-PeCB	114L			1.29	1.29	1.21	1.25	1.30	1.49	1.64	1.35	11.5
13C12-2,3',4,4',5-PeCB	118L			1.31	1.32	1.25	1.26	1.28	1.42	1.71	1.37	12.0
13C12-2',3,4,4',5-PeCB	123L			1.34	1.34	1.26	1.30	1.30	1.46	1.74	1.39	12.0
13C12-3,3',4,4',5-PeCB	126L			1.23	1.21	1.11	1.16	1.13	1.29	1.62	1.25	14.0
13C12-2,2',4,4',6,6'-HxCB	155L			1.50	1.51	1.59	1.60	1.74	1.79	1.90	1.66	9.04
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	1.25	1.24	1.21	1.25	1.31	1.47	1.65	1.34	12.1
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L									
13C12-3,3',4,4',5,5'-HxCB	167L			1.21	1.20	1.18	1.22	1.26	1.37	1.55	1.28	10.3
13C12-3,3',4,4',5,5'-HxCB	169L			1.22	1.30	1.23	1.29	1.27	1.38	1.64	1.33	10.9
13C12-2,2',3,4',5,6,6'-HpCB	188L			1.80	1.63	1.75	1.76	1.96	2.12	2.18	1.89	10.9
13C12-2,3,3',4,4',5,5'-HpCB	189L			1.48	1.39	1.40	1.42	1.47	1.60	1.85	1.52	10.8
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			1.69	1.54	1.71	1.72	1.88	1.91	2.03	1.78	9.16
13C12-2,3,3',4,4',5,5',6-OxCB	205L			1.42	1.43	1.42	1.41	1.52	1.61	1.72	1.50	7.96
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			1.02	1.03	1.04	1.04	1.11	1.18	1.26	1.10	8.51
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			1.26	1.25	1.28	1.25	1.36	1.44	1.60	1.35	9.73
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			1.29	1.28	1.29	1.31	1.42	1.50	1.55	1.38	8.22
CLEAN-UP STANDARD												
13C12-2,4,4'-TriCB	28L			1.74	1.76	1.69	1.73	1.67	1.66	1.65	1.70	2.52
13C12-2,3,3',5,5'-PeCB	111L			1.28	1.28	1.25	1.29	1.29	1.39	1.60	1.34	9.12
13C12-2,2',3,3',5,5',6-HpCB	178L			0.94	0.91	0.94	0.96	0.98	0.96	0.97	0.95	2.57

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) For contract CV specifications, see Section 10.4.4, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: Bjorn Arvi

SGS AXYS METHOD MLA-010 Rev 12

Form 3C

PCB CONGENER INITIAL CALIBRATION ION ABUNDANCE RATIOS

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

Instrument ID: HR GC/MS

GC Column ID: SPB OCTYL

CS0 Data Filename: PB8C_220 S: 1

CS1 Data Filename: PB8C_220 S: 4

CS2 Data Filename: PB8C_220A S: 4

CS3 Data Filename: PB8C_220A S: 3

CS4 Data Filename: PB8C_220A S: 2

CS5 Data Filename: PB8C_220A S: 1

CS6 Data Filename: PB8C_220A S: 6

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	M/Z's FORMING RATIO ²	ION ABUNDANCE RATIO							QC LIMITS ²
					CS0	CS1	CS2	CS3	CS4	CS5	CS6	
2-MoCB	1			M/M+2	3.33	3.15	3.15	3.14	3.12	2.71		2.66-3.60
4-MoCB	3			M/M+2	3.27	3.06	3.15	3.12	3.12	3.06		2.66-3.60
2,2'-DiCB	4			M/M+2	1.52	1.59	1.58	1.54	1.54	1.54		1.33-1.79
4,4'-DiCB	15			M/M+2	1.56	1.49	1.56	1.55	1.54	1.54		1.33-1.79
2,2',6-TriCB	19			M/M+2	0.99	1.06	1.05	1.06	1.07	1.07	1.04	0.88-1.20
3,4,4'-TriCB	37			M/M+2	0.99	1.03	1.03	1.02	1.03	1.04	1.02	0.88-1.20
2,2',6,6'-TeCB	54			M/M+2	0.74	0.80	0.76	0.78	0.79	0.78	0.85	0.65-0.89
3,3',4,4'-TeCB	77			M/M+2	0.79	0.78	0.77	0.80	0.77	0.77	0.81	0.65-0.89
3,4,4',5-TeCB	81			M/M+2	0.83	0.80	0.78	0.77	0.77	0.77	0.78	0.65-0.89
2,2',4,6,6'-PeCB	104			M+2/M+4	1.57	1.68	1.56	1.57	1.56	1.55	1.52	1.32-1.78
2,3,3',4,4'-PeCB	105			M+2/M+4	1.52	1.53	1.53	1.57	1.53	1.56	1.56	1.32-1.78
2,3,4,4',5-PeCB	114			M+2/M+4	1.41	1.55	1.60	1.56	1.57	1.56	1.56	1.32-1.78
2,3',4,4',5-PeCB	118			M+2/M+4	1.47	1.51	1.59	1.53	1.52	1.56	1.55	1.32-1.78
2',3,4,4',5-PeCB	123			M+2/M+4	1.67	1.51	1.60	1.55	1.55	1.55	1.55	1.32-1.78
3,3',4,4',5-PeCB	126			M+2/M+4	1.49	1.62	1.53	1.56	1.54	1.55	1.57	1.32-1.78
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.42	1.26	1.24	1.28	1.26	1.24	1.28	1.05-1.43
2,3,3',4,4',5-HxCB	156	156 + 157	C	M+2/M+4	1.24	1.23	1.25	1.25	1.25	1.25	1.21	1.05-1.43
2,3,3',4,4',5'-HxCB	157	156 + 157	C156									
2,3',4,4',5,5'-HxCB	167			M+2/M+4	1.02	1.22	1.22	1.26	1.25	1.25	1.25	1.05-1.43
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.39	1.32	1.23	1.26	1.26	1.27	1.26	1.05-1.43
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	0.94	1.02	1.02	1.05	1.04	1.05	1.04	0.89-1.21
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.10	0.99	1.07	1.03	1.05	1.05	1.05	0.89-1.21
2,2',3,3',5,5',6,6'-OcCB	202			M+2/M+4	0.79	0.94	0.89	0.88	0.89	0.90	0.88	0.76-1.02
2,3,3',4,4',5,5',6-OcCB	205			M+2/M+4	0.85	0.91	0.91	0.90	0.88	0.90	0.90	0.76-1.02
2,2',3,3',4,4',5,5',6-NoCB	206			M+2/M+4	0.76	0.82	0.79	0.78	0.77	0.78	0.78	0.65-0.89
2,2',3,3',4,5,5',6,6'-NoCB	208			M+2/M+4	0.82	0.78	0.79	0.78	0.79	0.79	0.79	0.65-0.89
2,2',3,3',4,4',5,5',6,6'-DeCB	209			M+4/M+6	1.08	1.14	1.16	1.16	1.17	1.17	1.18	0.99-1.33

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) See Table 8 Method 1668A for m/z specifications and ion abundance ratio control limits.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Bjorn Arvi _____

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Report Filename: 1668_PCB1668_07-Jul-2018_PB8C__Form3C_GS77997.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 3D

PCB CONGENER INITIAL CALIBRATION ION ABUNDANCE RATIOS

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

Instrument ID: HR GC/MS

GC Column ID: SPB OCTYL

CS0 Data Filename: PB8C_220 S: 1

CS1 Data Filename: PB8C_220 S: 4

CS2 Data Filename: PB8C_220A S: 4

CS3 Data Filename: PB8C_220A S: 3

CS4 Data Filename: PB8C_220A S: 2

CS5 Data Filename: PB8C_220A S: 1

CS6 Data Filename: PB8C_220A S: 6

LABELED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	M/Z's FORMING RATIO ³	ION ABUNDANCE RATIO							QC LIMITS ³
					CS0	CS1	CS2	CS3	CS4	CS5	CS6	
13C12-2-MoCB	1L			M/M+2	3.21	3.14	3.13	3.21	3.17	3.12	3.06	2.66-3.60
13C12-4-MoCB	3L			M/M+2	3.14	3.18	3.11	3.09	3.17	3.17	3.14	2.66-3.60
13C12-2,2'-DiCB	4L			M/M+2	1.57	1.59	1.57	1.60	1.58	1.59	1.59	1.33-1.79
13C12-4,4'-DiCB	15L			M/M+2	1.58	1.57	1.58	1.58	1.57	1.59	1.57	1.33-1.79
13C12-2,2',6-TriCB	19L			M/M+2	1.05	1.06	1.06	1.06	1.05	1.06	1.05	0.88-1.20
13C12-3,4,4'-TriCB	37L			M/M+2	1.04	1.05	1.04	1.05	1.06	1.06	1.04	0.88-1.20
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.79	0.80	0.80	0.79	0.80	0.79	0.80	0.65-0.89
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.74	0.76	0.72	0.77	0.71	0.74	0.77	0.65-0.89
13C12-3,4,4',5-TeCB	81L			M/M+2	0.77	0.72	0.76	0.72	0.73	0.74	0.74	0.65-0.89
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.59	1.56	1.55	1.57	1.57	1.58	1.53	1.32-1.78
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.58	1.58	1.59	1.54	1.60	1.59	1.58	1.32-1.78
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.57	1.62	1.60	1.58	1.61	1.58	1.59	1.32-1.78
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.53	1.59	1.58	1.55	1.58	1.56	1.57	1.32-1.78
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.59	1.59	1.55	1.57	1.56	1.57	1.58	1.32-1.78
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.55	1.59	1.54	1.57	1.60	1.57	1.56	1.32-1.78
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.27	1.25	1.27	1.27	1.24	1.23	1.28	1.05-1.43
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	M+2/M+4	1.28	1.22	1.27	1.27	1.26	1.27	1.26	1.05-1.43
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L									
13C12-2,3',4,4',5,5'-HxCB	167L			M+2/M+4	1.26	1.26	1.26	1.23	1.24	1.25	1.27	1.05-1.43
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.27	1.24	1.25	1.24	1.25	1.25	1.27	1.05-1.43
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.05	1.04	1.06	1.07	1.02	1.05	1.05	0.89-1.21
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.02	1.04	1.02	1.05	1.05	1.01	1.05	0.89-1.21
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			M+2/M+4	0.91	0.91	0.90	0.90	0.89	0.90	0.91	0.76-1.02
13C12-2,3,3',4,4',5,5',6-OxCB	205L			M+2/M+4	0.87	0.89	0.87	0.88	0.88	0.89	0.86	0.76-1.02
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.76	0.76	0.78	0.79	0.79	0.79	0.79	0.65-0.89
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			M+2/M+4	0.77	0.75	0.78	0.78	0.78	0.77	0.79	0.65-0.89
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6	1.19	1.15	1.19	1.17	1.16	1.18	1.18	0.99-1.33
CLEAN-UP STANDARD												
13C12-2,4,4'-TriCB	28L			M/M+2	1.06	1.05	1.06	1.05	1.07	1.06	1.05	0.88-1.20
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.60	1.62	1.63	1.63	1.58	1.57	1.62	1.32-1.78
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.01	1.03	1.03	1.04	1.06	1.05	1.03	0.89-1.21

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) See Table 8 Method 1668A for m/z specifications and ion abundance ratio control limits.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Bjorn Arvi _____

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Report Filename: 1668_PCB1668_07-Jul-2018_PB8C__Form3D_GS77997.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 4A
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_332C S: 1

Instrument ID: HR GC/MS

Analysis Date: 02-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 19:36:40

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
2-MoCB	1			M/M+2	3.09	2.66-3.60	26.1	17.5 - 32.5
4-MoCB	3			M/M+2	3.08	2.66-3.60	26.1	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.53	1.33-1.79	23.8	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.49	1.33-1.79	26.1	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.08	0.88-1.20	29.6	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	1.01	0.88-1.20	22.8	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.80	0.65-0.89	54.5	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.78	0.65-0.89	47.1	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.77	0.65-0.89	50.3	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.58	1.32-1.78	55.9	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.49	1.32-1.78	47.2	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.51	1.32-1.78	48.4	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.51	1.32-1.78	46.6	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.52	1.32-1.78	45.9	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.46	1.32-1.78	46.9	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.28	1.05-1.43	54.7	35.0 - 65.0
2,3,3',4,4',5-HxCB	156	156 + 157	C	M+2/M+4	1.31	1.05-1.43	112	70.0 - 130
2,3,3',4,4',5'-HxCB	157	156 + 157	C156					
2,3',4,4',5,5'-HxCB	167			M+2/M+4	1.28	1.05-1.43	60.5	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.28	1.05-1.43	58.6	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.07	0.89-1.21	53.7	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.00	0.89-1.21	43.4	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.90	0.76-1.02	89.5	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.91	0.76-1.02	76.8	52.5 - 97.5
2,2',3,3',4,4',5,5',6-NoCB	206			M+2/M+4	0.79	0.65-0.89	79.2	52.5 - 97.5
2,2',3,3',4,5,5',6,6'-NoCB	208			M+2/M+4	0.79	0.65-0.89	90.1	58.7 - 109
2,2',3,3',4,4',5,5',6,6'-DeCB	209			M+4/M+6	1.20	0.99-1.33	75.9	52.5 - 97.5

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4B
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018 VER Data Filename: PB8C_332C S: 1

Instrument ID: HR GC/MS Analysis Date: 02-Oct-2018

GC Column ID: SPB OCTYL Analysis Time: 19:36:40

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	MZ's FORMING RATIO ³	ION ABUND. RATIO	QC LIMITS ⁴	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
13C12-2-MoCB	1L			M/M+2	3.26	2.66-3.60	80.1	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.16	2.66-3.60	83.0	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.59	1.33-1.79	90.7	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.58	1.33-1.79	93.8	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.08	0.88-1.20	74.1	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.04	0.88-1.20	104	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.80	0.65-0.89	90.7	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.76	0.65-0.89	116	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.77	0.65-0.89	117	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.62	1.32-1.78	67.7	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.57	1.32-1.78	106	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.58	1.32-1.78	105	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.57	1.32-1.78	106	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.55	1.32-1.78	107	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.59	1.32-1.78	107	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.27	1.05-1.43	63.8	50.0 - 150
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	M+2/M+4	1.24	1.05-1.43	181	100 - 300
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			M+2/M+4	1.24	1.05-1.43	90.7	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.25	1.05-1.43	91.4	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.07	0.89-1.21	68.1	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.02	0.89-1.21	90.4	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.94	0.76-1.02	52.4	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.88	0.76-1.02	94.2	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.76	0.65-0.89	79.3	50.0 - 150
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			M+2/M+4	0.77	0.65-0.89	81.7	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6	1.22	0.99-1.33	65.2	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.05	0.88-1.20	110	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.62	1.32-1.78	88.8	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.03	0.89-1.21	71.5	60.0 - 130

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 6A
PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_332C S: 1

Instrument ID: HR GC/MS

Analysis Date: 02-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 19:36:40

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RETENTION TIME REFERENCE	IUPAC NO. ²	RRT	RRT QC LIMITS
2-MoCB	1			13C12-2-MoCB	1L	1.001	0.999-1.004
4-MoCB	3			13C12-4-MoCB	3L	1.001	0.999-1.004
2,2'-DiCB	4			13C12-2,2'-DiCB	4L	1.001	0.999-1.004
4,4'-DiCB	15			13C12-4,4'-DiCB	15L	1.001	0.999-1.003
2,2',6-TriCB	19			13C12-2,2',6-TriCB	19L	1.001	0.999-1.003
3,4,4'-TriCB	37			13C12-3,4,4'-TriCB	37L	1.001	0.999-1.002
2,2',6,6'-TeCB	54			13C12-2,2',6,6'-TeCB	54L	1.002	0.999-1.002
3,3',4,4'-TeCB	77			13C12-3,3',4,4'-TeCB	77L	1.000	1.000-1.001
3,4,4',5-TeCB	81			13C12-3,4,4',5-TeCB	81L	1.000	1.000-1.001
2,2',4,6,6'-PeCB	104			13C12-2,2',4,6,6'-PeCB	104L	1.001	0.999-1.002
2,3,3',4,4'-PeCB	105			13C12-2,3,3',4,4'-PeCB	105L	1.001	1.000-1.001
2,3,4,4',5-PeCB	114			13C12-2,3,4,4',5-PeCB	114L	1.001	1.000-1.001
2,3',4,4',5-PeCB	118			13C12-2,3',4,4',5-PeCB	118L	1.000	1.000-1.001
2',3,4,4',5-PeCB	123			13C12-2',3,4,4',5-PeCB	123L	1.001	1.000-1.001
3,3',4,4',5-PeCB	126			13C12-3,3',4,4',5-PeCB	126L	1.000	1.000-1.001
2,2',4,4',6,6'-HxCB	155			13C12-2,2',4,4',6,6'-HxCB	155L	1.001	0.999-1.002
2,3,3',4,4',5-HxCB	156	156 + 157	C	13C12-2,3,3',4,4',5-HxCB and 13C12-2,3,3',4,4',5'-HxCB	156L/157L	1.001	0.999-1.003
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3',4,4',5,5'-HxCB	167			13C12-2,3',4,4',5,5'-HxCB	167L	1.001	1.000-1.001
3,3',4,4',5,5'-HxCB	169			13C12-3,3',4,4',5,5'-HxCB	169L	1.000	1.000-1.001
2,2',3,4',5,6,6'-HpCB	188			13C12-2,2',3,4',5,6,6'-HpCB	188L	1.001	1.000-1.001
2,3,3',4,4',5,5'-HpCB	189			13C12-2,3,3',4,4',5,5'-HpCB	189L	1.001	1.000-1.001
2,2',3,3',5,5',6,6'-OxCB	202			13C12-2,2',3,3',5,5',6,6'-OxCB	202L	1.001	1.000-1.001
2,3,3',4,4',5,5',6-OxCB	205			13C12-2,3,3',4,4',5,5',6-OxCB	205L	1.000	1.000-1.001
2,2',3,3',4,4',5,5',6-NoCB	206			13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	1.000	1.000-1.001
2,2',3,3',4,5,5',6,6'-NoCB	208			13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L	1.000	1.000-1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L	1.000	1.000-1.001

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) Suffix "L" indicates labeled compound

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 6B

PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_332C S: 1

Instrument ID: HR GC/MS

Analysis Date: 02-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 19:36:40

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	RETENTION TIME REFERENCE	IUPAC NO. ¹	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			13C12-2,5-DiCB	9L	0.719	0.688-0.751
13C12-4-MoCB	3L			13C12-2,5-DiCB	9L	0.858	0.827-0.889
13C12-2,2'-DiCB	4L			13C12-2,5-DiCB	9L	0.874	0.842-0.905
13C12-4,4'-DiCB	15L			13C12-2,5-DiCB	9L	1.253	1.221-1.284
13C12-2,2',6'-TriCB	19L			13C12-2,5-DiCB	9L	1.072	1.041-1.103
13C12-3,4,4'-TriCB	37L			13C12-2,2',5,5'-TeCB	52L	1.091	1.071-1.111
13C12-2,2',6,6'-TeCB	54L			13C12-2,2',5,5'-TeCB	52L	0.811	0.797-0.824
13C12-3,3',4,4'-TeCB	77L			13C12-2,2',5,5'-TeCB	52L	1.397	1.383-1.410
13C12-3,4,4',5'-TeCB	81L			13C12-2,2',5,5'-TeCB	52L	1.373	1.359-1.386
13C12-2,2',4,6,6'-PeCB	104L			13C12-2,2',4,5,5'-PeCB	101L	0.808	0.798-0.819
13C12-2,3,3',4,4'-PeCB	105L			13C12-2,2',4,5,5'-PeCB	101L	1.200	1.190-1.211
13C12-2,3,4,4',5'-PeCB	114L			13C12-2,2',4,5,5'-PeCB	101L	1.180	1.169-1.190
13C12-2,3',4,4',5'-PeCB	118L			13C12-2,2',4,5,5'-PeCB	101L	1.163	1.152-1.173
13C12-2',3,4,4',5'-PeCB	123L			13C12-2,2',4,5,5'-PeCB	101L	1.152	1.141-1.162
13C12-3,3',4,4',5'-PeCB	126L			13C12-2,2',4,5,5'-PeCB	101L	1.302	1.292-1.313
13C12-2,2',4,4',6,6'-HxCB	155L			13C12-2,2',3,4,4',5'-HxCB	138L	0.785	0.777-0.794
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C	13C12-2,2',3,4,4',5'-HxCB	138L	1.108	1.100-1.116
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L				
13C12-2,3',4,4',5,5'-HxCB	167L			13C12-2,2',3,4,4',5'-HxCB	138L	1.078	1.070-1.086
13C12-3,3',4,4',5,5'-HxCB	169L			13C12-2,2',3,4,4',5'-HxCB	138L	1.192	1.184-1.201
13C12-2,2',3,4',5,6,6'-HpCB	188L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.712	0.705-0.718
13C12-2,3,3',4,4',5,5'-HpCB	189L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.959	0.953-0.965
13C12-2,2',3,3',5,5',6,6'-OcCB	202L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.817	0.811-0.824
13C12-2,3,3',4,4',5,5',6'-OcCB	205L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.009	1.000-1.019
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.043	1.034-1.053
13C12-2,2',3,3',4,4',5,5',6,6'-NoCB	208L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.949	0.943-0.955
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.075	1.065-1.084

CLEANUP STANDARD

13C12-2,4,4'-TriCB	28L	13C12-2,2',5,5'-TeCB	52L	0.924	0.911-0.937
13C12-2,3,3',5,5'-PeCB	111L	13C12-2,2',4,5,5'-PeCB	101L	1.088	1.077-1.098
13C12-2,2',3,3',5,5',6-HpCB	178L	13C12-2,2',3,4,4',5'-HxCB	138L	1.012	1.004-1.020

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 3A

PCB CONGENER INITIAL CALIBRATION RELATIVE RESPONSES,
ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

CAL Data Filename: PB8C_332C S: 1

Instrument ID: HR GC/MS

Analysis Date: 02-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 19:36:40

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
3-MoCB	2			1.16	M/M+2	3.13	2.66-3.60	0.989	0.985 - 0.993
2,3-DiCB	5			1.04	M/M+2	1.59	1.33-1.79	1.198	1.195 - 1.202
2,3'-DiCB	6			1.12	M/M+2	1.49	1.33-1.79	1.176	1.172 - 1.179
2,4-DiCB	7			1.11	M/M+2	1.52	1.33-1.79	1.158	1.154 - 1.161
2,4'-DiCB	8			1.19	M/M+2	1.46	1.33-1.79	1.207	1.203 - 1.210
2,5-DiCB	9			1.15	M/M+2	1.52	1.33-1.79	1.146	1.142 - 1.149
2,6-DiCB	10			1.12	M/M+2	1.51	1.33-1.79	1.014	1.011 - 1.018
3,3'-DiCB	11			1.11	M/M+2	1.51	1.33-1.79	0.969	0.967 - 0.972
3,4-DiCB	12	12 + 13	C	1.09	M/M+2	1.50	1.33-1.79	0.985	0.983 - 0.988
3,4'-DiCB	13	12 + 13	C12						
3,5-DiCB	14			1.09	M/M+2	1.50	1.33-1.79	0.926	0.923 - 0.928
2,2',3-TriCB	16			0.74	M/M+2	1.09	0.88-1.20	1.166	1.163 - 1.168
2,2',4-TriCB	17			0.92	M/M+2	1.05	0.88-1.20	1.137	1.134 - 1.140
2,2',5-TriCB	18	18 + 30	C	1.09	M/M+2	1.06	0.88-1.20	1.111	1.108 - 1.114
2,3,3'-TriCB	20	20 + 28	C	1.30	M/M+2	1.00	0.88-1.20	0.849	0.845 - 0.852
2,3,4-TriCB	21	21 + 33	C	1.30	M/M+2	1.00	0.88-1.20	0.855	0.852 - 0.858
2,3,4'-TriCB	22			1.18	M/M+2	1.00	0.88-1.20	0.872	0.870 - 0.874
2,3,5-TriCB	23			1.21	M/M+2	1.00	0.88-1.20	1.281	1.278 - 1.284
2,3,6-TriCB	24			1.27	M/M+2	1.10	0.88-1.20	1.159	1.156 - 1.162
2,3',4-TriCB	25			1.43	M/M+2	1.01	0.88-1.20	0.825	0.823 - 0.827
2,3',5-TriCB	26	26 + 29	C	1.28	M/M+2	1.00	0.88-1.20	1.301	1.296 - 1.306
2,3',6-TriCB	27			1.30	M/M+2	1.08	0.88-1.20	1.151	1.148 - 1.154
2,4,4'-TriCB	28	20 + 28	C20						
2,4,5-TriCB	29	26 + 29	C26						
2,4,6-TriCB	30	18 + 30	C18						
2,4',5-TriCB	31			1.34	M/M+2	0.99	0.88-1.20	0.836	0.834 - 0.838
2,4',6-TriCB	32			1.30	M/M+2	1.01	0.88-1.20	1.197	1.194 - 1.200
2',3,4-TriCB	33	21 + 33	C21						
2',3,5-TriCB	34			1.23	M/M+2	1.01	0.88-1.20	1.273	1.270 - 1.276
3,3',4-TriCB	35			1.27	M/M+2	1.01	0.88-1.20	0.985	0.983 - 0.987
3,3',5-TriCB	36			1.34	M/M+2	1.01	0.88-1.20	0.932	0.930 - 0.933
3,4,5-TriCB	38			1.27	M/M+2	1.00	0.88-1.20	0.967	0.965 - 0.969
3,4',5-TriCB	39			1.33	M/M+2	1.02	0.88-1.20	0.946	0.944 - 0.947
2,2',3,3'-TeCB	40	40 + 41 + 71	C	0.82	M/M+2	0.80	0.65-0.89	1.335	1.331 - 1.339
2,2',3,4-TeCB	41	40 + 41 + 71	C40						
2,2',3,4'-TeCB	42			0.77	M/M+2	0.80	0.65-0.89	1.312	1.309 - 1.314
2,2',3,5-TeCB	43			0.74	M/M+2	0.81	0.65-0.89	1.246	1.243 - 1.248
2,2',3,5'-TeCB	44	44 + 47 + 65	C	0.89	M/M+2	0.79	0.65-0.89	1.286	1.282 - 1.290
2,2',3,6-TeCB	45	45 + 51	C	0.82	M/M+2	0.80	0.65-0.89	1.146	1.142 - 1.150
2,2',3,6'-TeCB	46			0.72	M/M+2	0.80	0.65-0.89	1.160	1.158 - 1.163
2,2',4,4'-TeCB	47	44 + 47 + 65	C44						
2,2',4,5-TeCB	48			0.81	M/M+2	0.79	0.65-0.89	1.273	1.271 - 1.275
2,2',4,5'-TeCB	49	49 + 69	C	0.96	M/M+2	0.79	0.65-0.89	1.257	1.253 - 1.262
2,2',4,6-TeCB	50	50 + 53	C	0.83	M/M+2	0.80	0.65-0.89	1.112	1.108 - 1.116
2,2',4,6'-TeCB	51	45 + 51	C45						
2,2',5,5'-TeCB	52			0.86	M/M+2	0.79	0.65-0.89	1.234	1.232 - 1.237
2,2',5,6'-TeCB	53	50 + 53	C50						
2,3,3',4-TeCB	55			1.03	M/M+2	0.77	0.65-0.89	0.889	0.887 - 0.890
2,3,3',4'-TeCB	56			1.05	M/M+2	0.75	0.65-0.89	0.904	0.903 - 0.906

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
2,3,3',5'-TeCB	57			1.13	M/M+2	0.77	0.65-0.89	0.844	0.842 - 0.845
2,3,3',5'-TeCB	58			1.10	M/M+2	0.79	0.65-0.89	0.850	0.849 - 0.852
2,3,3',6'-TeCB	59	59 + 62 + 75	C	1.09	M/M+2	0.80	0.65-0.89	1.302	1.298 - 1.306
2,3,4,4'-TeCB	60			1.05	M/M+2	0.76	0.65-0.89	0.911	0.909 - 0.912
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	1.11	M/M+2	0.76	0.65-0.89	0.874	0.871 - 0.877
2,3,4,6'-TeCB	62	59 + 62 + 75	C59						
2,3,4',5'-TeCB	63			1.14	M/M+2	0.79	0.65-0.89	0.864	0.863 - 0.865
2,3,4',6'-TeCB	64			1.11	M/M+2	0.80	0.65-0.89	1.348	1.345 - 1.350
2,3,5,6'-TeCB	65	44 + 47 + 65	C44						
2,3',4,4'-TeCB	66			1.17	M/M+2	0.76	0.65-0.89	0.884	0.882 - 0.885
2,3',4,5'-TeCB	67			1.24	M/M+2	0.79	0.65-0.89	0.856	0.854 - 0.857
2,3',4,5'-TeCB	68			1.15	M/M+2	0.75	0.65-0.89	0.831	0.829 - 0.832
2,3',4,6'-TeCB	69	49 + 69	C49						
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61						
2,3',4',6'-TeCB	71	40 + 41 + 71	C40						
2,3',5,5'-TeCB	72			1.17	M/M+2	0.77	0.65-0.89	0.822	0.821 - 0.824
2,3',5,6'-TeCB	73			1.01	M/M+2	0.79	0.65-0.89	1.241	1.238 - 1.243
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61						
2,4,4',6'-TeCB	75	59 + 62 + 75	C59						
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61						
3,3',4,5'-TeCB	78			1.09	M/M+2	0.77	0.65-0.89	0.987	0.986 - 0.989
3,3',4,5'-TeCB	79			1.27	M/M+2	0.78	0.65-0.89	0.970	0.969 - 0.972
3,3',5,5'-TeCB	80			1.20	M/M+2	0.79	0.65-0.89	0.924	0.922 - 0.925
2,2',3,3',4'-PeCB	82			0.71	M+2/M+4	1.60	1.32-1.78	0.934	0.932 - 0.935
2,2',3,3',5'-PeCB	83	83 + 99	C	0.81	M+2/M+4	1.67	1.32-1.78	0.884	0.881 - 0.887
2,2',3,3',6'-PeCB	84			0.72	M+2/M+4	1.58	1.32-1.78	1.164	1.162 - 1.166
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	0.94	M+2/M+4	1.54	1.32-1.78	0.919	0.917 - 0.922
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C	0.91	M+2/M+4	1.60	1.32-1.78	0.900	0.896 - 0.904
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86						
2,2',3,4,6'-PeCB	88	88 + 91	C	0.82	M+2/M+4	1.61	1.32-1.78	1.152	1.148 - 1.156
2,2',3,4,6'-PeCB	89			0.77	M+2/M+4	1.58	1.32-1.78	1.182	1.180 - 1.184
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	0.93	M+2/M+4	1.61	1.32-1.78	0.868	0.866 - 0.871
2,2',3,4',6'-PeCB	91	88 + 91	C88						
2,2',3,5,5'-PeCB	92			0.81	M+2/M+4	1.62	1.32-1.78	0.853	0.851 - 0.854
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	0.84	M+2/M+4	1.56	1.32-1.78	1.129	1.118 - 1.140
2,2',3,5,6'-PeCB	94			0.74	M+2/M+4	1.62	1.32-1.78	1.101	1.100 - 1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93						
2,2',3,6,6'-PeCB	96			0.87	M+2/M+4	1.58	1.32-1.78	1.016	1.013 - 1.019
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86						
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93						
2,2',4,4',5'-PeCB	99	83 + 99	C83						
2,2',4,4',6'-PeCB	100	93 + 95 + 98 + 100 + 102	C93						
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90						
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93						
2,2',4,5',6'-PeCB	103			0.91	M+2/M+4	1.60	1.32-1.78	1.093	1.091 - 1.095
2,3,3',4,5'-PeCB	106			1.09	M+2/M+4	1.51	1.32-1.78	1.004	1.003 - 1.005
2,3,3',4',5'-PeCB	107	107 + 124	C	1.04	M+2/M+4	1.52	1.32-1.78	0.991	0.988 - 0.993
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86						
2,3,3',4,6'-PeCB	109			1.12	M+2/M+4	1.52	1.32-1.78	0.997	0.996 - 0.999
2,3,3',4',6'-PeCB	110	110 + 115	C	1.05	M+2/M+4	1.59	1.32-1.78	0.926	0.923 - 0.928
2,3,3',5,5'-PeCB	111			1.05	M+2/M+4	1.62	1.32-1.78	0.945	0.944 - 0.946
2,3,3',5,6'-PeCB	112			1.09	M+2/M+4	1.56	1.32-1.78	0.889	0.887 - 0.890
2,3,3',5',6'-PeCB	113	90 + 101 + 113	C90						
2,3,4,4',6'-PeCB	115	110 + 115	C110						
2,3,4,5,6'-PeCB	116	85 + 116 + 117	C85						
2,3,4',5,6'-PeCB	117	85 + 116 + 117	C85						
2,3',4,4',6'-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86						
2,3',4,5,5'-PeCB	120			1.12	M+2/M+4	1.60	1.32-1.78	0.958	0.957 - 0.959
2,3',4,5',6'-PeCB	121			1.08	M+2/M+4	1.62	1.32-1.78	1.200	1.198 - 1.202
2',3,3',4,5'-PeCB	122			0.94	M+2/M+4	1.53	1.32-1.78	1.010	1.009 - 1.012
2',3,4,5,5'-PeCB	124	107 + 124	C107						
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86						

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
3,3',4,5,5'-PeCB	127			1.01	M+2/M+4	1.46	1.32-1.78	1.041	1.040 - 1.042
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1.09	M+2/M+4	1.29	1.05-1.43	0.958	0.957 - 0.960
2,2',3,3',4,5'-HxCB	129	129 + 138 + 160 + 163	C	1.06	M+2/M+4	1.27	1.05-1.43	0.930	0.927 - 0.932
2,2',3,3',4,5'-HxCB	130			0.86	M+2/M+4	1.28	1.05-1.43	0.913	0.912 - 0.914
2,2',3,3',4,6'-HxCB	131			0.91	M+2/M+4	1.27	1.05-1.43	1.160	1.159 - 1.162
2,2',3,3',4,6'-HxCB	132			0.87	M+2/M+4	1.31	1.05-1.43	1.176	1.173 - 1.179
2,2',3,3',5,5'-HxCB	133			0.93	M+2/M+4	1.29	1.05-1.43	1.192	1.191 - 1.194
2,2',3,3',5,6'-HxCB	134	134 + 143	C	0.91	M+2/M+4	1.28	1.05-1.43	1.142	1.140 - 1.145
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	0.73	M+2/M+4	1.25	1.05-1.43	1.107	1.102 - 1.113
2,2',3,3',6,6'-HxCB	136			0.96	M+2/M+4	1.27	1.05-1.43	1.025	1.024 - 1.027
2,2',3,4,4',5'-HxCB	137			0.86	M+2/M+4	1.26	1.05-1.43	0.918	0.917 - 0.919
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129						
2,2',3,4,4',6'-HxCB	139	139 + 140	C	1.01	M+2/M+4	1.29	1.05-1.43	1.154	1.151 - 1.157
2,2',3,4,4',6'-HxCB	140	139 + 140	C139						
2,2',3,4,5,5'-HxCB	141			0.97	M+2/M+4	1.38	1.05-1.43	0.903	0.902 - 0.904
2,2',3,4,5,6'-HxCB	142			0.88	M+2/M+4	1.28	1.05-1.43	1.165	1.163 - 1.166
2,2',3,4,5,6'-HxCB	143	134 + 143	C134						
2,2',3,4,5,6'-HxCB	144			0.72	M+2/M+4	1.25	1.05-1.43	1.122	1.120 - 1.124
2,2',3,4,6,6'-HxCB	145			0.89	M+2/M+4	1.29	1.05-1.43	1.034	1.032 - 1.036
2,2',3,4',5,5'-HxCB	146			1.03	M+2/M+4	1.24	1.05-1.43	0.884	0.883 - 0.885
2,2',3,4',5,6'-HxCB	147	147 + 149	C	1.03	M+2/M+4	1.29	1.05-1.43	1.134	1.131 - 1.137
2,2',3,4',5,6'-HxCB	148			0.70	M+2/M+4	1.29	1.05-1.43	1.084	1.083 - 1.086
2,2',3,4',5',6'-HxCB	149	147 + 149	C147						
2,2',3,4',6,6'-HxCB	150			0.97	M+2/M+4	1.22	1.05-1.43	1.013	1.011 - 1.014
2,2',3,5,5',6'-HxCB	151	135 + 151 + 154	C135						
2,2',3,5,6,6'-HxCB	152			0.99	M+2/M+4	1.29	1.05-1.43	1.007	1.006 - 1.009
2,2',4,4',5,5'-HxCB	153	153 + 168	C	1.18	M+2/M+4	1.27	1.05-1.43	0.899	0.897 - 0.901
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135						
2,3,3',4,4',6'-HxCB	158			1.38	M+2/M+4	1.29	1.05-1.43	0.937	0.936 - 0.939
2,3,3',4,5,5'-HxCB	159			1.28	M+2/M+4	1.29	1.05-1.43	0.982	0.981 - 0.984
2,3,3',4,5,6'-HxCB	160	129 + 138 + 160 + 163	C129						
2,3,3',4,5',6'-HxCB	161			1.34	M+2/M+4	1.31	1.05-1.43	0.887	0.886 - 0.888
2,3,3',4',5,5'-HxCB	162			1.31	M+2/M+4	1.29	1.05-1.43	0.989	0.988 - 0.990
2,3,3',4',5,6'-HxCB	163	129 + 138 + 160 + 163	C129						
2,3,3',4',5',6'-HxCB	164			1.32	M+2/M+4	1.25	1.05-1.43	0.921	0.920 - 0.922
2,3,3',5,5',6'-HxCB	165			1.13	M+2/M+4	1.30	1.05-1.43	0.878	0.877 - 0.879
2,3,4,4',5,6'-HxCB	166	128 + 166	C128						
2,3',4,4',5',6'-HxCB	168	153 + 168	C153						
2,2',3,3',4,4',5'-HpCB	170			1.20	M+2/M+4	1.05	0.89-1.21	1.000	0.999 - 1.001
2,2',3,3',4,4',6'-HpCB	171	171 + 173	C	0.70	M+2/M+4	1.05	0.89-1.21	1.163	1.161 - 1.165
2,2',3,3',4,5,5'-HpCB	172			0.69	M+2/M+4	1.05	0.89-1.21	0.897	0.896 - 0.898
2,2',3,3',4,5,6'-HpCB	173	171 + 173	C171						
2,2',3,3',4,5,6'-HpCB	174			0.74	M+2/M+4	1.07	0.89-1.21	1.134	1.133 - 1.135
2,2',3,3',4,5',6'-HpCB	175			0.76	M+2/M+4	1.07	0.89-1.21	1.103	1.101 - 1.104
2,2',3,3',4,6,6'-HpCB	176			1.00	M+2/M+4	1.07	0.89-1.21	1.034	1.033 - 1.036
2,2',3,3',4',5,6'-HpCB	177			0.81	M+2/M+4	1.04	0.89-1.21	1.146	1.145 - 1.148
2,2',3,3',5,5',6'-HpCB	178			0.73	M+2/M+4	1.06	0.89-1.21	1.086	1.084 - 1.087
2,2',3,3',5,6,6'-HpCB	179			1.02	M+2/M+4	1.07	0.89-1.21	1.010	1.009 - 1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	1.06	M+2/M+4	1.07	0.89-1.21	1.000	0.999 - 1.001
2,2',3,4,4',5,6'-HpCB	181			0.75	M+2/M+4	1.04	0.89-1.21	1.157	1.156 - 1.159
2,2',3,4,4',5,6'-HpCB	182			0.79	M+2/M+4	1.08	0.89-1.21	1.116	1.115 - 1.117
2,2',3,4,4',5',6'-HpCB	183	183 + 185	C	0.77	M+2/M+4	1.04	0.89-1.21	1.128	1.127 - 1.130
2,2',3,4,4',6,6'-HpCB	184			1.03	M+2/M+4	1.04	0.89-1.21	1.025	1.023 - 1.026
2,2',3,4,5,5',6'-HpCB	185	183 + 185	C183						
2,2',3,4,5,6,6'-HpCB	186			0.94	M+2/M+4	1.05	0.89-1.21	1.047	1.046 - 1.049
2,2',3,4',5,5',6'-HpCB	187			0.81	M+2/M+4	1.03	0.89-1.21	1.110	1.109 - 1.112
2,3,3',4,4',5,6'-HpCB	190			0.95	M+2/M+4	1.06	0.89-1.21	0.947	0.946 - 0.948
2,3,3',4,4',5',6'-HpCB	191			0.94	M+2/M+4	1.08	0.89-1.21	0.917	0.916 - 0.918
2,3,3',4,5,5',6'-HpCB	192			0.86	M+2/M+4	1.09	0.89-1.21	0.903	0.902 - 0.904
2,3,3',4',5,5',6'-HpCB	193	180 + 193	C180						
2,2',3,3',4,4',5,5'-OcCB	194			1.03	M+2/M+4	0.88	0.76-1.02	0.991	0.990 - 0.992
2,2',3,3',4,4',5,6'-OcCB	195			0.98	M+2/M+4	0.90	0.76-1.02	0.946	0.945 - 0.947
2,2',3,3',4,4',5,6'-OcCB	196			0.64	M+2/M+4	0.93	0.76-1.02	0.915	0.915 - 0.916

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
2,2',3,3',4,4',6,6'-OcCB	197	197 + 200	C	0.87	M+2/M+4	0.90	0.76-1.02	1.046	1.043 - 1.048
2,2',3,3',4,5,5',6-OcCB	198	198 + 199	C	0.61	M+2/M+4	0.90	0.76-1.02	1.114	1.112 - 1.116
2,2',3,3',4,5,5',6'-OcCB	199	198 + 199	C198						
2,2',3,3',4,5,6,6'-OcCB	200	197 + 200	C197						
2,2',3,3',4,5',6,6'-OcCB	201			0.88	M+2/M+4	0.92	0.76-1.02	1.023	1.021 - 1.025
2,2',3,4,4',5,5',6-OcCB	203			0.67	M+2/M+4	0.90	0.76-1.02	0.919	0.918 - 0.920
2,2',3,4,4',5,6,6'-OcCB	204			0.86	M+2/M+4	0.91	0.76-1.02	1.039	1.038 - 1.040
2,2',3,3',4,4',5,6,6'-NoCB	207			1.27	M+2/M+4	0.79	0.65-0.89	1.020	1.019 - 1.021

(1) Where applicable, custom lab flags have been used on this report.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Angela Schlak_____

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SGS AXYS METHOD MLA-010 Rev 12

Form 3B

PCB CONGENER INITIAL CALIBRATION RELATIVE RESPONSES,
ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

CAL Data Filename: PB8C_332C S: 1

Instrument ID: HR GC/MS

Analysis Date: 02-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 19:36:40

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	RRF	MZ's FORMING RATIO ³	ION ABUND. RATIO	RATIO QC LIMITS ⁴	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			0.90	M/M+2	3.26	2.66-3.60	0.719	0.704 - 0.735
13C12-4-MoCB	3L			0.89	M/M+2	3.16	2.66-3.60	0.858	0.842 - 0.874
13C12-2,2'-DiCB	4L			0.62	M/M+2	1.59	1.33-1.79	0.874	0.858 - 0.889
13C12-4,4'-DiCB	15L			1.00	M/M+2	1.58	1.33-1.79	1.253	1.237 - 1.268
13C12-2,2',6'-TriCB	19L			0.42	M/M+2	1.08	0.88-1.20	1.072	1.056 - 1.088
13C12-3,4,4'-TriCB	37L			1.77	M/M+2	1.04	0.88-1.20	1.091	1.081 - 1.101
13C12-2,2',6,6'-TeCB	54L			1.34	M/M+2	0.80	0.65-0.89	0.811	0.804 - 0.817
13C12-3,3',4,4'-TeCB	77L			1.52	M/M+2	0.76	0.65-0.89	1.397	1.390 - 1.403
13C12-3,4,4',5'-TeCB	81L			1.51	M/M+2	0.77	0.65-0.89	1.373	1.366 - 1.379
13C12-2,2',4,6,6'-PeCB	104L			1.00	M+2/M+4	1.62	1.32-1.78	0.808	0.803 - 0.814
13C12-2,3,3',4,4'-PeCB	105L			1.48	M+2/M+4	1.57	1.32-1.78	1.200	1.195 - 1.206
13C12-2,3,4,4',5'-PeCB	114L			1.42	M+2/M+4	1.58	1.32-1.78	1.180	1.174 - 1.185
13C12-2,3',4,4',5'-PeCB	118L			1.45	M+2/M+4	1.57	1.32-1.78	1.163	1.157 - 1.168
13C12-2',3,4,4',5'-PeCB	123L			1.50	M+2/M+4	1.55	1.32-1.78	1.152	1.146 - 1.157
13C12-3,3',4,4',5'-PeCB	126L			1.34	M+2/M+4	1.59	1.32-1.78	1.302	1.297 - 1.307
13C12-2,2',4,4',6,6'-HxCB	155L			1.06	M+2/M+4	1.27	1.05-1.43	0.785	0.781 - 0.789
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C	1.21	M+2/M+4	1.24	1.05-1.43	1.108	1.104 - 1.112
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L						
13C12-2,3',4,4',5,5'-HxCB	167L			1.17	M+2/M+4	1.24	1.05-1.43	1.078	1.074 - 1.082
13C12-3,3',4,4',5,5'-HxCB	169L			1.22	M+2/M+4	1.25	1.05-1.43	1.192	1.188 - 1.197
13C12-2,2',3,3',4,4',5'-HpCB	170L			0.76	M+2/M+4	1.04	0.89-1.21	0.897	0.894 - 0.901
13C12-2,2',3,4,4',5,5'-HpCB	180L			0.92	M+2/M+4	1.05	0.89-1.21	0.873	0.869 - 0.876
13C12-2,2',3,4,5,6,6'-HpCB	188L			1.28	M+2/M+4	1.07	0.89-1.21	0.712	0.709 - 0.715
13C12-2,3,3',4,4',5,5'-HpCB	189L			1.37	M+2/M+4	1.02	0.89-1.21	0.959	0.956 - 0.962
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			0.93	M+2/M+4	0.94	0.76-1.02	0.817	0.814 - 0.821
13C12-2,3,3',4,4',5,5',6-OxCB	205L			1.42	M+2/M+4	0.88	0.76-1.02	1.009	1.005 - 1.014
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			0.87	M+2/M+4	0.76	0.65-0.89	1.043	1.039 - 1.048
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			1.10	M+2/M+4	0.77	0.65-0.89	0.949	0.946 - 0.952

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Angela Schlak _____

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Report Filename: 1668_PCB1668_PB8C_332CS1__Form346B_SJ2441837_GS77997.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 4A
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_332C S: 11

Instrument ID: HR GC/MS

Analysis Date: 03-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 06:16:50

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
2-MoCB	1			M/M+2	3.15	2.66-3.60	25.8	17.5 - 32.5
4-MoCB	3			M/M+2	3.07	2.66-3.60	25.7	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.49	1.33-1.79	23.6	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.50	1.33-1.79	25.0	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.07	0.88-1.20	29.0	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	1.00	0.88-1.20	21.0	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.81	0.65-0.89	59.3	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.76	0.65-0.89	45.4	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.77	0.65-0.89	47.7	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.58	1.32-1.78	54.1	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.55	1.32-1.78	47.7	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.52	1.32-1.78	45.5	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.53	1.32-1.78	44.2	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.52	1.32-1.78	45.2	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.49	1.32-1.78	47.8	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.26	1.05-1.43	53.6	35.0 - 65.0
2,3,3',4,4',5-HxCB	156	156 + 157	C	M+2/M+4	1.27	1.05-1.43	109	70.0 - 130
2,3,3',4,4',5'-HxCB	157	156 + 157	C156					
2,3',4,4',5,5'-HxCB	167			M+2/M+4	1.27	1.05-1.43	58.7	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.32	1.05-1.43	56.5	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.05	0.89-1.21	51.6	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.02	0.89-1.21	41.9	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.91	0.76-1.02	88.5	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.88	0.76-1.02	78.9	52.5 - 97.5
2,2',3,3',4,4',5,5',6-NoCB	206			M+2/M+4	0.81	0.65-0.89	79.1	52.5 - 97.5
2,2',3,3',4,5,5',6,6'-NoCB	208			M+2/M+4	0.80	0.65-0.89	88.2	58.7 - 109
2,2',3,3',4,4',5,5',6,6'-DeCB	209			M+4/M+6	1.20	0.99-1.33	75.8	52.5 - 97.5

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4B
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_332C S: 11

Instrument ID: HR GC/MS

Analysis Date: 03-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 06:16:50

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	MZ's FORMING RATIO ³	ION ABUND. RATIO	QC LIMITS ⁴	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
13C12-2-MoCB	1L			M/M+2	3.26	2.66-3.60	78.6	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.17	2.66-3.60	83.7	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.58	1.33-1.79	86.4	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.57	1.33-1.79	99.1	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.06	0.88-1.20	76.6	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.04	0.88-1.20	98.1	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.82	0.65-0.89	73.8	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.76	0.65-0.89	112	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.74	0.65-0.89	113	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.59	1.32-1.78	69.2	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.56	1.32-1.78	101	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.56	1.32-1.78	103	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.51	1.32-1.78	103	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.52	1.32-1.78	102	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.59	1.32-1.78	107	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.27	1.05-1.43	64.9	50.0 - 150
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	M+2/M+4	1.29	1.05-1.43	183	100 - 300
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			M+2/M+4	1.23	1.05-1.43	90.6	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.27	1.05-1.43	94.7	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.07	0.89-1.21	67.8	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.00	0.89-1.21	88.6	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.90	0.76-1.02	52.7	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.90	0.76-1.02	88.9	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.78	0.65-0.89	76.5	50.0 - 150
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			M+2/M+4	0.78	0.65-0.89	79.2	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6	1.18	0.99-1.33	63.6	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.03	0.88-1.20	99.7	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.63	1.32-1.78	90.8	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.04	0.89-1.21	76.8	60.0 - 130

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 6A
PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_332C S: 11

Instrument ID: HR GC/MS

Analysis Date: 03-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 06:16:50

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RETENTION TIME REFERENCE	IUPAC NO. ²	RRT	RRT QC LIMITS
2-MoCB	1			13C12-2-MoCB	1L	1.001	0.999-1.004
4-MoCB	3			13C12-4-MoCB	3L	1.002	0.999-1.004
2,2'-DiCB	4			13C12-2,2'-DiCB	4L	1.001	0.999-1.004
4,4'-DiCB	15			13C12-4,4'-DiCB	15L	1.001	0.999-1.003
2,2',6-TriCB	19			13C12-2,2',6-TriCB	19L	1.002	0.999-1.003
3,4,4'-TriCB	37			13C12-3,4,4'-TriCB	37L	1.001	0.999-1.002
2,2',6,6'-TeCB	54			13C12-2,2',6,6'-TeCB	54L	1.001	0.999-1.002
3,3',4,4'-TeCB	77			13C12-3,3',4,4'-TeCB	77L	1.000	1.000-1.001
3,4,4',5-TeCB	81			13C12-3,4,4',5-TeCB	81L	1.000	1.000-1.001
2,2',4,6,6'-PeCB	104			13C12-2,2',4,6,6'-PeCB	104L	1.001	0.999-1.002
2,3,3',4,4'-PeCB	105			13C12-2,3,3',4,4'-PeCB	105L	1.001	1.000-1.001
2,3,4,4',5-PeCB	114			13C12-2,3,4,4',5-PeCB	114L	1.001	1.000-1.001
2,3',4,4',5-PeCB	118			13C12-2,3',4,4',5-PeCB	118L	1.001	1.000-1.001
2',3,4,4',5-PeCB	123			13C12-2',3,4,4',5-PeCB	123L	1.000	1.000-1.001
3,3',4,4',5-PeCB	126			13C12-3,3',4,4',5-PeCB	126L	1.001	1.000-1.001
2,2',4,4',6,6'-HxCB	155			13C12-2,2',4,4',6,6'-HxCB	155L	1.001	0.999-1.002
2,3,3',4,4',5-HxCB	156	156 + 157	C	13C12-2,3,3',4,4',5-HxCB and 13C12-2,3,3',4,4',5'-HxCB	156L/157L	1.000	0.998-1.003
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3',4,4',5,5'-HxCB	167			13C12-2,3',4,4',5,5'-HxCB	167L	1.000	1.000-1.001
3,3',4,4',5,5'-HxCB	169			13C12-3,3',4,4',5,5'-HxCB	169L	1.000	1.000-1.001
2,2',3,4',5,6,6'-HpCB	188			13C12-2,2',3,4',5,6,6'-HpCB	188L	1.001	1.000-1.001
2,3,3',4,4',5,5'-HpCB	189			13C12-2,3,3',4,4',5,5'-HpCB	189L	1.001	1.000-1.001
2,2',3,3',5,5',6,6'-OxCB	202			13C12-2,2',3,3',5,5',6,6'-OxCB	202L	1.001	1.000-1.001
2,3,3',4,4',5,5',6-OxCB	205			13C12-2,3,3',4,4',5,5',6-OxCB	205L	1.000	1.000-1.001
2,2',3,3',4,4',5,5',6-NoCB	206			13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	1.000	1.000-1.001
2,2',3,3',4,5,5',6,6'-NoCB	208			13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L	1.001	1.000-1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L	1.001	1.000-1.001

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) Suffix "L" indicates labeled compound

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_332CS11_Form6A_SJ2442306.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 6B
PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_332C S: 11

Instrument ID: HR GC/MS

Analysis Date: 03-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 06:16:50

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	RETENTION TIME REFERENCE	IUPAC NO. ¹	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			13C12-2,5-DiCB	9L	0.720	0.688-0.751
13C12-4-MoCB	3L			13C12-2,5-DiCB	9L	0.858	0.826-0.889
13C12-2,2'-DiCB	4L			13C12-2,5-DiCB	9L	0.873	0.842-0.905
13C12-4,4'-DiCB	15L			13C12-2,5-DiCB	9L	1.253	1.222-1.285
13C12-2,2',6-TriCB	19L			13C12-2,5-DiCB	9L	1.071	1.040-1.103
13C12-3,4,4'-TriCB	37L			13C12-2,2',5,5'-TeCB	52L	1.092	1.072-1.112
13C12-2,2',6,6'-TeCB	54L			13C12-2,2',5,5'-TeCB	52L	0.811	0.798-0.824
13C12-3,3',4,4'-TeCB	77L			13C12-2,2',5,5'-TeCB	52L	1.398	1.385-1.411
13C12-3,4,4',5-TeCB	81L			13C12-2,2',5,5'-TeCB	52L	1.374	1.361-1.387
13C12-2,2',4,6,6'-PeCB	104L			13C12-2,2',4,5,5'-PeCB	101L	0.808	0.797-0.818
13C12-2,3,3',4,4'-PeCB	105L			13C12-2,2',4,5,5'-PeCB	101L	1.201	1.191-1.212
13C12-2,3,4,4',5-PeCB	114L			13C12-2,2',4,5,5'-PeCB	101L	1.180	1.169-1.190
13C12-2,3',4,4',5-PeCB	118L			13C12-2,2',4,5,5'-PeCB	101L	1.163	1.152-1.173
13C12-2',3,4,4',5-PeCB	123L			13C12-2,2',4,5,5'-PeCB	101L	1.152	1.141-1.162
13C12-3,3',4,4',5-PeCB	126L			13C12-2,2',4,5,5'-PeCB	101L	1.302	1.292-1.313
13C12-2,2',4,4',6,6'-HxCB	155L			13C12-2,2',3,4,4',5'-HxCB	138L	0.785	0.777-0.793
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	13C12-2,2',3,4,4',5'-HxCB	138L	1.108	1.100-1.116
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L				
13C12-2,3',4,4',5,5'-HxCB	167L			13C12-2,2',3,4,4',5'-HxCB	138L	1.078	1.070-1.086
13C12-3,3',4,4',5,5'-HxCB	169L			13C12-2,2',3,4,4',5'-HxCB	138L	1.193	1.184-1.201
13C12-2,2',3,4',5,6,6'-HpCB	188L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.711	0.705-0.718
13C12-2,3,3',4,4',5,5'-HpCB	189L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.959	0.953-0.965
13C12-2,2',3,3',5,5',6,6'-OcCB	202L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.817	0.811-0.823
13C12-2,3,3',4,4',5,5',6-OcCB	205L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.009	1.000-1.019
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.043	1.034-1.053
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.949	0.942-0.955
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.074	1.065-1.084

CLEANUP STANDARD

13C12-2,4,4'-TriCB	28L	13C12-2,2',5,5'-TeCB	52L	0.925	0.911-0.938
13C12-2,3,3',5,5'-PeCB	111L	13C12-2,2',4,5,5'-PeCB	101L	1.088	1.077-1.098
13C12-2,2',3,3',5,5',6-HpCB	178L	13C12-2,2',3,4,4',5'-HxCB	138L	1.012	1.003-1.020

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_332CS11__Form6B_SJ2442306.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 4A
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_333A S: 1

Instrument ID: HR GC/MS

Analysis Date: 03-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 09:02:20

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
2-MoCB	1			M/M+2	3.11	2.66-3.60	25.8	17.5 - 32.5
4-MoCB	3			M/M+2	3.07	2.66-3.60	26.2	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.51	1.33-1.79	23.3	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.47	1.33-1.79	25.8	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.05	0.88-1.20	30.0	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	1.00	0.88-1.20	22.0	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.80	0.65-0.89	56.4	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.75	0.65-0.89	45.4	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.74	0.65-0.89	49.2	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.56	1.32-1.78	53.9	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.51	1.32-1.78	49.3	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.53	1.32-1.78	48.5	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.51	1.32-1.78	45.5	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.50	1.32-1.78	52.2	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.50	1.32-1.78	48.2	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.25	1.05-1.43	54.0	35.0 - 65.0
2,3,3',4,4',5-HxCB	156	156 + 157	C	M+2/M+4	1.25	1.05-1.43	111	70.0 - 130
2,3,3',4,4',5'-HxCB	157	156 + 157	C156					
2,3',4,4',5,5'-HxCB	167			M+2/M+4	1.28	1.05-1.43	59.3	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.28	1.05-1.43	55.6	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.07	0.89-1.21	53.5	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.02	0.89-1.21	43.0	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.91	0.76-1.02	87.4	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.89	0.76-1.02	79.8	52.5 - 97.5
2,2',3,3',4,4',5,5',6-NoCB	206			M+2/M+4	0.79	0.65-0.89	80.6	52.5 - 97.5
2,2',3,3',4,5,5',6,6'-NoCB	208			M+2/M+4	0.80	0.65-0.89	90.4	58.7 - 109
2,2',3,3',4,4',5,5',6,6'-DeCB	209			M+4/M+6	1.20	0.99-1.33	76.5	52.5 - 97.5

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4B
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018 VER Data Filename: PB8C_333A S: 1

Instrument ID: HR GC/MS Analysis Date: 03-Oct-2018

GC Column ID: SPB OCTYL Analysis Time: 09:02:20

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	MZ's FORMING RATIO ³	ION ABUND. RATIO	QC LIMITS ⁴	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
13C12-2-MoCB	1L			M/M+2	3.26	2.66-3.60	81.3	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.23	2.66-3.60	84.0	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.58	1.33-1.79	91.2	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.57	1.33-1.79	94.8	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.08	0.88-1.20	69.6	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.04	0.88-1.20	104	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.80	0.65-0.89	90.0	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.73	0.65-0.89	125	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.74	0.65-0.89	127	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.59	1.32-1.78	66.4	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.56	1.32-1.78	115	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.58	1.32-1.78	112	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.58	1.32-1.78	117	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.54	1.32-1.78	115	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.58	1.32-1.78	124	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.27	1.05-1.43	60.1	50.0 - 150
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	M+2/M+4	1.27	1.05-1.43	183	100 - 300
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			M+2/M+4	1.29	1.05-1.43	90.9	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.26	1.05-1.43	94.2	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.06	0.89-1.21	64.0	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.00	0.89-1.21	95.2	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.91	0.76-1.02	50.1	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.89	0.76-1.02	93.9	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.77	0.65-0.89	73.4	50.0 - 150
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			M+2/M+4	0.77	0.65-0.89	76.3	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6	1.20	0.99-1.33	58.8	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.04	0.88-1.20	117	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.62	1.32-1.78	93.3	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.07	0.89-1.21	71.6	60.0 - 130

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_333AS1__Form4B_SJ2442367.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 6A
PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_333A S: 1

Instrument ID: HR GC/MS

Analysis Date: 03-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 09:02:20

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RETENTION TIME REFERENCE	IUPAC NO. ²	RRT	RRT QC LIMITS
2-MoCB	1			13C12-2-MoCB	1L	1.003	0.999-1.004
4-MoCB	3			13C12-4-MoCB	3L	1.001	0.999-1.004
2,2'-DiCB	4			13C12-2,2'-DiCB	4L	1.001	0.999-1.004
4,4'-DiCB	15			13C12-4,4'-DiCB	15L	1.001	0.999-1.003
2,2',6-TriCB	19			13C12-2,2',6-TriCB	19L	1.001	0.999-1.003
3,4,4'-TriCB	37			13C12-3,4,4'-TriCB	37L	1.001	0.999-1.002
2,2',6,6'-TeCB	54			13C12-2,2',6,6'-TeCB	54L	1.001	0.999-1.002
3,3',4,4'-TeCB	77			13C12-3,3',4,4'-TeCB	77L	1.000	1.000-1.001
3,4,4',5-TeCB	81			13C12-3,4,4',5-TeCB	81L	1.000	1.000-1.001
2,2',4,6,6'-PeCB	104			13C12-2,2',4,6,6'-PeCB	104L	1.001	0.999-1.002
2,3,3',4,4'-PeCB	105			13C12-2,3,3',4,4'-PeCB	105L	1.000	1.000-1.001
2,3,4,4',5-PeCB	114			13C12-2,3,4,4',5-PeCB	114L	1.000	1.000-1.001
2,3',4,4',5-PeCB	118			13C12-2,3',4,4',5-PeCB	118L	1.001	1.000-1.001
2',3,4,4',5-PeCB	123			13C12-2',3,4,4',5-PeCB	123L	1.000	1.000-1.001
3,3',4,4',5-PeCB	126			13C12-3,3',4,4',5-PeCB	126L	1.001	1.000-1.001
2,2',4,4',6,6'-HxCB	155			13C12-2,2',4,4',6,6'-HxCB	155L	1.001	0.999-1.002
2,3,3',4,4',5-HxCB	156	156 + 157	C	13C12-2,3,3',4,4',5-HxCB and 13C12-2,3,3',4,4',5'-HxCB	156L/157L	1.001	0.999-1.003
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3',4,4',5,5'-HxCB	167			13C12-2,3',4,4',5,5'-HxCB	167L	1.000	1.000-1.001
3,3',4,4',5,5'-HxCB	169			13C12-3,3',4,4',5,5'-HxCB	169L	1.000	1.000-1.001
2,2',3,4',5,6,6'-HpCB	188			13C12-2,2',3,4',5,6,6'-HpCB	188L	1.000	1.000-1.001
2,3,3',4,4',5,5'-HpCB	189			13C12-2,3,3',4,4',5,5'-HpCB	189L	1.001	1.000-1.001
2,2',3,3',5,5',6,6'-OxCB	202			13C12-2,2',3,3',5,5',6,6'-OxCB	202L	1.001	1.000-1.001
2,3,3',4,4',5,5',6-OxCB	205			13C12-2,3,3',4,4',5,5',6-OxCB	205L	1.000	1.000-1.001
2,2',3,3',4,4',5,5',6-NoCB	206			13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	1.000	1.000-1.001
2,2',3,3',4,5,5',6,6'-NoCB	208			13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L	1.001	1.000-1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L	1.000	1.000-1.001

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) Suffix "L" indicates labeled compound

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_333AS1_Form6A_SJ2442367.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 6B

PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_333A S: 1

Instrument ID: HR GC/MS

Analysis Date: 03-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 09:02:20

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	RETENTION TIME REFERENCE	IUPAC NO. ¹	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			13C12-2,5-DiCB	9L	0.718	0.687-0.749
13C12-4-MoCB	3L			13C12-2,5-DiCB	9L	0.858	0.827-0.889
13C12-2,2'-DiCB	4L			13C12-2,5-DiCB	9L	0.874	0.842-0.905
13C12-4,4'-DiCB	15L			13C12-2,5-DiCB	9L	1.253	1.221-1.284
13C12-2,2',6-TriCB	19L			13C12-2,5-DiCB	9L	1.071	1.040-1.102
13C12-3,4,4'-TriCB	37L			13C12-2,2',5,5'-TeCB	52L	1.092	1.072-1.112
13C12-2,2',6,6'-TeCB	54L			13C12-2,2',5,5'-TeCB	52L	0.811	0.798-0.825
13C12-3,3',4,4'-TeCB	77L			13C12-2,2',5,5'-TeCB	52L	1.398	1.384-1.411
13C12-3,4,4',5-TeCB	81L			13C12-2,2',5,5'-TeCB	52L	1.374	1.360-1.387
13C12-2,2',4,6,6'-PeCB	104L			13C12-2,2',4,5,5'-PeCB	101L	0.808	0.798-0.818
13C12-2,3,3',4,4'-PeCB	105L			13C12-2,2',4,5,5'-PeCB	101L	1.201	1.191-1.211
13C12-2,3,4,4',5-PeCB	114L			13C12-2,2',4,5,5'-PeCB	101L	1.180	1.169-1.190
13C12-2,3',4,4',5-PeCB	118L			13C12-2,2',4,5,5'-PeCB	101L	1.162	1.152-1.172
13C12-2',3,4,4',5-PeCB	123L			13C12-2,2',4,5,5'-PeCB	101L	1.152	1.141-1.162
13C12-3,3',4,4',5-PeCB	126L			13C12-2,2',4,5,5'-PeCB	101L	1.302	1.292-1.313
13C12-2,2',4,4',6,6'-HxCB	155L			13C12-2,2',3,4,4',5'-HxCB	138L	0.785	0.777-0.793
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	13C12-2,2',3,4,4',5'-HxCB	138L	1.108	1.099-1.116
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L				
13C12-2,3',4,4',5,5'-HxCB	167L			13C12-2,2',3,4,4',5'-HxCB	138L	1.078	1.070-1.086
13C12-3,3',4,4',5,5'-HxCB	169L			13C12-2,2',3,4,4',5'-HxCB	138L	1.192	1.184-1.200
13C12-2,2',3,4',5,6,6'-HpCB	188L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.712	0.705-0.718
13C12-2,3,3',4,4',5,5'-HpCB	189L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.959	0.953-0.965
13C12-2,2',3,3',5,5',6,6'-OcCB	202L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.817	0.811-0.823
13C12-2,3,3',4,4',5,5',6-OcCB	205L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.009	1.000-1.019
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.043	1.034-1.053
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.949	0.942-0.955
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.074	1.065-1.084

CLEANUP STANDARD

13C12-2,4,4'-TriCB	28L	13C12-2,2',5,5'-TeCB	52L	0.925	0.911-0.938
13C12-2,3,3',5,5'-PeCB	111L	13C12-2,2',4,5,5'-PeCB	101L	1.088	1.077-1.098
13C12-2,2',3,3',5,5',6-HpCB	178L	13C12-2,2',3,4,4',5'-HxCB	138L	1.012	1.003-1.020

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_333AS1__Form6B_SJ2442367.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 3A

PCB CONGENER INITIAL CALIBRATION RELATIVE RESPONSES,
ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

CAL Data Filename: PB8C_333A S: 1

Instrument ID: HR GC/MS

Analysis Date: 03-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 09:02:20

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
3-MoCB	2			1.13	M/M+2	3.08	2.66-3.60	0.988	0.984 - 0.991
2,3-DiCB	5			1.03	M/M+2	1.47	1.33-1.79	1.197	1.194 - 1.201
2,3'-DiCB	6			1.13	M/M+2	1.51	1.33-1.79	1.176	1.172 - 1.179
2,4-DiCB	7			1.11	M/M+2	1.50	1.33-1.79	1.158	1.154 - 1.161
2,4'-DiCB	8			1.20	M/M+2	1.49	1.33-1.79	1.207	1.203 - 1.210
2,5-DiCB	9			1.13	M/M+2	1.47	1.33-1.79	1.146	1.142 - 1.149
2,6-DiCB	10			1.11	M/M+2	1.49	1.33-1.79	1.013	1.010 - 1.017
3,3'-DiCB	11			1.09	M/M+2	1.49	1.33-1.79	0.969	0.967 - 0.972
3,4-DiCB	12	12 + 13	C	1.08	M/M+2	1.47	1.33-1.79	0.985	0.983 - 0.988
3,4'-DiCB	13	12 + 13	C12						
3,5-DiCB	14			1.11	M/M+2	1.49	1.33-1.79	0.925	0.923 - 0.928
2,2',3-TriCB	16			0.77	M/M+2	1.08	0.88-1.20	1.167	1.164 - 1.170
2,2',4-TriCB	17			0.96	M/M+2	1.07	0.88-1.20	1.137	1.135 - 1.140
2,2',5-TriCB	18	18 + 30	C	1.12	M/M+2	1.09	0.88-1.20	1.112	1.109 - 1.115
2,3,3'-TriCB	20	20 + 28	C	1.33	M/M+2	0.98	0.88-1.20	0.848	0.845 - 0.851
2,3,4-TriCB	21	21 + 33	C	1.34	M/M+2	1.00	0.88-1.20	0.855	0.852 - 0.858
2,3,4'-TriCB	22			1.20	M/M+2	1.00	0.88-1.20	0.871	0.869 - 0.873
2,3,5-TriCB	23			1.23	M/M+2	0.99	0.88-1.20	1.282	1.279 - 1.285
2,3,6-TriCB	24			1.30	M/M+2	1.07	0.88-1.20	1.159	1.156 - 1.162
2,3',4-TriCB	25			1.48	M/M+2	1.01	0.88-1.20	0.825	0.823 - 0.827
2,3',5-TriCB	26	26 + 29	C	1.32	M/M+2	1.00	0.88-1.20	1.302	1.297 - 1.307
2,3',6-TriCB	27			1.30	M/M+2	1.07	0.88-1.20	1.151	1.148 - 1.154
2,4,4'-TriCB	28	20 + 28	C20						
2,4,5-TriCB	29	26 + 29	C26						
2,4,6-TriCB	30	18 + 30	C18						
2,4',5-TriCB	31			1.40	M/M+2	0.98	0.88-1.20	0.836	0.834 - 0.838
2,4',6-TriCB	32			1.35	M/M+2	0.98	0.88-1.20	1.197	1.194 - 1.200
2',3,4-TriCB	33	21 + 33	C21						
2',3,5-TriCB	34			1.29	M/M+2	1.02	0.88-1.20	1.273	1.270 - 1.276
3,3',4-TriCB	35			1.23	M/M+2	1.00	0.88-1.20	0.985	0.984 - 0.987
3,3',5-TriCB	36			1.35	M/M+2	0.99	0.88-1.20	0.932	0.930 - 0.933
3,4,5-TriCB	38			1.18	M/M+2	1.00	0.88-1.20	0.966	0.965 - 0.968
3,4',5-TriCB	39			1.26	M/M+2	1.00	0.88-1.20	0.945	0.943 - 0.947
2,2',3,3'-TeCB	40	40 + 41 + 71	C	0.74	M/M+2	0.79	0.65-0.89	1.335	1.331 - 1.339
2,2',3,4-TeCB	41	40 + 41 + 71	C40						
2,2',3,4'-TeCB	42			0.69	M/M+2	0.79	0.65-0.89	1.312	1.309 - 1.314
2,2',3,5-TeCB	43			0.61	M/M+2	0.79	0.65-0.89	1.246	1.243 - 1.248
2,2',3,5'-TeCB	44	44 + 47 + 65	C	0.81	M/M+2	0.79	0.65-0.89	1.285	1.281 - 1.289
2,2',3,6-TeCB	45	45 + 51	C	0.78	M/M+2	0.80	0.65-0.89	1.146	1.142 - 1.150
2,2',3,6'-TeCB	46			0.68	M/M+2	0.80	0.65-0.89	1.160	1.158 - 1.163
2,2',4,4'-TeCB	47	44 + 47 + 65	C44						
2,2',4,5-TeCB	48			0.74	M/M+2	0.80	0.65-0.89	1.273	1.271 - 1.275
2,2',4,5'-TeCB	49	49 + 69	C	0.89	M/M+2	0.79	0.65-0.89	1.257	1.252 - 1.261
2,2',4,6-TeCB	50	50 + 53	C	0.80	M/M+2	0.79	0.65-0.89	1.111	1.107 - 1.115
2,2',4,6'-TeCB	51	45 + 51	C45						
2,2',5,5'-TeCB	52			0.82	M/M+2	0.79	0.65-0.89	1.234	1.231 - 1.236
2,2',5,6'-TeCB	53	50 + 53	C50						
2,3,3',4-TeCB	55			0.98	M/M+2	0.78	0.65-0.89	0.889	0.887 - 0.890
2,3,3',4'-TeCB	56			0.97	M/M+2	0.75	0.65-0.89	0.904	0.902 - 0.905

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
2,3,3',5'-TeCB	57			1.04	M/M+2	0.78	0.65-0.89	0.843	0.842 - 0.845
2,3,3',5'-TeCB	58			1.00	M/M+2	0.76	0.65-0.89	0.851	0.849 - 0.852
2,3,3',6'-TeCB	59	59 + 62 + 75	C	0.98	M/M+2	0.80	0.65-0.89	1.301	1.297 - 1.305
2,3,4,4'-TeCB	60			0.98	M/M+2	0.77	0.65-0.89	0.911	0.910 - 0.913
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	1.03	M/M+2	0.77	0.65-0.89	0.874	0.871 - 0.877
2,3,4,6'-TeCB	62	59 + 62 + 75	C59						
2,3,4',5'-TeCB	63			1.06	M/M+2	0.75	0.65-0.89	0.864	0.862 - 0.865
2,3,4',6'-TeCB	64			1.04	M/M+2	0.79	0.65-0.89	1.349	1.346 - 1.351
2,3,5,6'-TeCB	65	44 + 47 + 65	C44						
2,3',4,4'-TeCB	66			1.06	M/M+2	0.75	0.65-0.89	0.883	0.882 - 0.885
2,3',4,5'-TeCB	67			1.19	M/M+2	0.78	0.65-0.89	0.856	0.854 - 0.857
2,3',4,5'-TeCB	68			1.06	M/M+2	0.74	0.65-0.89	0.831	0.830 - 0.832
2,3',4,6'-TeCB	69	49 + 69	C49						
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61						
2,3',4',6'-TeCB	71	40 + 41 + 71	C40						
2,3',5,5'-TeCB	72			1.09	M/M+2	0.76	0.65-0.89	0.822	0.820 - 0.823
2,3',5,6'-TeCB	73			1.05	M/M+2	0.79	0.65-0.89	1.240	1.238 - 1.243
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61						
2,4,4',6'-TeCB	75	59 + 62 + 75	C59						
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61						
3,3',4,5'-TeCB	78			1.04	M/M+2	0.76	0.65-0.89	0.987	0.985 - 0.988
3,3',4,5'-TeCB	79			1.22	M/M+2	0.76	0.65-0.89	0.970	0.968 - 0.971
3,3',5,5'-TeCB	80			1.13	M/M+2	0.76	0.65-0.89	0.923	0.922 - 0.925
2,2',3,3',4'-PeCB	82			0.68	M+2/M+4	1.59	1.32-1.78	0.934	0.932 - 0.935
2,2',3,3',5'-PeCB	83	83 + 99	C	0.74	M+2/M+4	1.60	1.32-1.78	0.884	0.881 - 0.887
2,2',3,3',6'-PeCB	84			0.67	M+2/M+4	1.59	1.32-1.78	1.164	1.162 - 1.166
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	0.91	M+2/M+4	1.62	1.32-1.78	0.919	0.916 - 0.922
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C	0.87	M+2/M+4	1.59	1.32-1.78	0.900	0.896 - 0.904
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86						
2,2',3,4,6'-PeCB	88	88 + 91	C	0.74	M+2/M+4	1.57	1.32-1.78	1.154	1.150 - 1.157
2,2',3,4,6'-PeCB	89			0.70	M+2/M+4	1.62	1.32-1.78	1.183	1.181 - 1.185
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	0.85	M+2/M+4	1.60	1.32-1.78	0.868	0.866 - 0.871
2,2',3,4',6'-PeCB	91	88 + 91	C88						
2,2',3,5,5'-PeCB	92			0.74	M+2/M+4	1.64	1.32-1.78	0.853	0.851 - 0.854
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	0.76	M+2/M+4	1.62	1.32-1.78	1.130	1.120 - 1.141
2,2',3,5,6'-PeCB	94			0.68	M+2/M+4	1.63	1.32-1.78	1.103	1.101 - 1.105
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93						
2,2',3,6,6'-PeCB	96			0.77	M+2/M+4	1.59	1.32-1.78	1.016	1.013 - 1.019
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86						
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93						
2,2',4,4',5'-PeCB	99	83 + 99	C83						
2,2',4,4',6'-PeCB	100	93 + 95 + 98 + 100 + 102	C93						
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90						
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93						
2,2',4,5',6'-PeCB	103			0.83	M+2/M+4	1.59	1.32-1.78	1.094	1.092 - 1.096
2,3,3',4,5'-PeCB	106			1.04	M+2/M+4	1.49	1.32-1.78	1.004	1.003 - 1.005
2,3,3',4',5'-PeCB	107	107 + 124	C	1.04	M+2/M+4	1.53	1.32-1.78	0.991	0.988 - 0.993
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86						
2,3,3',4,6'-PeCB	109			1.06	M+2/M+4	1.53	1.32-1.78	0.997	0.996 - 0.999
2,3,3',4',6'-PeCB	110	110 + 115	C	1.02	M+2/M+4	1.62	1.32-1.78	0.926	0.924 - 0.928
2,3,3',5,5'-PeCB	111			1.02	M+2/M+4	1.60	1.32-1.78	0.945	0.944 - 0.947
2,3,3',5,6'-PeCB	112			1.04	M+2/M+4	1.60	1.32-1.78	0.889	0.888 - 0.890
2,3,3',5',6'-PeCB	113	90 + 101 + 113	C90						
2,3,4,4',6'-PeCB	115	110 + 115	C110						
2,3,4,5,6'-PeCB	116	85 + 116 + 117	C85						
2,3,4',5,6'-PeCB	117	85 + 116 + 117	C85						
2,3',4,4',6'-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86						
2,3',4,5,5'-PeCB	120			1.10	M+2/M+4	1.61	1.32-1.78	0.958	0.957 - 0.959
2,3',4,5',6'-PeCB	121			0.96	M+2/M+4	1.57	1.32-1.78	1.200	1.198 - 1.202
2',3,3',4,5'-PeCB	122			0.98	M+2/M+4	1.52	1.32-1.78	1.011	1.009 - 1.012
2',3,4,5,5'-PeCB	124	107 + 124	C107						
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86						

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
3,3',4,5,5'-PeCB	127			1.10	M+2/M+4	1.51	1.32-1.78	1.041	1.040 - 1.042
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1.08	M+2/M+4	1.26	1.05-1.43	0.958	0.956 - 0.960
2,2',3,3',4,5'-HxCB	129	129 + 138 + 160 + 163	C	1.08	M+2/M+4	1.26	1.05-1.43	0.930	0.927 - 0.933
2,2',3,3',4,5'-HxCB	130			0.86	M+2/M+4	1.26	1.05-1.43	0.913	0.912 - 0.914
2,2',3,3',4,6'-HxCB	131			0.84	M+2/M+4	1.26	1.05-1.43	1.160	1.159 - 1.162
2,2',3,3',4,6'-HxCB	132			0.84	M+2/M+4	1.29	1.05-1.43	1.175	1.173 - 1.178
2,2',3,3',5,5'-HxCB	133			0.89	M+2/M+4	1.29	1.05-1.43	1.192	1.191 - 1.194
2,2',3,3',5,6'-HxCB	134	134 + 143	C	0.86	M+2/M+4	1.27	1.05-1.43	1.142	1.140 - 1.145
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	0.71	M+2/M+4	1.26	1.05-1.43	1.107	1.102 - 1.113
2,2',3,3',6,6'-HxCB	136			0.90	M+2/M+4	1.26	1.05-1.43	1.025	1.023 - 1.026
2,2',3,4,4',5'-HxCB	137			0.92	M+2/M+4	1.28	1.05-1.43	0.918	0.917 - 0.919
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129						
2,2',3,4,4',6'-HxCB	139	139 + 140	C	0.96	M+2/M+4	1.29	1.05-1.43	1.153	1.151 - 1.156
2,2',3,4,4',6'-HxCB	140	139 + 140	C139						
2,2',3,4,5,5'-HxCB	141			0.99	M+2/M+4	1.26	1.05-1.43	0.903	0.902 - 0.904
2,2',3,4,5,6'-HxCB	142			0.88	M+2/M+4	1.26	1.05-1.43	1.165	1.164 - 1.167
2,2',3,4,5,6'-HxCB	143	134 + 143	C134						
2,2',3,4,5,6'-HxCB	144			0.71	M+2/M+4	1.25	1.05-1.43	1.123	1.121 - 1.124
2,2',3,4,6,6'-HxCB	145			0.85	M+2/M+4	1.27	1.05-1.43	1.035	1.033 - 1.036
2,2',3,4',5,5'-HxCB	146			1.05	M+2/M+4	1.27	1.05-1.43	0.884	0.883 - 0.885
2,2',3,4',5,6'-HxCB	147	147 + 149	C	0.98	M+2/M+4	1.28	1.05-1.43	1.134	1.131 - 1.137
2,2',3,4',5,6'-HxCB	148			0.68	M+2/M+4	1.24	1.05-1.43	1.084	1.083 - 1.086
2,2',3,4',5',6'-HxCB	149	147 + 149	C147						
2,2',3,4',6,6'-HxCB	150			0.89	M+2/M+4	1.30	1.05-1.43	1.013	1.011 - 1.014
2,2',3,5,5',6'-HxCB	151	135 + 151 + 154	C135						
2,2',3,5,6,6'-HxCB	152			0.93	M+2/M+4	1.26	1.05-1.43	1.007	1.006 - 1.009
2,2',4,4',5,5'-HxCB	153	153 + 168	C	1.17	M+2/M+4	1.27	1.05-1.43	0.899	0.897 - 0.900
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135						
2,3,3',4,4',6'-HxCB	158			1.39	M+2/M+4	1.29	1.05-1.43	0.937	0.936 - 0.939
2,3,3',4,5,5'-HxCB	159			1.30	M+2/M+4	1.27	1.05-1.43	0.982	0.981 - 0.983
2,3,3',4,5,6'-HxCB	160	129 + 138 + 160 + 163	C129						
2,3,3',4,5',6'-HxCB	161			1.27	M+2/M+4	1.28	1.05-1.43	0.887	0.886 - 0.888
2,3,3',4',5,5'-HxCB	162			1.29	M+2/M+4	1.30	1.05-1.43	0.989	0.988 - 0.990
2,3,3',4',5,6'-HxCB	163	129 + 138 + 160 + 163	C129						
2,3,3',4',5',6'-HxCB	164			1.28	M+2/M+4	1.27	1.05-1.43	0.921	0.920 - 0.922
2,3,3',5,5',6'-HxCB	165			1.11	M+2/M+4	1.27	1.05-1.43	0.878	0.877 - 0.879
2,3,4,4',5,6'-HxCB	166	128 + 166	C128						
2,3',4,4',5',6'-HxCB	168	153 + 168	C153						
2,2',3,3',4,4',5'-HpCB	170			1.17	M+2/M+4	1.04	0.89-1.21	1.001	1.000 - 1.002
2,2',3,3',4,4',6'-HpCB	171	171 + 173	C	0.68	M+2/M+4	1.06	0.89-1.21	1.163	1.160 - 1.165
2,2',3,3',4,5,5'-HpCB	172			0.69	M+2/M+4	1.05	0.89-1.21	0.897	0.896 - 0.898
2,2',3,3',4,5,6'-HpCB	173	171 + 173	C171						
2,2',3,3',4,5,6'-HpCB	174			0.74	M+2/M+4	1.06	0.89-1.21	1.134	1.132 - 1.135
2,2',3,3',4,5',6'-HpCB	175			0.73	M+2/M+4	1.08	0.89-1.21	1.102	1.101 - 1.104
2,2',3,3',4,6,6'-HpCB	176			0.97	M+2/M+4	1.07	0.89-1.21	1.034	1.033 - 1.035
2,2',3,3',4',5,6'-HpCB	177			0.74	M+2/M+4	1.06	0.89-1.21	1.145	1.144 - 1.147
2,2',3,3',5,5',6'-HpCB	178			0.71	M+2/M+4	1.04	0.89-1.21	1.085	1.084 - 1.086
2,2',3,3',5,6,6'-HpCB	179			0.99	M+2/M+4	1.06	0.89-1.21	1.010	1.009 - 1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	1.04	M+2/M+4	1.07	0.89-1.21	1.000	0.999 - 1.001
2,2',3,4,4',5,6'-HpCB	181			0.71	M+2/M+4	1.05	0.89-1.21	1.156	1.155 - 1.158
2,2',3,4,4',5,6'-HpCB	182			0.75	M+2/M+4	1.06	0.89-1.21	1.115	1.114 - 1.116
2,2',3,4,4',5',6'-HpCB	183	183 + 185	C	0.73	M+2/M+4	1.05	0.89-1.21	1.128	1.127 - 1.130
2,2',3,4,4',6,6'-HpCB	184			0.98	M+2/M+4	1.06	0.89-1.21	1.024	1.022 - 1.025
2,2',3,4,5,5',6'-HpCB	185	183 + 185	C183						
2,2',3,4,5,6,6'-HpCB	186			0.92	M+2/M+4	1.06	0.89-1.21	1.047	1.045 - 1.048
2,2',3,4',5,5',6'-HpCB	187			0.77	M+2/M+4	1.03	0.89-1.21	1.110	1.109 - 1.112
2,3,3',4,4',5,6'-HpCB	190			0.96	M+2/M+4	1.04	0.89-1.21	0.947	0.946 - 0.948
2,3,3',4,4',5',6'-HpCB	191			0.93	M+2/M+4	1.05	0.89-1.21	0.917	0.916 - 0.918
2,3,3',4,5,5',6'-HpCB	192			0.85	M+2/M+4	1.07	0.89-1.21	0.903	0.902 - 0.904
2,3,3',4',5,5',6'-HpCB	193	180 + 193	C180						
2,2',3,3',4,4',5,5'-OcCB	194			1.06	M+2/M+4	0.91	0.76-1.02	0.991	0.990 - 0.992
2,2',3,3',4,4',5,6'-OcCB	195			1.02	M+2/M+4	0.88	0.76-1.02	0.945	0.944 - 0.946
2,2',3,3',4,4',5,6'-OcCB	196			0.66	M+2/M+4	0.89	0.76-1.02	0.915	0.914 - 0.916

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
2,2',3,3',4,4',6,6'-OcCB	197	197 + 200	C	0.88	M+2/M+4	0.90	0.76-1.02	1.046	1.043 - 1.048
2,2',3,3',4,5,5',6-OcCB	198	198 + 199	C	0.63	M+2/M+4	0.89	0.76-1.02	1.114	1.112 - 1.116
2,2',3,3',4,5,5',6'-OcCB	199	198 + 199	C198						
2,2',3,3',4,5,6,6'-OcCB	200	197 + 200	C197						
2,2',3,3',4,5',6,6'-OcCB	201			0.86	M+2/M+4	0.91	0.76-1.02	1.023	1.021 - 1.025
2,2',3,4,4',5,5',6-OcCB	203			0.67	M+2/M+4	0.90	0.76-1.02	0.919	0.918 - 0.920
2,2',3,4,4',5,6,6'-OcCB	204			0.86	M+2/M+4	0.90	0.76-1.02	1.039	1.038 - 1.040
2,2',3,3',4,4',5,6,6'-NoCB	207			1.28	M+2/M+4	0.82	0.65-0.89	1.020	1.019 - 1.021

(1) Where applicable, custom lab flags have been used on this report.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 3B

PCB CONGENER INITIAL CALIBRATION RELATIVE RESPONSES,
ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

CAL Data Filename: PB8C_333A S: 1

Instrument ID: HR GC/MS

Analysis Date: 03-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 09:02:20

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	RRF	MZ's FORMING RATIO ³	ION ABUND. RATIO	RATIO QC LIMITS ⁴	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			0.92	M/M+2	3.26	2.66-3.60	0.718	0.703 - 0.734
13C12-4-MoCB	3L			0.90	M/M+2	3.23	2.66-3.60	0.858	0.842 - 0.874
13C12-2,2'-DiCB	4L			0.62	M/M+2	1.58	1.33-1.79	0.874	0.858 - 0.889
13C12-4,4'-DiCB	15L			1.01	M/M+2	1.57	1.33-1.79	1.253	1.237 - 1.268
13C12-2,2',6'-TriCB	19L			0.39	M/M+2	1.08	0.88-1.20	1.071	1.055 - 1.087
13C12-3,4,4'-TriCB	37L			1.75	M/M+2	1.04	0.88-1.20	1.092	1.082 - 1.102
13C12-2,2',6,6'-TeCB	54L			1.33	M/M+2	0.80	0.65-0.89	0.811	0.805 - 0.818
13C12-3,3',4,4'-TeCB	77L			1.64	M/M+2	0.73	0.65-0.89	1.398	1.391 - 1.404
13C12-3,4,4',5'-TeCB	81L			1.64	M/M+2	0.74	0.65-0.89	1.374	1.367 - 1.380
13C12-2,2',4,6,6'-PeCB	104L			0.98	M+2/M+4	1.59	1.32-1.78	0.808	0.803 - 0.813
13C12-2,3,3',4,4'-PeCB	105L			1.62	M+2/M+4	1.56	1.32-1.78	1.201	1.196 - 1.206
13C12-2,3,4,4',5'-PeCB	114L			1.52	M+2/M+4	1.58	1.32-1.78	1.180	1.174 - 1.185
13C12-2,3',4,4',5'-PeCB	118L			1.60	M+2/M+4	1.58	1.32-1.78	1.162	1.157 - 1.167
13C12-2',3,4,4',5'-PeCB	123L			1.60	M+2/M+4	1.54	1.32-1.78	1.152	1.146 - 1.157
13C12-3,3',4,4',5'-PeCB	126L			1.56	M+2/M+4	1.58	1.32-1.78	1.302	1.297 - 1.307
13C12-2,2',4,4',6,6'-HxCB	155L			1.00	M+2/M+4	1.27	1.05-1.43	0.785	0.781 - 0.789
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C	1.23	M+2/M+4	1.27	1.05-1.43	1.108	1.104 - 1.112
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L						
13C12-2,3',4,4',5,5'-HxCB	167L			1.17	M+2/M+4	1.29	1.05-1.43	1.078	1.074 - 1.082
13C12-3,3',4,4',5,5'-HxCB	169L			1.25	M+2/M+4	1.26	1.05-1.43	1.192	1.188 - 1.196
13C12-2,2',3,3',4,4',5'-HpCB	170L			0.77	M+2/M+4	1.06	0.89-1.21	0.897	0.894 - 0.900
13C12-2,2',3,4,4',5,5'-HpCB	180L			0.90	M+2/M+4	1.07	0.89-1.21	0.872	0.869 - 0.875
13C12-2,2',3,4,5,6,6'-HpCB	188L			1.21	M+2/M+4	1.06	0.89-1.21	0.712	0.709 - 0.715
13C12-2,3,3',4,4',5,5'-HpCB	189L			1.44	M+2/M+4	1.00	0.89-1.21	0.959	0.956 - 0.962
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			0.89	M+2/M+4	0.91	0.76-1.02	0.817	0.814 - 0.820
13C12-2,3,3',4,4',5,5',6-OxCB	205L			1.41	M+2/M+4	0.89	0.76-1.02	1.009	1.005 - 1.014
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			0.81	M+2/M+4	0.77	0.65-0.89	1.043	1.039 - 1.048
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			1.03	M+2/M+4	0.77	0.65-0.89	0.949	0.945 - 0.952

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4A
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_333A S: 11

Instrument ID: HR GC/MS

Analysis Date: 03-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 19:39:55

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
2-MoCB	1			M/M+2	3.07	2.66-3.60	25.9	17.5 - 32.5
4-MoCB	3			M/M+2	3.06	2.66-3.60	26.2	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.48	1.33-1.79	23.1	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.49	1.33-1.79	26.5	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.06	0.88-1.20	30.0	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	0.99	0.88-1.20	21.8	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.80	0.65-0.89	56.2	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.76	0.65-0.89	45.8	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.76	0.65-0.89	48.9	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.59	1.32-1.78	53.9	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.50	1.32-1.78	48.4	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.51	1.32-1.78	49.0	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.53	1.32-1.78	46.6	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.48	1.32-1.78	51.5	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.52	1.32-1.78	48.0	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.26	1.05-1.43	54.2	35.0 - 65.0
2,3,3',4,4',5-HxCB	156	156 + 157	C	M+2/M+4	1.28	1.05-1.43	110	70.0 - 130
2,3,3',4,4',5'-HxCB	157	156 + 157	C156					
2,3',4,4',5,5'-HxCB	167			M+2/M+4	1.27	1.05-1.43	60.8	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.34	1.05-1.43	56.2	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.06	0.89-1.21	53.0	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.01	0.89-1.21	43.5	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.90	0.76-1.02	87.7	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.90	0.76-1.02	81.6	52.5 - 97.5
2,2',3,3',4,4',5,5',6-NoCB	206			M+2/M+4	0.80	0.65-0.89	80.7	52.5 - 97.5
2,2',3,3',4,5,5',6,6'-NoCB	208			M+2/M+4	0.80	0.65-0.89	89.6	58.7 - 109
2,2',3,3',4,4',5,5',6,6'-DeCB	209			M+4/M+6	1.19	0.99-1.33	75.6	52.5 - 97.5

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4B
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_333A S: 11

Instrument ID: HR GC/MS

Analysis Date: 03-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 19:39:55

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	MZ's FORMING RATIO ³	ION ABUND. RATIO	QC LIMITS ⁴	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
13C12-2-MoCB	1L			M/M+2	3.22	2.66-3.60	80.3	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.20	2.66-3.60	83.3	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.60	1.33-1.79	90.0	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.57	1.33-1.79	95.1	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.09	0.88-1.20	67.7	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.04	0.88-1.20	115	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.80	0.65-0.89	88.5	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.76	0.65-0.89	117	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.75	0.65-0.89	121	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.59	1.32-1.78	67.1	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.56	1.32-1.78	116	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.60	1.32-1.78	113	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.58	1.32-1.78	113	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.58	1.32-1.78	118	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.58	1.32-1.78	124	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.26	1.05-1.43	59.3	50.0 - 150
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	M+2/M+4	1.26	1.05-1.43	187	100 - 300
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			M+2/M+4	1.24	1.05-1.43	93.0	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.27	1.05-1.43	98.2	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.07	0.89-1.21	61.7	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.02	0.89-1.21	101	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.92	0.76-1.02	50.3	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.88	0.76-1.02	94.5	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.79	0.65-0.89	76.0	50.0 - 150
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			M+2/M+4	0.76	0.65-0.89	75.9	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6	1.19	0.99-1.33	61.4	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.03	0.88-1.20	119	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.62	1.32-1.78	90.5	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.07	0.89-1.21	72.4	60.0 - 130

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_333AS11_Form4B_SJ2442387.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 6A
PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_333A S: 11

Instrument ID: HR GC/MS

Analysis Date: 03-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 19:39:55

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RETENTION TIME REFERENCE	IUPAC NO. ²	RRT	RRT QC LIMITS
2-MoCB	1			13C12-2-MoCB	1L	1.001	0.999-1.004
4-MoCB	3			13C12-4-MoCB	3L	1.001	0.999-1.004
2,2'-DiCB	4			13C12-2,2'-DiCB	4L	1.001	0.999-1.004
4,4'-DiCB	15			13C12-4,4'-DiCB	15L	1.001	0.999-1.003
2,2',6-TriCB	19			13C12-2,2',6-TriCB	19L	1.001	0.999-1.003
3,4,4'-TriCB	37			13C12-3,4,4'-TriCB	37L	1.001	0.999-1.002
2,2',6,6'-TeCB	54			13C12-2,2',6,6'-TeCB	54L	1.001	0.999-1.002
3,3',4,4'-TeCB	77			13C12-3,3',4,4'-TeCB	77L	1.001	1.000-1.001
3,4,4',5-TeCB	81			13C12-3,4,4',5-TeCB	81L	1.000	1.000-1.001
2,2',4,6,6'-PeCB	104			13C12-2,2',4,6,6'-PeCB	104L	1.001	0.999-1.002
2,3,3',4,4'-PeCB	105			13C12-2,3,3',4,4'-PeCB	105L	1.000	1.000-1.001
2,3,4,4',5-PeCB	114			13C12-2,3,4,4',5-PeCB	114L	1.001	1.000-1.001
2,3',4,4',5-PeCB	118			13C12-2,3',4,4',5-PeCB	118L	1.000	1.000-1.001
2',3,4,4',5-PeCB	123			13C12-2',3,4,4',5-PeCB	123L	1.000	1.000-1.001
3,3',4,4',5-PeCB	126			13C12-3,3',4,4',5-PeCB	126L	1.000	1.000-1.001
2,2',4,4',6,6'-HxCB	155			13C12-2,2',4,4',6,6'-HxCB	155L	1.001	0.999-1.002
2,3,3',4,4',5-HxCB	156	156 + 157	C	13C12-2,3,3',4,4',5-HxCB and 13C12-2,3,3',4,4',5'-HxCB	156L/157L	1.000	0.998-1.003
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3',4,4',5,5'-HxCB	167			13C12-2,3',4,4',5,5'-HxCB	167L	1.000	1.000-1.001
3,3',4,4',5,5'-HxCB	169			13C12-3,3',4,4',5,5'-HxCB	169L	1.001	1.000-1.001
2,2',3,4',5,6,6'-HpCB	188			13C12-2,2',3,4',5,6,6'-HpCB	188L	1.001	1.000-1.001
2,3,3',4,4',5,5'-HpCB	189			13C12-2,3,3',4,4',5,5'-HpCB	189L	1.000	1.000-1.001
2,2',3,3',5,5',6,6'-OxCB	202			13C12-2,2',3,3',5,5',6,6'-OxCB	202L	1.001	1.000-1.001
2,3,3',4,4',5,5',6-OxCB	205			13C12-2,3,3',4,4',5,5',6-OxCB	205L	1.001	1.000-1.001
2,2',3,3',4,4',5,5',6-NoCB	206			13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	1.001	1.000-1.001
2,2',3,3',4,5,5',6,6'-NoCB	208			13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L	1.001	1.000-1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L	1.001	1.000-1.001

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) Suffix "L" indicates labeled compound

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_333AS11_Form6A_SJ2442387.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 6B

PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_333A S: 11

Instrument ID: HR GC/MS

Analysis Date: 03-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 19:39:55

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	RETENTION TIME REFERENCE	IUPAC NO. ¹	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			13C12-2,5-DiCB	9L	0.720	0.689-0.751
13C12-4-MoCB	3L			13C12-2,5-DiCB	9L	0.859	0.828-0.890
13C12-2,2'-DiCB	4L			13C12-2,5-DiCB	9L	0.875	0.843-0.906
13C12-4,4'-DiCB	15L			13C12-2,5-DiCB	9L	1.254	1.223-1.285
13C12-2,2',6'-TriCB	19L			13C12-2,5-DiCB	9L	1.072	1.041-1.103
13C12-3,4,4'-TriCB	37L			13C12-2,2',5,5'-TeCB	52L	1.092	1.072-1.112
13C12-2,2',6,6'-TeCB	54L			13C12-2,2',5,5'-TeCB	52L	0.811	0.798-0.825
13C12-3,3',4,4'-TeCB	77L			13C12-2,2',5,5'-TeCB	52L	1.398	1.384-1.411
13C12-3,4,4',5'-TeCB	81L			13C12-2,2',5,5'-TeCB	52L	1.374	1.361-1.388
13C12-2,2',4,6,6'-PeCB	104L			13C12-2,2',4,5,5'-PeCB	101L	0.808	0.798-0.818
13C12-2,3,3',4,4'-PeCB	105L			13C12-2,2',4,5,5'-PeCB	101L	1.201	1.190-1.211
13C12-2,3,4,4',5'-PeCB	114L			13C12-2,2',4,5,5'-PeCB	101L	1.180	1.169-1.190
13C12-2,3',4,4',5'-PeCB	118L			13C12-2,2',4,5,5'-PeCB	101L	1.162	1.152-1.173
13C12-2',3,4,4',5'-PeCB	123L			13C12-2,2',4,5,5'-PeCB	101L	1.152	1.141-1.162
13C12-3,3',4,4',5'-PeCB	126L			13C12-2,2',4,5,5'-PeCB	101L	1.302	1.292-1.312
13C12-2,2',4,4',6,6'-HxCB	155L			13C12-2,2',3,4,4',5'-HxCB	138L	0.785	0.777-0.793
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C	13C12-2,2',3,4,4',5'-HxCB	138L	1.109	1.100-1.117
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L				
13C12-2,3',4,4',5,5'-HxCB	167L			13C12-2,2',3,4,4',5'-HxCB	138L	1.079	1.070-1.087
13C12-3,3',4,4',5,5'-HxCB	169L			13C12-2,2',3,4,4',5'-HxCB	138L	1.192	1.184-1.201
13C12-2,2',3,4',5,6,6'-HpCB	188L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	0.712	0.705-0.718
13C12-2,3,3',4,4',5,5'-HpCB	189L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	0.959	0.953-0.966
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	0.817	0.811-0.823
13C12-2,3,3',4,4',5,5',6-OxCB	205L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	1.009	1.000-1.019
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	1.043	1.034-1.052
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	0.949	0.942-0.955
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	1.074	1.065-1.084

CLEANUP STANDARD

13C12-2,4,4'-TriCB	28L	13C12-2,2',5,5'-TeCB	52L	0.925	0.911-0.938
13C12-2,3,3',5,5'-PeCB	111L	13C12-2,2',4,5,5'-PeCB	101L	1.088	1.077-1.098
13C12-2,2',3,3',5,5',6-HpCB	178L	13C12-2,2',3,4,4',5'-HxCB	138L	1.012	1.004-1.020

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_333AS11__Form6B_SJ2442387.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 4A
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_335 S: 1

Instrument ID: HR GC/MS

Analysis Date: 04-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 08:47:21

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
2-MoCB	1			M/M+2	3.08	2.66-3.60	26.2	17.5 - 32.5
4-MoCB	3			M/M+2	3.11	2.66-3.60	26.4	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.49	1.33-1.79	23.2	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.51	1.33-1.79	26.8	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.07	0.88-1.20	29.1	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	1.00	0.88-1.20	22.4	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.79	0.65-0.89	56.0	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.75	0.65-0.89	47.7	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.75	0.65-0.89	50.0	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.58	1.32-1.78	54.2	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.53	1.32-1.78	49.6	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.53	1.32-1.78	48.3	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.53	1.32-1.78	46.3	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.54	1.32-1.78	47.9	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.49	1.32-1.78	48.1	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.26	1.05-1.43	54.7	35.0 - 65.0
2,3,3',4,4',5-HxCB	156	156 + 157	C	M+2/M+4	1.27	1.05-1.43	109	70.0 - 130
2,3,3',4,4',5'-HxCB	157	156 + 157	C156					
2,3',4,4',5,5'-HxCB	167			M+2/M+4	1.27	1.05-1.43	59.7	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.29	1.05-1.43	56.1	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.06	0.89-1.21	52.9	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.03	0.89-1.21	43.3	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.90	0.76-1.02	87.1	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.89	0.76-1.02	79.8	52.5 - 97.5
2,2',3,3',4,4',5,5',6-NoCB	206			M+2/M+4	0.79	0.65-0.89	78.1	52.5 - 97.5
2,2',3,3',4,5,5',6,6'-NoCB	208			M+2/M+4	0.78	0.65-0.89	89.7	58.7 - 109
2,2',3,3',4,4',5,5',6,6'-DeCB	209			M+4/M+6	1.18	0.99-1.33	76.0	52.5 - 97.5

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4B
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018 VER Data Filename: PB8C_335 S: 1

Instrument ID: HR GC/MS Analysis Date: 04-Oct-2018

GC Column ID: SPB OCTYL Analysis Time: 08:47:21

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	MZ's FORMING RATIO ³	ION ABUND. RATIO	QC LIMITS ⁴	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
13C12-2-MoCB	1L			M/M+2	3.24	2.66-3.60	80.7	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.19	2.66-3.60	83.7	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.60	1.33-1.79	91.7	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.59	1.33-1.79	95.3	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.06	0.88-1.20	70.5	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.04	0.88-1.20	113	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.80	0.65-0.89	89.2	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.78	0.65-0.89	126	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.75	0.65-0.89	129	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.59	1.32-1.78	66.4	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.55	1.32-1.78	109	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.61	1.32-1.78	110	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.58	1.32-1.78	113	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.55	1.32-1.78	113	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.56	1.32-1.78	120	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.25	1.05-1.43	60.4	50.0 - 150
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	M+2/M+4	1.25	1.05-1.43	182	100 - 300
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			M+2/M+4	1.25	1.05-1.43	90.3	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.27	1.05-1.43	94.6	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.06	0.89-1.21	66.3	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.00	0.89-1.21	91.1	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.91	0.76-1.02	53.1	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.89	0.76-1.02	92.9	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.76	0.65-0.89	78.4	50.0 - 150
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			M+2/M+4	0.77	0.65-0.89	76.3	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6	1.18	0.99-1.33	63.5	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.05	0.88-1.20	118	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.60	1.32-1.78	93.5	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.07	0.89-1.21	75.5	60.0 - 130

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_335S1__Form4B_SJ2442965.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 6A
PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_335 S: 1

Instrument ID: HR GC/MS

Analysis Date: 04-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 08:47:21

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RETENTION TIME REFERENCE	IUPAC NO. ²	RRT	RRT QC LIMITS
2-MoCB	1			13C12-2-MoCB	1L	1.001	0.999-1.004
4-MoCB	3			13C12-4-MoCB	3L	1.001	0.999-1.004
2,2'-DiCB	4			13C12-2,2'-DiCB	4L	1.001	0.999-1.004
4,4'-DiCB	15			13C12-4,4'-DiCB	15L	1.001	0.999-1.002
2,2',6-TriCB	19			13C12-2,2',6-TriCB	19L	1.001	0.999-1.003
3,4,4'-TriCB	37			13C12-3,4,4'-TriCB	37L	1.001	0.999-1.002
2,2',6,6'-TeCB	54			13C12-2,2',6,6'-TeCB	54L	1.001	0.999-1.002
3,3',4,4'-TeCB	77			13C12-3,3',4,4'-TeCB	77L	1.000	1.000-1.001
3,4,4',5-TeCB	81			13C12-3,4,4',5-TeCB	81L	1.000	1.000-1.001
2,2',4,6,6'-PeCB	104			13C12-2,2',4,6,6'-PeCB	104L	1.001	0.999-1.002
2,3,3',4,4'-PeCB	105			13C12-2,3,3',4,4'-PeCB	105L	1.001	1.000-1.001
2,3,4,4',5-PeCB	114			13C12-2,3,4,4',5-PeCB	114L	1.001	1.000-1.001
2,3',4,4',5-PeCB	118			13C12-2,3',4,4',5-PeCB	118L	1.001	1.000-1.001
2',3,4,4',5-PeCB	123			13C12-2',3,4,4',5-PeCB	123L	1.000	1.000-1.001
3,3',4,4',5-PeCB	126			13C12-3,3',4,4',5-PeCB	126L	1.001	1.000-1.001
2,2',4,4',6,6'-HxCB	155			13C12-2,2',4,4',6,6'-HxCB	155L	1.001	0.999-1.002
2,3,3',4,4',5-HxCB	156	156 + 157	C	13C12-2,3,3',4,4',5-HxCB and 13C12-2,3,3',4,4',5'-HxCB	156L/157L	1.000	0.998-1.003
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3',4,4',5,5'-HxCB	167			13C12-2,3',4,4',5,5'-HxCB	167L	1.001	1.000-1.001
3,3',4,4',5,5'-HxCB	169			13C12-3,3',4,4',5,5'-HxCB	169L	1.001	1.000-1.001
2,2',3,4',5,6,6'-HpCB	188			13C12-2,2',3,4',5,6,6'-HpCB	188L	1.001	1.000-1.001
2,3,3',4,4',5,5'-HpCB	189			13C12-2,3,3',4,4',5,5'-HpCB	189L	1.001	1.000-1.001
2,2',3,3',5,5',6,6'-OxCB	202			13C12-2,2',3,3',5,5',6,6'-OxCB	202L	1.000	1.000-1.001
2,3,3',4,4',5,5',6-OxCB	205			13C12-2,3,3',4,4',5,5',6-OxCB	205L	1.000	1.000-1.001
2,2',3,3',4,4',5,5',6-NoCB	206			13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	1.000	1.000-1.001
2,2',3,3',4,5,5',6,6'-NoCB	208			13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L	1.001	1.000-1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L	1.000	1.000-1.001

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) Suffix "L" indicates labeled compound

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_335S1__Form6A_SJ2442965.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 6B
PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_335 S: 1

Instrument ID: HR GC/MS

Analysis Date: 04-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 08:47:21

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	RETENTION TIME REFERENCE	IUPAC NO. ¹	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			13C12-2,5-DiCB	9L	0.720	0.689-0.752
13C12-4-MoCB	3L			13C12-2,5-DiCB	9L	0.859	0.828-0.890
13C12-2,2'-DiCB	4L			13C12-2,5-DiCB	9L	0.874	0.842-0.905
13C12-4,4'-DiCB	15L			13C12-2,5-DiCB	9L	1.254	1.222-1.285
13C12-2,2',6-TriCB	19L			13C12-2,5-DiCB	9L	1.072	1.041-1.103
13C12-3,4,4'-TriCB	37L			13C12-2,2',5,5'-TeCB	52L	1.092	1.072-1.112
13C12-2,2',6,6'-TeCB	54L			13C12-2,2',5,5'-TeCB	52L	0.811	0.798-0.825
13C12-3,3',4,4'-TeCB	77L			13C12-2,2',5,5'-TeCB	52L	1.397	1.384-1.411
13C12-3,4,4',5-TeCB	81L			13C12-2,2',5,5'-TeCB	52L	1.373	1.360-1.387
13C12-2,2',4,6,6'-PeCB	104L			13C12-2,2',4,5,5'-PeCB	101L	0.808	0.798-0.818
13C12-2,3,3',4,4'-PeCB	105L			13C12-2,2',4,5,5'-PeCB	101L	1.201	1.190-1.211
13C12-2,3,4,4',5-PeCB	114L			13C12-2,2',4,5,5'-PeCB	101L	1.180	1.169-1.190
13C12-2,3',4,4',5-PeCB	118L			13C12-2,2',4,5,5'-PeCB	101L	1.162	1.152-1.173
13C12-2',3,4,4',5-PeCB	123L			13C12-2,2',4,5,5'-PeCB	101L	1.152	1.141-1.162
13C12-3,3',4,4',5-PeCB	126L			13C12-2,2',4,5,5'-PeCB	101L	1.302	1.292-1.312
13C12-2,2',4,4',6,6'-HxCB	155L			13C12-2,2',3,4,4',5'-HxCB	138L	0.785	0.777-0.793
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	13C12-2,2',3,4,4',5'-HxCB	138L	1.108	1.100-1.116
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L				
13C12-2,3',4,4',5,5'-HxCB	167L			13C12-2,2',3,4,4',5'-HxCB	138L	1.078	1.069-1.086
13C12-3,3',4,4',5,5'-HxCB	169L			13C12-2,2',3,4,4',5'-HxCB	138L	1.192	1.184-1.200
13C12-2,2',3,4',5,6,6'-HpCB	188L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.712	0.705-0.718
13C12-2,3,3',4,4',5,5'-HpCB	189L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.959	0.953-0.965
13C12-2,2',3,3',5,5',6,6'-OcCB	202L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.817	0.811-0.823
13C12-2,3,3',4,4',5,5',6-OcCB	205L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.009	1.000-1.019
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.043	1.034-1.053
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.949	0.942-0.955
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.074	1.065-1.084

CLEANUP STANDARD

13C12-2,4,4'-TriCB	28L	13C12-2,2',5,5'-TeCB	52L	0.925	0.911-0.938
13C12-2,3,3',5,5'-PeCB	111L	13C12-2,2',4,5,5'-PeCB	101L	1.088	1.077-1.098
13C12-2,2',3,3',5,5',6-HpCB	178L	13C12-2,2',3,4,4',5'-HxCB	138L	1.012	1.003-1.020

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_335S1__Form6B_SJ2442965.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 3A

PCB CONGENER INITIAL CALIBRATION RELATIVE RESPONSES,
ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

CAL Data Filename: PB8C_335 S: 1

Instrument ID: HR GC/MS

Analysis Date: 04-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 08:47:21

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
3-MoCB	2			1.14	M/M+2	3.10	2.66-3.60	0.988	0.984 - 0.991
2,3-DiCB	5			1.01	M/M+2	1.48	1.33-1.79	1.198	1.195 - 1.202
2,3'-DiCB	6			1.12	M/M+2	1.50	1.33-1.79	1.177	1.173 - 1.180
2,4-DiCB	7			1.10	M/M+2	1.53	1.33-1.79	1.158	1.154 - 1.161
2,4'-DiCB	8			1.23	M/M+2	1.48	1.33-1.79	1.208	1.204 - 1.211
2,5-DiCB	9			1.14	M/M+2	1.51	1.33-1.79	1.147	1.143 - 1.151
2,6-DiCB	10			1.11	M/M+2	1.50	1.33-1.79	1.014	1.011 - 1.018
3,3'-DiCB	11			1.10	M/M+2	1.50	1.33-1.79	0.969	0.967 - 0.972
3,4-DiCB	12	12 + 13	C	1.11	M/M+2	1.50	1.33-1.79	0.985	0.983 - 0.988
3,4'-DiCB	13	12 + 13	C12						
3,5-DiCB	14			1.12	M/M+2	1.49	1.33-1.79	0.926	0.923 - 0.928
2,2',3-TriCB	16			0.77	M/M+2	1.06	0.88-1.20	1.166	1.163 - 1.168
2,2',4-TriCB	17			0.89	M/M+2	1.09	0.88-1.20	1.138	1.135 - 1.141
2,2',5-TriCB	18	18 + 30	C	1.04	M/M+2	1.07	0.88-1.20	1.112	1.109 - 1.115
2,3,3'-TriCB	20	20 + 28	C	1.32	M/M+2	1.00	0.88-1.20	0.849	0.846 - 0.852
2,3,4-TriCB	21	21 + 33	C	1.32	M/M+2	1.00	0.88-1.20	0.855	0.852 - 0.858
2,3,4'-TriCB	22			1.19	M/M+2	1.00	0.88-1.20	0.872	0.870 - 0.874
2,3,5-TriCB	23			1.22	M/M+2	1.00	0.88-1.20	1.282	1.279 - 1.285
2,3,6-TriCB	24			1.14	M/M+2	1.09	0.88-1.20	1.159	1.156 - 1.162
2,3',4-TriCB	25			1.46	M/M+2	1.01	0.88-1.20	0.825	0.823 - 0.827
2,3',5-TriCB	26	26 + 29	C	1.28	M/M+2	1.00	0.88-1.20	1.302	1.297 - 1.307
2,3',6-TriCB	27			1.26	M/M+2	1.07	0.88-1.20	1.151	1.148 - 1.154
2,4,4'-TriCB	28	20 + 28	C20						
2,4,5-TriCB	29	26 + 29	C26						
2,4,6-TriCB	30	18 + 30	C18						
2,4',5-TriCB	31			1.39	M/M+2	1.00	0.88-1.20	0.836	0.835 - 0.838
2,4',6-TriCB	32			1.31	M/M+2	1.00	0.88-1.20	1.198	1.195 - 1.201
2',3,4-TriCB	33	21 + 33	C21						
2',3,5-TriCB	34			1.23	M/M+2	1.01	0.88-1.20	1.274	1.271 - 1.277
3,3',4-TriCB	35			1.33	M/M+2	0.99	0.88-1.20	0.985	0.984 - 0.987
3,3',5-TriCB	36			1.38	M/M+2	0.98	0.88-1.20	0.932	0.930 - 0.933
3,4,5-TriCB	38			1.28	M/M+2	1.00	0.88-1.20	0.967	0.965 - 0.969
3,4',5-TriCB	39			1.34	M/M+2	1.01	0.88-1.20	0.946	0.944 - 0.947
2,2',3,3'-TeCB	40	40 + 41 + 71	C	0.79	M/M+2	0.79	0.65-0.89	1.334	1.330 - 1.339
2,2',3,4-TeCB	41	40 + 41 + 71	C40						
2,2',3,4'-TeCB	42			0.75	M/M+2	0.79	0.65-0.89	1.311	1.309 - 1.314
2,2',3,5-TeCB	43			0.70	M/M+2	0.80	0.65-0.89	1.246	1.243 - 1.248
2,2',3,5'-TeCB	44	44 + 47 + 65	C	0.85	M/M+2	0.79	0.65-0.89	1.285	1.281 - 1.289
2,2',3,6-TeCB	45	45 + 51	C	0.77	M/M+2	0.79	0.65-0.89	1.146	1.142 - 1.150
2,2',3,6'-TeCB	46			0.68	M/M+2	0.80	0.65-0.89	1.160	1.158 - 1.163
2,2',4,4'-TeCB	47	44 + 47 + 65	C44						
2,2',4,5-TeCB	48			0.77	M/M+2	0.79	0.65-0.89	1.272	1.270 - 1.274
2,2',4,5'-TeCB	49	49 + 69	C	0.91	M/M+2	0.79	0.65-0.89	1.256	1.252 - 1.260
2,2',4,6-TeCB	50	50 + 53	C	0.79	M/M+2	0.80	0.65-0.89	1.111	1.107 - 1.115
2,2',4,6'-TeCB	51	45 + 51	C45						
2,2',5,5'-TeCB	52			0.82	M/M+2	0.80	0.65-0.89	1.233	1.231 - 1.236
2,2',5,6'-TeCB	53	50 + 53	C50						
2,3,3',4-TeCB	55			1.04	M/M+2	0.76	0.65-0.89	0.889	0.887 - 0.890
2,3,3',4'-TeCB	56			1.02	M/M+2	0.76	0.65-0.89	0.904	0.903 - 0.906

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
2,3,3',5'-TeCB	57			1.11	M/M+2	0.77	0.65-0.89	0.844	0.842 - 0.845
2,3,3',5'-TeCB	58			1.07	M/M+2	0.79	0.65-0.89	0.850	0.849 - 0.852
2,3,3',6'-TeCB	59	59 + 62 + 75	C	1.05	M/M+2	0.79	0.65-0.89	1.301	1.297 - 1.305
2,3,4,4'-TeCB	60			1.04	M/M+2	0.76	0.65-0.89	0.911	0.909 - 0.912
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	1.09	M/M+2	0.77	0.65-0.89	0.874	0.871 - 0.877
2,3,4,6'-TeCB	62	59 + 62 + 75	C59						
2,3,4',5'-TeCB	63			1.10	M/M+2	0.77	0.65-0.89	0.864	0.863 - 0.866
2,3,4',6'-TeCB	64			1.09	M/M+2	0.80	0.65-0.89	1.348	1.345 - 1.350
2,3,5,6'-TeCB	65	44 + 47 + 65	C44						
2,3',4,4'-TeCB	66			1.12	M/M+2	0.80	0.65-0.89	0.884	0.883 - 0.885
2,3',4,5'-TeCB	67			1.25	M/M+2	0.77	0.65-0.89	0.856	0.854 - 0.857
2,3',4,5'-TeCB	68			1.13	M/M+2	0.78	0.65-0.89	0.831	0.829 - 0.832
2,3',4,6'-TeCB	69	49 + 69	C49						
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61						
2,3',4',6'-TeCB	71	40 + 41 + 71	C40						
2,3',5,5'-TeCB	72			1.14	M/M+2	0.77	0.65-0.89	0.822	0.821 - 0.824
2,3',5,6'-TeCB	73			0.97	M/M+2	0.79	0.65-0.89	1.240	1.237 - 1.242
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61						
2,4,4',6'-TeCB	75	59 + 62 + 75	C59						
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61						
3,3',4,5'-TeCB	78			1.13	M/M+2	0.79	0.65-0.89	0.987	0.985 - 0.988
3,3',4,5'-TeCB	79			1.28	M/M+2	0.76	0.65-0.89	0.970	0.969 - 0.972
3,3',5,5'-TeCB	80			1.17	M/M+2	0.78	0.65-0.89	0.923	0.922 - 0.925
2,2',3,3',4'-PeCB	82			0.72	M+2/M+4	1.55	1.32-1.78	0.934	0.932 - 0.935
2,2',3,3',5'-PeCB	83	83 + 99	C	0.77	M+2/M+4	1.63	1.32-1.78	0.884	0.881 - 0.887
2,2',3,3',6'-PeCB	84			0.67	M+2/M+4	1.53	1.32-1.78	1.164	1.162 - 1.166
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	0.94	M+2/M+4	1.61	1.32-1.78	0.919	0.917 - 0.922
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C	0.90	M+2/M+4	1.60	1.32-1.78	0.900	0.897 - 0.904
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86						
2,2',3,4,6'-PeCB	88	88 + 91	C	0.76	M+2/M+4	1.61	1.32-1.78	1.153	1.149 - 1.157
2,2',3,4,6'-PeCB	89			0.73	M+2/M+4	1.57	1.32-1.78	1.183	1.181 - 1.185
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	0.88	M+2/M+4	1.62	1.32-1.78	0.868	0.866 - 0.871
2,2',3,4',6'-PeCB	91	88 + 91	C88						
2,2',3,5,5'-PeCB	92			0.76	M+2/M+4	1.60	1.32-1.78	0.853	0.851 - 0.854
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	0.78	M+2/M+4	1.61	1.32-1.78	1.130	1.119 - 1.141
2,2',3,5,6'-PeCB	94			0.69	M+2/M+4	1.59	1.32-1.78	1.103	1.101 - 1.105
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93						
2,2',3,6,6'-PeCB	96			0.80	M+2/M+4	1.58	1.32-1.78	1.016	1.013 - 1.019
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86						
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93						
2,2',4,4',5'-PeCB	99	83 + 99	C83						
2,2',4,4',6'-PeCB	100	93 + 95 + 98 + 100 + 102	C93						
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90						
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93						
2,2',4,5',6'-PeCB	103			0.86	M+2/M+4	1.61	1.32-1.78	1.094	1.092 - 1.096
2,3,3',4,5'-PeCB	106			1.15	M+2/M+4	1.55	1.32-1.78	1.004	1.003 - 1.005
2,3,3',4',5'-PeCB	107	107 + 124	C	1.08	M+2/M+4	1.53	1.32-1.78	0.991	0.989 - 0.993
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86						
2,3,3',4,6'-PeCB	109			1.10	M+2/M+4	1.48	1.32-1.78	0.997	0.996 - 0.999
2,3,3',4',6'-PeCB	110	110 + 115	C	1.06	M+2/M+4	1.57	1.32-1.78	0.926	0.924 - 0.928
2,3,3',5,5'-PeCB	111			1.05	M+2/M+4	1.63	1.32-1.78	0.945	0.944 - 0.947
2,3,3',5,6'-PeCB	112			1.07	M+2/M+4	1.61	1.32-1.78	0.889	0.888 - 0.890
2,3,3',5',6'-PeCB	113	90 + 101 + 113	C90						
2,3,4,4',6'-PeCB	115	110 + 115	C110						
2,3,4,5,6'-PeCB	116	85 + 116 + 117	C85						
2,3,4',5,6'-PeCB	117	85 + 116 + 117	C85						
2,3',4,4',6'-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86						
2,3',4,5,5'-PeCB	120			1.13	M+2/M+4	1.61	1.32-1.78	0.959	0.957 - 0.960
2,3',4,5',6'-PeCB	121			1.02	M+2/M+4	1.62	1.32-1.78	1.200	1.198 - 1.202
2',3,3',4,5'-PeCB	122			0.97	M+2/M+4	1.54	1.32-1.78	1.010	1.009 - 1.012
2',3,4,5,5'-PeCB	124	107 + 124	C107						
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86						

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
3,3',4,5,5'-PeCB	127			1.08	M+2/M+4	1.51	1.32-1.78	1.041	1.040 - 1.042
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1.10	M+2/M+4	1.27	1.05-1.43	0.958	0.957 - 0.960
2,2',3,3',4,5'-HxCB	129	129 + 138 + 160 + 163	C	1.09	M+2/M+4	1.28	1.05-1.43	0.930	0.927 - 0.933
2,2',3,3',4,5'-HxCB	130			0.84	M+2/M+4	1.29	1.05-1.43	0.913	0.912 - 0.914
2,2',3,3',4,6'-HxCB	131			0.88	M+2/M+4	1.26	1.05-1.43	1.160	1.159 - 1.162
2,2',3,3',4,6'-HxCB	132			0.84	M+2/M+4	1.24	1.05-1.43	1.176	1.173 - 1.178
2,2',3,3',5,5'-HxCB	133			0.89	M+2/M+4	1.27	1.05-1.43	1.192	1.190 - 1.194
2,2',3,3',5,6'-HxCB	134	134 + 143	C	0.88	M+2/M+4	1.28	1.05-1.43	1.142	1.140 - 1.145
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	0.74	M+2/M+4	1.26	1.05-1.43	1.107	1.101 - 1.113
2,2',3,3',6,6'-HxCB	136			0.93	M+2/M+4	1.26	1.05-1.43	1.025	1.024 - 1.027
2,2',3,4,4',5'-HxCB	137			0.93	M+2/M+4	1.25	1.05-1.43	0.918	0.917 - 0.919
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129						
2,2',3,4,4',6'-HxCB	139	139 + 140	C	0.97	M+2/M+4	1.28	1.05-1.43	1.154	1.151 - 1.156
2,2',3,4,4',6'-HxCB	140	139 + 140	C139						
2,2',3,4,5,5'-HxCB	141			0.98	M+2/M+4	1.27	1.05-1.43	0.904	0.902 - 0.905
2,2',3,4,5,6'-HxCB	142			0.86	M+2/M+4	1.30	1.05-1.43	1.165	1.164 - 1.167
2,2',3,4,5,6'-HxCB	143	134 + 143	C134						
2,2',3,4,5,6'-HxCB	144			0.74	M+2/M+4	1.24	1.05-1.43	1.122	1.121 - 1.124
2,2',3,4,6,6'-HxCB	145			0.89	M+2/M+4	1.25	1.05-1.43	1.034	1.032 - 1.036
2,2',3,4',5,5'-HxCB	146			1.05	M+2/M+4	1.25	1.05-1.43	0.884	0.883 - 0.885
2,2',3,4',5,6'-HxCB	147	147 + 149	C	1.00	M+2/M+4	1.27	1.05-1.43	1.134	1.131 - 1.137
2,2',3,4',5,6'-HxCB	148			0.71	M+2/M+4	1.25	1.05-1.43	1.084	1.082 - 1.085
2,2',3,4',5',6'-HxCB	149	147 + 149	C147						
2,2',3,4',6,6'-HxCB	150			0.90	M+2/M+4	1.29	1.05-1.43	1.013	1.011 - 1.014
2,2',3,5,5',6'-HxCB	151	135 + 151 + 154	C135						
2,2',3,5,6,6'-HxCB	152			0.96	M+2/M+4	1.25	1.05-1.43	1.007	1.006 - 1.009
2,2',4,4',5,5'-HxCB	153	153 + 168	C	1.17	M+2/M+4	1.28	1.05-1.43	0.899	0.897 - 0.901
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135						
2,3,3',4,4',6'-HxCB	158			1.42	M+2/M+4	1.28	1.05-1.43	0.938	0.937 - 0.939
2,3,3',4,5,5'-HxCB	159			1.31	M+2/M+4	1.28	1.05-1.43	0.982	0.981 - 0.984
2,3,3',4,5,6'-HxCB	160	129 + 138 + 160 + 163	C129						
2,3,3',4,5',6'-HxCB	161			1.24	M+2/M+4	1.27	1.05-1.43	0.887	0.886 - 0.888
2,3,3',4',5,5'-HxCB	162			1.31	M+2/M+4	1.26	1.05-1.43	0.989	0.988 - 0.990
2,3,3',4',5,6'-HxCB	163	129 + 138 + 160 + 163	C129						
2,3,3',4',5',6'-HxCB	164			1.24	M+2/M+4	1.28	1.05-1.43	0.921	0.920 - 0.922
2,3,3',5,5',6'-HxCB	165			1.11	M+2/M+4	1.26	1.05-1.43	0.878	0.877 - 0.879
2,3,4,4',5,6'-HxCB	166	128 + 166	C128						
2,3',4,4',5',6'-HxCB	168	153 + 168	C153						
2,2',3,3',4,4',5'-HpCB	170			1.18	M+2/M+4	1.05	0.89-1.21	1.000	0.999 - 1.001
2,2',3,3',4,4',6'-HpCB	171	171 + 173	C	0.71	M+2/M+4	1.03	0.89-1.21	1.163	1.161 - 1.165
2,2',3,3',4,5,5'-HpCB	172			0.70	M+2/M+4	1.05	0.89-1.21	0.897	0.896 - 0.898
2,2',3,3',4,5,6'-HpCB	173	171 + 173	C171						
2,2',3,3',4,5,6'-HpCB	174			0.79	M+2/M+4	1.07	0.89-1.21	1.134	1.133 - 1.136
2,2',3,3',4,5',6'-HpCB	175			0.77	M+2/M+4	1.04	0.89-1.21	1.103	1.101 - 1.104
2,2',3,3',4,6,6'-HpCB	176			0.99	M+2/M+4	1.06	0.89-1.21	1.034	1.033 - 1.036
2,2',3,3',4',5,6'-HpCB	177			0.75	M+2/M+4	1.06	0.89-1.21	1.146	1.145 - 1.148
2,2',3,3',5,5',6'-HpCB	178			0.73	M+2/M+4	1.04	0.89-1.21	1.086	1.084 - 1.087
2,2',3,3',5,6,6'-HpCB	179			1.00	M+2/M+4	1.05	0.89-1.21	1.011	1.009 - 1.012
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	1.04	M+2/M+4	1.04	0.89-1.21	1.000	0.999 - 1.001
2,2',3,4,4',5,6'-HpCB	181			0.74	M+2/M+4	1.07	0.89-1.21	1.157	1.156 - 1.159
2,2',3,4,4',5,6'-HpCB	182			0.79	M+2/M+4	1.07	0.89-1.21	1.116	1.115 - 1.117
2,2',3,4,4',5',6'-HpCB	183	183 + 185	C	0.78	M+2/M+4	1.05	0.89-1.21	1.129	1.127 - 1.130
2,2',3,4,4',6,6'-HpCB	184			1.01	M+2/M+4	1.06	0.89-1.21	1.025	1.023 - 1.026
2,2',3,4,5,5',6'-HpCB	185	183 + 185	C183						
2,2',3,4,5,6,6'-HpCB	186			0.94	M+2/M+4	1.06	0.89-1.21	1.047	1.046 - 1.048
2,2',3,4',5,5',6'-HpCB	187			0.81	M+2/M+4	1.06	0.89-1.21	1.110	1.109 - 1.112
2,3,3',4,4',5,6'-HpCB	190			1.00	M+2/M+4	1.06	0.89-1.21	0.947	0.946 - 0.948
2,3,3',4,4',5',6'-HpCB	191			0.97	M+2/M+4	1.04	0.89-1.21	0.917	0.916 - 0.918
2,3,3',4,5,5',6'-HpCB	192			0.88	M+2/M+4	1.06	0.89-1.21	0.903	0.902 - 0.904
2,3,3',4',5,5',6'-HpCB	193	180 + 193	C180						
2,2',3,3',4,4',5,5'-OcCB	194			1.06	M+2/M+4	0.90	0.76-1.02	0.991	0.990 - 0.992
2,2',3,3',4,4',5,6'-OcCB	195			0.97	M+2/M+4	0.89	0.76-1.02	0.945	0.944 - 0.946
2,2',3,3',4,4',5,6'-OcCB	196			0.68	M+2/M+4	0.90	0.76-1.02	0.916	0.915 - 0.916

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
2,2',3,3',4,4',6,6'-OcCB	197	197 + 200	C	0.90	M+2/M+4	0.91	0.76-1.02	1.046	1.043 - 1.048
2,2',3,3',4,5,5',6-OcCB	198	198 + 199	C	0.65	M+2/M+4	0.90	0.76-1.02	1.114	1.112 - 1.116
2,2',3,3',4,5,5',6'-OcCB	199	198 + 199	C198						
2,2',3,3',4,5,6,6'-OcCB	200	197 + 200	C197						
2,2',3,3',4,5',6,6'-OcCB	201			0.90	M+2/M+4	0.87	0.76-1.02	1.023	1.021 - 1.025
2,2',3,4,4',5,5',6-OcCB	203			0.70	M+2/M+4	0.90	0.76-1.02	0.919	0.918 - 0.920
2,2',3,4,4',5,6,6'-OcCB	204			0.89	M+2/M+4	0.89	0.76-1.02	1.039	1.038 - 1.040
2,2',3,3',4,4',5,6,6'-NoCB	207			1.26	M+2/M+4	0.80	0.65-0.89	1.020	1.019 - 1.021

(1) Where applicable, custom lab flags have been used on this report.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 3B

PCB CONGENER INITIAL CALIBRATION RELATIVE RESPONSES,
ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

CAL Data Filename: PB8C_335 S: 1

Instrument ID: HR GC/MS

Analysis Date: 04-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 08:47:21

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	RRF	MZ's FORMING RATIO ³	ION ABUND. RATIO	RATIO QC LIMITS ⁴	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			0.91	M/M+2	3.24	2.66-3.60	0.720	0.705 - 0.736
13C12-4-MoCB	3L			0.90	M/M+2	3.19	2.66-3.60	0.859	0.843 - 0.875
13C12-2,2'-DiCB	4L			0.63	M/M+2	1.60	1.33-1.79	0.874	0.858 - 0.889
13C12-4,4'-DiCB	15L			1.02	M/M+2	1.59	1.33-1.79	1.254	1.238 - 1.269
13C12-2,2',6'-TriCB	19L			0.40	M/M+2	1.06	0.88-1.20	1.072	1.056 - 1.088
13C12-3,4,4'-TriCB	37L			1.92	M/M+2	1.04	0.88-1.20	1.092	1.082 - 1.102
13C12-2,2',6,6'-TeCB	54L			1.32	M/M+2	0.80	0.65-0.89	0.811	0.805 - 0.818
13C12-3,3',4,4'-TeCB	77L			1.66	M/M+2	0.78	0.65-0.89	1.397	1.391 - 1.404
13C12-3,4,4',5'-TeCB	81L			1.66	M/M+2	0.75	0.65-0.89	1.373	1.367 - 1.380
13C12-2,2',4,6,6'-PeCB	104L			0.98	M+2/M+4	1.59	1.32-1.78	0.808	0.803 - 0.813
13C12-2,3,3',4,4'-PeCB	105L			1.53	M+2/M+4	1.55	1.32-1.78	1.201	1.196 - 1.206
13C12-2,3,4,4',5'-PeCB	114L			1.49	M+2/M+4	1.61	1.32-1.78	1.180	1.174 - 1.185
13C12-2,3',4,4',5'-PeCB	118L			1.55	M+2/M+4	1.58	1.32-1.78	1.162	1.157 - 1.168
13C12-2',3,4,4',5'-PeCB	123L			1.58	M+2/M+4	1.55	1.32-1.78	1.152	1.146 - 1.157
13C12-3,3',4,4',5'-PeCB	126L			1.50	M+2/M+4	1.56	1.32-1.78	1.302	1.297 - 1.307
13C12-2,2',4,4',6,6'-HxCB	155L			1.00	M+2/M+4	1.25	1.05-1.43	0.785	0.781 - 0.789
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C	1.22	M+2/M+4	1.25	1.05-1.43	1.108	1.104 - 1.112
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L						
13C12-2,3',4,4',5,5'-HxCB	167L			1.16	M+2/M+4	1.25	1.05-1.43	1.078	1.074 - 1.082
13C12-3,3',4,4',5,5'-HxCB	169L			1.26	M+2/M+4	1.27	1.05-1.43	1.192	1.188 - 1.196
13C12-2,2',3,3',4,4',5'-HpCB	170L			0.80	M+2/M+4	1.06	0.89-1.21	0.897	0.894 - 0.901
13C12-2,2',3,4,4',5,5'-HpCB	180L			0.96	M+2/M+4	1.06	0.89-1.21	0.872	0.869 - 0.876
13C12-2,2',3,4',5,6,6'-HpCB	188L			1.25	M+2/M+4	1.06	0.89-1.21	0.712	0.708 - 0.715
13C12-2,3,3',4,4',5,5'-HpCB	189L			1.38	M+2/M+4	1.00	0.89-1.21	0.959	0.956 - 0.962
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			0.95	M+2/M+4	0.91	0.76-1.02	0.817	0.814 - 0.820
13C12-2,3,3',4,4',5,5',6-OxCB	205L			1.40	M+2/M+4	0.89	0.76-1.02	1.009	1.005 - 1.014
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			0.86	M+2/M+4	0.76	0.65-0.89	1.043	1.039 - 1.048
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			1.03	M+2/M+4	0.77	0.65-0.89	0.949	0.945 - 0.952

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_335S1__Form346B_SJ2442960_GS77999.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 4A
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_335 S: 11

Instrument ID: HR GC/MS

Analysis Date: 04-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 19:25:04

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
2-MoCB	1			M/M+2	3.11	2.66-3.60	26.6	17.5 - 32.5
4-MoCB	3			M/M+2	3.08	2.66-3.60	27.1	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.50	1.33-1.79	24.5	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.51	1.33-1.79	27.2	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.09	0.88-1.20	30.3	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	1.00	0.88-1.20	22.4	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.80	0.65-0.89	58.4	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.77	0.65-0.89	47.7	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.79	0.65-0.89	52.2	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.57	1.32-1.78	55.7	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.48	1.32-1.78	49.1	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.53	1.32-1.78	48.8	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.54	1.32-1.78	46.6	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.69	1.32-1.78	50.6	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.51	1.32-1.78	48.5	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.28	1.05-1.43	53.5	35.0 - 65.0
2,3,3',4,4',5-HxCB	156	156 + 157	C	M+2/M+4	1.28	1.05-1.43	111	70.0 - 130
2,3,3',4,4',5'-HxCB	157	156 + 157	C156					
2,3',4,4',5,5'-HxCB	167			M+2/M+4	1.26	1.05-1.43	60.1	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.31	1.05-1.43	56.1	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.05	0.89-1.21	52.5	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.04	0.89-1.21	43.9	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.88	0.76-1.02	85.6	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.88	0.76-1.02	81.0	52.5 - 97.5
2,2',3,3',4,4',5,5',6-NoCB	206			M+2/M+4	0.79	0.65-0.89	79.5	52.5 - 97.5
2,2',3,3',4,5,5',6,6'-NoCB	208			M+2/M+4	0.79	0.65-0.89	89.6	58.7 - 109
2,2',3,3',4,4',5,5',6,6'-DeCB	209			M+4/M+6	1.19	0.99-1.33	76.2	52.5 - 97.5

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4B
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018 VER Data Filename: PB8C_335 S: 11

Instrument ID: HR GC/MS Analysis Date: 04-Oct-2018

GC Column ID: SPB OCTYL Analysis Time: 19:25:04

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	MZ's FORMING RATIO ³	ION ABUND. RATIO	QC LIMITS ⁴	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
13C12-2-MoCB	1L			M/M+2	3.25	2.66-3.60	79.6	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.18	2.66-3.60	82.5	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.58	1.33-1.79	88.3	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.58	1.33-1.79	95.2	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.05	0.88-1.20	66.2	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.05	0.88-1.20	117	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.81	0.65-0.89	84.3	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.76	0.65-0.89	126	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.76	0.65-0.89	124	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.59	1.32-1.78	65.6	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.58	1.32-1.78	114	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.56	1.32-1.78	117	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.55	1.32-1.78	120	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.58	1.32-1.78	123	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.59	1.32-1.78	124	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.28	1.05-1.43	60.3	50.0 - 150
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	M+2/M+4	1.25	1.05-1.43	184	100 - 300
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			M+2/M+4	1.29	1.05-1.43	93.6	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.26	1.05-1.43	94.0	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.07	0.89-1.21	64.2	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.03	0.89-1.21	97.7	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.90	0.76-1.02	50.6	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.88	0.76-1.02	90.8	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.77	0.65-0.89	73.2	50.0 - 150
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			M+2/M+4	0.77	0.65-0.89	74.1	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6	1.18	0.99-1.33	59.6	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.05	0.88-1.20	122	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.60	1.32-1.78	92.4	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.05	0.89-1.21	72.7	60.0 - 130

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 6A
PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_335 S: 11

Instrument ID: HR GC/MS

Analysis Date: 04-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 19:25:04

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RETENTION TIME REFERENCE	IUPAC NO. ²	RRT	RRT QC LIMITS
2-MoCB	1			13C12-2-MoCB	1L	1.001	0.999-1.004
4-MoCB	3			13C12-4-MoCB	3L	1.001	0.999-1.004
2,2'-DiCB	4			13C12-2,2'-DiCB	4L	1.001	0.999-1.004
4,4'-DiCB	15			13C12-4,4'-DiCB	15L	1.001	0.999-1.003
2,2',6-TriCB	19			13C12-2,2',6-TriCB	19L	1.001	0.999-1.003
3,4,4'-TriCB	37			13C12-3,4,4'-TriCB	37L	1.001	0.999-1.002
2,2',6,6'-TeCB	54			13C12-2,2',6,6'-TeCB	54L	1.001	0.999-1.002
3,3',4,4'-TeCB	77			13C12-3,3',4,4'-TeCB	77L	1.000	1.000-1.001
3,4,4',5-TeCB	81			13C12-3,4,4',5-TeCB	81L	1.001	1.000-1.001
2,2',4,6,6'-PeCB	104			13C12-2,2',4,6,6'-PeCB	104L	1.001	0.999-1.002
2,3,3',4,4'-PeCB	105			13C12-2,3,3',4,4'-PeCB	105L	1.000	1.000-1.001
2,3,4,4',5-PeCB	114			13C12-2,3,4,4',5-PeCB	114L	1.000	1.000-1.001
2,3',4,4',5-PeCB	118			13C12-2,3',4,4',5-PeCB	118L	1.001	1.000-1.001
2',3,4,4',5-PeCB	123			13C12-2',3,4,4',5-PeCB	123L	1.001	1.000-1.001
3,3',4,4',5-PeCB	126			13C12-3,3',4,4',5-PeCB	126L	1.000	1.000-1.001
2,2',4,4',6,6'-HxCB	155			13C12-2,2',4,4',6,6'-HxCB	155L	1.001	0.999-1.002
2,3,3',4,4',5-HxCB	156	156 + 157	C	13C12-2,3,3',4,4',5-HxCB and 13C12-2,3,3',4,4',5'-HxCB	156L/157L	1.001	0.999-1.003
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3',4,4',5,5'-HxCB	167			13C12-2,3',4,4',5,5'-HxCB	167L	1.001	1.000-1.001
3,3',4,4',5,5'-HxCB	169			13C12-3,3',4,4',5,5'-HxCB	169L	1.000	1.000-1.001
2,2',3,4',5,6,6'-HpCB	188			13C12-2,2',3,4',5,6,6'-HpCB	188L	1.001	1.000-1.001
2,3,3',4,4',5,5'-HpCB	189			13C12-2,3,3',4,4',5,5'-HpCB	189L	1.001	1.000-1.001
2,2',3,3',5,5',6,6'-OxCB	202			13C12-2,2',3,3',5,5',6,6'-OxCB	202L	1.001	1.000-1.001
2,3,3',4,4',5,5',6-OxCB	205			13C12-2,3,3',4,4',5,5',6-OxCB	205L	1.001	1.000-1.001
2,2',3,3',4,4',5,5',6-NoCB	206			13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	1.000	1.000-1.001
2,2',3,3',4,5,5',6,6'-NoCB	208			13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L	1.000	1.000-1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L	1.000	1.000-1.001

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) Suffix "L" indicates labeled compound

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 6B

PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_335 S: 11

Instrument ID: HR GC/MS

Analysis Date: 04-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 19:25:04

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	RETENTION TIME REFERENCE	IUPAC NO. ¹	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			13C12-2,5-DiCB	9L	0.720	0.688-0.751
13C12-4-MoCB	3L			13C12-2,5-DiCB	9L	0.859	0.827-0.890
13C12-2,2'-DiCB	4L			13C12-2,5-DiCB	9L	0.874	0.843-0.906
13C12-4,4'-DiCB	15L			13C12-2,5-DiCB	9L	1.254	1.223-1.286
13C12-2,2',6-TriCB	19L			13C12-2,5-DiCB	9L	1.072	1.041-1.104
13C12-3,4,4'-TriCB	37L			13C12-2,2',5,5'-TeCB	52L	1.092	1.072-1.112
13C12-2,2',6,6'-TeCB	54L			13C12-2,2',5,5'-TeCB	52L	0.811	0.798-0.824
13C12-3,3',4,4'-TeCB	77L			13C12-2,2',5,5'-TeCB	52L	1.398	1.385-1.411
13C12-3,4,4',5-TeCB	81L			13C12-2,2',5,5'-TeCB	52L	1.374	1.360-1.387
13C12-2,2',4,6,6'-PeCB	104L			13C12-2,2',4,5,5'-PeCB	101L	0.808	0.797-0.818
13C12-2,3,3',4,4'-PeCB	105L			13C12-2,2',4,5,5'-PeCB	101L	1.202	1.191-1.212
13C12-2,3,4,4',5-PeCB	114L			13C12-2,2',4,5,5'-PeCB	101L	1.180	1.170-1.191
13C12-2,3',4,4',5-PeCB	118L			13C12-2,2',4,5,5'-PeCB	101L	1.163	1.152-1.173
13C12-2',3,4,4',5-PeCB	123L			13C12-2,2',4,5,5'-PeCB	101L	1.152	1.141-1.162
13C12-3,3',4,4',5-PeCB	126L			13C12-2,2',4,5,5'-PeCB	101L	1.303	1.292-1.313
13C12-2,2',4,4',6,6'-HxCB	155L			13C12-2,2',3,4,4',5'-HxCB	138L	0.785	0.777-0.793
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	13C12-2,2',3,4,4',5'-HxCB	138L	1.108	1.100-1.116
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L				
13C12-2,3',4,4',5,5'-HxCB	167L			13C12-2,2',3,4,4',5'-HxCB	138L	1.078	1.070-1.086
13C12-3,3',4,4',5,5'-HxCB	169L			13C12-2,2',3,4,4',5'-HxCB	138L	1.192	1.184-1.201
13C12-2,2',3,4',5,6,6'-HpCB	188L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.712	0.705-0.718
13C12-2,3,3',4,4',5,5'-HpCB	189L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.959	0.953-0.965
13C12-2,2',3,3',5,5',6,6'-OcCB	202L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.817	0.811-0.823
13C12-2,3,3',4,4',5,5',6-OcCB	205L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.009	1.000-1.019
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.043	1.034-1.053
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.949	0.943-0.955
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.075	1.065-1.084

CLEANUP STANDARD

13C12-2,4,4'-TriCB	28L	13C12-2,2',5,5'-TeCB	52L	0.925	0.911-0.938
13C12-2,3,3',5,5'-PeCB	111L	13C12-2,2',4,5,5'-PeCB	101L	1.088	1.078-1.099
13C12-2,2',3,3',5,5',6-HpCB	178L	13C12-2,2',3,4,4',5'-HxCB	138L	1.012	1.003-1.020

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4A
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	07-Jul-2018	VER Data Filename:	PB8C_344 S: 1
Instrument ID:	HR GC/MS	Analysis Date:	11-Oct-2018
GC Column ID:	SPB OCTYL	Analysis Time:	19:47:40

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
2-MoCB	1			M/M+2	3.05	2.66-3.60	24.8	17.5 - 32.5
4-MoCB	3			M/M+2	3.04	2.66-3.60	24.4	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.48	1.33-1.79	22.1	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.47	1.33-1.79	24.0	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.08	0.88-1.20	29.2	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	0.99	0.88-1.20	20.9	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.79	0.65-0.89	55.4	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.73	0.65-0.89	44.0	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.74	0.65-0.89	47.0	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.57	1.32-1.78	54.0	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.50	1.32-1.78	47.7	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.54	1.32-1.78	45.8	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.52	1.32-1.78	44.0	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.50	1.32-1.78	50.0	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.50	1.32-1.78	48.2	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.26	1.05-1.43	54.1	35.0 - 65.0
2,3,3',4,4',5-HxCB	156	156 + 157	C	M+2/M+4	1.24	1.05-1.43	109	70.0 - 130
2,3,3',4,4',5'-HxCB	157	156 + 157	C156					
2,3',4,4',5,5'-HxCB	167			M+2/M+4	1.25	1.05-1.43	58.4	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.36	1.05-1.43	62.5	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.08	0.89-1.21	52.6	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	0.98	0.89-1.21	40.5	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.91	0.76-1.02	88.8	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.88	0.76-1.02	75.2	52.5 - 97.5
2,2',3,3',4,4',5,5',6-NoCB	206			M+2/M+4	0.79	0.65-0.89	77.6	52.5 - 97.5
2,2',3,3',4,5,5',6,6'-NoCB	208			M+2/M+4	0.79	0.65-0.89	87.3	58.7 - 109
2,2',3,3',4,4',5,5',6,6'-DeCB	209			M+4/M+6	1.18	0.99-1.33	77.1	52.5 - 97.5

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4B
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_344 S: 1

Instrument ID: HR GC/MS

Analysis Date: 11-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 19:47:40

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	MZ's FORMING RATIO ³	ION ABUND. RATIO	QC LIMITS ⁴	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
13C12-2-MoCB	1L			M/M+2	3.20	2.66-3.60	84.2	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.20	2.66-3.60	87.1	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.58	1.33-1.79	90.8	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.56	1.33-1.79	93.8	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.06	0.88-1.20	76.1	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.02	0.88-1.20	97.9	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.81	0.65-0.89	86.2	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.75	0.65-0.89	113	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.74	0.65-0.89	113	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.59	1.32-1.78	68.6	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.55	1.32-1.78	98.5	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.58	1.32-1.78	101	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.57	1.32-1.78	101	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.53	1.32-1.78	99.5	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.53	1.32-1.78	106	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.26	1.05-1.43	63.3	50.0 - 150
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	M+2/M+4	1.28	1.05-1.43	185	100 - 300
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			M+2/M+4	1.28	1.05-1.43	93.7	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.31	1.05-1.43	93.0	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.06	0.89-1.21	72.7	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.05	0.89-1.21	82.1	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.89	0.76-1.02	56.5	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.90	0.76-1.02	92.8	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.79	0.65-0.89	82.6	50.0 - 150
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			M+2/M+4	0.79	0.65-0.89	83.1	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6	1.18	0.99-1.33	66.6	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.03	0.88-1.20	102	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.61	1.32-1.78	91.8	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.04	0.89-1.21	75.3	60.0 - 130

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

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SGS AXYS METHOD MLA-010 Rev 12

Form 6A
PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_344 S: 1

Instrument ID: HR GC/MS

Analysis Date: 11-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 19:47:40

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RETENTION TIME REFERENCE	IUPAC NO. ²	RRT	RRT QC LIMITS
2-MoCB	1			13C12-2-MoCB	1L	1.001	0.999-1.004
4-MoCB	3			13C12-4-MoCB	3L	1.001	0.999-1.004
2,2'-DiCB	4			13C12-2,2'-DiCB	4L	1.001	0.999-1.004
4,4'-DiCB	15			13C12-4,4'-DiCB	15L	1.001	0.999-1.002
2,2',6-TriCB	19			13C12-2,2',6-TriCB	19L	1.001	0.999-1.003
3,4,4'-TriCB	37			13C12-3,4,4'-TriCB	37L	1.001	0.999-1.002
2,2',6,6'-TeCB	54			13C12-2,2',6,6'-TeCB	54L	1.001	0.999-1.002
3,3',4,4'-TeCB	77			13C12-3,3',4,4'-TeCB	77L	1.001	1.000-1.001
3,4,4',5-TeCB	81			13C12-3,4,4',5-TeCB	81L	1.000	1.000-1.001
2,2',4,6,6'-PeCB	104			13C12-2,2',4,6,6'-PeCB	104L	1.001	0.999-1.002
2,3,3',4,4'-PeCB	105			13C12-2,3,3',4,4'-PeCB	105L	1.000	1.000-1.001
2,3,4,4',5-PeCB	114			13C12-2,3,4,4',5-PeCB	114L	1.000	1.000-1.001
2,3',4,4',5-PeCB	118			13C12-2,3',4,4',5-PeCB	118L	1.000	1.000-1.001
2',3,4,4',5-PeCB	123			13C12-2',3,4,4',5-PeCB	123L	1.001	1.000-1.001
3,3',4,4',5-PeCB	126			13C12-3,3',4,4',5-PeCB	126L	1.000	1.000-1.001
2,2',4,4',6,6'-HxCB	155			13C12-2,2',4,4',6,6'-HxCB	155L	1.001	0.999-1.002
2,3,3',4,4',5-HxCB	156	156 + 157	C	13C12-2,3,3',4,4',5-HxCB and 13C12-2,3,3',4,4',5'-HxCB	156L/157L	1.000	0.998-1.003
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3',4,4',5,5'-HxCB	167			13C12-2,3',4,4',5,5'-HxCB	167L	1.001	1.000-1.001
3,3',4,4',5,5'-HxCB	169			13C12-3,3',4,4',5,5'-HxCB	169L	1.000	1.000-1.001
2,2',3,4',5,6,6'-HpCB	188			13C12-2,2',3,4',5,6,6'-HpCB	188L	1.001	1.000-1.001
2,3,3',4,4',5,5'-HpCB	189			13C12-2,3,3',4,4',5,5'-HpCB	189L	1.000	1.000-1.001
2,2',3,3',5,5',6,6'-OxCB	202			13C12-2,2',3,3',5,5',6,6'-OxCB	202L	1.001	1.000-1.001
2,3,3',4,4',5,5',6-OxCB	205			13C12-2,3,3',4,4',5,5',6-OxCB	205L	1.001	1.000-1.001
2,2',3,3',4,4',5,5',6-NoCB	206			13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	1.001	1.000-1.001
2,2',3,3',4,5,5',6,6'-NoCB	208			13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L	1.001	1.000-1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L	1.001	1.000-1.001

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) Suffix "L" indicates labeled compound

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 6B
PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_344 S: 1

Instrument ID: HR GC/MS

Analysis Date: 11-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 19:47:40

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	RETENTION TIME REFERENCE	IUPAC NO. ¹	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			13C12-2,5-DiCB	9L	0.719	0.688-0.750
13C12-4-MoCB	3L			13C12-2,5-DiCB	9L	0.858	0.827-0.890
13C12-2,2'-DiCB	4L			13C12-2,5-DiCB	9L	0.873	0.842-0.904
13C12-4,4'-DiCB	15L			13C12-2,5-DiCB	9L	1.253	1.222-1.284
13C12-2,2',6-TriCB	19L			13C12-2,5-DiCB	9L	1.072	1.041-1.103
13C12-3,4,4'-TriCB	37L			13C12-2,2',5,5'-TeCB	52L	1.092	1.072-1.112
13C12-2,2',6,6'-TeCB	54L			13C12-2,2',5,5'-TeCB	52L	0.811	0.798-0.824
13C12-3,3',4,4'-TeCB	77L			13C12-2,2',5,5'-TeCB	52L	1.396	1.383-1.409
13C12-3,4,4',5-TeCB	81L			13C12-2,2',5,5'-TeCB	52L	1.373	1.359-1.386
13C12-2,2',4,6,6'-PeCB	104L			13C12-2,2',4,5,5'-PeCB	101L	0.808	0.798-0.819
13C12-2,3,3',4,4'-PeCB	105L			13C12-2,2',4,5,5'-PeCB	101L	1.201	1.190-1.211
13C12-2,3,4,4',5-PeCB	114L			13C12-2,2',4,5,5'-PeCB	101L	1.179	1.169-1.190
13C12-2,3',4,4',5-PeCB	118L			13C12-2,2',4,5,5'-PeCB	101L	1.162	1.151-1.172
13C12-2',3,4,4',5-PeCB	123L			13C12-2,2',4,5,5'-PeCB	101L	1.151	1.140-1.161
13C12-3,3',4,4',5-PeCB	126L			13C12-2,2',4,5,5'-PeCB	101L	1.301	1.291-1.311
13C12-2,2',4,4',6,6'-HxCB	155L			13C12-2,2',3,4,4',5'-HxCB	138L	0.786	0.778-0.794
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	13C12-2,2',3,4,4',5'-HxCB	138L	1.108	1.100-1.116
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L				
13C12-2,3',4,4',5,5'-HxCB	167L			13C12-2,2',3,4,4',5'-HxCB	138L	1.078	1.070-1.086
13C12-3,3',4,4',5,5'-HxCB	169L			13C12-2,2',3,4,4',5'-HxCB	138L	1.192	1.184-1.200
13C12-2,2',3,4',5,6,6'-HpCB	188L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.712	0.706-0.718
13C12-2,3,3',4,4',5,5'-HpCB	189L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.959	0.953-0.966
13C12-2,2',3,3',5,5',6,6'-OcCB	202L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.817	0.811-0.824
13C12-2,3,3',4,4',5,5',6-OcCB	205L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.009	1.000-1.019
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.043	1.034-1.053
13C12-2,2',3,3',4,4',5,5',6,6'-NoCB	208L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.949	0.942-0.955
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.074	1.065-1.084

CLEANUP STANDARD

13C12-2,4,4'-TriCB	28L	13C12-2,2',5,5'-TeCB	52L	0.924	0.911-0.937
13C12-2,3,3',5,5'-PeCB	111L	13C12-2,2',4,5,5'-PeCB	101L	1.088	1.077-1.098
13C12-2,2',3,3',5,5',6-HpCB	178L	13C12-2,2',3,4,4',5'-HxCB	138L	1.011	1.003-1.020

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

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SGS AXYS METHOD MLA-010 Rev 12

Form 3A

PCB CONGENER INITIAL CALIBRATION RELATIVE RESPONSES,
ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

CAL Data Filename: PB8C_344 S: 1

Instrument ID: HR GC/MS

Analysis Date: 11-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 19:47:40

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
3-MoCB	2			1.06	M/M+2	3.09	2.66-3.60	0.988	0.984 - 0.992
2,3-DiCB	5			0.95	M/M+2	1.47	1.33-1.79	1.199	1.196 - 1.203
2,3'-DiCB	6			1.06	M/M+2	1.49	1.33-1.79	1.177	1.173 - 1.180
2,4-DiCB	7			1.02	M/M+2	1.47	1.33-1.79	1.159	1.155 - 1.162
2,4'-DiCB	8			1.14	M/M+2	1.49	1.33-1.79	1.209	1.205 - 1.212
2,5-DiCB	9			1.07	M/M+2	1.46	1.33-1.79	1.147	1.143 - 1.150
2,6-DiCB	10			1.06	M/M+2	1.48	1.33-1.79	1.014	1.011 - 1.018
3,3'-DiCB	11			1.03	M/M+2	1.51	1.33-1.79	0.969	0.967 - 0.972
3,4-DiCB	12	12 + 13	C	1.01	M/M+2	1.47	1.33-1.79	0.985	0.983 - 0.988
3,4'-DiCB	13	12 + 13	C12						
3,5-DiCB	14			1.04	M/M+2	1.48	1.33-1.79	0.925	0.923 - 0.928
2,2',3-TriCB	16			0.82	M/M+2	1.07	0.88-1.20	1.165	1.162 - 1.168
2,2',4-TriCB	17			0.95	M/M+2	1.04	0.88-1.20	1.138	1.135 - 1.141
2,2',5-TriCB	18	18 + 30	C	1.11	M/M+2	1.05	0.88-1.20	1.112	1.109 - 1.115
2,3,3'-TriCB	20	20 + 28	C	1.18	M/M+2	0.97	0.88-1.20	0.848	0.845 - 0.851
2,3,4-TriCB	21	21 + 33	C	1.16	M/M+2	0.98	0.88-1.20	0.855	0.852 - 0.858
2,3,4'-TriCB	22			1.05	M/M+2	0.98	0.88-1.20	0.871	0.870 - 0.873
2,3,5-TriCB	23			1.06	M/M+2	0.96	0.88-1.20	1.282	1.279 - 1.285
2,3,6-TriCB	24			1.21	M/M+2	1.05	0.88-1.20	1.158	1.155 - 1.161
2,3',4-TriCB	25			1.30	M/M+2	0.98	0.88-1.20	0.824	0.823 - 0.826
2,3',5-TriCB	26	26 + 29	C	1.14	M/M+2	0.97	0.88-1.20	1.301	1.296 - 1.306
2,3',6-TriCB	27			1.35	M/M+2	1.05	0.88-1.20	1.151	1.148 - 1.154
2,4,4'-TriCB	28	20 + 28	C20						
2,4,5-TriCB	29	26 + 29	C26						
2,4,6-TriCB	30	18 + 30	C18						
2,4',5-TriCB	31			1.22	M/M+2	0.99	0.88-1.20	0.836	0.834 - 0.838
2,4',6-TriCB	32			1.18	M/M+2	0.98	0.88-1.20	1.197	1.194 - 1.200
2',3,4-TriCB	33	21 + 33	C21						
2',3,5-TriCB	34			1.10	M/M+2	0.98	0.88-1.20	1.272	1.269 - 1.275
3,3',4-TriCB	35			1.19	M/M+2	0.98	0.88-1.20	0.985	0.984 - 0.987
3,3',5-TriCB	36			1.23	M/M+2	0.99	0.88-1.20	0.931	0.929 - 0.933
3,4,5-TriCB	38			1.17	M/M+2	1.01	0.88-1.20	0.966	0.965 - 0.968
3,4',5-TriCB	39			1.17	M/M+2	0.98	0.88-1.20	0.945	0.943 - 0.947
2,2',3,3'-TeCB	40	40 + 41 + 71	C	0.84	M/M+2	0.79	0.65-0.89	1.334	1.330 - 1.338
2,2',3,4-TeCB	41	40 + 41 + 71	C40						
2,2',3,4'-TeCB	42			0.79	M/M+2	0.79	0.65-0.89	1.312	1.309 - 1.314
2,2',3,5-TeCB	43			0.64	M/M+2	0.80	0.65-0.89	1.245	1.243 - 1.248
2,2',3,5'-TeCB	44	44 + 47 + 65	C	0.91	M/M+2	0.79	0.65-0.89	1.285	1.281 - 1.290
2,2',3,6-TeCB	45	45 + 51	C	0.82	M/M+2	0.80	0.65-0.89	1.147	1.143 - 1.151
2,2',3,6'-TeCB	46			0.71	M/M+2	0.78	0.65-0.89	1.161	1.158 - 1.163
2,2',4,4'-TeCB	47	44 + 47 + 65	C44						
2,2',4,5-TeCB	48			0.83	M/M+2	0.78	0.65-0.89	1.272	1.270 - 1.275
2,2',4,5'-TeCB	49	49 + 69	C	0.97	M/M+2	0.79	0.65-0.89	1.257	1.253 - 1.261
2,2',4,6-TeCB	50	50 + 53	C	0.84	M/M+2	0.79	0.65-0.89	1.111	1.107 - 1.115
2,2',4,6'-TeCB	51	45 + 51	C45						
2,2',5,5'-TeCB	52			0.89	M/M+2	0.79	0.65-0.89	1.234	1.231 - 1.236
2,2',5,6'-TeCB	53	50 + 53	C50						
2,3,3',4-TeCB	55			0.92	M/M+2	0.74	0.65-0.89	0.889	0.888 - 0.890
2,3,3',4'-TeCB	56			0.92	M/M+2	0.71	0.65-0.89	0.904	0.903 - 0.905

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
2,3,3',5'-TeCB	57			0.99	M/M+2	0.75	0.65-0.89	0.844	0.842 - 0.845
2,3,3',5'-TeCB	58			0.95	M/M+2	0.81	0.65-0.89	0.851	0.849 - 0.852
2,3,3',6'-TeCB	59	59 + 62 + 75	C	1.11	M/M+2	0.79	0.65-0.89	1.301	1.297 - 1.305
2,3,4,4'-TeCB	60			0.91	M/M+2	0.75	0.65-0.89	0.911	0.909 - 0.912
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	1.00	M/M+2	0.75	0.65-0.89	0.873	0.871 - 0.876
2,3,4,6'-TeCB	62	59 + 62 + 75	C59						
2,3,4',5'-TeCB	63			0.99	M/M+2	0.78	0.65-0.89	0.864	0.863 - 0.866
2,3,4',6'-TeCB	64			1.15	M/M+2	0.80	0.65-0.89	1.348	1.345 - 1.350
2,3,5,6'-TeCB	65	44 + 47 + 65	C44						
2,3',4,4'-TeCB	66			1.03	M/M+2	0.75	0.65-0.89	0.884	0.882 - 0.885
2,3',4,5'-TeCB	67			1.11	M/M+2	0.75	0.65-0.89	0.856	0.854 - 0.857
2,3',4,5'-TeCB	68			1.01	M/M+2	0.76	0.65-0.89	0.831	0.829 - 0.832
2,3',4,6'-TeCB	69	49 + 69	C49						
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61						
2,3',4',6'-TeCB	71	40 + 41 + 71	C40						
2,3',5,5'-TeCB	72			1.03	M/M+2	0.75	0.65-0.89	0.822	0.821 - 0.824
2,3',5,6'-TeCB	73			1.14	M/M+2	0.78	0.65-0.89	1.240	1.238 - 1.243
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61						
2,4,4',6'-TeCB	75	59 + 62 + 75	C59						
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61						
3,3',4,5'-TeCB	78			0.97	M/M+2	0.77	0.65-0.89	0.987	0.985 - 0.988
3,3',4,5'-TeCB	79			1.19	M/M+2	0.74	0.65-0.89	0.970	0.969 - 0.972
3,3',5,5'-TeCB	80			1.06	M/M+2	0.73	0.65-0.89	0.923	0.922 - 0.925
2,2',3,3',4'-PeCB	82			0.76	M+2/M+4	1.57	1.32-1.78	0.934	0.932 - 0.935
2,2',3,3',5'-PeCB	83	83 + 99	C	0.82	M+2/M+4	1.59	1.32-1.78	0.885	0.882 - 0.887
2,2',3,3',6'-PeCB	84			0.74	M+2/M+4	1.59	1.32-1.78	1.163	1.162 - 1.165
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1.00	M+2/M+4	1.59	1.32-1.78	0.919	0.917 - 0.922
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C	0.96	M+2/M+4	1.60	1.32-1.78	0.900	0.897 - 0.904
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86						
2,2',3,4,6'-PeCB	88	88 + 91	C	0.83	M+2/M+4	1.59	1.32-1.78	1.153	1.149 - 1.156
2,2',3,4,6'-PeCB	89			0.80	M+2/M+4	1.59	1.32-1.78	1.183	1.181 - 1.185
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	0.94	M+2/M+4	1.61	1.32-1.78	0.869	0.867 - 0.871
2,2',3,4',6'-PeCB	91	88 + 91	C88						
2,2',3,5,5'-PeCB	92			0.82	M+2/M+4	1.59	1.32-1.78	0.853	0.852 - 0.855
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	0.85	M+2/M+4	1.59	1.32-1.78	1.129	1.119 - 1.140
2,2',3,5,6'-PeCB	94			0.76	M+2/M+4	1.59	1.32-1.78	1.102	1.100 - 1.104
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93						
2,2',3,6,6'-PeCB	96			0.91	M+2/M+4	1.57	1.32-1.78	1.016	1.013 - 1.019
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86						
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93						
2,2',4,4',5'-PeCB	99	83 + 99	C83						
2,2',4,4',6'-PeCB	100	93 + 95 + 98 + 100 + 102	C93						
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90						
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93						
2,2',4,5',6'-PeCB	103			0.93	M+2/M+4	1.59	1.32-1.78	1.094	1.092 - 1.096
2,3,3',4,5'-PeCB	106			0.99	M+2/M+4	1.49	1.32-1.78	1.005	1.003 - 1.006
2,3,3',4',5'-PeCB	107	107 + 124	C	0.97	M+2/M+4	1.49	1.32-1.78	0.991	0.988 - 0.993
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86						
2,3,3',4,6'-PeCB	109			0.98	M+2/M+4	1.49	1.32-1.78	0.997	0.996 - 0.999
2,3,3',4',6'-PeCB	110	110 + 115	C	1.11	M+2/M+4	1.59	1.32-1.78	0.926	0.924 - 0.928
2,3,3',5,5'-PeCB	111			1.12	M+2/M+4	1.57	1.32-1.78	0.946	0.944 - 0.947
2,3,3',5,6'-PeCB	112			1.09	M+2/M+4	1.58	1.32-1.78	0.889	0.888 - 0.891
2,3,3',5',6'-PeCB	113	90 + 101 + 113	C90						
2,3,4,4',6'-PeCB	115	110 + 115	C110						
2,3,4,5,6'-PeCB	116	85 + 116 + 117	C85						
2,3,4',5,6'-PeCB	117	85 + 116 + 117	C85						
2,3',4,4',6'-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86						
2,3',4,5,5'-PeCB	120			1.18	M+2/M+4	1.56	1.32-1.78	0.958	0.957 - 0.959
2,3',4,5',6'-PeCB	121			1.08	M+2/M+4	1.59	1.32-1.78	1.199	1.197 - 1.201
2',3,3',4,5'-PeCB	122			0.90	M+2/M+4	1.50	1.32-1.78	1.010	1.008 - 1.011
2',3,4,5,5'-PeCB	124	107 + 124	C107						
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86						

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
3,3',4,5,5'-PeCB	127			1.01	M+2/M+4	1.51	1.32-1.78	1.040	1.039 - 1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1.06	M+2/M+4	1.25	1.05-1.43	0.958	0.956 - 0.960
2,2',3,3',4,5'-HxCB	129	129 + 138 + 160 + 163	C	1.03	M+2/M+4	1.25	1.05-1.43	0.930	0.927 - 0.933
2,2',3,3',4,5'-HxCB	130			0.82	M+2/M+4	1.24	1.05-1.43	0.913	0.912 - 0.914
2,2',3,3',4,6'-HxCB	131			0.82	M+2/M+4	1.27	1.05-1.43	1.160	1.158 - 1.161
2,2',3,3',4,6'-HxCB	132			0.81	M+2/M+4	1.27	1.05-1.43	1.175	1.172 - 1.178
2,2',3,3',5,5'-HxCB	133			0.87	M+2/M+4	1.26	1.05-1.43	1.191	1.190 - 1.193
2,2',3,3',5,6'-HxCB	134	134 + 143	C	0.85	M+2/M+4	1.27	1.05-1.43	1.142	1.139 - 1.144
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	0.74	M+2/M+4	1.26	1.05-1.43	1.107	1.101 - 1.112
2,2',3,3',6,6'-HxCB	136			0.96	M+2/M+4	1.26	1.05-1.43	1.025	1.024 - 1.027
2,2',3,4,4',5'-HxCB	137			0.86	M+2/M+4	1.24	1.05-1.43	0.918	0.917 - 0.919
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129						
2,2',3,4,4',6'-HxCB	139	139 + 140	C	0.94	M+2/M+4	1.25	1.05-1.43	1.153	1.150 - 1.156
2,2',3,4,4',6'-HxCB	140	139 + 140	C139						
2,2',3,4,5,5'-HxCB	141			0.96	M+2/M+4	1.26	1.05-1.43	0.903	0.902 - 0.904
2,2',3,4,5,6'-HxCB	142			0.85	M+2/M+4	1.27	1.05-1.43	1.165	1.163 - 1.166
2,2',3,4,5,6'-HxCB	143	134 + 143	C134						
2,2',3,4,5,6'-HxCB	144			0.71	M+2/M+4	1.23	1.05-1.43	1.122	1.120 - 1.123
2,2',3,4,6,6'-HxCB	145			0.89	M+2/M+4	1.25	1.05-1.43	1.034	1.032 - 1.036
2,2',3,4',5,5'-HxCB	146			1.03	M+2/M+4	1.26	1.05-1.43	0.884	0.883 - 0.885
2,2',3,4',5,6'-HxCB	147	147 + 149	C	0.95	M+2/M+4	1.26	1.05-1.43	1.133	1.131 - 1.136
2,2',3,4',5,6'-HxCB	148			0.72	M+2/M+4	1.23	1.05-1.43	1.084	1.082 - 1.085
2,2',3,4',5',6'-HxCB	149	147 + 149	C147						
2,2',3,4',6,6'-HxCB	150			0.92	M+2/M+4	1.26	1.05-1.43	1.013	1.011 - 1.014
2,2',3,5,5',6'-HxCB	151	135 + 151 + 154	C135						
2,2',3,5,6,6'-HxCB	152			0.98	M+2/M+4	1.27	1.05-1.43	1.007	1.006 - 1.009
2,2',4,4',5,5'-HxCB	153	153 + 168	C	1.15	M+2/M+4	1.26	1.05-1.43	0.899	0.897 - 0.901
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135						
2,3,3',4,4',6'-HxCB	158			1.34	M+2/M+4	1.28	1.05-1.43	0.938	0.936 - 0.939
2,3,3',4,5,5'-HxCB	159			1.26	M+2/M+4	1.26	1.05-1.43	0.982	0.981 - 0.983
2,3,3',4,5,6'-HxCB	160	129 + 138 + 160 + 163	C129						
2,3,3',4,5',6'-HxCB	161			1.23	M+2/M+4	1.26	1.05-1.43	0.887	0.886 - 0.888
2,3,3',4',5,5'-HxCB	162			1.28	M+2/M+4	1.26	1.05-1.43	0.989	0.988 - 0.990
2,3,3',4',5,6'-HxCB	163	129 + 138 + 160 + 163	C129						
2,3,3',4',5',6'-HxCB	164			1.24	M+2/M+4	1.26	1.05-1.43	0.921	0.920 - 0.922
2,3,3',5,5',6'-HxCB	165			1.07	M+2/M+4	1.26	1.05-1.43	0.878	0.877 - 0.879
2,3,4,4',5,6'-HxCB	166	128 + 166	C128						
2,3',4,4',5',6'-HxCB	168	153 + 168	C153						
2,2',3,3',4,4',5'-HpCB	170			1.20	M+2/M+4	1.05	0.89-1.21	1.000	0.999 - 1.001
2,2',3,3',4,4',6'-HpCB	171	171 + 173	C	0.77	M+2/M+4	1.05	0.89-1.21	1.162	1.160 - 1.165
2,2',3,3',4,5,5'-HpCB	172			0.76	M+2/M+4	1.07	0.89-1.21	0.896	0.895 - 0.897
2,2',3,3',4,5,6'-HpCB	173	171 + 173	C171						
2,2',3,3',4',5,6'-HpCB	174			0.87	M+2/M+4	1.06	0.89-1.21	1.134	1.132 - 1.135
2,2',3,3',4,5',6'-HpCB	175			0.84	M+2/M+4	1.05	0.89-1.21	1.103	1.101 - 1.104
2,2',3,3',4,6,6'-HpCB	176			1.10	M+2/M+4	1.05	0.89-1.21	1.034	1.033 - 1.036
2,2',3,3',4',5,6'-HpCB	177			0.88	M+2/M+4	1.05	0.89-1.21	1.146	1.144 - 1.147
2,2',3,3',5,5',6'-HpCB	178			0.81	M+2/M+4	1.04	0.89-1.21	1.085	1.084 - 1.087
2,2',3,3',5,6,6'-HpCB	179			1.12	M+2/M+4	1.05	0.89-1.21	1.010	1.009 - 1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	1.05	M+2/M+4	1.05	0.89-1.21	1.000	0.999 - 1.001
2,2',3,4,4',5,6'-HpCB	181			0.82	M+2/M+4	1.05	0.89-1.21	1.157	1.155 - 1.158
2,2',3,4,4',5,6'-HpCB	182			0.86	M+2/M+4	1.06	0.89-1.21	1.115	1.114 - 1.117
2,2',3,4,4',5',6'-HpCB	183	183 + 185	C	0.86	M+2/M+4	1.05	0.89-1.21	1.128	1.127 - 1.129
2,2',3,4,4',6,6'-HpCB	184			1.12	M+2/M+4	1.04	0.89-1.21	1.024	1.023 - 1.026
2,2',3,4,5,5',6'-HpCB	185	183 + 185	C183						
2,2',3,4,5,6,6'-HpCB	186			1.06	M+2/M+4	1.03	0.89-1.21	1.047	1.046 - 1.048
2,2',3,4',5,5',6'-HpCB	187			0.91	M+2/M+4	1.05	0.89-1.21	1.110	1.109 - 1.111
2,3,3',4,4',5,6'-HpCB	190			1.06	M+2/M+4	1.07	0.89-1.21	0.947	0.946 - 0.948
2,3,3',4,4',5',6'-HpCB	191			1.06	M+2/M+4	1.06	0.89-1.21	0.917	0.916 - 0.918
2,3,3',4,5,5',6'-HpCB	192			0.95	M+2/M+4	1.04	0.89-1.21	0.902	0.901 - 0.903
2,3,3',4',5,5',6'-HpCB	193	180 + 193	C180						
2,2',3,3',4,4',5,5'-OcCB	194			0.97	M+2/M+4	0.89	0.76-1.02	0.991	0.990 - 0.992
2,2',3,3',4,4',5,6'-OcCB	195			0.90	M+2/M+4	0.89	0.76-1.02	0.946	0.945 - 0.947
2,2',3,3',4,4',5,6'-OcCB	196			0.69	M+2/M+4	0.89	0.76-1.02	0.916	0.915 - 0.916

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
2,2',3,3',4,4',6,6'-OcCB	197	197 + 200	C	0.92	M+2/M+4	0.90	0.76-1.02	1.046	1.043 - 1.048
2,2',3,3',4,5,5',6-OcCB	198	198 + 199	C	0.65	M+2/M+4	0.90	0.76-1.02	1.114	1.112 - 1.116
2,2',3,3',4,5,5',6'-OcCB	199	198 + 199	C198						
2,2',3,3',4,5,6,6'-OcCB	200	197 + 200	C197						
2,2',3,3',4,5',6,6'-OcCB	201			0.93	M+2/M+4	0.94	0.76-1.02	1.023	1.021 - 1.025
2,2',3,4,4',5,5',6-OcCB	203			0.70	M+2/M+4	0.89	0.76-1.02	0.919	0.918 - 0.920
2,2',3,4,4',5,6,6'-OcCB	204			0.93	M+2/M+4	0.87	0.76-1.02	1.039	1.038 - 1.040
2,2',3,3',4,4',5,6,6'-NoCB	207			1.24	M+2/M+4	0.79	0.65-0.89	1.020	1.019 - 1.021

(1) Where applicable, custom lab flags have been used on this report.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 3B

PCB CONGENER INITIAL CALIBRATION RELATIVE RESPONSES,
ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

CAL Data Filename: PB8C_344 S: 1

Instrument ID: HR GC/MS

Analysis Date: 11-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 19:47:40

LABELED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	RRF	MZ's FORMING RATIO ³	ION ABUND. RATIO	RATIO QC LIMITS ⁴	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			0.95	M/M+2	3.20	2.66-3.60	0.719	0.703 - 0.734
13C12-4-MoCB	3L			0.94	M/M+2	3.20	2.66-3.60	0.858	0.843 - 0.874
13C12-2,2'-DiCB	4L			0.62	M/M+2	1.58	1.33-1.79	0.873	0.857 - 0.889
13C12-4,4'-DiCB	15L			1.00	M/M+2	1.56	1.33-1.79	1.253	1.238 - 1.269
13C12-2,2',6'-TriCB	19L			0.43	M/M+2	1.06	0.88-1.20	1.072	1.056 - 1.088
13C12-3,4,4'-TriCB	37L			1.66	M/M+2	1.02	0.88-1.20	1.092	1.082 - 1.102
13C12-2,2',6,6'-TeCB	54L			1.28	M/M+2	0.81	0.65-0.89	0.811	0.804 - 0.818
13C12-3,3',4,4'-TeCB	77L			1.48	M/M+2	0.75	0.65-0.89	1.396	1.389 - 1.403
13C12-3,4,4',5'-TeCB	81L			1.47	M/M+2	0.74	0.65-0.89	1.373	1.366 - 1.379
13C12-2,2',4,6,6'-PeCB	104L			1.01	M+2/M+4	1.59	1.32-1.78	0.808	0.803 - 0.813
13C12-2,3,3',4,4'-PeCB	105L			1.38	M+2/M+4	1.55	1.32-1.78	1.201	1.195 - 1.206
13C12-2,3,4,4',5'-PeCB	114L			1.37	M+2/M+4	1.58	1.32-1.78	1.179	1.174 - 1.184
13C12-2,3',4,4',5'-PeCB	118L			1.37	M+2/M+4	1.57	1.32-1.78	1.162	1.156 - 1.167
13C12-2',3,4,4',5'-PeCB	123L			1.39	M+2/M+4	1.53	1.32-1.78	1.151	1.146 - 1.156
13C12-3,3',4,4',5'-PeCB	126L			1.33	M+2/M+4	1.53	1.32-1.78	1.301	1.296 - 1.306
13C12-2,2',4,4',6,6'-HxCB	155L			1.05	M+2/M+4	1.26	1.05-1.43	0.786	0.782 - 0.790
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C	1.24	M+2/M+4	1.28	1.05-1.43	1.108	1.104 - 1.112
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L						
13C12-2,3',4,4',5,5'-HxCB	167L			1.20	M+2/M+4	1.28	1.05-1.43	1.078	1.074 - 1.082
13C12-3,3',4,4',5,5'-HxCB	169L			1.24	M+2/M+4	1.31	1.05-1.43	1.192	1.188 - 1.196
13C12-2,2',3,3',4,4',5'-HpCB	170L			0.83	M+2/M+4	1.10	0.89-1.21	0.898	0.894 - 0.901
13C12-2,2',3,4,4',5,5'-HpCB	180L			1.02	M+2/M+4	1.06	0.89-1.21	0.872	0.869 - 0.876
13C12-2,2',3,4,5,6,6'-HpCB	188L			1.37	M+2/M+4	1.06	0.89-1.21	0.712	0.709 - 0.715
13C12-2,3,3',4,4',5,5'-HpCB	189L			1.24	M+2/M+4	1.05	0.89-1.21	0.959	0.956 - 0.962
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			1.01	M+2/M+4	0.89	0.76-1.02	0.817	0.814 - 0.820
13C12-2,3,3',4,4',5,5',6-OxCB	205L			1.40	M+2/M+4	0.90	0.76-1.02	1.009	1.005 - 1.014
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			0.91	M+2/M+4	0.79	0.65-0.89	1.043	1.039 - 1.048
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			1.12	M+2/M+4	0.79	0.65-0.89	0.949	0.945 - 0.952

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_344S1__Form346B_SJ2446412_GS78128.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 4A
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_344 S: 11

Instrument ID: HR GC/MS

Analysis Date: 12-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 06:24:41

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
2-MoCB	1			M/M+2	3.04	2.66-3.60	24.1	17.5 - 32.5
4-MoCB	3			M/M+2	3.00	2.66-3.60	24.2	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.48	1.33-1.79	21.5	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.46	1.33-1.79	24.5	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.08	0.88-1.20	29.4	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	0.97	0.88-1.20	20.8	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.79	0.65-0.89	55.0	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.72	0.65-0.89	39.9	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.74	0.65-0.89	41.2	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.58	1.32-1.78	53.9	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.49	1.32-1.78	47.4	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.54	1.32-1.78	45.3	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.51	1.32-1.78	48.1	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.51	1.32-1.78	43.3	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.59	1.32-1.78	46.0	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.29	1.05-1.43	54.0	35.0 - 65.0
2,3,3',4,4',5-HxCB	156	156 + 157	C	M+2/M+4	1.28	1.05-1.43	110	70.0 - 130
2,3,3',4,4',5'-HxCB	157	156 + 157	C156					
2,3',4,4',5,5'-HxCB	167			M+2/M+4	1.26	1.05-1.43	58.5	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.33	1.05-1.43	60.0	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.03	0.89-1.21	52.4	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.01	0.89-1.21	39.4	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.92	0.76-1.02	88.9	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.89	0.76-1.02	76.2	52.5 - 97.5
2,2',3,3',4,4',5,5',6-NoCB	206			M+2/M+4	0.81	0.65-0.89	77.2	52.5 - 97.5
2,2',3,3',4,5,5',6,6'-NoCB	208			M+2/M+4	0.79	0.65-0.89	87.7	58.7 - 109
2,2',3,3',4,4',5,5',6,6'-DeCB	209			M+4/M+6	1.19	0.99-1.33	76.4	52.5 - 97.5

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4B
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	07-Jul-2018	VER Data Filename:	PB8C_344 S: 11
Instrument ID:	HR GC/MS	Analysis Date:	12-Oct-2018
GC Column ID:	SPB OCTYL	Analysis Time:	06:24:41

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	MZ's FORMING RATIO ³	ION ABUND. RATIO	QC LIMITS ⁴	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
13C12-2-MoCB	1L			M/M+2	3.20	2.66-3.60	83.0	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.16	2.66-3.60	86.9	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.58	1.33-1.79	90.1	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.56	1.33-1.79	95.9	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.06	0.88-1.20	74.7	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.02	0.88-1.20	98.5	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.81	0.65-0.89	84.4	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.77	0.65-0.89	117	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.73	0.65-0.89	116	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.59	1.32-1.78	66.4	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.56	1.32-1.78	102	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.62	1.32-1.78	106	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.55	1.32-1.78	105	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.56	1.32-1.78	106	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.54	1.32-1.78	111	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.26	1.05-1.43	59.4	50.0 - 150
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	M+2/M+4	1.28	1.05-1.43	187	100 - 300
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			M+2/M+4	1.31	1.05-1.43	94.0	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.28	1.05-1.43	97.1	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.07	0.89-1.21	62.7	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.03	0.89-1.21	80.8	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.92	0.76-1.02	50.4	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.89	0.76-1.02	90.6	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.78	0.65-0.89	77.0	50.0 - 150
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			M+2/M+4	0.78	0.65-0.89	76.7	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6	1.21	0.99-1.33	62.3	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.02	0.88-1.20	100	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.59	1.32-1.78	94.1	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.03	0.89-1.21	72.0	60.0 - 130

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 6A
PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_344 S: 11

Instrument ID: HR GC/MS

Analysis Date: 12-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 06:24:41

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RETENTION TIME REFERENCE	IUPAC NO. ²	RRT	RRT QC LIMITS
2-MoCB	1			13C12-2-MoCB	1L	1.001	0.999-1.004
4-MoCB	3			13C12-4-MoCB	3L	1.001	0.999-1.004
2,2'-DiCB	4			13C12-2,2'-DiCB	4L	1.001	0.999-1.004
4,4'-DiCB	15			13C12-4,4'-DiCB	15L	1.001	0.999-1.002
2,2',6-TriCB	19			13C12-2,2',6-TriCB	19L	1.001	0.999-1.003
3,4,4'-TriCB	37			13C12-3,4,4'-TriCB	37L	1.001	0.999-1.002
2,2',6,6'-TeCB	54			13C12-2,2',6,6'-TeCB	54L	1.001	0.999-1.002
3,3',4,4'-TeCB	77			13C12-3,3',4,4'-TeCB	77L	1.000	1.000-1.001
3,4,4',5-TeCB	81			13C12-3,4,4',5-TeCB	81L	1.000	1.000-1.001
2,2',4,6,6'-PeCB	104			13C12-2,2',4,6,6'-PeCB	104L	1.001	0.999-1.002
2,3,3',4,4'-PeCB	105			13C12-2,3,3',4,4'-PeCB	105L	1.001	1.000-1.001
2,3,4,4',5-PeCB	114			13C12-2,3,4,4',5-PeCB	114L	1.001	1.000-1.001
2,3',4,4',5-PeCB	118			13C12-2,3',4,4',5-PeCB	118L	1.000	1.000-1.001
2',3,4,4',5-PeCB	123			13C12-2',3,4,4',5-PeCB	123L	1.001	1.000-1.001
3,3',4,4',5-PeCB	126			13C12-3,3',4,4',5-PeCB	126L	1.001	1.000-1.001
2,2',4,4',6,6'-HxCB	155			13C12-2,2',4,4',6,6'-HxCB	155L	1.001	0.999-1.002
2,3,3',4,4',5-HxCB	156	156 + 157	C	13C12-2,3,3',4,4',5-HxCB and 13C12-2,3,3',4,4',5'-HxCB	156L/157L	1.000	0.998-1.003
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3',4,4',5,5'-HxCB	167			13C12-2,3',4,4',5,5'-HxCB	167L	1.000	1.000-1.001
3,3',4,4',5,5'-HxCB	169			13C12-3,3',4,4',5,5'-HxCB	169L	1.001	1.000-1.001
2,2',3,4',5,6,6'-HpCB	188			13C12-2,2',3,4',5,6,6'-HpCB	188L	1.000	1.000-1.001
2,3,3',4,4',5,5'-HpCB	189			13C12-2,3,3',4,4',5,5'-HpCB	189L	1.000	1.000-1.001
2,2',3,3',5,5',6,6'-OxCB	202			13C12-2,2',3,3',5,5',6,6'-OxCB	202L	1.000	1.000-1.001
2,3,3',4,4',5,5',6-OxCB	205			13C12-2,3,3',4,4',5,5',6-OxCB	205L	1.001	1.000-1.001
2,2',3,3',4,4',5,5',6-NoCB	206			13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	1.001	1.000-1.001
2,2',3,3',4,5,5',6,6'-NoCB	208			13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L	1.000	1.000-1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L	1.001	1.000-1.001

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) Suffix "L" indicates labeled compound

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_344S11_Form6A_SJ2446443.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 6B

PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_344 S: 11

Instrument ID: HR GC/MS

Analysis Date: 12-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 06:24:41

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	RETENTION TIME REFERENCE	IUPAC NO. ¹	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			13C12-2,5-DiCB	9L	0.719	0.688-0.751
13C12-4-MoCB	3L			13C12-2,5-DiCB	9L	0.858	0.827-0.889
13C12-2,2'-DiCB	4L			13C12-2,5-DiCB	9L	0.874	0.843-0.905
13C12-4,4'-DiCB	15L			13C12-2,5-DiCB	9L	1.253	1.222-1.285
13C12-2,2',6-TriCB	19L			13C12-2,5-DiCB	9L	1.072	1.041-1.103
13C12-3,4,4'-TriCB	37L			13C12-2,2',5,5'-TeCB	52L	1.091	1.071-1.111
13C12-2,2',6,6'-TeCB	54L			13C12-2,2',5,5'-TeCB	52L	0.811	0.798-0.824
13C12-3,3',4,4'-TeCB	77L			13C12-2,2',5,5'-TeCB	52L	1.397	1.383-1.410
13C12-3,4,4',5-TeCB	81L			13C12-2,2',5,5'-TeCB	52L	1.373	1.360-1.386
13C12-2,2',4,6,6'-PeCB	104L			13C12-2,2',4,5,5'-PeCB	101L	0.808	0.798-0.819
13C12-2,3,3',4,4'-PeCB	105L			13C12-2,2',4,5,5'-PeCB	101L	1.201	1.190-1.211
13C12-2,3,4,4',5-PeCB	114L			13C12-2,2',4,5,5'-PeCB	101L	1.179	1.169-1.190
13C12-2,3',4,4',5-PeCB	118L			13C12-2,2',4,5,5'-PeCB	101L	1.162	1.152-1.173
13C12-2',3,4,4',5-PeCB	123L			13C12-2,2',4,5,5'-PeCB	101L	1.151	1.141-1.162
13C12-3,3',4,4',5-PeCB	126L			13C12-2,2',4,5,5'-PeCB	101L	1.302	1.291-1.312
13C12-2,2',4,4',6,6'-HxCB	155L			13C12-2,2',3,4,4',5'-HxCB	138L	0.785	0.777-0.794
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	13C12-2,2',3,4,4',5'-HxCB	138L	1.108	1.100-1.116
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L				
13C12-2,3',4,4',5,5'-HxCB	167L			13C12-2,2',3,4,4',5'-HxCB	138L	1.078	1.070-1.086
13C12-3,3',4,4',5,5'-HxCB	169L			13C12-2,2',3,4,4',5'-HxCB	138L	1.192	1.183-1.200
13C12-2,2',3,4',5,6,6'-HpCB	188L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.712	0.706-0.718
13C12-2,3,3',4,4',5,5'-HpCB	189L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.959	0.953-0.966
13C12-2,2',3,3',5,5',6,6'-OcCB	202L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.818	0.811-0.824
13C12-2,3,3',4,4',5,5',6-OcCB	205L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.009	1.000-1.019
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.043	1.034-1.053
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.949	0.943-0.955
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.074	1.065-1.084

CLEANUP STANDARD

13C12-2,4,4'-TriCB	28L	13C12-2,2',5,5'-TeCB	52L	0.924	0.911-0.937
13C12-2,3,3',5,5'-PeCB	111L	13C12-2,2',4,5,5'-PeCB	101L	1.088	1.077-1.098
13C12-2,2',3,3',5,5',6-HpCB	178L	13C12-2,2',3,4,4',5'-HxCB	138L	1.011	1.003-1.020

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

For Axy Internal Use Only [XSL Template: Form16686B.xsl; Created: 26-Oct-2018 08:38:31; Application: XMLTransformer-1.16.50;
Report Filename: 1668_PCB1668_PB8C_344S11__Form6B_SJ2446443.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 4A
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_355C S: 1

Instrument ID: HR GC/MS

Analysis Date: 17-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 13:32:23

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
2-MoCB	1			M/M+2	3.01	2.66-3.60	20.4	17.5 - 32.5
4-MoCB	3			M/M+2	2.98	2.66-3.60	21.3	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.48	1.33-1.79	20.5	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.49	1.33-1.79	24.1	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.06	0.88-1.20	26.9	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	0.97	0.88-1.20	20.6	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.78	0.65-0.89	50.0	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.76	0.65-0.89	41.7	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.75	0.65-0.89	43.7	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.57	1.32-1.78	54.4	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.52	1.32-1.78	45.6	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.52	1.32-1.78	46.3	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.50	1.32-1.78	43.0	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.47	1.32-1.78	48.7	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.52	1.32-1.78	46.0	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.28	1.05-1.43	55.0	35.0 - 65.0
2,3,3',4,4',5-HxCB	156	156 + 157	C	M+2/M+4	1.25	1.05-1.43	98.4	70.0 - 130
2,3,3',4,4',5'-HxCB	157	156 + 157	C156					
2,3',4,4',5,5'-HxCB	167			M+2/M+4	1.23	1.05-1.43	53.5	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.31	1.05-1.43	51.4	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.08	0.89-1.21	51.1	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.02	0.89-1.21	41.8	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.92	0.76-1.02	88.2	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.89	0.76-1.02	72.3	52.5 - 97.5
2,2',3,3',4,4',5,5',6-NoCB	206			M+2/M+4	0.77	0.65-0.89	73.8	52.5 - 97.5
2,2',3,3',4,5,5',6,6'-NoCB	208			M+2/M+4	0.78	0.65-0.89	84.3	58.7 - 109
2,2',3,3',4,4',5,5',6,6'-DeCB	209			M+4/M+6	1.19	0.99-1.33	75.8	52.5 - 97.5

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4B
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018 VER Data Filename: PB8C_355C S: 1

Instrument ID: HR GC/MS Analysis Date: 17-Oct-2018

GC Column ID: SPB OCTYL Analysis Time: 13:32:23

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	MZ's FORMING RATIO ³	ION ABUND. RATIO	QC LIMITS ⁴	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
13C12-2-MoCB	1L			M/M+2	3.12	2.66-3.60	91.6	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.10	2.66-3.60	96.0	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.52	1.33-1.79	86.7	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.56	1.33-1.79	95.8	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.04	0.88-1.20	105	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.00	0.88-1.20	77.9	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.81	0.65-0.89	84.4	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.78	0.65-0.89	93.9	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.78	0.65-0.89	94.1	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.59	1.32-1.78	71.0	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.55	1.32-1.78	80.0	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.57	1.32-1.78	80.6	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.55	1.32-1.78	82.1	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.52	1.32-1.78	80.9	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.52	1.32-1.78	84.3	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.23	1.05-1.43	67.1	50.0 - 150
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	M+2/M+4	1.28	1.05-1.43	183	100 - 300
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			M+2/M+4	1.27	1.05-1.43	91.0	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.27	1.05-1.43	93.1	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.07	0.89-1.21	78.3	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.03	0.89-1.21	75.8	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.94	0.76-1.02	61.8	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.89	0.76-1.02	90.6	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.76	0.65-0.89	90.1	50.0 - 150
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			M+2/M+4	0.79	0.65-0.89	88.0	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6	1.11	0.99-1.33	74.6	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.04	0.88-1.20	81.8	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.59	1.32-1.78	91.6	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.07	0.89-1.21	85.2	60.0 - 130

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 6A
PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_355C S: 1

Instrument ID: HR GC/MS

Analysis Date: 17-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 13:32:23

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RETENTION TIME REFERENCE	IUPAC NO. ²	RRT	RRT QC LIMITS
2-MoCB	1			13C12-2-MoCB	1L	1.001	0.999-1.004
4-MoCB	3			13C12-4-MoCB	3L	1.001	0.999-1.004
2,2'-DiCB	4			13C12-2,2'-DiCB	4L	1.001	0.999-1.004
4,4'-DiCB	15			13C12-4,4'-DiCB	15L	1.001	0.999-1.002
2,2',6-TriCB	19			13C12-2,2',6-TriCB	19L	1.001	0.999-1.003
3,4,4'-TriCB	37			13C12-3,4,4'-TriCB	37L	1.001	0.999-1.002
2,2',6,6'-TeCB	54			13C12-2,2',6,6'-TeCB	54L	1.001	0.999-1.002
3,3',4,4'-TeCB	77			13C12-3,3',4,4'-TeCB	77L	1.000	1.000-1.001
3,4,4',5-TeCB	81			13C12-3,4,4',5-TeCB	81L	1.001	1.000-1.001
2,2',4,6,6'-PeCB	104			13C12-2,2',4,6,6'-PeCB	104L	1.001	0.999-1.002
2,3,3',4,4'-PeCB	105			13C12-2,3,3',4,4'-PeCB	105L	1.000	1.000-1.001
2,3,4,4',5-PeCB	114			13C12-2,3,4,4',5-PeCB	114L	1.000	1.000-1.001
2,3',4,4',5-PeCB	118			13C12-2,3',4,4',5-PeCB	118L	1.000	1.000-1.001
2',3,4,4',5-PeCB	123			13C12-2',3,4,4',5-PeCB	123L	1.000	1.000-1.001
3,3',4,4',5-PeCB	126			13C12-3,3',4,4',5-PeCB	126L	1.000	1.000-1.001
2,2',4,4',6,6'-HxCB	155			13C12-2,2',4,4',6,6'-HxCB	155L	1.001	0.999-1.002
2,3,3',4,4',5-HxCB	156	156 + 157	C	13C12-2,3,3',4,4',5-HxCB and 13C12-2,3,3',4,4',5'-HxCB	156L/157L	1.000	0.998-1.003
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3',4,4',5,5'-HxCB	167			13C12-2,3',4,4',5,5'-HxCB	167L	1.001	1.000-1.001
3,3',4,4',5,5'-HxCB	169			13C12-3,3',4,4',5,5'-HxCB	169L	1.001	1.000-1.001
2,2',3,4',5,6,6'-HpCB	188			13C12-2,2',3,4',5,6,6'-HpCB	188L	1.001	1.000-1.001
2,3,3',4,4',5,5'-HpCB	189			13C12-2,3,3',4,4',5,5'-HpCB	189L	1.001	1.000-1.001
2,2',3,3',5,5',6,6'-OxCB	202			13C12-2,2',3,3',5,5',6,6'-OxCB	202L	1.001	1.000-1.001
2,3,3',4,4',5,5',6-OxCB	205			13C12-2,3,3',4,4',5,5',6-OxCB	205L	1.001	1.000-1.001
2,2',3,3',4,4',5,5',6-NoCB	206			13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	1.001	1.000-1.001
2,2',3,3',4,5,5',6,6'-NoCB	208			13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L	1.001	1.000-1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L	1.000	1.000-1.001

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) Suffix "L" indicates labeled compound

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_355CS1__Form6A_SJ2450419.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 6B

PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_355C S: 1

Instrument ID: HR GC/MS

Analysis Date: 17-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 13:32:23

LABELED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	RETENTION TIME REFERENCE	IUPAC NO. ¹	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			13C12-2,5-DiCB	9L	0.719	0.688-0.751
13C12-4-MoCB	3L			13C12-2,5-DiCB	9L	0.859	0.828-0.891
13C12-2,2'-DiCB	4L			13C12-2,5-DiCB	9L	0.874	0.843-0.905
13C12-4,4'-DiCB	15L			13C12-2,5-DiCB	9L	1.253	1.222-1.285
13C12-2,2',6-TriCB	19L			13C12-2,5-DiCB	9L	1.072	1.041-1.103
13C12-3,4,4'-TriCB	37L			13C12-2,2',5,5'-TeCB	52L	1.093	1.073-1.113
13C12-2,2',6,6'-TeCB	54L			13C12-2,2',5,5'-TeCB	52L	0.811	0.798-0.825
13C12-3,3',4,4'-TeCB	77L			13C12-2,2',5,5'-TeCB	52L	1.398	1.384-1.411
13C12-3,4,4',5-TeCB	81L			13C12-2,2',5,5'-TeCB	52L	1.374	1.360-1.387
13C12-2,2',4,6,6'-PeCB	104L			13C12-2,2',4,5,5'-PeCB	101L	0.808	0.798-0.819
13C12-2,3,3',4,4'-PeCB	105L			13C12-2,2',4,5,5'-PeCB	101L	1.201	1.190-1.211
13C12-2,3,4,4',5-PeCB	114L			13C12-2,2',4,5,5'-PeCB	101L	1.179	1.169-1.190
13C12-2,3',4,4',5-PeCB	118L			13C12-2,2',4,5,5'-PeCB	101L	1.162	1.152-1.173
13C12-2',3,4,4',5-PeCB	123L			13C12-2,2',4,5,5'-PeCB	101L	1.151	1.141-1.162
13C12-3,3',4,4',5-PeCB	126L			13C12-2,2',4,5,5'-PeCB	101L	1.302	1.291-1.312
13C12-2,2',4,4',6,6'-HxCB	155L			13C12-2,2',3,4,4',5'-HxCB	138L	0.786	0.777-0.794
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	13C12-2,2',3,4,4',5'-HxCB	138L	1.108	1.100-1.117
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L				
13C12-2,3',4,4',5,5'-HxCB	167L			13C12-2,2',3,4,4',5'-HxCB	138L	1.078	1.070-1.086
13C12-3,3',4,4',5,5'-HxCB	169L			13C12-2,2',3,4,4',5'-HxCB	138L	1.192	1.184-1.200
13C12-2,2',3,4',5,6,6'-HpCB	188L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.712	0.705-0.718
13C12-2,3,3',4,4',5,5'-HpCB	189L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.959	0.953-0.965
13C12-2,2',3,3',5,5',6,6'-OcCB	202L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.817	0.811-0.824
13C12-2,3,3',4,4',5,5',6-OcCB	205L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.009	1.000-1.018
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.043	1.034-1.052
13C12-2,2',3,3',4,4',5,5',6,6'-NoCB	208L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.949	0.942-0.955
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.074	1.065-1.084

CLEANUP STANDARD

13C12-2,4,4'-TriCB	28L	13C12-2,2',5,5'-TeCB	52L	0.925	0.912-0.939
13C12-2,3,3',5,5'-PeCB	111L	13C12-2,2',4,5,5'-PeCB	101L	1.088	1.077-1.098
13C12-2,2',3,3',5,5',6-HpCB	178L	13C12-2,2',3,4,4',5'-HxCB	138L	1.012	1.004-1.020

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_355CS1__Form6B_SJ2450419.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 3A

PCB CONGENER INITIAL CALIBRATION RELATIVE RESPONSES,
ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

CAL Data Filename: PB8C_355C S: 1

Instrument ID: HR GC/MS

Analysis Date: 17-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 13:32:23

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
3-MoCB	2			0.92	M/M+2	2.98	2.66-3.60	0.988	0.984 - 0.992
2,3-DiCB	5			0.90	M/M+2	1.47	1.33-1.79	1.198	1.195 - 1.202
2,3'-DiCB	6			1.00	M/M+2	1.47	1.33-1.79	1.175	1.172 - 1.179
2,4-DiCB	7			0.99	M/M+2	1.49	1.33-1.79	1.158	1.154 - 1.161
2,4'-DiCB	8			1.12	M/M+2	1.47	1.33-1.79	1.208	1.204 - 1.211
2,5-DiCB	9			1.00	M/M+2	1.47	1.33-1.79	1.146	1.142 - 1.149
2,6-DiCB	10			0.95	M/M+2	1.49	1.33-1.79	1.013	1.010 - 1.017
3,3'-DiCB	11			1.02	M/M+2	1.52	1.33-1.79	0.969	0.967 - 0.972
3,4-DiCB	12	12 + 13	C	1.02	M/M+2	1.50	1.33-1.79	0.985	0.983 - 0.988
3,4'-DiCB	13	12 + 13	C12						
3,5-DiCB	14			1.02	M/M+2	1.50	1.33-1.79	0.925	0.923 - 0.928
2,2',3-TriCB	16			0.95	M/M+2	1.03	0.88-1.20	1.165	1.162 - 1.168
2,2',4-TriCB	17			1.03	M/M+2	1.06	0.88-1.20	1.138	1.135 - 1.141
2,2',5-TriCB	18	18 + 30	C	1.21	M/M+2	1.04	0.88-1.20	1.112	1.109 - 1.115
2,3,3'-TriCB	20	20 + 28	C	1.02	M/M+2	1.05	0.88-1.20	0.848	0.845 - 0.851
2,3,4-TriCB	21	21 + 33	C	1.07	M/M+2	0.97	0.88-1.20	0.855	0.852 - 0.859
2,3,4'-TriCB	22			0.94	M/M+2	1.03	0.88-1.20	0.872	0.870 - 0.874
2,3,5-TriCB	23			0.97	M/M+2	1.01	0.88-1.20	1.282	1.279 - 1.285
2,3,6-TriCB	24			1.32	M/M+2	1.05	0.88-1.20	1.159	1.156 - 1.161
2,3',4-TriCB	25			1.20	M/M+2	0.99	0.88-1.20	0.825	0.823 - 0.827
2,3',5-TriCB	26	26 + 29	C	1.02	M/M+2	1.03	0.88-1.20	1.302	1.297 - 1.306
2,3',6-TriCB	27			1.42	M/M+2	1.04	0.88-1.20	1.151	1.148 - 1.154
2,4,4'-TriCB	28	20 + 28	C20						
2,4,5-TriCB	29	26 + 29	C26						
2,4,6-TriCB	30	18 + 30	C18						
2,4',5-TriCB	31			1.09	M/M+2	1.02	0.88-1.20	0.837	0.835 - 0.838
2,4',6-TriCB	32			1.02	M/M+2	1.00	0.88-1.20	1.197	1.195 - 1.200
2',3,4-TriCB	33	21 + 33	C21						
2',3,5-TriCB	34			0.96	M/M+2	0.98	0.88-1.20	1.273	1.270 - 1.276
3,3',4-TriCB	35			1.05	M/M+2	0.99	0.88-1.20	0.985	0.984 - 0.987
3,3',5-TriCB	36			1.09	M/M+2	0.99	0.88-1.20	0.932	0.930 - 0.934
3,4,5-TriCB	38			1.04	M/M+2	1.01	0.88-1.20	0.967	0.965 - 0.969
3,4',5-TriCB	39			1.07	M/M+2	1.01	0.88-1.20	0.946	0.944 - 0.948
2,2',3,3'-TeCB	40	40 + 41 + 71	C	0.86	M/M+2	0.78	0.65-0.89	1.335	1.331 - 1.339
2,2',3,4-TeCB	41	40 + 41 + 71	C40						
2,2',3,4'-TeCB	42			0.83	M/M+2	0.78	0.65-0.89	1.312	1.310 - 1.314
2,2',3,5-TeCB	43			0.75	M/M+2	0.78	0.65-0.89	1.246	1.244 - 1.249
2,2',3,5'-TeCB	44	44 + 47 + 65	C	0.95	M/M+2	0.78	0.65-0.89	1.285	1.281 - 1.289
2,2',3,6-TeCB	45	45 + 51	C	0.84	M/M+2	0.79	0.65-0.89	1.147	1.143 - 1.151
2,2',3,6'-TeCB	46			0.74	M/M+2	0.78	0.65-0.89	1.161	1.158 - 1.163
2,2',4,4'-TeCB	47	44 + 47 + 65	C44						
2,2',4,5-TeCB	48			0.85	M/M+2	0.78	0.65-0.89	1.273	1.270 - 1.275
2,2',4,5'-TeCB	49	49 + 69	C	1.00	M/M+2	0.78	0.65-0.89	1.257	1.253 - 1.261
2,2',4,6-TeCB	50	50 + 53	C	0.86	M/M+2	0.79	0.65-0.89	1.112	1.108 - 1.116
2,2',4,6'-TeCB	51	45 + 51	C45						
2,2',5,5'-TeCB	52			0.91	M/M+2	0.80	0.65-0.89	1.234	1.232 - 1.236
2,2',5,6'-TeCB	53	50 + 53	C50						
2,3,3',4-TeCB	55			0.86	M/M+2	0.75	0.65-0.89	0.889	0.887 - 0.890
2,3,3',4'-TeCB	56			0.85	M/M+2	0.74	0.65-0.89	0.904	0.903 - 0.906

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
2,3,3',5'-TeCB	57			0.90	M/M+2	0.77	0.65-0.89	0.844	0.842 - 0.845
2,3,3',5'-TeCB	58			0.86	M/M+2	0.80	0.65-0.89	0.851	0.849 - 0.852
2,3,3',6'-TeCB	59	59 + 62 + 75	C	1.16	M/M+2	0.77	0.65-0.89	1.301	1.297 - 1.305
2,3,4,4'-TeCB	60			0.86	M/M+2	0.74	0.65-0.89	0.911	0.909 - 0.912
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	0.92	M/M+2	0.75	0.65-0.89	0.874	0.871 - 0.877
2,3,4,6'-TeCB	62	59 + 62 + 75	C59						
2,3,4',5'-TeCB	63			0.93	M/M+2	0.74	0.65-0.89	0.864	0.863 - 0.866
2,3,4',6'-TeCB	64			1.20	M/M+2	0.78	0.65-0.89	1.348	1.346 - 1.351
2,3,5,6'-TeCB	65	44 + 47 + 65	C44						
2,3',4,4'-TeCB	66			0.93	M/M+2	0.77	0.65-0.89	0.884	0.883 - 0.886
2,3',4,5'-TeCB	67			1.06	M/M+2	0.73	0.65-0.89	0.856	0.855 - 0.857
2,3',4,5'-TeCB	68			0.93	M/M+2	0.72	0.65-0.89	0.831	0.829 - 0.832
2,3',4,6'-TeCB	69	49 + 69	C49						
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61						
2,3',4',6'-TeCB	71	40 + 41 + 71	C40						
2,3',5,5'-TeCB	72			0.92	M/M+2	0.75	0.65-0.89	0.822	0.821 - 0.823
2,3',5,6'-TeCB	73			1.08	M/M+2	0.78	0.65-0.89	1.241	1.238 - 1.243
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61						
2,4,4',6'-TeCB	75	59 + 62 + 75	C59						
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61						
3,3',4,5'-TeCB	78			0.91	M/M+2	0.76	0.65-0.89	0.987	0.985 - 0.988
3,3',4,5'-TeCB	79			1.04	M/M+2	0.76	0.65-0.89	0.970	0.969 - 0.972
3,3',5,5'-TeCB	80			0.96	M/M+2	0.75	0.65-0.89	0.923	0.922 - 0.925
2,2',3,3',4'-PeCB	82			0.82	M+2/M+4	1.54	1.32-1.78	0.933	0.932 - 0.935
2,2',3,3',5'-PeCB	83	83 + 99	C	0.87	M+2/M+4	1.47	1.32-1.78	0.884	0.881 - 0.887
2,2',3,3',6'-PeCB	84			0.81	M+2/M+4	1.53	1.32-1.78	1.164	1.162 - 1.165
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1.09	M+2/M+4	1.57	1.32-1.78	0.919	0.917 - 0.922
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C	1.07	M+2/M+4	1.57	1.32-1.78	0.900	0.896 - 0.904
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86						
2,2',3,4,6'-PeCB	88	88 + 91	C	0.90	M+2/M+4	1.58	1.32-1.78	1.153	1.149 - 1.157
2,2',3,4,6'-PeCB	89			0.87	M+2/M+4	1.58	1.32-1.78	1.183	1.181 - 1.185
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	1.04	M+2/M+4	1.58	1.32-1.78	0.869	0.866 - 0.871
2,2',3,4',6'-PeCB	91	88 + 91	C88						
2,2',3,5,5'-PeCB	92			0.90	M+2/M+4	1.59	1.32-1.78	0.853	0.851 - 0.854
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	0.93	M+2/M+4	1.58	1.32-1.78	1.130	1.119 - 1.140
2,2',3,5,6'-PeCB	94			0.82	M+2/M+4	1.57	1.32-1.78	1.102	1.100 - 1.104
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93						
2,2',3,6,6'-PeCB	96			1.11	M+2/M+4	1.58	1.32-1.78	1.016	1.013 - 1.019
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86						
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93						
2,2',4,4',5'-PeCB	99	83 + 99	C83						
2,2',4,4',6'-PeCB	100	93 + 95 + 98 + 100 + 102	C93						
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90						
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93						
2,2',4,5',6'-PeCB	103			0.98	M+2/M+4	1.57	1.32-1.78	1.094	1.092 - 1.096
2,3,3',4,5'-PeCB	106			0.96	M+2/M+4	1.50	1.32-1.78	1.004	1.003 - 1.005
2,3,3',4',5'-PeCB	107	107 + 124	C	0.92	M+2/M+4	1.52	1.32-1.78	0.991	0.988 - 0.993
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86						
2,3,3',4,6'-PeCB	109			0.90	M+2/M+4	1.55	1.32-1.78	0.997	0.996 - 0.999
2,3,3',4',6'-PeCB	110	110 + 115	C	1.22	M+2/M+4	1.59	1.32-1.78	0.926	0.924 - 0.928
2,3,3',5,5'-PeCB	111			1.20	M+2/M+4	1.62	1.32-1.78	0.945	0.944 - 0.946
2,3,3',5,6'-PeCB	112			1.27	M+2/M+4	1.73	1.32-1.78	0.889	0.887 - 0.890
2,3,3',5',6'-PeCB	113	90 + 101 + 113	C90						
2,3,4,4',6'-PeCB	115	110 + 115	C110						
2,3,4,5,6'-PeCB	116	85 + 116 + 117	C85						
2,3,4',5,6'-PeCB	117	85 + 116 + 117	C85						
2,3',4,4',6'-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86						
2,3',4,5,5'-PeCB	120			1.28	M+2/M+4	1.56	1.32-1.78	0.958	0.957 - 0.959
2,3',4,5',6'-PeCB	121			1.18	M+2/M+4	1.59	1.32-1.78	1.199	1.198 - 1.201
2',3,3',4,5'-PeCB	122			0.85	M+2/M+4	1.51	1.32-1.78	1.010	1.009 - 1.012
2',3,4,5,5'-PeCB	124	107 + 124	C107						
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86						

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
3,3',4,5,5'-PeCB	127			0.91	M+2/M+4	1.49	1.32-1.78	1.041	1.040 - 1.042
2,2',3,3',4,4'-HxCB	128	128 + 166	C	0.94	M+2/M+4	1.24	1.05-1.43	0.958	0.957 - 0.960
2,2',3,3',4,5'-HxCB	129	129 + 138 + 160 + 163	C	0.94	M+2/M+4	1.25	1.05-1.43	0.930	0.927 - 0.933
2,2',3,3',4,5'-HxCB	130			0.74	M+2/M+4	1.25	1.05-1.43	0.913	0.912 - 0.914
2,2',3,3',4,6'-HxCB	131			0.76	M+2/M+4	1.25	1.05-1.43	1.160	1.158 - 1.162
2,2',3,3',4,6'-HxCB	132			0.73	M+2/M+4	1.26	1.05-1.43	1.175	1.173 - 1.178
2,2',3,3',5,5'-HxCB	133			0.79	M+2/M+4	1.26	1.05-1.43	1.191	1.190 - 1.193
2,2',3,3',5,6'-HxCB	134	134 + 143	C	0.76	M+2/M+4	1.26	1.05-1.43	1.142	1.139 - 1.144
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	0.81	M+2/M+4	1.24	1.05-1.43	1.107	1.101 - 1.112
2,2',3,3',6,6'-HxCB	136			1.00	M+2/M+4	1.27	1.05-1.43	1.025	1.024 - 1.027
2,2',3,4,4',5'-HxCB	137			0.75	M+2/M+4	1.26	1.05-1.43	0.918	0.917 - 0.919
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129						
2,2',3,4,4',6'-HxCB	139	139 + 140	C	0.85	M+2/M+4	1.26	1.05-1.43	1.153	1.151 - 1.156
2,2',3,4,4',6'-HxCB	140	139 + 140	C139						
2,2',3,4,5,5'-HxCB	141			0.85	M+2/M+4	1.37	1.05-1.43	0.903	0.902 - 0.904
2,2',3,4,5,6'-HxCB	142			0.79	M+2/M+4	1.23	1.05-1.43	1.165	1.163 - 1.166
2,2',3,4,5,6'-HxCB	143	134 + 143	C134						
2,2',3,4,5,6'-HxCB	144			0.78	M+2/M+4	1.27	1.05-1.43	1.122	1.120 - 1.123
2,2',3,4,6,6'-HxCB	145			0.94	M+2/M+4	1.28	1.05-1.43	1.034	1.032 - 1.036
2,2',3,4',5,5'-HxCB	146			0.90	M+2/M+4	1.25	1.05-1.43	0.884	0.883 - 0.885
2,2',3,4',5,6'-HxCB	147	147 + 149	C	0.86	M+2/M+4	1.25	1.05-1.43	1.133	1.131 - 1.136
2,2',3,4',5,6'-HxCB	148			0.75	M+2/M+4	1.22	1.05-1.43	1.084	1.082 - 1.085
2,2',3,4',5',6'-HxCB	149	147 + 149	C147						
2,2',3,4',6,6'-HxCB	150			1.00	M+2/M+4	1.26	1.05-1.43	1.013	1.011 - 1.014
2,2',3,5,5',6'-HxCB	151	135 + 151 + 154	C135						
2,2',3,5,6,6'-HxCB	152			1.07	M+2/M+4	1.24	1.05-1.43	1.007	1.006 - 1.009
2,2',4,4',5,5'-HxCB	153	153 + 168	C	1.04	M+2/M+4	1.21	1.05-1.43	0.899	0.897 - 0.901
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135						
2,3,3',4,4',6'-HxCB	158			1.20	M+2/M+4	1.28	1.05-1.43	0.938	0.936 - 0.939
2,3,3',4,5,5'-HxCB	159			1.09	M+2/M+4	1.27	1.05-1.43	0.982	0.981 - 0.984
2,3,3',4,5,6'-HxCB	160	129 + 138 + 160 + 163	C129						
2,3,3',4,5',6'-HxCB	161			1.13	M+2/M+4	1.26	1.05-1.43	0.887	0.886 - 0.888
2,3,3',4',5,5'-HxCB	162			1.26	M+2/M+4	1.29	1.05-1.43	0.989	0.988 - 0.990
2,3,3',4',5,6'-HxCB	163	129 + 138 + 160 + 163	C129						
2,3,3',4',5',6'-HxCB	164			1.14	M+2/M+4	1.26	1.05-1.43	0.921	0.920 - 0.922
2,3,3',5,5',6'-HxCB	165			0.97	M+2/M+4	1.26	1.05-1.43	0.878	0.877 - 0.879
2,3,4,4',5,6'-HxCB	166	128 + 166	C128						
2,3',4,4',5',6'-HxCB	168	153 + 168	C153						
2,2',3,3',4,4',5'-HpCB	170			1.13	M+2/M+4	1.06	0.89-1.21	1.000	0.999 - 1.001
2,2',3,3',4,4',6'-HpCB	171	171 + 173	C	0.80	M+2/M+4	1.04	0.89-1.21	1.163	1.161 - 1.165
2,2',3,3',4,5,5'-HpCB	172			0.78	M+2/M+4	1.05	0.89-1.21	0.897	0.896 - 0.898
2,2',3,3',4,5,6'-HpCB	173	171 + 173	C171						
2,2',3,3',4',5,6'-HpCB	174			0.85	M+2/M+4	1.06	0.89-1.21	1.134	1.133 - 1.135
2,2',3,3',4,5',6'-HpCB	175			0.86	M+2/M+4	1.03	0.89-1.21	1.103	1.101 - 1.104
2,2',3,3',4,6,6'-HpCB	176			1.10	M+2/M+4	1.05	0.89-1.21	1.034	1.033 - 1.036
2,2',3,3',4',5,6'-HpCB	177			1.19	M+2/M+4	1.03	0.89-1.21	1.146	1.144 - 1.147
2,2',3,3',5,5',6'-HpCB	178			0.83	M+2/M+4	1.06	0.89-1.21	1.085	1.084 - 1.087
2,2',3,3',5,6,6'-HpCB	179			1.13	M+2/M+4	1.05	0.89-1.21	1.010	1.009 - 1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	1.00	M+2/M+4	1.05	0.89-1.21	1.000	0.999 - 1.001
2,2',3,4,4',5,6'-HpCB	181			0.85	M+2/M+4	1.05	0.89-1.21	1.157	1.155 - 1.158
2,2',3,4,4',5,6'-HpCB	182			0.87	M+2/M+4	1.04	0.89-1.21	1.116	1.114 - 1.117
2,2',3,4,4',5',6'-HpCB	183	183 + 185	C	0.87	M+2/M+4	1.06	0.89-1.21	1.128	1.127 - 1.129
2,2',3,4,4',6,6'-HpCB	184			1.14	M+2/M+4	1.05	0.89-1.21	1.025	1.023 - 1.026
2,2',3,4,5,5',6'-HpCB	185	183 + 185	C183						
2,2',3,4,5,6,6'-HpCB	186			1.04	M+2/M+4	1.03	0.89-1.21	1.047	1.046 - 1.048
2,2',3,4',5,5',6'-HpCB	187			0.90	M+2/M+4	1.07	0.89-1.21	1.110	1.109 - 1.111
2,3,3',4,4',5,6'-HpCB	190			1.11	M+2/M+4	1.04	0.89-1.21	0.947	0.946 - 0.948
2,3,3',4,4',5',6'-HpCB	191			1.05	M+2/M+4	1.05	0.89-1.21	0.917	0.916 - 0.918
2,3,3',4,5,5',6'-HpCB	192			0.95	M+2/M+4	1.04	0.89-1.21	0.903	0.902 - 0.904
2,3,3',4',5,5',6'-HpCB	193	180 + 193	C180						
2,2',3,3',4,4',5,5'-OcCB	194			0.91	M+2/M+4	0.89	0.76-1.02	0.991	0.990 - 0.992
2,2',3,3',4,4',5,6'-OcCB	195			0.82	M+2/M+4	0.88	0.76-1.02	0.946	0.945 - 0.947
2,2',3,3',4,4',5,6'-OcCB	196			0.72	M+2/M+4	0.90	0.76-1.02	0.916	0.915 - 0.916

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
2,2',3,3',4,4',6,6'-O ₂ CB	197	197 + 200	C	0.98	M+2/M+4	0.90	0.76-1.02	1.046	1.043 - 1.048
2,2',3,3',4,5,5',6-O ₂ CB	198	198 + 199	C	0.71	M+2/M+4	0.90	0.76-1.02	1.114	1.112 - 1.116
2,2',3,3',4,5,5',6'-O ₂ CB	199	198 + 199	C198						
2,2',3,3',4,5,6,6'-O ₂ CB	200	197 + 200	C197						
2,2',3,3',4,5',6,6'-O ₂ CB	201			0.97	M+2/M+4	0.88	0.76-1.02	1.022	1.020 - 1.024
2,2',3,4,4',5,5',6-O ₂ CB	203			0.75	M+2/M+4	0.91	0.76-1.02	0.919	0.918 - 0.920
2,2',3,4,4',5,6,6'-O ₂ CB	204			0.95	M+2/M+4	0.91	0.76-1.02	1.039	1.038 - 1.040
2,2',3,3',4,4',5,6,6'-NoCB	207			1.14	M+2/M+4	0.80	0.65-0.89	1.020	1.019 - 1.021

(1) Where applicable, custom lab flags have been used on this report.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 3B

PCB CONGENER INITIAL CALIBRATION RELATIVE RESPONSES,
ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

CAL Data Filename: PB8C_355C S: 1

Instrument ID: HR GC/MS

Analysis Date: 17-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 13:32:23

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	RRF	MZ's FORMING RATIO ³	ION ABUND. RATIO	RATIO QC LIMITS ⁴	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			1.03	M/M+2	3.12	2.66-3.60	0.719	0.704 - 0.735
13C12-4-MoCB	3L			1.03	M/M+2	3.10	2.66-3.60	0.859	0.844 - 0.875
13C12-2,2'-DiCB	4L			0.59	M/M+2	1.52	1.33-1.79	0.874	0.858 - 0.889
13C12-4,4'-DiCB	15L			1.02	M/M+2	1.56	1.33-1.79	1.253	1.238 - 1.269
13C12-2,2',6'-TriCB	19L			0.59	M/M+2	1.04	0.88-1.20	1.072	1.056 - 1.088
13C12-3,4,4'-TriCB	37L			1.32	M/M+2	1.00	0.88-1.20	1.093	1.083 - 1.103
13C12-2,2',6,6'-TeCB	54L			1.25	M/M+2	0.81	0.65-0.89	0.811	0.805 - 0.818
13C12-3,3',4,4'-TeCB	77L			1.23	M/M+2	0.78	0.65-0.89	1.398	1.391 - 1.404
13C12-3,4,4',5'-TeCB	81L			1.22	M/M+2	0.78	0.65-0.89	1.374	1.367 - 1.380
13C12-2,2',4,6,6'-PeCB	104L			1.05	M+2/M+4	1.59	1.32-1.78	0.808	0.803 - 0.813
13C12-2,3,3',4,4'-PeCB	105L			1.12	M+2/M+4	1.55	1.32-1.78	1.201	1.195 - 1.206
13C12-2,3,4,4',5'-PeCB	114L			1.09	M+2/M+4	1.57	1.32-1.78	1.179	1.174 - 1.185
13C12-2,3',4,4',5'-PeCB	118L			1.12	M+2/M+4	1.55	1.32-1.78	1.162	1.157 - 1.167
13C12-2',3,4,4',5'-PeCB	123L			1.13	M+2/M+4	1.52	1.32-1.78	1.151	1.146 - 1.157
13C12-3,3',4,4',5'-PeCB	126L			1.06	M+2/M+4	1.52	1.32-1.78	1.302	1.297 - 1.307
13C12-2,2',4,4',6,6'-HxCB	155L			1.12	M+2/M+4	1.23	1.05-1.43	0.786	0.782 - 0.790
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C	1.23	M+2/M+4	1.28	1.05-1.43	1.108	1.104 - 1.113
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L						
13C12-2,3',4,4',5,5'-HxCB	167L			1.17	M+2/M+4	1.27	1.05-1.43	1.078	1.074 - 1.082
13C12-3,3',4,4',5,5'-HxCB	169L			1.24	M+2/M+4	1.27	1.05-1.43	1.192	1.188 - 1.196
13C12-2,2',3,3',4,4',5'-HpCB	170L			0.92	M+2/M+4	1.04	0.89-1.21	0.897	0.894 - 0.900
13C12-2,2',3,4,4',5,5'-HpCB	180L			1.10	M+2/M+4	1.07	0.89-1.21	0.872	0.869 - 0.876
13C12-2,2',3,4,5,6,6'-HpCB	188L			1.48	M+2/M+4	1.07	0.89-1.21	0.712	0.709 - 0.715
13C12-2,3,3',4,4',5,5'-HpCB	189L			1.15	M+2/M+4	1.03	0.89-1.21	0.959	0.956 - 0.962
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			1.10	M+2/M+4	0.94	0.76-1.02	0.817	0.814 - 0.820
13C12-2,3,3',4,4',5,5',6-OxCB	205L			1.36	M+2/M+4	0.89	0.76-1.02	1.009	1.004 - 1.014
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			0.99	M+2/M+4	0.76	0.65-0.89	1.043	1.038 - 1.048
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			1.19	M+2/M+4	0.79	0.65-0.89	0.949	0.945 - 0.952

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4A
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_355D S: 6

Instrument ID: HR GC/MS

Analysis Date: 17-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:00:15

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
2-MoCB	1			M/M+2	2.96	2.66-3.60	20.0	17.5 - 32.5
4-MoCB	3			M/M+2	3.00	2.66-3.60	21.2	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.52	1.33-1.79	19.9	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.48	1.33-1.79	23.5	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.07	0.88-1.20	25.9	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	0.99	0.88-1.20	20.5	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.80	0.65-0.89	49.0	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.77	0.65-0.89	41.7	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.76	0.65-0.89	45.2	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.63	1.32-1.78	53.2	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.41	1.32-1.78	43.4	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.51	1.32-1.78	44.5	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.54	1.32-1.78	42.9	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.54	1.32-1.78	49.0	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.48	1.32-1.78	44.9	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.26	1.05-1.43	54.2	35.0 - 65.0
2,3,3',4,4',5-HxCB	156	156 + 157	C	M+2/M+4	1.25	1.05-1.43	98.3	70.0 - 130
2,3,3',4,4',5'-HxCB	157	156 + 157	C156					
2,3',4,4',5,5'-HxCB	167			M+2/M+4	1.26	1.05-1.43	53.7	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.32	1.05-1.43	49.7	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.06	0.89-1.21	51.3	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.02	0.89-1.21	39.2	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.90	0.76-1.02	89.9	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.90	0.76-1.02	71.3	52.5 - 97.5
2,2',3,3',4,4',5,5',6-NoCB	206			M+2/M+4	0.79	0.65-0.89	74.1	52.5 - 97.5
2,2',3,3',4,5,5',6,6'-NoCB	208			M+2/M+4	0.78	0.65-0.89	84.2	58.7 - 109
2,2',3,3',4,4',5,5',6,6'-DeCB	209			M+4/M+6	1.20	0.99-1.33	75.7	52.5 - 97.5

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4B
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018 VER Data Filename: PB8C_355D S: 6

Instrument ID: HR GC/MS Analysis Date: 17-Oct-2018

GC Column ID: SPB OCTYL Analysis Time: 20:00:15

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	MZ's FORMING RATIO ³	ION ABUND. RATIO	QC LIMITS ⁴	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
13C12-2-MoCB	1L			M/M+2	3.10	2.66-3.60	97.8	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.09	2.66-3.60	97.2	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.53	1.33-1.79	88.7	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.55	1.33-1.79	92.2	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.07	0.88-1.20	105	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.00	0.88-1.20	76.2	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.80	0.65-0.89	89.9	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.79	0.65-0.89	96.2	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.77	0.65-0.89	91.9	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.59	1.32-1.78	75.7	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.58	1.32-1.78	84.4	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.58	1.32-1.78	83.9	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.55	1.32-1.78	85.1	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.54	1.32-1.78	87.8	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.52	1.32-1.78	88.1	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.25	1.05-1.43	67.5	50.0 - 150
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	M+2/M+4	1.28	1.05-1.43	184	100 - 300
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			M+2/M+4	1.24	1.05-1.43	97.0	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.29	1.05-1.43	96.8	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.05	0.89-1.21	71.9	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.01	0.89-1.21	79.0	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.90	0.76-1.02	62.1	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.92	0.76-1.02	87.9	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.82	0.65-0.89	89.3	50.0 - 150
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			M+2/M+4	0.79	0.65-0.89	84.1	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6	1.19	0.99-1.33	75.2	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.02	0.88-1.20	83.3	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.60	1.32-1.78	90.1	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.07	0.89-1.21	86.1	60.0 - 130

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 6A
PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_355D S: 6

Instrument ID: HR GC/MS

Analysis Date: 17-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:00:15

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RETENTION TIME REFERENCE	IUPAC NO. ²	RRT	RRT QC LIMITS
2-MoCB	1			13C12-2-MoCB	1L	1.001	0.999-1.004
4-MoCB	3			13C12-4-MoCB	3L	1.001	0.999-1.004
2,2'-DiCB	4			13C12-2,2'-DiCB	4L	1.001	0.999-1.004
4,4'-DiCB	15			13C12-4,4'-DiCB	15L	1.001	0.999-1.002
2,2',6-TriCB	19			13C12-2,2',6-TriCB	19L	1.002	0.999-1.003
3,4,4'-TriCB	37			13C12-3,4,4'-TriCB	37L	1.001	0.999-1.002
2,2',6,6'-TeCB	54			13C12-2,2',6,6'-TeCB	54L	1.001	0.999-1.002
3,3',4,4'-TeCB	77			13C12-3,3',4,4'-TeCB	77L	1.000	1.000-1.001
3,4,4',5-TeCB	81			13C12-3,4,4',5-TeCB	81L	1.000	1.000-1.001
2,2',4,6,6'-PeCB	104			13C12-2,2',4,6,6'-PeCB	104L	1.001	0.999-1.002
2,3,3',4,4'-PeCB	105			13C12-2,3,3',4,4'-PeCB	105L	1.001	1.000-1.001
2,3,4,4',5-PeCB	114			13C12-2,3,4,4',5-PeCB	114L	1.000	1.000-1.001
2,3',4,4',5-PeCB	118			13C12-2,3',4,4',5-PeCB	118L	1.000	1.000-1.001
2',3,4,4',5-PeCB	123			13C12-2',3,4,4',5-PeCB	123L	1.000	1.000-1.001
3,3',4,4',5-PeCB	126			13C12-3,3',4,4',5-PeCB	126L	1.000	1.000-1.001
2,2',4,4',6,6'-HxCB	155			13C12-2,2',4,4',6,6'-HxCB	155L	1.001	0.999-1.002
2,3,3',4,4',5-HxCB	156	156 + 157	C	13C12-2,3,3',4,4',5-HxCB and 13C12-2,3,3',4,4',5'-HxCB	156L/157L	1.000	0.998-1.003
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3',4,4',5,5'-HxCB	167			13C12-2,3',4,4',5,5'-HxCB	167L	1.001	1.000-1.001
3,3',4,4',5,5'-HxCB	169			13C12-3,3',4,4',5,5'-HxCB	169L	1.001	1.000-1.001
2,2',3,4',5,6,6'-HpCB	188			13C12-2,2',3,4',5,6,6'-HpCB	188L	1.000	1.000-1.001
2,3,3',4,4',5,5'-HpCB	189			13C12-2,3,3',4,4',5,5'-HpCB	189L	1.000	1.000-1.001
2,2',3,3',5,5',6,6'-OxCB	202			13C12-2,2',3,3',5,5',6,6'-OxCB	202L	1.001	1.000-1.001
2,3,3',4,4',5,5',6-OxCB	205			13C12-2,3,3',4,4',5,5',6-OxCB	205L	1.000	1.000-1.001
2,2',3,3',4,4',5,5',6-NoCB	206			13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	1.001	1.000-1.001
2,2',3,3',4,5,5',6,6'-NoCB	208			13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L	1.001	1.000-1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L	1.000	1.000-1.001

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) Suffix "L" indicates labeled compound

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_355DS6_Form6A_SJ2450431.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 6B

PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_355D S: 6

Instrument ID: HR GC/MS

Analysis Date: 17-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:00:15

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	RETENTION TIME REFERENCE	IUPAC NO. ¹	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			13C12-2,5-DiCB	9L	0.719	0.688-0.751
13C12-4-MoCB	3L			13C12-2,5-DiCB	9L	0.858	0.827-0.889
13C12-2,2'-DiCB	4L			13C12-2,5-DiCB	9L	0.873	0.842-0.904
13C12-4,4'-DiCB	15L			13C12-2,5-DiCB	9L	1.253	1.222-1.285
13C12-2,2',6-TriCB	19L			13C12-2,5-DiCB	9L	1.071	1.040-1.102
13C12-3,4,4'-TriCB	37L			13C12-2,2',5,5'-TeCB	52L	1.093	1.073-1.113
13C12-2,2',6,6'-TeCB	54L			13C12-2,2',5,5'-TeCB	52L	0.811	0.797-0.824
13C12-3,3',4,4'-TeCB	77L			13C12-2,2',5,5'-TeCB	52L	1.398	1.384-1.411
13C12-3,4,4',5-TeCB	81L			13C12-2,2',5,5'-TeCB	52L	1.374	1.360-1.387
13C12-2,2',4,6,6'-PeCB	104L			13C12-2,2',4,5,5'-PeCB	101L	0.808	0.797-0.818
13C12-2,3,3',4,4'-PeCB	105L			13C12-2,2',4,5,5'-PeCB	101L	1.200	1.190-1.210
13C12-2,3,4,4',5-PeCB	114L			13C12-2,2',4,5,5'-PeCB	101L	1.179	1.169-1.190
13C12-2,3',4,4',5-PeCB	118L			13C12-2,2',4,5,5'-PeCB	101L	1.162	1.152-1.173
13C12-2',3,4,4',5-PeCB	123L			13C12-2,2',4,5,5'-PeCB	101L	1.151	1.141-1.162
13C12-3,3',4,4',5-PeCB	126L			13C12-2,2',4,5,5'-PeCB	101L	1.302	1.291-1.312
13C12-2,2',4,4',6,6'-HxCB	155L			13C12-2,2',3,4,4',5'-HxCB	138L	0.785	0.777-0.793
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	13C12-2,2',3,4,4',5'-HxCB	138L	1.108	1.100-1.117
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L				
13C12-2,3',4,4',5,5'-HxCB	167L			13C12-2,2',3,4,4',5'-HxCB	138L	1.078	1.070-1.086
13C12-3,3',4,4',5,5'-HxCB	169L			13C12-2,2',3,4,4',5'-HxCB	138L	1.192	1.184-1.200
13C12-2,2',3,4',5,6,6'-HpCB	188L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	0.712	0.705-0.718
13C12-2,3,3',4,4',5,5'-HpCB	189L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	0.959	0.953-0.966
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	0.817	0.811-0.824
13C12-2,3,3',4,4',5,5',6-OxCB	205L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	1.009	1.000-1.019
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	1.043	1.034-1.052
13C12-2,2',3,3',4,4',5,5',6,6'-NoCB	208L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	0.949	0.942-0.955
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	1.074	1.065-1.084

CLEANUP STANDARD

13C12-2,4,4'-TriCB	28L	13C12-2,2',5,5'-TeCB	52L	0.925	0.911-0.938
13C12-2,3,3',5,5'-PeCB	111L	13C12-2,2',4,5,5'-PeCB	101L	1.088	1.077-1.098
13C12-2,2',3,3',5,5',6-HpCB	178L	13C12-2,2',3,4,4',5'-HxCB	138L	1.012	1.004-1.020

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_355DS6__Form6B_SJ2450431.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 4A
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_356 S: 1

Instrument ID: HR GC/MS

Analysis Date: 17-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 21:10:45

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
2-MoCB	1			M/M+2	2.93	2.66-3.60	20.0	17.5 - 32.5
4-MoCB	3			M/M+2	2.99	2.66-3.60	21.3	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.46	1.33-1.79	19.9	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.44	1.33-1.79	23.7	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.05	0.88-1.20	26.9	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	1.02	0.88-1.20	20.9	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.79	0.65-0.89	49.6	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.74	0.65-0.89	41.2	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.69	0.65-0.89	43.4	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.56	1.32-1.78	53.4	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.53	1.32-1.78	45.0	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.48	1.32-1.78	46.0	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.50	1.32-1.78	43.8	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.48	1.32-1.78	43.3	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.47	1.32-1.78	45.9	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.27	1.05-1.43	52.3	35.0 - 65.0
2,3,3',4,4',5-HxCB	156	156 + 157	C	M+2/M+4	1.26	1.05-1.43	101	70.0 - 130
2,3,3',4,4',5'-HxCB	157	156 + 157	C156					
2,3',4,4',5,5'-HxCB	167			M+2/M+4	1.22	1.05-1.43	54.3	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.28	1.05-1.43	53.0	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.06	0.89-1.21	50.8	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	0.98	0.89-1.21	40.5	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.92	0.76-1.02	84.2	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.90	0.76-1.02	72.0	52.5 - 97.5
2,2',3,3',4,4',5,5',6-NoCB	206			M+2/M+4	0.77	0.65-0.89	73.4	52.5 - 97.5
2,2',3,3',4,5,5',6,6'-NoCB	208			M+2/M+4	0.78	0.65-0.89	84.8	58.7 - 109
2,2',3,3',4,4',5,5',6,6'-DeCB	209			M+4/M+6	1.19	0.99-1.33	74.1	52.5 - 97.5

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4B
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018 VER Data Filename: PB8C_356 S: 1

Instrument ID: HR GC/MS Analysis Date: 17-Oct-2018

GC Column ID: SPB OCTYL Analysis Time: 21:10:45

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	MZ's FORMING RATIO ³	ION ABUND. RATIO	QC LIMITS ⁴	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
13C12-2-MoCB	1L			M/M+2	3.10	2.66-3.60	99.4	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.10	2.66-3.60	97.5	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.54	1.33-1.79	91.9	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.54	1.33-1.79	90.4	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.05	0.88-1.20	105	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.00	0.88-1.20	75.2	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.79	0.65-0.89	92.5	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.77	0.65-0.89	92.7	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.77	0.65-0.89	92.0	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.61	1.32-1.78	76.8	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.54	1.32-1.78	82.0	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.55	1.32-1.78	79.8	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.50	1.32-1.78	80.7	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.57	1.32-1.78	82.6	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.55	1.32-1.78	86.3	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.26	1.05-1.43	74.0	50.0 - 150
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	M+2/M+4	1.26	1.05-1.43	182	100 - 300
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			M+2/M+4	1.27	1.05-1.43	96.3	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.24	1.05-1.43	93.2	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.03	0.89-1.21	79.8	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.06	0.89-1.21	76.9	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.93	0.76-1.02	69.3	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.89	0.76-1.02	88.4	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.78	0.65-0.89	90.9	50.0 - 150
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			M+2/M+4	0.79	0.65-0.89	87.7	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6	1.19	0.99-1.33	80.0	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.02	0.88-1.20	82.2	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.58	1.32-1.78	90.8	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.04	0.89-1.21	86.8	60.0 - 130

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 6A
PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_356 S: 1

Instrument ID: HR GC/MS

Analysis Date: 17-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 21:10:45

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RETENTION TIME REFERENCE	IUPAC NO. ²	RRT	RRT QC LIMITS
2-MoCB	1			13C12-2-MoCB	1L	1.001	0.999-1.004
4-MoCB	3			13C12-4-MoCB	3L	1.001	0.999-1.004
2,2'-DiCB	4			13C12-2,2'-DiCB	4L	1.001	0.999-1.004
4,4'-DiCB	15			13C12-4,4'-DiCB	15L	1.001	0.999-1.002
2,2',6-TriCB	19			13C12-2,2',6-TriCB	19L	1.001	0.999-1.003
3,4,4'-TriCB	37			13C12-3,4,4'-TriCB	37L	1.001	0.999-1.002
2,2',6,6'-TeCB	54			13C12-2,2',6,6'-TeCB	54L	1.001	0.999-1.002
3,3',4,4'-TeCB	77			13C12-3,3',4,4'-TeCB	77L	1.000	1.000-1.001
3,4,4',5-TeCB	81			13C12-3,4,4',5-TeCB	81L	1.000	1.000-1.001
2,2',4,6,6'-PeCB	104			13C12-2,2',4,6,6'-PeCB	104L	1.001	0.999-1.002
2,3,3',4,4'-PeCB	105			13C12-2,3,3',4,4'-PeCB	105L	1.001	1.000-1.001
2,3,4,4',5-PeCB	114			13C12-2,3,4,4',5-PeCB	114L	1.001	1.000-1.001
2,3',4,4',5-PeCB	118			13C12-2,3',4,4',5-PeCB	118L	1.000	1.000-1.001
2',3,4,4',5-PeCB	123			13C12-2',3,4,4',5-PeCB	123L	1.000	1.000-1.001
3,3',4,4',5-PeCB	126			13C12-3,3',4,4',5-PeCB	126L	1.000	1.000-1.001
2,2',4,4',6,6'-HxCB	155			13C12-2,2',4,4',6,6'-HxCB	155L	1.001	0.999-1.002
2,3,3',4,4',5-HxCB	156	156 + 157	C	13C12-2,3,3',4,4',5-HxCB and 13C12-2,3,3',4,4',5'-HxCB	156L/157L	1.000	0.998-1.003
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3',4,4',5,5'-HxCB	167			13C12-2,3',4,4',5,5'-HxCB	167L	1.001	1.000-1.001
3,3',4,4',5,5'-HxCB	169			13C12-3,3',4,4',5,5'-HxCB	169L	1.001	1.000-1.001
2,2',3,4',5,6,6'-HpCB	188			13C12-2,2',3,4',5,6,6'-HpCB	188L	1.000	1.000-1.001
2,3,3',4,4',5,5'-HpCB	189			13C12-2,3,3',4,4',5,5'-HpCB	189L	1.001	1.000-1.001
2,2',3,3',5,5',6,6'-OxCB	202			13C12-2,2',3,3',5,5',6,6'-OxCB	202L	1.001	1.000-1.001
2,3,3',4,4',5,5',6-OxCB	205			13C12-2,3,3',4,4',5,5',6-OxCB	205L	1.001	1.000-1.001
2,2',3,3',4,4',5,5',6-NoCB	206			13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	1.001	1.000-1.001
2,2',3,3',4,5,5',6,6'-NoCB	208			13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L	1.000	1.000-1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L	1.000	1.000-1.001

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) Suffix "L" indicates labeled compound

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_356S1__Form6A_SJ2450499.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 6B

PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_356 S: 1

Instrument ID: HR GC/MS

Analysis Date: 17-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 21:10:45

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	RETENTION TIME REFERENCE	IUPAC NO. ¹	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			13C12-2,5-DiCB	9L	0.719	0.688-0.751
13C12-4-MoCB	3L			13C12-2,5-DiCB	9L	0.859	0.828-0.891
13C12-2,2'-DiCB	4L			13C12-2,5-DiCB	9L	0.874	0.843-0.905
13C12-4,4'-DiCB	15L			13C12-2,5-DiCB	9L	1.253	1.222-1.285
13C12-2,2',6-TriCB	19L			13C12-2,5-DiCB	9L	1.072	1.041-1.103
13C12-3,4,4'-TriCB	37L			13C12-2,2',5,5'-TeCB	52L	1.093	1.073-1.113
13C12-2,2',6,6'-TeCB	54L			13C12-2,2',5,5'-TeCB	52L	0.811	0.798-0.825
13C12-3,3',4,4'-TeCB	77L			13C12-2,2',5,5'-TeCB	52L	1.398	1.384-1.411
13C12-3,4,4',5-TeCB	81L			13C12-2,2',5,5'-TeCB	52L	1.374	1.360-1.387
13C12-2,2',4,6,6'-PeCB	104L			13C12-2,2',4,5,5'-PeCB	101L	0.808	0.798-0.819
13C12-2,3,3',4,4'-PeCB	105L			13C12-2,2',4,5,5'-PeCB	101L	1.200	1.190-1.210
13C12-2,3,4,4',5-PeCB	114L			13C12-2,2',4,5,5'-PeCB	101L	1.179	1.169-1.190
13C12-2,3',4,4',5-PeCB	118L			13C12-2,2',4,5,5'-PeCB	101L	1.162	1.152-1.173
13C12-2',3,4,4',5-PeCB	123L			13C12-2,2',4,5,5'-PeCB	101L	1.151	1.141-1.162
13C12-3,3',4,4',5-PeCB	126L			13C12-2,2',4,5,5'-PeCB	101L	1.302	1.291-1.312
13C12-2,2',4,4',6,6'-HxCB	155L			13C12-2,2',3,4,4',5'-HxCB	138L	0.786	0.777-0.794
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	13C12-2,2',3,4,4',5'-HxCB	138L	1.108	1.100-1.117
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L				
13C12-2,3',4,4',5,5'-HxCB	167L			13C12-2,2',3,4,4',5'-HxCB	138L	1.078	1.070-1.086
13C12-3,3',4,4',5,5'-HxCB	169L			13C12-2,2',3,4,4',5'-HxCB	138L	1.192	1.184-1.200
13C12-2,2',3,4',5,6,6'-HpCB	188L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.712	0.706-0.718
13C12-2,3,3',4,4',5,5'-HpCB	189L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.959	0.953-0.966
13C12-2,2',3,3',5,5',6,6'-OcCB	202L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.818	0.811-0.824
13C12-2,3,3',4,4',5,5',6-OcCB	205L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.009	1.000-1.019
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.043	1.034-1.053
13C12-2,2',3,3',4,4',5,5',6,6'-NoCB	208L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.949	0.943-0.955
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.075	1.065-1.084

CLEANUP STANDARD

13C12-2,4,4'-TriCB	28L	13C12-2,2',5,5'-TeCB	52L	0.925	0.912-0.939
13C12-2,3,3',5,5'-PeCB	111L	13C12-2,2',4,5,5'-PeCB	101L	1.088	1.077-1.098
13C12-2,2',3,3',5,5',6-HpCB	178L	13C12-2,2',3,4,4',5'-HxCB	138L	1.012	1.004-1.020

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_356S1__Form6B_SJ2450499.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 3A

PCB CONGENER INITIAL CALIBRATION RELATIVE RESPONSES,
ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

CAL Data Filename: PB8C_356 S: 1

Instrument ID: HR GC/MS

Analysis Date: 17-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 21:10:45

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
3-MoCB	2			0.86	M/M+2	3.08	2.66-3.60	0.988	0.984 - 0.992
2,3-DiCB	5			0.88	M/M+2	1.50	1.33-1.79	1.198	1.195 - 1.202
2,3'-DiCB	6			0.99	M/M+2	1.50	1.33-1.79	1.175	1.172 - 1.179
2,4-DiCB	7			0.99	M/M+2	1.50	1.33-1.79	1.158	1.154 - 1.161
2,4'-DiCB	8			1.11	M/M+2	1.49	1.33-1.79	1.208	1.204 - 1.211
2,5-DiCB	9			1.02	M/M+2	1.49	1.33-1.79	1.146	1.142 - 1.149
2,6-DiCB	10			0.99	M/M+2	1.45	1.33-1.79	1.014	1.011 - 1.018
3,3'-DiCB	11			0.93	M/M+2	1.52	1.33-1.79	0.969	0.967 - 0.972
3,4-DiCB	12	12 + 13	C	0.96	M/M+2	1.49	1.33-1.79	0.985	0.983 - 0.988
3,4'-DiCB	13	12 + 13	C12						
3,5-DiCB	14			0.96	M/M+2	1.46	1.33-1.79	0.926	0.923 - 0.928
2,2',3-TriCB	16			0.92	M/M+2	1.09	0.88-1.20	1.165	1.162 - 1.168
2,2',4-TriCB	17			1.03	M/M+2	1.05	0.88-1.20	1.138	1.135 - 1.141
2,2',5-TriCB	18	18 + 30	C	1.21	M/M+2	1.04	0.88-1.20	1.112	1.109 - 1.115
2,3,3'-TriCB	20	20 + 28	C	0.99	M/M+2	1.03	0.88-1.20	0.848	0.845 - 0.851
2,3,4-TriCB	21	21 + 33	C	1.01	M/M+2	0.96	0.88-1.20	0.855	0.852 - 0.858
2,3,4'-TriCB	22			0.89	M/M+2	0.96	0.88-1.20	0.871	0.870 - 0.873
2,3,5-TriCB	23			0.93	M/M+2	0.99	0.88-1.20	1.281	1.278 - 1.284
2,3,6-TriCB	24			1.33	M/M+2	1.05	0.88-1.20	1.159	1.156 - 1.161
2,3',4-TriCB	25			1.13	M/M+2	0.99	0.88-1.20	0.824	0.823 - 0.826
2,3',5-TriCB	26	26 + 29	C	0.95	M/M+2	0.99	0.88-1.20	1.302	1.297 - 1.306
2,3',6-TriCB	27			1.46	M/M+2	1.04	0.88-1.20	1.151	1.148 - 1.154
2,4,4'-TriCB	28	20 + 28	C20						
2,4,5-TriCB	29	26 + 29	C26						
2,4,6-TriCB	30	18 + 30	C18						
2,4',5-TriCB	31			1.04	M/M+2	0.98	0.88-1.20	0.837	0.835 - 0.838
2,4',6-TriCB	32			1.04	M/M+2	0.99	0.88-1.20	1.196	1.194 - 1.199
2',3,4-TriCB	33	21 + 33	C21						
2',3,5-TriCB	34			0.96	M/M+2	1.02	0.88-1.20	1.272	1.269 - 1.275
3,3',4-TriCB	35			0.97	M/M+2	0.98	0.88-1.20	0.985	0.984 - 0.987
3,3',5-TriCB	36			1.06	M/M+2	1.01	0.88-1.20	0.931	0.929 - 0.933
3,4,5-TriCB	38			1.01	M/M+2	0.99	0.88-1.20	0.966	0.965 - 0.968
3,4',5-TriCB	39			1.00	M/M+2	0.99	0.88-1.20	0.945	0.943 - 0.947
2,2',3,3'-TeCB	40	40 + 41 + 71	C	0.82	M/M+2	0.79	0.65-0.89	1.335	1.331 - 1.339
2,2',3,4-TeCB	41	40 + 41 + 71	C40						
2,2',3,4'-TeCB	42			0.80	M/M+2	0.75	0.65-0.89	1.311	1.309 - 1.314
2,2',3,5-TeCB	43			0.71	M/M+2	0.78	0.65-0.89	1.245	1.243 - 1.248
2,2',3,5'-TeCB	44	44 + 47 + 65	C	0.92	M/M+2	0.78	0.65-0.89	1.285	1.281 - 1.289
2,2',3,6-TeCB	45	45 + 51	C	0.84	M/M+2	0.78	0.65-0.89	1.147	1.143 - 1.151
2,2',3,6'-TeCB	46			0.74	M/M+2	0.78	0.65-0.89	1.161	1.158 - 1.163
2,2',4,4'-TeCB	47	44 + 47 + 65	C44						
2,2',4,5-TeCB	48			0.82	M/M+2	0.78	0.65-0.89	1.273	1.270 - 1.275
2,2',4,5'-TeCB	49	49 + 69	C	0.97	M/M+2	0.78	0.65-0.89	1.257	1.253 - 1.261
2,2',4,6-TeCB	50	50 + 53	C	0.87	M/M+2	0.79	0.65-0.89	1.111	1.107 - 1.115
2,2',4,6'-TeCB	51	45 + 51	C45						
2,2',5,5'-TeCB	52			0.90	M/M+2	0.78	0.65-0.89	1.234	1.232 - 1.236
2,2',5,6'-TeCB	53	50 + 53	C50						
2,3,3',4-TeCB	55			0.80	M/M+2	0.73	0.65-0.89	0.889	0.887 - 0.890
2,3,3',4'-TeCB	56			0.79	M/M+2	0.69	0.65-0.89	0.904	0.903 - 0.905

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
2,3,3',5'-TeCB	57			0.86	M/M+2	0.75	0.65-0.89	0.844	0.842 - 0.845
2,3,3',5'-TeCB	58			0.82	M/M+2	0.76	0.65-0.89	0.851	0.849 - 0.852
2,3,3',6'-TeCB	59	59 + 62 + 75	C	1.13	M/M+2	0.79	0.65-0.89	1.301	1.297 - 1.305
2,3,4,4'-TeCB	60			0.79	M/M+2	0.76	0.65-0.89	0.911	0.909 - 0.912
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	0.88	M/M+2	0.73	0.65-0.89	0.873	0.871 - 0.876
2,3,4,6'-TeCB	62	59 + 62 + 75	C59						
2,3,4',5'-TeCB	63			0.85	M/M+2	0.74	0.65-0.89	0.864	0.863 - 0.866
2,3,4',6'-TeCB	64			1.14	M/M+2	0.80	0.65-0.89	1.348	1.346 - 1.351
2,3,5,6'-TeCB	65	44 + 47 + 65	C44						
2,3',4,4'-TeCB	66			0.87	M/M+2	0.74	0.65-0.89	0.884	0.883 - 0.886
2,3',4,5'-TeCB	67			1.01	M/M+2	0.70	0.65-0.89	0.856	0.855 - 0.857
2,3',4,5'-TeCB	68			0.87	M/M+2	0.75	0.65-0.89	0.831	0.829 - 0.832
2,3',4,6'-TeCB	69	49 + 69	C49						
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61						
2,3',4',6'-TeCB	71	40 + 41 + 71	C40						
2,3',5,5'-TeCB	72			0.90	M/M+2	0.75	0.65-0.89	0.822	0.821 - 0.823
2,3',5,6'-TeCB	73			1.06	M/M+2	0.78	0.65-0.89	1.241	1.238 - 1.243
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61						
2,4,4',6'-TeCB	75	59 + 62 + 75	C59						
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61						
3,3',4,5'-TeCB	78			0.83	M/M+2	0.76	0.65-0.89	0.987	0.985 - 0.988
3,3',4,5'-TeCB	79			1.03	M/M+2	0.75	0.65-0.89	0.970	0.969 - 0.972
3,3',5,5'-TeCB	80			0.88	M/M+2	0.74	0.65-0.89	0.923	0.922 - 0.925
2,2',3,3',4'-PeCB	82			0.79	M+2/M+4	1.59	1.32-1.78	0.934	0.932 - 0.935
2,2',3,3',5'-PeCB	83	83 + 99	C	0.85	M+2/M+4	1.58	1.32-1.78	0.884	0.882 - 0.887
2,2',3,3',6'-PeCB	84			0.76	M+2/M+4	1.61	1.32-1.78	1.164	1.162 - 1.165
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1.05	M+2/M+4	1.55	1.32-1.78	0.919	0.917 - 0.922
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C	1.02	M+2/M+4	1.56	1.32-1.78	0.900	0.897 - 0.904
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86						
2,2',3,4,6'-PeCB	88	88 + 91	C	0.88	M+2/M+4	1.53	1.32-1.78	1.153	1.149 - 1.157
2,2',3,4,6'-PeCB	89			0.81	M+2/M+4	1.58	1.32-1.78	1.183	1.181 - 1.185
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	1.02	M+2/M+4	1.57	1.32-1.78	0.869	0.866 - 0.871
2,2',3,4',6'-PeCB	91	88 + 91	C88						
2,2',3,5,5'-PeCB	92			0.83	M+2/M+4	1.54	1.32-1.78	0.853	0.851 - 0.854
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	0.91	M+2/M+4	1.55	1.32-1.78	1.130	1.119 - 1.140
2,2',3,5,6'-PeCB	94			0.80	M+2/M+4	1.55	1.32-1.78	1.102	1.100 - 1.104
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93						
2,2',3,6,6'-PeCB	96			1.17	M+2/M+4	1.56	1.32-1.78	1.016	1.013 - 1.019
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86						
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93						
2,2',4,4',5'-PeCB	99	83 + 99	C83						
2,2',4,4',6'-PeCB	100	93 + 95 + 98 + 100 + 102	C93						
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90						
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93						
2,2',4,5',6'-PeCB	103			0.99	M+2/M+4	1.58	1.32-1.78	1.094	1.092 - 1.096
2,3,3',4,5'-PeCB	106			0.94	M+2/M+4	1.51	1.32-1.78	1.004	1.003 - 1.005
2,3,3',4',5'-PeCB	107	107 + 124	C	0.90	M+2/M+4	1.50	1.32-1.78	0.991	0.988 - 0.993
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86						
2,3,3',4,6'-PeCB	109			0.97	M+2/M+4	1.51	1.32-1.78	0.997	0.996 - 0.999
2,3,3',4',6'-PeCB	110	110 + 115	C	1.17	M+2/M+4	1.58	1.32-1.78	0.926	0.924 - 0.928
2,3,3',5,5'-PeCB	111			1.17	M+2/M+4	1.57	1.32-1.78	0.945	0.944 - 0.946
2,3,3',5,6'-PeCB	112			1.16	M+2/M+4	1.59	1.32-1.78	0.889	0.887 - 0.890
2,3,3',5',6'-PeCB	113	90 + 101 + 113	C90						
2,3,4,4',6'-PeCB	115	110 + 115	C110						
2,3,4,5,6'-PeCB	116	85 + 116 + 117	C85						
2,3,4',5,6'-PeCB	117	85 + 116 + 117	C85						
2,3',4,4',6'-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86						
2,3',4,5,5'-PeCB	120			1.22	M+2/M+4	1.53	1.32-1.78	0.958	0.956 - 0.959
2,3',4,5',6'-PeCB	121			1.11	M+2/M+4	1.58	1.32-1.78	1.199	1.198 - 1.201
2',3,3',4,5'-PeCB	122			0.80	M+2/M+4	1.50	1.32-1.78	1.010	1.009 - 1.012
2',3,4,5,5'-PeCB	124	107 + 124	C107						
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86						

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
3,3',4,5,5'-PeCB	127			0.90	M+2/M+4	1.51	1.32-1.78	1.041	1.040 - 1.042
2,2',3,3',4,4'-HxCB	128	128 + 166	C	0.97	M+2/M+4	1.24	1.05-1.43	0.958	0.957 - 0.960
2,2',3,3',4,5'-HxCB	129	129 + 138 + 160 + 163	C	0.92	M+2/M+4	1.24	1.05-1.43	0.930	0.927 - 0.933
2,2',3,3',4,5'-HxCB	130			0.70	M+2/M+4	1.24	1.05-1.43	0.913	0.912 - 0.914
2,2',3,3',4,6'-HxCB	131			0.78	M+2/M+4	1.32	1.05-1.43	1.160	1.158 - 1.162
2,2',3,3',4,6'-HxCB	132			0.71	M+2/M+4	1.28	1.05-1.43	1.176	1.173 - 1.178
2,2',3,3',5,5'-HxCB	133			0.77	M+2/M+4	1.21	1.05-1.43	1.192	1.190 - 1.193
2,2',3,3',5,6'-HxCB	134	134 + 143	C	0.73	M+2/M+4	1.22	1.05-1.43	1.142	1.139 - 1.144
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	0.78	M+2/M+4	1.25	1.05-1.43	1.107	1.101 - 1.112
2,2',3,3',6,6'-HxCB	136			1.03	M+2/M+4	1.28	1.05-1.43	1.025	1.024 - 1.027
2,2',3,4,4',5'-HxCB	137			0.70	M+2/M+4	1.26	1.05-1.43	0.918	0.917 - 0.919
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129						
2,2',3,4,4',6'-HxCB	139	139 + 140	C	0.84	M+2/M+4	1.25	1.05-1.43	1.153	1.151 - 1.156
2,2',3,4,4',6'-HxCB	140	139 + 140	C139						
2,2',3,4,5,5'-HxCB	141			0.79	M+2/M+4	1.27	1.05-1.43	0.903	0.902 - 0.904
2,2',3,4,5,6'-HxCB	142			0.74	M+2/M+4	1.16	1.05-1.43	1.165	1.163 - 1.166
2,2',3,4,5,6'-HxCB	143	134 + 143	C134						
2,2',3,4,5,6'-HxCB	144			0.77	M+2/M+4	1.26	1.05-1.43	1.122	1.120 - 1.123
2,2',3,4,6,6'-HxCB	145			0.97	M+2/M+4	1.30	1.05-1.43	1.034	1.032 - 1.036
2,2',3,4',5,5'-HxCB	146			0.86	M+2/M+4	1.25	1.05-1.43	0.884	0.883 - 0.885
2,2',3,4',5,6'-HxCB	147	147 + 149	C	0.84	M+2/M+4	1.23	1.05-1.43	1.134	1.131 - 1.136
2,2',3,4',5,6'-HxCB	148			0.77	M+2/M+4	1.25	1.05-1.43	1.084	1.082 - 1.085
2,2',3,4',5',6'-HxCB	149	147 + 149	C147						
2,2',3,4',6,6'-HxCB	150			1.00	M+2/M+4	1.24	1.05-1.43	1.013	1.011 - 1.014
2,2',3,5,5',6'-HxCB	151	135 + 151 + 154	C135						
2,2',3,5,6,6'-HxCB	152			1.08	M+2/M+4	1.29	1.05-1.43	1.007	1.006 - 1.009
2,2',4,4',5,5'-HxCB	153	153 + 168	C	1.04	M+2/M+4	1.25	1.05-1.43	0.899	0.897 - 0.901
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135						
2,3,3',4,4',6'-HxCB	158			1.20	M+2/M+4	1.25	1.05-1.43	0.938	0.936 - 0.939
2,3,3',4,5,5'-HxCB	159			1.08	M+2/M+4	1.27	1.05-1.43	0.982	0.981 - 0.984
2,3,3',4,5,6'-HxCB	160	129 + 138 + 160 + 163	C129						
2,3,3',4,5',6'-HxCB	161			1.07	M+2/M+4	1.26	1.05-1.43	0.887	0.886 - 0.888
2,3,3',4',5,5'-HxCB	162			1.29	M+2/M+4	1.25	1.05-1.43	0.989	0.988 - 0.990
2,3,3',4',5,6'-HxCB	163	129 + 138 + 160 + 163	C129						
2,3,3',4',5',6'-HxCB	164			1.05	M+2/M+4	1.26	1.05-1.43	0.921	0.920 - 0.922
2,3,3',5,5',6'-HxCB	165			0.92	M+2/M+4	1.25	1.05-1.43	0.878	0.877 - 0.879
2,3,4,4',5,6'-HxCB	166	128 + 166	C128						
2,3',4,4',5',6'-HxCB	168	153 + 168	C153						
2,2',3,3',4,4',5'-HpCB	170			1.14	M+2/M+4	1.03	0.89-1.21	1.000	0.999 - 1.001
2,2',3,3',4,4',6'-HpCB	171	171 + 173	C	0.74	M+2/M+4	1.05	0.89-1.21	1.163	1.161 - 1.165
2,2',3,3',4,5,5'-HpCB	172			0.72	M+2/M+4	1.05	0.89-1.21	0.897	0.896 - 0.898
2,2',3,3',4,5,6'-HpCB	173	171 + 173	C171						
2,2',3,3',4,5,6'-HpCB	174			0.79	M+2/M+4	1.06	0.89-1.21	1.134	1.133 - 1.135
2,2',3,3',4,5',6'-HpCB	175			0.82	M+2/M+4	1.04	0.89-1.21	1.103	1.101 - 1.104
2,2',3,3',4,6,6'-HpCB	176			1.07	M+2/M+4	1.07	0.89-1.21	1.034	1.033 - 1.036
2,2',3,3',4',5,6'-HpCB	177			1.20	M+2/M+4	1.05	0.89-1.21	1.146	1.145 - 1.148
2,2',3,3',5,5',6'-HpCB	178			0.80	M+2/M+4	1.04	0.89-1.21	1.085	1.084 - 1.087
2,2',3,3',5,6,6'-HpCB	179			1.10	M+2/M+4	1.05	0.89-1.21	1.010	1.009 - 1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	1.03	M+2/M+4	1.03	0.89-1.21	1.000	0.999 - 1.001
2,2',3,4,4',5,6'-HpCB	181			0.82	M+2/M+4	1.05	0.89-1.21	1.157	1.155 - 1.158
2,2',3,4,4',5,6'-HpCB	182			0.84	M+2/M+4	1.07	0.89-1.21	1.116	1.114 - 1.117
2,2',3,4,4',5',6'-HpCB	183	183 + 185	C	0.82	M+2/M+4	1.04	0.89-1.21	1.128	1.127 - 1.129
2,2',3,4,4',6,6'-HpCB	184			1.11	M+2/M+4	1.05	0.89-1.21	1.025	1.023 - 1.026
2,2',3,4,5,5',6'-HpCB	185	183 + 185	C183						
2,2',3,4,5,6,6'-HpCB	186			1.02	M+2/M+4	1.03	0.89-1.21	1.047	1.046 - 1.048
2,2',3,4',5,5',6'-HpCB	187			0.90	M+2/M+4	1.07	0.89-1.21	1.110	1.109 - 1.111
2,3,3',4,4',5,6'-HpCB	190			0.98	M+2/M+4	1.02	0.89-1.21	0.947	0.946 - 0.948
2,3,3',4,4',5',6'-HpCB	191			0.98	M+2/M+4	1.03	0.89-1.21	0.918	0.917 - 0.919
2,3,3',4,5,5',6'-HpCB	192			0.88	M+2/M+4	1.03	0.89-1.21	0.903	0.902 - 0.904
2,3,3',4',5,5',6'-HpCB	193	180 + 193	C180						
2,2',3,3',4,4',5,5'-OcCB	194			0.83	M+2/M+4	0.88	0.76-1.02	0.991	0.990 - 0.992
2,2',3,3',4,4',5,6'-OcCB	195			0.77	M+2/M+4	0.89	0.76-1.02	0.946	0.945 - 0.947
2,2',3,3',4,4',5,6'-OcCB	196			0.66	M+2/M+4	0.91	0.76-1.02	0.916	0.915 - 0.916

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
2,2',3,3',4,4',6,6'-OcCB	197	197 + 200	C	0.94	M+2/M+4	0.91	0.76-1.02	1.046	1.043 - 1.048
2,2',3,3',4,5,5',6-OcCB	198	198 + 199	C	0.69	M+2/M+4	0.92	0.76-1.02	1.114	1.112 - 1.116
2,2',3,3',4,5,5',6'-OcCB	199	198 + 199	C198						
2,2',3,3',4,5,6,6'-OcCB	200	197 + 200	C197						
2,2',3,3',4,5',6,6'-OcCB	201			0.97	M+2/M+4	0.89	0.76-1.02	1.023	1.021 - 1.025
2,2',3,4,4',5,5',6-OcCB	203			0.69	M+2/M+4	0.90	0.76-1.02	0.919	0.918 - 0.920
2,2',3,4,4',5,6,6'-OcCB	204			0.92	M+2/M+4	0.90	0.76-1.02	1.039	1.038 - 1.040
2,2',3,3',4,4',5,6,6'-NoCB	207			1.21	M+2/M+4	0.79	0.65-0.89	1.020	1.019 - 1.021

(1) Where applicable, custom lab flags have been used on this report.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 3B

PCB CONGENER INITIAL CALIBRATION RELATIVE RESPONSES,
ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

CAL Data Filename: PB8C_356 S: 1

Instrument ID: HR GC/MS

Analysis Date: 17-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 21:10:45

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	RRF	MZ's FORMING RATIO ³	ION ABUND. RATIO	RATIO QC LIMITS ⁴	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			1.12	M/M+2	3.10	2.66-3.60	0.719	0.704 - 0.735
13C12-4-MoCB	3L			1.05	M/M+2	3.10	2.66-3.60	0.859	0.844 - 0.875
13C12-2,2'-DiCB	4L			0.63	M/M+2	1.54	1.33-1.79	0.874	0.858 - 0.889
13C12-4,4'-DiCB	15L			0.96	M/M+2	1.54	1.33-1.79	1.253	1.238 - 1.269
13C12-2,2',6'-TriCB	19L			0.59	M/M+2	1.05	0.88-1.20	1.072	1.056 - 1.088
13C12-3,4,4'-TriCB	37L			1.27	M/M+2	1.00	0.88-1.20	1.093	1.083 - 1.103
13C12-2,2',6,6'-TeCB	54L			1.37	M/M+2	0.79	0.65-0.89	0.811	0.805 - 0.818
13C12-3,3',4,4'-TeCB	77L			1.22	M/M+2	0.77	0.65-0.89	1.398	1.391 - 1.404
13C12-3,4,4',5'-TeCB	81L			1.19	M/M+2	0.77	0.65-0.89	1.374	1.367 - 1.380
13C12-2,2',4,6,6'-PeCB	104L			1.13	M+2/M+4	1.61	1.32-1.78	0.808	0.803 - 0.813
13C12-2,3,3',4,4'-PeCB	105L			1.15	M+2/M+4	1.54	1.32-1.78	1.200	1.195 - 1.205
13C12-2,3,4,4',5'-PeCB	114L			1.08	M+2/M+4	1.55	1.32-1.78	1.179	1.174 - 1.185
13C12-2,3',4,4',5'-PeCB	118L			1.10	M+2/M+4	1.50	1.32-1.78	1.162	1.157 - 1.167
13C12-2',3,4,4',5'-PeCB	123L			1.15	M+2/M+4	1.57	1.32-1.78	1.151	1.146 - 1.157
13C12-3,3',4,4',5'-PeCB	126L			1.08	M+2/M+4	1.55	1.32-1.78	1.302	1.297 - 1.307
13C12-2,2',4,4',6,6'-HxCB	155L			1.23	M+2/M+4	1.26	1.05-1.43	0.786	0.782 - 0.790
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C	1.22	M+2/M+4	1.26	1.05-1.43	1.108	1.104 - 1.113
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L						
13C12-2,3',4,4',5,5'-HxCB	167L			1.24	M+2/M+4	1.27	1.05-1.43	1.078	1.074 - 1.082
13C12-3,3',4,4',5,5'-HxCB	169L			1.24	M+2/M+4	1.24	1.05-1.43	1.192	1.188 - 1.196
13C12-2,2',3,3',4,4',5'-HpCB	170L			0.87	M+2/M+4	1.07	0.89-1.21	0.897	0.894 - 0.901
13C12-2,2',3,4,4',5,5'-HpCB	180L			1.05	M+2/M+4	1.04	0.89-1.21	0.873	0.870 - 0.876
13C12-2,2',3,4',5,6,6'-HpCB	188L			1.50	M+2/M+4	1.03	0.89-1.21	0.712	0.709 - 0.715
13C12-2,3,3',4,4',5,5'-HpCB	189L			1.17	M+2/M+4	1.06	0.89-1.21	0.959	0.956 - 0.962
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			1.24	M+2/M+4	0.93	0.76-1.02	0.818	0.814 - 0.821
13C12-2,3,3',4,4',5,5',6-OxCB	205L			1.33	M+2/M+4	0.89	0.76-1.02	1.009	1.005 - 1.014
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			1.00	M+2/M+4	0.78	0.65-0.89	1.043	1.039 - 1.048
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			1.18	M+2/M+4	0.79	0.65-0.89	0.949	0.946 - 0.952

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4A
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_356 S: 11

Instrument ID: HR GC/MS

Analysis Date: 18-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 07:49:13

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
2-MoCB	1			M/M+2	2.97	2.66-3.60	19.6	17.5 - 32.5
4-MoCB	3			M/M+2	2.93	2.66-3.60	20.9	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.49	1.33-1.79	19.7	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.46	1.33-1.79	23.5	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.10	0.88-1.20	26.2	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	0.98	0.88-1.20	20.4	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.77	0.65-0.89	48.2	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.75	0.65-0.89	41.5	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.75	0.65-0.89	44.4	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.60	1.32-1.78	51.7	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.51	1.32-1.78	44.2	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.50	1.32-1.78	43.7	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.51	1.32-1.78	43.7	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.52	1.32-1.78	42.1	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.46	1.32-1.78	45.4	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.28	1.05-1.43	51.7	35.0 - 65.0
2,3,3',4,4',5-HxCB	156	156 + 157	C	M+2/M+4	1.26	1.05-1.43	99.8	70.0 - 130
2,3,3',4,4',5'-HxCB	157	156 + 157	C156					
2,3',4,4',5,5'-HxCB	167			M+2/M+4	1.25	1.05-1.43	53.1	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.27	1.05-1.43	51.2	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.07	0.89-1.21	50.8	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.00	0.89-1.21	38.2	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.89	0.76-1.02	86.4	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.87	0.76-1.02	69.4	52.5 - 97.5
2,2',3,3',4,4',5,5',6-NoCB	206			M+2/M+4	0.80	0.65-0.89	73.4	52.5 - 97.5
2,2',3,3',4,5,5',6,6'-NoCB	208			M+2/M+4	0.78	0.65-0.89	82.3	58.7 - 109
2,2',3,3',4,4',5,5',6,6'-DeCB	209			M+4/M+6	1.23	0.99-1.33	76.9	52.5 - 97.5

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4B
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018 VER Data Filename: PB8C_356 S: 11

Instrument ID: HR GC/MS Analysis Date: 18-Oct-2018

GC Column ID: SPB OCTYL Analysis Time: 07:49:13

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	MZ's FORMING RATIO ³	ION ABUND. RATIO	QC LIMITS ⁴	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
13C12-2-MoCB	1L			M/M+2	3.10	2.66-3.60	99.7	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.14	2.66-3.60	98.1	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.54	1.33-1.79	88.1	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.55	1.33-1.79	91.5	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.05	0.88-1.20	108	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.01	0.88-1.20	75.3	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.81	0.65-0.89	94.1	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.78	0.65-0.89	96.0	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.77	0.65-0.89	92.5	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.60	1.32-1.78	77.8	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.58	1.32-1.78	84.1	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.62	1.32-1.78	82.6	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.54	1.32-1.78	83.0	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.57	1.32-1.78	92.9	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.56	1.32-1.78	85.4	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.21	1.05-1.43	71.3	50.0 - 150
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	M+2/M+4	1.30	1.05-1.43	192	100 - 300
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			M+2/M+4	1.30	1.05-1.43	102	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.30	1.05-1.43	103	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.05	0.89-1.21	75.7	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.05	0.89-1.21	85.1	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.91	0.76-1.02	63.8	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.89	0.76-1.02	88.8	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.82	0.65-0.89	92.6	50.0 - 150
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			M+2/M+4	0.77	0.65-0.89	88.0	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6	1.23	0.99-1.33	76.1	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.02	0.88-1.20	82.0	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.57	1.32-1.78	88.8	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.00	0.89-1.21	90.9	60.0 - 130

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_356S11__Form4B_SJ2450509.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 6A
PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_356 S: 11

Instrument ID: HR GC/MS

Analysis Date: 18-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 07:49:13

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RETENTION TIME REFERENCE	IUPAC NO. ²	RRT	RRT QC LIMITS
2-MoCB	1			13C12-2-MoCB	1L	1.001	0.999-1.004
4-MoCB	3			13C12-4-MoCB	3L	1.001	0.999-1.004
2,2'-DiCB	4			13C12-2,2'-DiCB	4L	1.001	0.999-1.004
4,4'-DiCB	15			13C12-4,4'-DiCB	15L	1.000	0.999-1.002
2,2',6-TriCB	19			13C12-2,2',6-TriCB	19L	1.002	0.999-1.003
3,4,4'-TriCB	37			13C12-3,4,4'-TriCB	37L	1.001	0.999-1.002
2,2',6,6'-TeCB	54			13C12-2,2',6,6'-TeCB	54L	1.002	0.999-1.002
3,3',4,4'-TeCB	77			13C12-3,3',4,4'-TeCB	77L	1.000	1.000-1.001
3,4,4',5-TeCB	81			13C12-3,4,4',5-TeCB	81L	1.000	1.000-1.001
2,2',4,6,6'-PeCB	104			13C12-2,2',4,6,6'-PeCB	104L	1.001	0.999-1.002
2,3,3',4,4'-PeCB	105			13C12-2,3,3',4,4'-PeCB	105L	1.000	1.000-1.001
2,3,4,4',5-PeCB	114			13C12-2,3,4,4',5-PeCB	114L	1.000	1.000-1.001
2,3',4,4',5-PeCB	118			13C12-2,3',4,4',5-PeCB	118L	1.001	1.000-1.001
2',3,4,4',5-PeCB	123			13C12-2',3,4,4',5-PeCB	123L	1.000	1.000-1.001
3,3',4,4',5-PeCB	126			13C12-3,3',4,4',5-PeCB	126L	1.001	1.000-1.001
2,2',4,4',6,6'-HxCB	155			13C12-2,2',4,4',6,6'-HxCB	155L	1.001	0.999-1.002
2,3,3',4,4',5-HxCB	156	156 + 157	C	13C12-2,3,3',4,4',5-HxCB and 13C12-2,3,3',4,4',5'-HxCB	156L/157L	1.001	0.999-1.003
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3',4,4',5,5'-HxCB	167			13C12-2,3',4,4',5,5'-HxCB	167L	1.000	1.000-1.001
3,3',4,4',5,5'-HxCB	169			13C12-3,3',4,4',5,5'-HxCB	169L	1.000	1.000-1.001
2,2',3,4',5,6,6'-HpCB	188			13C12-2,2',3,4',5,6,6'-HpCB	188L	1.001	1.000-1.001
2,3,3',4,4',5,5'-HpCB	189			13C12-2,3,3',4,4',5,5'-HpCB	189L	1.001	1.000-1.001
2,2',3,3',5,5',6,6'-OxCB	202			13C12-2,2',3,3',5,5',6,6'-OxCB	202L	1.001	1.000-1.001
2,3,3',4,4',5,5',6-OxCB	205			13C12-2,3,3',4,4',5,5',6-OxCB	205L	1.000	1.000-1.001
2,2',3,3',4,4',5,5',6-NoCB	206			13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	1.000	1.000-1.001
2,2',3,3',4,5,5',6,6'-NoCB	208			13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L	1.001	1.000-1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L	1.001	1.000-1.001

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) Suffix "L" indicates labeled compound

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_356S11_Form6A_SJ2450509.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 6B

PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_356 S: 11

Instrument ID: HR GC/MS

Analysis Date: 18-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 07:49:13

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	RETENTION TIME REFERENCE	IUPAC NO. ¹	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			13C12-2,5-DiCB	9L	0.720	0.689-0.752
13C12-4-MoCB	3L			13C12-2,5-DiCB	9L	0.859	0.828-0.890
13C12-2,2'-DiCB	4L			13C12-2,5-DiCB	9L	0.875	0.843-0.906
13C12-4,4'-DiCB	15L			13C12-2,5-DiCB	9L	1.255	1.223-1.286
13C12-2,2',6-TriCB	19L			13C12-2,5-DiCB	9L	1.072	1.041-1.103
13C12-3,4,4'-TriCB	37L			13C12-2,2',5,5'-TeCB	52L	1.092	1.072-1.112
13C12-2,2',6,6'-TeCB	54L			13C12-2,2',5,5'-TeCB	52L	0.811	0.797-0.824
13C12-3,3',4,4'-TeCB	77L			13C12-2,2',5,5'-TeCB	52L	1.398	1.384-1.411
13C12-3,4,4',5-TeCB	81L			13C12-2,2',5,5'-TeCB	52L	1.374	1.360-1.387
13C12-2,2',4,6,6'-PeCB	104L			13C12-2,2',4,5,5'-PeCB	101L	0.808	0.797-0.818
13C12-2,3,3',4,4'-PeCB	105L			13C12-2,2',4,5,5'-PeCB	101L	1.201	1.190-1.211
13C12-2,3,4,4',5-PeCB	114L			13C12-2,2',4,5,5'-PeCB	101L	1.179	1.169-1.190
13C12-2,3',4,4',5-PeCB	118L			13C12-2,2',4,5,5'-PeCB	101L	1.162	1.151-1.172
13C12-2',3,4,4',5-PeCB	123L			13C12-2,2',4,5,5'-PeCB	101L	1.151	1.141-1.162
13C12-3,3',4,4',5-PeCB	126L			13C12-2,2',4,5,5'-PeCB	101L	1.302	1.291-1.312
13C12-2,2',4,4',6,6'-HxCB	155L			13C12-2,2',3,4,4',5'-HxCB	138L	0.785	0.777-0.793
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	13C12-2,2',3,4,4',5'-HxCB	138L	1.108	1.099-1.116
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L				
13C12-2,3',4,4',5,5'-HxCB	167L			13C12-2,2',3,4,4',5'-HxCB	138L	1.078	1.070-1.086
13C12-3,3',4,4',5,5'-HxCB	169L			13C12-2,2',3,4,4',5'-HxCB	138L	1.192	1.183-1.200
13C12-2,2',3,4',5,6,6'-HpCB	188L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.712	0.705-0.718
13C12-2,3,3',4,4',5,5'-HpCB	189L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.959	0.953-0.965
13C12-2,2',3,3',5,5',6,6'-OcCB	202L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.817	0.811-0.824
13C12-2,3,3',4,4',5,5',6-OcCB	205L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.009	1.000-1.019
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.043	1.034-1.053
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.949	0.942-0.955
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.074	1.065-1.084

CLEANUP STANDARD

13C12-2,4,4'-TriCB	28L	13C12-2,2',5,5'-TeCB	52L	0.925	0.911-0.938
13C12-2,3,3',5,5'-PeCB	111L	13C12-2,2',4,5,5'-PeCB	101L	1.088	1.077-1.098
13C12-2,2',3,3',5,5',6-HpCB	178L	13C12-2,2',3,4,4',5'-HxCB	138L	1.011	1.003-1.020

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4A
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_357A S: 1

Instrument ID: HR GC/MS

Analysis Date: 18-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 10:39:13

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
2-MoCB	1			M/M+2	2.99	2.66-3.60	21.9	17.5 - 32.5
4-MoCB	3			M/M+2	3.01	2.66-3.60	22.8	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.50	1.33-1.79	21.9	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.48	1.33-1.79	26.1	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.04	0.88-1.20	28.1	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	1.01	0.88-1.20	23.0	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.80	0.65-0.89	52.0	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.78	0.65-0.89	45.6	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.77	0.65-0.89	49.2	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.58	1.32-1.78	56.5	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.53	1.32-1.78	48.6	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.53	1.32-1.78	48.7	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.53	1.32-1.78	47.3	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.36	1.32-1.78	50.0	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.59	1.32-1.78	50.9	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.25	1.05-1.43	55.4	35.0 - 65.0
2,3,3',4,4',5-HxCB	156	156 + 157	C	M+2/M+4	1.26	1.05-1.43	105	70.0 - 130
2,3,3',4,4',5'-HxCB	157	156 + 157	C156					
2,3',4,4',5,5'-HxCB	167			M+2/M+4	1.21	1.05-1.43	56.5	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.29	1.05-1.43	55.5	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.04	0.89-1.21	52.5	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.04	0.89-1.21	44.3	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.94	0.76-1.02	90.3	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.90	0.76-1.02	76.8	52.5 - 97.5
2,2',3,3',4,4',5,5',6-NoCB	206			M+2/M+4	0.78	0.65-0.89	76.9	52.5 - 97.5
2,2',3,3',4,5,5',6,6'-NoCB	208			M+2/M+4	0.80	0.65-0.89	86.2	58.7 - 109
2,2',3,3',4,4',5,5',6,6'-DeCB	209			M+4/M+6	1.22	0.99-1.33	76.2	52.5 - 97.5

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4B
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018 VER Data Filename: PB8C_357A S: 1

Instrument ID: HR GC/MS Analysis Date: 18-Oct-2018

GC Column ID: SPB OCTYL Analysis Time: 10:39:13

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	MZ's FORMING RATIO ³	ION ABUND. RATIO	QC LIMITS ⁴	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
13C12-2-MoCB	1L			M/M+2	3.17	2.66-3.60	91.4	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.11	2.66-3.60	87.9	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.58	1.33-1.79	93.1	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.55	1.33-1.79	84.1	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.09	0.88-1.20	95.7	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.04	0.88-1.20	82.3	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.80	0.65-0.89	97.8	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.77	0.65-0.89	93.5	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.78	0.65-0.89	93.7	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.58	1.32-1.78	69.2	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.55	1.32-1.78	86.3	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.59	1.32-1.78	88.0	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.55	1.32-1.78	89.7	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.56	1.32-1.78	90.1	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.59	1.32-1.78	84.0	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.28	1.05-1.43	72.5	50.0 - 150
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	M+2/M+4	1.28	1.05-1.43	178	100 - 300
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			M+2/M+4	1.29	1.05-1.43	93.3	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.25	1.05-1.43	84.8	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.06	0.89-1.21	81.6	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.04	0.89-1.21	88.7	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.92	0.76-1.02	62.8	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.88	0.76-1.02	87.0	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.77	0.65-0.89	82.5	50.0 - 150
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			M+2/M+4	0.76	0.65-0.89	86.6	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6	1.19	0.99-1.33	67.9	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.04	0.88-1.20	96.9	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.62	1.32-1.78	85.3	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.04	0.89-1.21	81.8	60.0 - 130

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_357AS1__Form4B_SJ2450871.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 6A
PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_357A S: 1

Instrument ID: HR GC/MS

Analysis Date: 18-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 10:39:13

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RETENTION TIME REFERENCE	IUPAC NO. ²	RRT	RRT QC LIMITS
2-MoCB	1			13C12-2-MoCB	1L	1.001	0.999-1.004
4-MoCB	3			13C12-4-MoCB	3L	1.001	0.999-1.004
2,2'-DiCB	4			13C12-2,2'-DiCB	4L	1.001	0.999-1.004
4,4'-DiCB	15			13C12-4,4'-DiCB	15L	1.000	0.999-1.002
2,2',6-TriCB	19			13C12-2,2',6-TriCB	19L	1.001	0.999-1.003
3,4,4'-TriCB	37			13C12-3,4,4'-TriCB	37L	1.001	0.999-1.002
2,2',6,6'-TeCB	54			13C12-2,2',6,6'-TeCB	54L	1.001	0.999-1.002
3,3',4,4'-TeCB	77			13C12-3,3',4,4'-TeCB	77L	1.000	1.000-1.001
3,4,4',5-TeCB	81			13C12-3,4,4',5-TeCB	81L	1.000	1.000-1.001
2,2',4,6,6'-PeCB	104			13C12-2,2',4,6,6'-PeCB	104L	1.001	0.999-1.002
2,3,3',4,4'-PeCB	105			13C12-2,3,3',4,4'-PeCB	105L	1.001	1.000-1.001
2,3,4,4',5-PeCB	114			13C12-2,3,4,4',5-PeCB	114L	1.001	1.000-1.001
2,3',4,4',5-PeCB	118			13C12-2,3',4,4',5-PeCB	118L	1.000	1.000-1.001
2',3,4,4',5-PeCB	123			13C12-2',3,4,4',5-PeCB	123L	1.001	1.000-1.001
3,3',4,4',5-PeCB	126			13C12-3,3',4,4',5-PeCB	126L	1.001	1.000-1.001
2,2',4,4',6,6'-HxCB	155			13C12-2,2',4,4',6,6'-HxCB	155L	1.001	0.999-1.002
2,3,3',4,4',5-HxCB	156	156 + 157	C	13C12-2,3,3',4,4',5-HxCB and 13C12-2,3,3',4,4',5'-HxCB	156L/157L	1.000	0.998-1.003
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3',4,4',5,5'-HxCB	167			13C12-2,3',4,4',5,5'-HxCB	167L	1.001	1.000-1.001
3,3',4,4',5,5'-HxCB	169			13C12-3,3',4,4',5,5'-HxCB	169L	1.001	1.000-1.001
2,2',3,4',5,6,6'-HpCB	188			13C12-2,2',3,4',5,6,6'-HpCB	188L	1.000	1.000-1.001
2,3,3',4,4',5,5'-HpCB	189			13C12-2,3,3',4,4',5,5'-HpCB	189L	1.001	1.000-1.001
2,2',3,3',5,5',6,6'-OxCB	202			13C12-2,2',3,3',5,5',6,6'-OxCB	202L	1.001	1.000-1.001
2,3,3',4,4',5,5',6-OxCB	205			13C12-2,3,3',4,4',5,5',6-OxCB	205L	1.001	1.000-1.001
2,2',3,3',4,4',5,5',6-NoCB	206			13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	1.001	1.000-1.001
2,2',3,3',4,5,5',6,6'-NoCB	208			13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L	1.001	1.000-1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L	1.000	1.000-1.001

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) Suffix "L" indicates labeled compound

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_357AS1_Form6A_SJ2450871.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 6B

PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_357A S: 1

Instrument ID: HR GC/MS

Analysis Date: 18-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 10:39:13

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	RETENTION TIME REFERENCE	IUPAC NO. ¹	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			13C12-2,5-DiCB	9L	0.719	0.688-0.751
13C12-4-MoCB	3L			13C12-2,5-DiCB	9L	0.859	0.828-0.891
13C12-2,2'-DiCB	4L			13C12-2,5-DiCB	9L	0.874	0.843-0.905
13C12-4,4'-DiCB	15L			13C12-2,5-DiCB	9L	1.254	1.223-1.286
13C12-2,2',6-TriCB	19L			13C12-2,5-DiCB	9L	1.072	1.041-1.103
13C12-3,4,4'-TriCB	37L			13C12-2,2',5,5'-TeCB	52L	1.092	1.072-1.112
13C12-2,2',6,6'-TeCB	54L			13C12-2,2',5,5'-TeCB	52L	0.811	0.798-0.824
13C12-3,3',4,4'-TeCB	77L			13C12-2,2',5,5'-TeCB	52L	1.397	1.383-1.410
13C12-3,4,4',5-TeCB	81L			13C12-2,2',5,5'-TeCB	52L	1.373	1.360-1.386
13C12-2,2',4,6,6'-PeCB	104L			13C12-2,2',4,5,5'-PeCB	101L	0.808	0.798-0.819
13C12-2,3,3',4,4'-PeCB	105L			13C12-2,2',4,5,5'-PeCB	101L	1.200	1.190-1.210
13C12-2,3,4,4',5-PeCB	114L			13C12-2,2',4,5,5'-PeCB	101L	1.179	1.169-1.190
13C12-2,3',4,4',5-PeCB	118L			13C12-2,2',4,5,5'-PeCB	101L	1.162	1.152-1.173
13C12-2',3,4,4',5-PeCB	123L			13C12-2,2',4,5,5'-PeCB	101L	1.151	1.141-1.162
13C12-3,3',4,4',5-PeCB	126L			13C12-2,2',4,5,5'-PeCB	101L	1.302	1.291-1.312
13C12-2,2',4,4',6,6'-HxCB	155L			13C12-2,2',3,4,4',5'-HxCB	138L	0.786	0.777-0.794
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	13C12-2,2',3,4,4',5'-HxCB	138L	1.108	1.100-1.117
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L				
13C12-2,3',4,4',5,5'-HxCB	167L			13C12-2,2',3,4,4',5'-HxCB	138L	1.078	1.070-1.086
13C12-3,3',4,4',5,5'-HxCB	169L			13C12-2,2',3,4,4',5'-HxCB	138L	1.192	1.184-1.200
13C12-2,2',3,4',5,6,6'-HpCB	188L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	0.712	0.705-0.718
13C12-2,3,3',4,4',5,5'-HpCB	189L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	0.959	0.953-0.965
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	0.817	0.811-0.824
13C12-2,3,3',4,4',5,5',6-OxCB	205L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	1.009	1.000-1.018
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	1.043	1.034-1.052
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	0.949	0.942-0.955
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	1.074	1.065-1.084

CLEANUP STANDARD

13C12-2,4,4'-TriCB	28L	13C12-2,2',5,5'-TeCB	52L	0.925	0.911-0.938
13C12-2,3,3',5,5'-PeCB	111L	13C12-2,2',4,5,5'-PeCB	101L	1.088	1.077-1.098
13C12-2,2',3,3',5,5',6-HpCB	178L	13C12-2,2',3,4,4',5'-HxCB	138L	1.012	1.004-1.020

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

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Report Filename: 1668_PCB1668_PB8C_357AS1__Form6B_SJ2450871.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 3A

PCB CONGENER INITIAL CALIBRATION RELATIVE RESPONSES,
ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

CAL Data Filename: PB8C_357A S: 1

Instrument ID: HR GC/MS

Analysis Date: 18-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 10:39:13

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
3-MoCB	2			0.95	M/M+2	3.03	2.66-3.60	0.988	0.984 - 0.992
2,3-DiCB	5			1.00	M/M+2	1.53	1.33-1.79	1.198	1.195 - 1.202
2,3'-DiCB	6			1.14	M/M+2	1.49	1.33-1.79	1.177	1.173 - 1.180
2,4-DiCB	7			1.12	M/M+2	1.53	1.33-1.79	1.158	1.154 - 1.161
2,4'-DiCB	8			1.27	M/M+2	1.54	1.33-1.79	1.208	1.204 - 1.211
2,5-DiCB	9			1.14	M/M+2	1.51	1.33-1.79	1.147	1.143 - 1.150
2,6-DiCB	10			1.16	M/M+2	1.49	1.33-1.79	1.014	1.011 - 1.018
3,3'-DiCB	11			1.07	M/M+2	1.52	1.33-1.79	0.969	0.967 - 0.972
3,4-DiCB	12	12 + 13	C	1.08	M/M+2	1.49	1.33-1.79	0.984	0.982 - 0.987
3,4'-DiCB	13	12 + 13	C12						
3,5-DiCB	14			1.10	M/M+2	1.54	1.33-1.79	0.925	0.923 - 0.928
2,2',3-TriCB	16			0.93	M/M+2	0.96	0.88-1.20	1.166	1.163 - 1.169
2,2',4-TriCB	17			1.06	M/M+2	1.04	0.88-1.20	1.138	1.135 - 1.141
2,2',5-TriCB	18	18 + 30	C	1.24	M/M+2	1.11	0.88-1.20	1.112	1.109 - 1.115
2,3,3'-TriCB	20	20 + 28	C	1.21	M/M+2	0.99	0.88-1.20	0.848	0.845 - 0.851
2,3,4-TriCB	21	21 + 33	C	1.25	M/M+2	1.02	0.88-1.20	0.855	0.852 - 0.859
2,3,4'-TriCB	22			1.10	M/M+2	0.98	0.88-1.20	0.872	0.870 - 0.874
2,3,5-TriCB	23			1.18	M/M+2	1.01	0.88-1.20	1.282	1.279 - 1.285
2,3,6-TriCB	24			1.37	M/M+2	1.13	0.88-1.20	1.160	1.157 - 1.162
2,3',4-TriCB	25			1.42	M/M+2	1.00	0.88-1.20	0.825	0.823 - 0.827
2,3',5-TriCB	26	26 + 29	C	1.20	M/M+2	1.01	0.88-1.20	1.303	1.298 - 1.307
2,3',6-TriCB	27			1.44	M/M+2	1.04	0.88-1.20	1.151	1.148 - 1.154
2,4,4'-TriCB	28	20 + 28	C20						
2,4,5-TriCB	29	26 + 29	C26						
2,4,6-TriCB	30	18 + 30	C18						
2,4',5-TriCB	31			1.28	M/M+2	1.01	0.88-1.20	0.837	0.835 - 0.838
2,4',6-TriCB	32			1.29	M/M+2	1.02	0.88-1.20	1.197	1.195 - 1.200
2',3,4-TriCB	33	21 + 33	C21						
2',3,5-TriCB	34			1.16	M/M+2	1.03	0.88-1.20	1.273	1.270 - 1.276
3,3',4-TriCB	35			1.12	M/M+2	1.00	0.88-1.20	0.986	0.984 - 0.988
3,3',5-TriCB	36			1.27	M/M+2	1.02	0.88-1.20	0.932	0.930 - 0.934
3,4,5-TriCB	38			1.17	M/M+2	1.02	0.88-1.20	0.967	0.965 - 0.969
3,4',5-TriCB	39			1.17	M/M+2	1.03	0.88-1.20	0.946	0.944 - 0.948
2,2',3,3'-TeCB	40	40 + 41 + 71	C	0.85	M/M+2	0.79	0.65-0.89	1.335	1.331 - 1.339
2,2',3,4-TeCB	41	40 + 41 + 71	C40						
2,2',3,4'-TeCB	42			0.85	M/M+2	0.78	0.65-0.89	1.312	1.310 - 1.314
2,2',3,5-TeCB	43			0.81	M/M+2	0.80	0.65-0.89	1.246	1.244 - 1.249
2,2',3,5'-TeCB	44	44 + 47 + 65	C	0.95	M/M+2	0.79	0.65-0.89	1.286	1.282 - 1.290
2,2',3,6-TeCB	45	45 + 51	C	0.91	M/M+2	0.79	0.65-0.89	1.147	1.143 - 1.151
2,2',3,6'-TeCB	46			0.81	M/M+2	0.79	0.65-0.89	1.161	1.158 - 1.163
2,2',4,4'-TeCB	47	44 + 47 + 65	C44						
2,2',4,5-TeCB	48			0.87	M/M+2	0.78	0.65-0.89	1.273	1.270 - 1.275
2,2',4,5'-TeCB	49	49 + 69	C	1.02	M/M+2	0.79	0.65-0.89	1.257	1.253 - 1.261
2,2',4,6-TeCB	50	50 + 53	C	0.95	M/M+2	0.78	0.65-0.89	1.112	1.108 - 1.116
2,2',4,6'-TeCB	51	45 + 51	C45						
2,2',5,5'-TeCB	52			0.92	M/M+2	0.78	0.65-0.89	1.234	1.232 - 1.236
2,2',5,6'-TeCB	53	50 + 53	C50						
2,3,3',4-TeCB	55			0.93	M/M+2	0.77	0.65-0.89	0.889	0.887 - 0.890
2,3,3',4'-TeCB	56			0.94	M/M+2	0.76	0.65-0.89	0.904	0.903 - 0.906

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
2,3,3',5'-TeCB	57			1.02	M/M+2	0.74	0.65-0.89	0.844	0.842 - 0.845
2,3,3',5'-TeCB	58			1.00	M/M+2	0.76	0.65-0.89	0.851	0.849 - 0.852
2,3,3',6'-TeCB	59	59 + 62 + 75	C	1.15	M/M+2	0.79	0.65-0.89	1.301	1.297 - 1.305
2,3,4,4'-TeCB	60			0.92	M/M+2	0.77	0.65-0.89	0.911	0.909 - 0.912
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	1.03	M/M+2	0.76	0.65-0.89	0.874	0.871 - 0.877
2,3,4,6'-TeCB	62	59 + 62 + 75	C59						
2,3,4',5'-TeCB	63			1.02	M/M+2	0.76	0.65-0.89	0.864	0.863 - 0.866
2,3,4',6'-TeCB	64			1.18	M/M+2	0.80	0.65-0.89	1.348	1.346 - 1.351
2,3,5,6'-TeCB	65	44 + 47 + 65	C44						
2,3',4,4'-TeCB	66			1.01	M/M+2	0.76	0.65-0.89	0.884	0.883 - 0.886
2,3',4,5'-TeCB	67			1.16	M/M+2	0.77	0.65-0.89	0.856	0.855 - 0.857
2,3',4,5'-TeCB	68			1.04	M/M+2	0.78	0.65-0.89	0.831	0.829 - 0.832
2,3',4,6'-TeCB	69	49 + 69	C49						
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61						
2,3',4',6'-TeCB	71	40 + 41 + 71	C40						
2,3',5,5'-TeCB	72			1.08	M/M+2	0.76	0.65-0.89	0.823	0.821 - 0.824
2,3',5,6'-TeCB	73			1.10	M/M+2	0.78	0.65-0.89	1.241	1.238 - 1.243
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61						
2,4,4',6'-TeCB	75	59 + 62 + 75	C59						
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61						
3,3',4,5'-TeCB	78			0.95	M/M+2	0.77	0.65-0.89	0.987	0.985 - 0.988
3,3',4,5'-TeCB	79			1.14	M/M+2	0.76	0.65-0.89	0.970	0.969 - 0.972
3,3',5,5'-TeCB	80			1.06	M/M+2	0.78	0.65-0.89	0.923	0.922 - 0.925
2,2',3,3',4'-PeCB	82			0.77	M+2/M+4	1.57	1.32-1.78	0.934	0.932 - 0.935
2,2',3,3',5'-PeCB	83	83 + 99	C	0.82	M+2/M+4	1.58	1.32-1.78	0.884	0.881 - 0.887
2,2',3,3',6'-PeCB	84			0.81	M+2/M+4	1.59	1.32-1.78	1.164	1.162 - 1.165
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1.02	M+2/M+4	1.59	1.32-1.78	0.919	0.917 - 0.922
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C	1.00	M+2/M+4	1.57	1.32-1.78	0.900	0.897 - 0.904
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86						
2,2',3,4,6'-PeCB	88	88 + 91	C	0.91	M+2/M+4	1.60	1.32-1.78	1.153	1.149 - 1.157
2,2',3,4,6'-PeCB	89			0.84	M+2/M+4	1.58	1.32-1.78	1.183	1.181 - 1.185
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	1.01	M+2/M+4	1.60	1.32-1.78	0.869	0.866 - 0.871
2,2',3,4',6'-PeCB	91	88 + 91	C88						
2,2',3,5,5'-PeCB	92			0.88	M+2/M+4	1.59	1.32-1.78	0.853	0.851 - 0.854
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	0.94	M+2/M+4	1.57	1.32-1.78	1.130	1.119 - 1.140
2,2',3,5,6'-PeCB	94			0.85	M+2/M+4	1.56	1.32-1.78	1.102	1.100 - 1.104
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93						
2,2',3,6,6'-PeCB	96			1.05	M+2/M+4	1.61	1.32-1.78	1.016	1.013 - 1.019
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86						
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93						
2,2',4,4',5'-PeCB	99	83 + 99	C83						
2,2',4,4',6'-PeCB	100	93 + 95 + 98 + 100 + 102	C93						
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90						
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93						
2,2',4,5',6'-PeCB	103			1.01	M+2/M+4	1.57	1.32-1.78	1.094	1.092 - 1.096
2,3,3',4,5'-PeCB	106			1.09	M+2/M+4	1.50	1.32-1.78	1.004	1.003 - 1.005
2,3,3',4',5'-PeCB	107	107 + 124	C	1.03	M+2/M+4	1.53	1.32-1.78	0.991	0.988 - 0.993
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86						
2,3,3',4,6'-PeCB	109			1.08	M+2/M+4	1.72	1.32-1.78	0.997	0.996 - 0.999
2,3,3',4',6'-PeCB	110	110 + 115	C	1.13	M+2/M+4	1.58	1.32-1.78	0.926	0.924 - 0.928
2,3,3',5,5'-PeCB	111			1.12	M+2/M+4	1.60	1.32-1.78	0.945	0.944 - 0.946
2,3,3',5,6'-PeCB	112			1.24	M+2/M+4	1.55	1.32-1.78	0.889	0.887 - 0.890
2,3,3',5',6'-PeCB	113	90 + 101 + 113	C90						
2,3,4,4',6'-PeCB	115	110 + 115	C110						
2,3,4,5,6'-PeCB	116	85 + 116 + 117	C85						
2,3,4',5,6'-PeCB	117	85 + 116 + 117	C85						
2,3',4,4',6'-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86						
2,3',4,5,5'-PeCB	120			1.15	M+2/M+4	1.59	1.32-1.78	0.958	0.957 - 0.959
2,3',4,5',6'-PeCB	121			1.14	M+2/M+4	1.57	1.32-1.78	1.199	1.198 - 1.201
2',3,3',4,5'-PeCB	122			0.91	M+2/M+4	1.52	1.32-1.78	1.010	1.009 - 1.012
2',3,4,5,5'-PeCB	124	107 + 124	C107						
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86						

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
3,3',4,5,5'-PeCB	127			0.96	M+2/M+4	1.52	1.32-1.78	1.041	1.040 - 1.043
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1.05	M+2/M+4	1.27	1.05-1.43	0.958	0.957 - 0.960
2,2',3,3',4,5'-HxCB	129	129 + 138 + 160 + 163	C	1.01	M+2/M+4	1.26	1.05-1.43	0.930	0.927 - 0.933
2,2',3,3',4,5'-HxCB	130			0.82	M+2/M+4	1.25	1.05-1.43	0.913	0.912 - 0.914
2,2',3,3',4,6'-HxCB	131			0.90	M+2/M+4	1.25	1.05-1.43	1.160	1.158 - 1.162
2,2',3,3',4,6'-HxCB	132			0.88	M+2/M+4	1.27	1.05-1.43	1.175	1.173 - 1.178
2,2',3,3',5,5'-HxCB	133			0.91	M+2/M+4	1.25	1.05-1.43	1.191	1.190 - 1.193
2,2',3,3',5,6'-HxCB	134	134 + 143	C	0.93	M+2/M+4	1.27	1.05-1.43	1.142	1.139 - 1.144
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	0.82	M+2/M+4	1.25	1.05-1.43	1.107	1.101 - 1.112
2,2',3,3',6,6'-HxCB	136			1.09	M+2/M+4	1.24	1.05-1.43	1.025	1.024 - 1.027
2,2',3,4,4',5'-HxCB	137			0.84	M+2/M+4	1.27	1.05-1.43	0.918	0.917 - 0.919
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129						
2,2',3,4,4',6'-HxCB	139	139 + 140	C	1.03	M+2/M+4	1.26	1.05-1.43	1.153	1.151 - 1.156
2,2',3,4,4',6'-HxCB	140	139 + 140	C139						
2,2',3,4,5,5'-HxCB	141			0.94	M+2/M+4	1.26	1.05-1.43	0.903	0.902 - 0.904
2,2',3,4,5,6'-HxCB	142			0.93	M+2/M+4	1.27	1.05-1.43	1.165	1.163 - 1.166
2,2',3,4,5,6'-HxCB	143	134 + 143	C134						
2,2',3,4,5,6'-HxCB	144			0.80	M+2/M+4	1.22	1.05-1.43	1.122	1.120 - 1.123
2,2',3,4,6,6'-HxCB	145			1.03	M+2/M+4	1.30	1.05-1.43	1.034	1.032 - 1.036
2,2',3,4',5,5'-HxCB	146			1.06	M+2/M+4	1.27	1.05-1.43	0.884	0.883 - 0.885
2,2',3,4',5,6'-HxCB	147	147 + 149	C	1.04	M+2/M+4	1.25	1.05-1.43	1.134	1.132 - 1.137
2,2',3,4',5,6'-HxCB	148			0.80	M+2/M+4	1.23	1.05-1.43	1.084	1.082 - 1.085
2,2',3,4',5',6'-HxCB	149	147 + 149	C147						
2,2',3,4',6,6'-HxCB	150			1.11	M+2/M+4	1.26	1.05-1.43	1.013	1.011 - 1.014
2,2',3,5,5',6'-HxCB	151	135 + 151 + 154	C135						
2,2',3,5,6,6'-HxCB	152			1.13	M+2/M+4	1.30	1.05-1.43	1.007	1.006 - 1.009
2,2',4,4',5,5'-HxCB	153	153 + 168	C	1.18	M+2/M+4	1.25	1.05-1.43	0.899	0.897 - 0.901
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135						
2,3,3',4,4',6'-HxCB	158			1.31	M+2/M+4	1.27	1.05-1.43	0.938	0.936 - 0.939
2,3,3',4,5,5'-HxCB	159			1.17	M+2/M+4	1.26	1.05-1.43	0.982	0.981 - 0.984
2,3,3',4,5,6'-HxCB	160	129 + 138 + 160 + 163	C129						
2,3,3',4,5',6'-HxCB	161			1.31	M+2/M+4	1.28	1.05-1.43	0.887	0.886 - 0.888
2,3,3',4',5,5'-HxCB	162			1.31	M+2/M+4	1.26	1.05-1.43	0.989	0.988 - 0.990
2,3,3',4',5,6'-HxCB	163	129 + 138 + 160 + 163	C129						
2,3,3',4',5',6'-HxCB	164			1.27	M+2/M+4	1.27	1.05-1.43	0.921	0.920 - 0.922
2,3,3',5,5',6'-HxCB	165			1.10	M+2/M+4	1.27	1.05-1.43	0.878	0.877 - 0.879
2,3,4,4',5,6'-HxCB	166	128 + 166	C128						
2,3',4,4',5',6'-HxCB	168	153 + 168	C153						
2,2',3,3',4,4',5'-HpCB	170			1.18	M+2/M+4	1.06	0.89-1.21	1.000	0.999 - 1.001
2,2',3,3',4,4',6'-HpCB	171	171 + 173	C	0.72	M+2/M+4	1.05	0.89-1.21	1.163	1.161 - 1.165
2,2',3,3',4,5,5'-HpCB	172			0.69	M+2/M+4	1.04	0.89-1.21	0.897	0.896 - 0.898
2,2',3,3',4,5,6'-HpCB	173	171 + 173	C171						
2,2',3,3',4,5,6'-HpCB	174			0.78	M+2/M+4	1.05	0.89-1.21	1.134	1.133 - 1.135
2,2',3,3',4,5',6'-HpCB	175			0.77	M+2/M+4	1.07	0.89-1.21	1.103	1.101 - 1.104
2,2',3,3',4,6,6'-HpCB	176			1.06	M+2/M+4	1.06	0.89-1.21	1.034	1.033 - 1.036
2,2',3,3',4',5,6'-HpCB	177			1.03	M+2/M+4	1.07	0.89-1.21	1.146	1.145 - 1.148
2,2',3,3',5,5',6'-HpCB	178			0.78	M+2/M+4	1.05	0.89-1.21	1.085	1.084 - 1.087
2,2',3,3',5,6,6'-HpCB	179			1.11	M+2/M+4	1.05	0.89-1.21	1.010	1.009 - 1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	1.03	M+2/M+4	1.09	0.89-1.21	1.000	0.999 - 1.001
2,2',3,4,4',5,6'-HpCB	181			0.77	M+2/M+4	1.06	0.89-1.21	1.157	1.155 - 1.158
2,2',3,4,4',5,6'-HpCB	182			0.81	M+2/M+4	1.05	0.89-1.21	1.116	1.114 - 1.117
2,2',3,4,4',5',6'-HpCB	183	183 + 185	C	0.80	M+2/M+4	1.04	0.89-1.21	1.128	1.127 - 1.129
2,2',3,4,4',6,6'-HpCB	184			1.12	M+2/M+4	1.04	0.89-1.21	1.025	1.023 - 1.026
2,2',3,4,5,5',6'-HpCB	185	183 + 185	C183						
2,2',3,4,5,6,6'-HpCB	186			0.99	M+2/M+4	1.05	0.89-1.21	1.047	1.046 - 1.048
2,2',3,4',5,5',6'-HpCB	187			0.87	M+2/M+4	1.04	0.89-1.21	1.110	1.109 - 1.111
2,3,3',4,4',5,6'-HpCB	190			0.89	M+2/M+4	1.04	0.89-1.21	0.947	0.946 - 0.948
2,3,3',4,4',5',6'-HpCB	191			0.90	M+2/M+4	1.05	0.89-1.21	0.917	0.916 - 0.918
2,3,3',4,5,5',6'-HpCB	192			0.84	M+2/M+4	1.06	0.89-1.21	0.903	0.902 - 0.904
2,3,3',4',5,5',6'-HpCB	193	180 + 193	C180						
2,2',3,3',4,4',5,5'-OcCB	194			0.95	M+2/M+4	0.87	0.76-1.02	0.991	0.990 - 0.992
2,2',3,3',4,4',5,6'-OcCB	195			0.91	M+2/M+4	0.89	0.76-1.02	0.946	0.945 - 0.947
2,2',3,3',4,4',5,6'-OcCB	196			0.66	M+2/M+4	0.89	0.76-1.02	0.916	0.915 - 0.916

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
2,2',3,3',4,4',6,6'-OcCB	197	197 + 200	C	0.94	M+2/M+4	0.90	0.76-1.02	1.046	1.043 - 1.048
2,2',3,3',4,5,5',6-OcCB	198	198 + 199	C	0.65	M+2/M+4	0.89	0.76-1.02	1.114	1.112 - 1.116
2,2',3,3',4,5,5',6'-OcCB	199	198 + 199	C198						
2,2',3,3',4,5,6,6'-OcCB	200	197 + 200	C197						
2,2',3,3',4,5',6,6'-OcCB	201			0.97	M+2/M+4	0.91	0.76-1.02	1.023	1.021 - 1.025
2,2',3,4,4',5,5',6-OcCB	203			0.67	M+2/M+4	0.92	0.76-1.02	0.919	0.918 - 0.920
2,2',3,4,4',5,6,6'-OcCB	204			0.95	M+2/M+4	0.90	0.76-1.02	1.039	1.038 - 1.040
2,2',3,3',4,4',5,6,6'-NoCB	207			1.26	M+2/M+4	0.78	0.65-0.89	1.020	1.019 - 1.021

(1) Where applicable, custom lab flags have been used on this report.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____Rhonda Stoddard_____

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SGS AXYS METHOD MLA-010 Rev 12

Form 3B

PCB CONGENER INITIAL CALIBRATION RELATIVE RESPONSES,
ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

CAL Data Filename: PB8C_357A S: 1

Instrument ID: HR GC/MS

Analysis Date: 18-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 10:39:13

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	RRF	MZ's FORMING RATIO ³	ION ABUND. RATIO	RATIO QC LIMITS ⁴	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			1.03	M/M+2	3.17	2.66-3.60	0.719	0.704 - 0.735
13C12-4-MoCB	3L			0.94	M/M+2	3.11	2.66-3.60	0.859	0.844 - 0.875
13C12-2,2'-DiCB	4L			0.64	M/M+2	1.58	1.33-1.79	0.874	0.858 - 0.889
13C12-4,4'-DiCB	15L			0.90	M/M+2	1.55	1.33-1.79	1.254	1.239 - 1.270
13C12-2,2',6'-TriCB	19L			0.54	M/M+2	1.09	0.88-1.20	1.072	1.056 - 1.088
13C12-3,4,4'-TriCB	37L			1.39	M/M+2	1.04	0.88-1.20	1.092	1.082 - 1.102
13C12-2,2',6,6'-TeCB	54L			1.45	M/M+2	0.80	0.65-0.89	0.811	0.804 - 0.818
13C12-3,3',4,4'-TeCB	77L			1.23	M/M+2	0.77	0.65-0.89	1.397	1.390 - 1.403
13C12-3,4,4',5'-TeCB	81L			1.21	M/M+2	0.78	0.65-0.89	1.373	1.366 - 1.379
13C12-2,2',4,6,6'-PeCB	104L			1.02	M+2/M+4	1.58	1.32-1.78	0.808	0.803 - 0.813
13C12-2,3,3',4,4'-PeCB	105L			1.21	M+2/M+4	1.55	1.32-1.78	1.200	1.195 - 1.205
13C12-2,3,4,4',5'-PeCB	114L			1.19	M+2/M+4	1.59	1.32-1.78	1.179	1.174 - 1.185
13C12-2,3',4,4',5'-PeCB	118L			1.22	M+2/M+4	1.55	1.32-1.78	1.162	1.157 - 1.167
13C12-2',3,4,4',5'-PeCB	123L			1.26	M+2/M+4	1.56	1.32-1.78	1.151	1.146 - 1.157
13C12-3,3',4,4',5'-PeCB	126L			1.05	M+2/M+4	1.59	1.32-1.78	1.302	1.297 - 1.307
13C12-2,2',4,4',6,6'-HxCB	155L			1.21	M+2/M+4	1.28	1.05-1.43	0.786	0.782 - 0.790
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C	1.19	M+2/M+4	1.28	1.05-1.43	1.108	1.104 - 1.113
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L						
13C12-2,3',4,4',5,5'-HxCB	167L			1.20	M+2/M+4	1.29	1.05-1.43	1.078	1.074 - 1.082
13C12-3,3',4,4',5,5'-HxCB	169L			1.13	M+2/M+4	1.25	1.05-1.43	1.192	1.188 - 1.196
13C12-2,2',3,3',4,4',5'-HpCB	170L			0.82	M+2/M+4	1.10	0.89-1.21	0.897	0.894 - 0.900
13C12-2,2',3,4,4',5,5'-HpCB	180L			1.02	M+2/M+4	1.07	0.89-1.21	0.872	0.869 - 0.876
13C12-2,2',3,4,5,6,6'-HpCB	188L			1.54	M+2/M+4	1.06	0.89-1.21	0.712	0.709 - 0.715
13C12-2,3,3',4,4',5,5'-HpCB	189L			1.35	M+2/M+4	1.04	0.89-1.21	0.959	0.956 - 0.962
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			1.12	M+2/M+4	0.92	0.76-1.02	0.817	0.814 - 0.820
13C12-2,3,3',4,4',5,5',6-OxCB	205L			1.31	M+2/M+4	0.88	0.76-1.02	1.009	1.004 - 1.014
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			0.91	M+2/M+4	0.77	0.65-0.89	1.043	1.038 - 1.048
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			1.17	M+2/M+4	0.76	0.65-0.89	0.949	0.945 - 0.952

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_357AS1_Form346B_SJ2450717_GS78265.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 4A
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date:	07-Jul-2018	VER Data Filename:	PB8C_358 S: 1
Instrument ID:	HR GC/MS	Analysis Date:	18-Oct-2018
GC Column ID:	SPB OCTYL	Analysis Time:	22:28:22

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
2-MoCB	1			M/M+2	3.04	2.66-3.60	22.4	17.5 - 32.5
4-MoCB	3			M/M+2	3.01	2.66-3.60	23.6	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.52	1.33-1.79	22.6	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.51	1.33-1.79	26.5	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.08	0.88-1.20	28.1	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	1.02	0.88-1.20	22.6	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.79	0.65-0.89	52.9	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.79	0.65-0.89	45.5	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.76	0.65-0.89	50.4	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.57	1.32-1.78	56.6	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.53	1.32-1.78	49.2	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.55	1.32-1.78	49.1	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.54	1.32-1.78	47.4	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.54	1.32-1.78	47.3	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.55	1.32-1.78	48.9	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.29	1.05-1.43	55.9	35.0 - 65.0
2,3,3',4,4',5-HxCB	156	156 + 157	C	M+2/M+4	1.27	1.05-1.43	107	70.0 - 130
2,3,3',4,4',5'-HxCB	157	156 + 157	C156					
2,3',4,4',5,5'-HxCB	167			M+2/M+4	1.23	1.05-1.43	56.8	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.28	1.05-1.43	56.0	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.06	0.89-1.21	53.2	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.01	0.89-1.21	43.8	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.90	0.76-1.02	90.3	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.90	0.76-1.02	75.3	52.5 - 97.5
2,2',3,3',4,4',5,5',6-NoCB	206			M+2/M+4	0.79	0.65-0.89	77.4	52.5 - 97.5
2,2',3,3',4,5,5',6,6'-NoCB	208			M+2/M+4	0.78	0.65-0.89	87.2	58.7 - 109
2,2',3,3',4,4',5,5',6,6'-DeCB	209			M+4/M+6	1.18	0.99-1.33	78.6	52.5 - 97.5

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4B
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018 VER Data Filename: PB8C_358 S: 1

Instrument ID: HR GC/MS Analysis Date: 18-Oct-2018

GC Column ID: SPB OCTYL Analysis Time: 22:28:22

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	MZ's FORMING RATIO ³	ION ABUND. RATIO	QC LIMITS ⁴	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
13C12-2-MoCB	1L			M/M+2	3.15	2.66-3.60	91.2	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.11	2.66-3.60	89.1	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.56	1.33-1.79	91.7	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.54	1.33-1.79	85.8	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.09	0.88-1.20	93.2	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.02	0.88-1.20	82.9	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.81	0.65-0.89	95.0	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.77	0.65-0.89	93.1	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.75	0.65-0.89	93.3	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.61	1.32-1.78	69.4	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.59	1.32-1.78	90.3	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.56	1.32-1.78	89.5	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.56	1.32-1.78	92.4	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.55	1.32-1.78	92.2	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.55	1.32-1.78	84.5	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.25	1.05-1.43	68.0	50.0 - 150
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	M+2/M+4	1.30	1.05-1.43	167	100 - 300
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			M+2/M+4	1.26	1.05-1.43	88.8	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.27	1.05-1.43	80.9	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.04	0.89-1.21	82.7	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.04	0.89-1.21	88.4	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.92	0.76-1.02	63.1	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.90	0.76-1.02	91.8	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.81	0.65-0.89	83.9	50.0 - 150
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			M+2/M+4	0.78	0.65-0.89	85.4	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6	1.24	0.99-1.33	65.6	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.03	0.88-1.20	96.9	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.60	1.32-1.78	86.0	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.04	0.89-1.21	79.7	60.0 - 130

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 6A
PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_358 S: 1

Instrument ID: HR GC/MS

Analysis Date: 18-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 22:28:22

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RETENTION TIME REFERENCE	IUPAC NO. ²	RRT	RRT QC LIMITS
2-MoCB	1			13C12-2-MoCB	1L	1.001	0.999-1.004
4-MoCB	3			13C12-4-MoCB	3L	1.002	0.999-1.004
2,2'-DiCB	4			13C12-2,2'-DiCB	4L	1.001	0.999-1.004
4,4'-DiCB	15			13C12-4,4'-DiCB	15L	1.000	0.999-1.002
2,2',6-TriCB	19			13C12-2,2',6-TriCB	19L	1.001	0.999-1.003
3,4,4'-TriCB	37			13C12-3,4,4'-TriCB	37L	1.001	0.999-1.002
2,2',6,6'-TeCB	54			13C12-2,2',6,6'-TeCB	54L	1.001	0.999-1.002
3,3',4,4'-TeCB	77			13C12-3,3',4,4'-TeCB	77L	1.000	1.000-1.001
3,4,4',5-TeCB	81			13C12-3,4,4',5-TeCB	81L	1.001	1.000-1.001
2,2',4,6,6'-PeCB	104			13C12-2,2',4,6,6'-PeCB	104L	1.001	0.999-1.002
2,3,3',4,4'-PeCB	105			13C12-2,3,3',4,4'-PeCB	105L	1.000	1.000-1.001
2,3,4,4',5-PeCB	114			13C12-2,3,4,4',5-PeCB	114L	1.000	1.000-1.001
2,3',4,4',5-PeCB	118			13C12-2,3',4,4',5-PeCB	118L	1.001	1.000-1.001
2',3,4,4',5-PeCB	123			13C12-2',3,4,4',5-PeCB	123L	1.000	1.000-1.001
3,3',4,4',5-PeCB	126			13C12-3,3',4,4',5-PeCB	126L	1.001	1.000-1.001
2,2',4,4',6,6'-HxCB	155			13C12-2,2',4,4',6,6'-HxCB	155L	1.001	0.999-1.002
2,3,3',4,4',5-HxCB	156	156 + 157	C	13C12-2,3,3',4,4',5-HxCB and 13C12-2,3,3',4,4',5'-HxCB	156L/157L	1.000	0.998-1.003
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3',4,4',5,5'-HxCB	167			13C12-2,3',4,4',5,5'-HxCB	167L	1.001	1.000-1.001
3,3',4,4',5,5'-HxCB	169			13C12-3,3',4,4',5,5'-HxCB	169L	1.000	1.000-1.001
2,2',3,4',5,6,6'-HpCB	188			13C12-2,2',3,4',5,6,6'-HpCB	188L	1.000	1.000-1.001
2,3,3',4,4',5,5'-HpCB	189			13C12-2,3,3',4,4',5,5'-HpCB	189L	1.000	1.000-1.001
2,2',3,3',5,5',6,6'-OxCB	202			13C12-2,2',3,3',5,5',6,6'-OxCB	202L	1.000	1.000-1.001
2,3,3',4,4',5,5',6-OxCB	205			13C12-2,3,3',4,4',5,5',6-OxCB	205L	1.001	1.000-1.001
2,2',3,3',4,4',5,5',6-NoCB	206			13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	1.001	1.000-1.001
2,2',3,3',4,5,5',6,6'-NoCB	208			13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L	1.000	1.000-1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L	1.000	1.000-1.001

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) Suffix "L" indicates labeled compound

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 6B

PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_358 S: 1

Instrument ID: HR GC/MS

Analysis Date: 18-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 22:28:22

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	RETENTION TIME REFERENCE	IUPAC NO. ¹	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			13C12-2,5-DiCB	9L	0.719	0.688-0.751
13C12-4-MoCB	3L			13C12-2,5-DiCB	9L	0.858	0.827-0.889
13C12-2,2'-DiCB	4L			13C12-2,5-DiCB	9L	0.874	0.843-0.905
13C12-4,4'-DiCB	15L			13C12-2,5-DiCB	9L	1.254	1.223-1.286
13C12-2,2',6-TriCB	19L			13C12-2,5-DiCB	9L	1.072	1.041-1.103
13C12-3,4,4'-TriCB	37L			13C12-2,2',5,5'-TeCB	52L	1.092	1.072-1.112
13C12-2,2',6,6'-TeCB	54L			13C12-2,2',5,5'-TeCB	52L	0.811	0.798-0.824
13C12-3,3',4,4'-TeCB	77L			13C12-2,2',5,5'-TeCB	52L	1.397	1.383-1.410
13C12-3,4,4',5-TeCB	81L			13C12-2,2',5,5'-TeCB	52L	1.373	1.360-1.386
13C12-2,2',4,6,6'-PeCB	104L			13C12-2,2',4,5,5'-PeCB	101L	0.808	0.798-0.819
13C12-2,3,3',4,4'-PeCB	105L			13C12-2,2',4,5,5'-PeCB	101L	1.201	1.190-1.211
13C12-2,3,4,4',5-PeCB	114L			13C12-2,2',4,5,5'-PeCB	101L	1.179	1.169-1.190
13C12-2,3',4,4',5-PeCB	118L			13C12-2,2',4,5,5'-PeCB	101L	1.162	1.151-1.172
13C12-2',3,4,4',5-PeCB	123L			13C12-2,2',4,5,5'-PeCB	101L	1.151	1.141-1.162
13C12-3,3',4,4',5-PeCB	126L			13C12-2,2',4,5,5'-PeCB	101L	1.302	1.291-1.312
13C12-2,2',4,4',6,6'-HxCB	155L			13C12-2,2',3,4,4',5'-HxCB	138L	0.785	0.777-0.793
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	13C12-2,2',3,4,4',5'-HxCB	138L	1.108	1.099-1.116
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L				
13C12-2,3',4,4',5,5'-HxCB	167L			13C12-2,2',3,4,4',5'-HxCB	138L	1.078	1.069-1.086
13C12-3,3',4,4',5,5'-HxCB	169L			13C12-2,2',3,4,4',5'-HxCB	138L	1.192	1.183-1.200
13C12-2,2',3,4',5,6,6'-HpCB	188L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.712	0.706-0.718
13C12-2,3,3',4,4',5,5'-HpCB	189L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.959	0.953-0.966
13C12-2,2',3,3',5,5',6,6'-OcCB	202L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.818	0.811-0.824
13C12-2,3,3',4,4',5,5',6-OcCB	205L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.009	1.000-1.019
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.043	1.034-1.053
13C12-2,2',3,3',4,4',5,5',6,6'-NoCB	208L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.949	0.943-0.955
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.075	1.065-1.084

CLEANUP STANDARD

13C12-2,4,4'-TriCB	28L	13C12-2,2',5,5'-TeCB	52L	0.924	0.911-0.937
13C12-2,3,3',5,5'-PeCB	111L	13C12-2,2',4,5,5'-PeCB	101L	1.088	1.077-1.098
13C12-2,2',3,3',5,5',6-HpCB	178L	13C12-2,2',3,4,4',5'-HxCB	138L	1.011	1.003-1.019

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4A
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_362 S: 1

Instrument ID: HR GC/MS

Analysis Date: 22-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:11:08

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
2-MoCB	1			M/M+2	2.99	2.66-3.60	21.1	17.5 - 32.5
4-MoCB	3			M/M+2	2.97	2.66-3.60	21.4	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.49	1.33-1.79	20.7	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.48	1.33-1.79	23.4	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.04	0.88-1.20	27.5	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	0.99	0.88-1.20	20.4	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.79	0.65-0.89	51.9	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.74	0.65-0.89	43.7	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.75	0.65-0.89	47.7	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.58	1.32-1.78	54.5	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.54	1.32-1.78	43.7	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.49	1.32-1.78	45.2	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.50	1.32-1.78	44.8	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.50	1.32-1.78	44.0	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.49	1.32-1.78	47.3	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.34	1.05-1.43	54.2	35.0 - 65.0
2,3,3',4,4',5-HxCB	156	156 + 157	C	M+2/M+4	1.26	1.05-1.43	108	70.0 - 130
2,3,3',4,4',5'-HxCB	157	156 + 157	C156					
2,3',4,4',5,5'-HxCB	167			M+2/M+4	1.23	1.05-1.43	58.9	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.28	1.05-1.43	56.4	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.05	0.89-1.21	52.4	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	0.98	0.89-1.21	40.5	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.93	0.76-1.02	90.6	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.90	0.76-1.02	75.8	52.5 - 97.5
2,2',3,3',4,4',5,5',6-NoCB	206			M+2/M+4	0.78	0.65-0.89	76.1	52.5 - 97.5
2,2',3,3',4,5,5',6,6'-NoCB	208			M+2/M+4	0.81	0.65-0.89	86.2	58.7 - 109
2,2',3,3',4,4',5,5',6,6'-DeCB	209			M+4/M+6	1.17	0.99-1.33	78.7	52.5 - 97.5

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4B
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018 VER Data Filename: PB8C_362 S: 1

Instrument ID: HR GC/MS Analysis Date: 22-Oct-2018

GC Column ID: SPB OCTYL Analysis Time: 20:11:08

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	MZ's FORMING RATIO ³	ION ABUND. RATIO	QC LIMITS ⁴	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
13C12-2-MoCB	1L			M/M+2	3.15	2.66-3.60	98.1	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.09	2.66-3.60	94.9	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.60	1.33-1.79	91.0	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.54	1.33-1.79	86.8	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.08	0.88-1.20	91.4	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.04	0.88-1.20	83.2	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.79	0.65-0.89	94.6	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.75	0.65-0.89	95.4	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.76	0.65-0.89	93.3	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.64	1.32-1.78	71.1	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.53	1.32-1.78	83.8	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.54	1.32-1.78	85.8	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.55	1.32-1.78	86.3	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.52	1.32-1.78	88.8	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.57	1.32-1.78	90.1	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.25	1.05-1.43	64.8	50.0 - 150
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	M+2/M+4	1.24	1.05-1.43	179	100 - 300
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			M+2/M+4	1.30	1.05-1.43	89.9	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.24	1.05-1.43	88.3	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.07	0.89-1.21	76.5	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.03	0.89-1.21	77.0	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.91	0.76-1.02	59.7	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.90	0.76-1.02	94.2	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.78	0.65-0.89	95.7	50.0 - 150
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			M+2/M+4	0.78	0.65-0.89	88.4	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6	1.20	0.99-1.33	73.3	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.03	0.88-1.20	91.4	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.62	1.32-1.78	92.3	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.04	0.89-1.21	83.1	60.0 - 130

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

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SGS AXYS METHOD MLA-010 Rev 12

Form 6A
PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_362 S: 1

Instrument ID: HR GC/MS

Analysis Date: 22-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:11:08

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RETENTION TIME REFERENCE	IUPAC NO. ²	RRT	RRT QC LIMITS
2-MoCB	1			13C12-2-MoCB	1L	1.001	0.999-1.004
4-MoCB	3			13C12-4-MoCB	3L	1.000	0.999-1.004
2,2'-DiCB	4			13C12-2,2'-DiCB	4L	1.001	0.999-1.004
4,4'-DiCB	15			13C12-4,4'-DiCB	15L	1.000	0.999-1.002
2,2',6-TriCB	19			13C12-2,2',6-TriCB	19L	1.002	0.999-1.003
3,4,4'-TriCB	37			13C12-3,4,4'-TriCB	37L	1.001	0.999-1.002
2,2',6,6'-TeCB	54			13C12-2,2',6,6'-TeCB	54L	1.002	0.999-1.002
3,3',4,4'-TeCB	77			13C12-3,3',4,4'-TeCB	77L	1.000	1.000-1.001
3,4,4',5-TeCB	81			13C12-3,4,4',5-TeCB	81L	1.000	1.000-1.001
2,2',4,6,6'-PeCB	104			13C12-2,2',4,6,6'-PeCB	104L	1.001	0.999-1.002
2,3,3',4,4'-PeCB	105			13C12-2,3,3',4,4'-PeCB	105L	1.001	1.000-1.001
2,3,4,4',5-PeCB	114			13C12-2,3,4,4',5-PeCB	114L	1.000	1.000-1.001
2,3',4,4',5-PeCB	118			13C12-2,3',4,4',5-PeCB	118L	1.001	1.000-1.001
2',3,4,4',5-PeCB	123			13C12-2',3,4,4',5-PeCB	123L	1.000	1.000-1.001
3,3',4,4',5-PeCB	126			13C12-3,3',4,4',5-PeCB	126L	1.001	1.000-1.001
2,2',4,4',6,6'-HxCB	155			13C12-2,2',4,4',6,6'-HxCB	155L	1.001	0.999-1.002
2,3,3',4,4',5-HxCB	156	156 + 157	C	13C12-2,3,3',4,4',5-HxCB and 13C12-2,3,3',4,4',5'-HxCB	156L/157L	1.000	0.998-1.003
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3',4,4',5,5'-HxCB	167			13C12-2,3',4,4',5,5'-HxCB	167L	1.001	1.000-1.001
3,3',4,4',5,5'-HxCB	169			13C12-3,3',4,4',5,5'-HxCB	169L	1.000	1.000-1.001
2,2',3,4',5,6,6'-HpCB	188			13C12-2,2',3,4',5,6,6'-HpCB	188L	1.001	1.000-1.001
2,3,3',4,4',5,5'-HpCB	189			13C12-2,3,3',4,4',5,5'-HpCB	189L	1.000	1.000-1.001
2,2',3,3',5,5',6,6'-OxCB	202			13C12-2,2',3,3',5,5',6,6'-OxCB	202L	1.000	1.000-1.001
2,3,3',4,4',5,5',6-OxCB	205			13C12-2,3,3',4,4',5,5',6-OxCB	205L	1.000	1.000-1.001
2,2',3,3',4,4',5,5',6-NoCB	206			13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	1.000	1.000-1.001
2,2',3,3',4,5,5',6,6'-NoCB	208			13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L	1.001	1.000-1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L	1.000	1.000-1.001

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) Suffix "L" indicates labeled compound

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 6B

PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_362 S: 1

Instrument ID: HR GC/MS

Analysis Date: 22-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:11:08

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	RETENTION TIME REFERENCE	IUPAC NO. ¹	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			13C12-2,5-DiCB	9L	0.719	0.688-0.750
13C12-4-MoCB	3L			13C12-2,5-DiCB	9L	0.858	0.827-0.890
13C12-2,2'-DiCB	4L			13C12-2,5-DiCB	9L	0.873	0.842-0.904
13C12-4,4'-DiCB	15L			13C12-2,5-DiCB	9L	1.253	1.222-1.284
13C12-2,2',6-TriCB	19L			13C12-2,5-DiCB	9L	1.071	1.040-1.102
13C12-3,4,4'-TriCB	37L			13C12-2,2',5,5'-TeCB	52L	1.092	1.072-1.112
13C12-2,2',6,6'-TeCB	54L			13C12-2,2',5,5'-TeCB	52L	0.811	0.798-0.824
13C12-3,3',4,4'-TeCB	77L			13C12-2,2',5,5'-TeCB	52L	1.397	1.383-1.410
13C12-3,4,4',5-TeCB	81L			13C12-2,2',5,5'-TeCB	52L	1.373	1.360-1.387
13C12-2,2',4,6,6'-PeCB	104L			13C12-2,2',4,5,5'-PeCB	101L	0.808	0.798-0.818
13C12-2,3,3',4,4'-PeCB	105L			13C12-2,2',4,5,5'-PeCB	101L	1.200	1.190-1.210
13C12-2,3,4,4',5-PeCB	114L			13C12-2,2',4,5,5'-PeCB	101L	1.179	1.169-1.190
13C12-2,3',4,4',5-PeCB	118L			13C12-2,2',4,5,5'-PeCB	101L	1.162	1.151-1.172
13C12-2',3,4,4',5-PeCB	123L			13C12-2,2',4,5,5'-PeCB	101L	1.151	1.141-1.162
13C12-3,3',4,4',5-PeCB	126L			13C12-2,2',4,5,5'-PeCB	101L	1.301	1.291-1.311
13C12-2,2',4,4',6,6'-HxCB	155L			13C12-2,2',3,4,4',5'-HxCB	138L	0.785	0.777-0.794
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	13C12-2,2',3,4,4',5'-HxCB	138L	1.108	1.100-1.116
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L				
13C12-2,3',4,4',5,5'-HxCB	167L			13C12-2,2',3,4,4',5'-HxCB	138L	1.078	1.070-1.086
13C12-3,3',4,4',5,5'-HxCB	169L			13C12-2,2',3,4,4',5'-HxCB	138L	1.192	1.184-1.200
13C12-2,2',3,4',5,6,6'-HpCB	188L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	0.712	0.705-0.718
13C12-2,3,3',4,4',5,5'-HpCB	189L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	0.959	0.953-0.965
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	0.817	0.811-0.824
13C12-2,3,3',4,4',5,5',6-OxCB	205L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	1.009	1.000-1.019
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	1.043	1.034-1.053
13C12-2,2',3,3',4,4',5,5',6,6'-NoCB	208L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	0.949	0.942-0.955
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	1.074	1.065-1.084

CLEANUP STANDARD

13C12-2,4,4'-TriCB	28L	13C12-2,2',5,5'-TeCB	52L	0.925	0.912-0.938
13C12-2,3,3',5,5'-PeCB	111L	13C12-2,2',4,5,5'-PeCB	101L	1.088	1.077-1.098
13C12-2,2',3,3',5,5',6-HpCB	178L	13C12-2,2',3,4,4',5'-HxCB	138L	1.011	1.003-1.020

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 3A

PCB CONGENER INITIAL CALIBRATION RELATIVE RESPONSES,
ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

CAL Data Filename: PB8C_362 S: 1

Instrument ID: HR GC/MS

Analysis Date: 22-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:11:08

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
3-MoCB	2			0.91	M/M+2	3.03	2.66-3.60	0.988	0.984 - 0.992
2,3-DiCB	5			0.92	M/M+2	1.49	1.33-1.79	1.198	1.194 - 1.201
2,3'-DiCB	6			1.03	M/M+2	1.48	1.33-1.79	1.176	1.173 - 1.180
2,4-DiCB	7			1.01	M/M+2	1.52	1.33-1.79	1.157	1.154 - 1.161
2,4'-DiCB	8			1.18	M/M+2	1.49	1.33-1.79	1.207	1.204 - 1.211
2,5-DiCB	9			1.07	M/M+2	1.46	1.33-1.79	1.147	1.143 - 1.150
2,6-DiCB	10			1.07	M/M+2	1.48	1.33-1.79	1.014	1.011 - 1.018
3,3'-DiCB	11			0.98	M/M+2	1.51	1.33-1.79	0.969	0.967 - 0.972
3,4-DiCB	12	12 + 13	C	1.00	M/M+2	1.48	1.33-1.79	0.984	0.982 - 0.987
3,4'-DiCB	13	12 + 13	C12						
3,5-DiCB	14			1.01	M/M+2	1.49	1.33-1.79	0.925	0.923 - 0.928
2,2',3-TriCB	16			0.82	M/M+2	1.05	0.88-1.20	1.166	1.163 - 1.169
2,2',4-TriCB	17			0.99	M/M+2	1.09	0.88-1.20	1.138	1.135 - 1.141
2,2',5-TriCB	18	18 + 30	C	1.17	M/M+2	1.06	0.88-1.20	1.112	1.109 - 1.115
2,3,3'-TriCB	20	20 + 28	C	1.07	M/M+2	0.98	0.88-1.20	0.848	0.845 - 0.851
2,3,4-TriCB	21	21 + 33	C	1.09	M/M+2	0.98	0.88-1.20	0.856	0.853 - 0.859
2,3,4'-TriCB	22			0.99	M/M+2	0.98	0.88-1.20	0.872	0.870 - 0.874
2,3,5-TriCB	23			1.03	M/M+2	1.00	0.88-1.20	1.282	1.279 - 1.285
2,3,6-TriCB	24			1.38	M/M+2	1.05	0.88-1.20	1.159	1.156 - 1.162
2,3',4-TriCB	25			1.20	M/M+2	0.97	0.88-1.20	0.824	0.823 - 0.826
2,3',5-TriCB	26	26 + 29	C	1.04	M/M+2	0.99	0.88-1.20	1.301	1.296 - 1.306
2,3',6-TriCB	27			1.41	M/M+2	1.08	0.88-1.20	1.151	1.148 - 1.154
2,4,4'-TriCB	28	20 + 28	C20						
2,4,5-TriCB	29	26 + 29	C26						
2,4,6-TriCB	30	18 + 30	C18						
2,4',5-TriCB	31			1.12	M/M+2	1.00	0.88-1.20	0.836	0.834 - 0.838
2,4',6-TriCB	32			1.15	M/M+2	1.01	0.88-1.20	1.197	1.194 - 1.200
2',3,4-TriCB	33	21 + 33	C21						
2',3,5-TriCB	34			1.00	M/M+2	1.00	0.88-1.20	1.273	1.270 - 1.276
3,3',4-TriCB	35			1.02	M/M+2	0.99	0.88-1.20	0.985	0.984 - 0.987
3,3',5-TriCB	36			1.14	M/M+2	0.97	0.88-1.20	0.932	0.930 - 0.934
3,4,5-TriCB	38			1.03	M/M+2	0.99	0.88-1.20	0.967	0.965 - 0.969
3,4',5-TriCB	39			1.04	M/M+2	0.99	0.88-1.20	0.945	0.943 - 0.947
2,2',3,3'-TeCB	40	40 + 41 + 71	C	0.85	M/M+2	0.78	0.65-0.89	1.335	1.331 - 1.339
2,2',3,4-TeCB	41	40 + 41 + 71	C40						
2,2',3,4'-TeCB	42			0.82	M/M+2	0.78	0.65-0.89	1.312	1.309 - 1.314
2,2',3,5-TeCB	43			0.69	M/M+2	0.77	0.65-0.89	1.246	1.244 - 1.249
2,2',3,5'-TeCB	44	44 + 47 + 65	C	0.96	M/M+2	0.78	0.65-0.89	1.285	1.281 - 1.290
2,2',3,6-TeCB	45	45 + 51	C	0.87	M/M+2	0.78	0.65-0.89	1.147	1.143 - 1.151
2,2',3,6'-TeCB	46			0.74	M/M+2	0.78	0.65-0.89	1.161	1.158 - 1.163
2,2',4,4'-TeCB	47	44 + 47 + 65	C44						
2,2',4,5-TeCB	48			0.84	M/M+2	0.78	0.65-0.89	1.273	1.271 - 1.276
2,2',4,5'-TeCB	49	49 + 69	C	1.00	M/M+2	0.78	0.65-0.89	1.258	1.253 - 1.262
2,2',4,6-TeCB	50	50 + 53	C	0.91	M/M+2	0.78	0.65-0.89	1.112	1.107 - 1.116
2,2',4,6'-TeCB	51	45 + 51	C45						
2,2',5,5'-TeCB	52			0.92	M/M+2	0.78	0.65-0.89	1.234	1.231 - 1.236
2,2',5,6'-TeCB	53	50 + 53	C50						
2,3,3',4-TeCB	55			0.87	M/M+2	0.75	0.65-0.89	0.889	0.888 - 0.891
2,3,3',4'-TeCB	56			0.88	M/M+2	0.75	0.65-0.89	0.905	0.903 - 0.906

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
2,3,3',5'-TeCB	57			0.97	M/M+2	0.75	0.65-0.89	0.844	0.842 - 0.845
2,3,3',5'-TeCB	58			0.93	M/M+2	0.74	0.65-0.89	0.851	0.849 - 0.852
2,3,3',6'-TeCB	59	59 + 62 + 75	C	1.17	M/M+2	0.79	0.65-0.89	1.301	1.297 - 1.305
2,3,4,4'-TeCB	60			0.88	M/M+2	0.73	0.65-0.89	0.911	0.909 - 0.912
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	0.95	M/M+2	0.75	0.65-0.89	0.874	0.871 - 0.876
2,3,4,6'-TeCB	62	59 + 62 + 75	C59						
2,3,4',5'-TeCB	63			0.96	M/M+2	0.73	0.65-0.89	0.864	0.862 - 0.865
2,3,4',6'-TeCB	64			1.18	M/M+2	0.77	0.65-0.89	1.349	1.346 - 1.351
2,3,5,6'-TeCB	65	44 + 47 + 65	C44						
2,3',4,4'-TeCB	66			0.93	M/M+2	0.74	0.65-0.89	0.884	0.882 - 0.885
2,3',4,5'-TeCB	67			1.11	M/M+2	0.74	0.65-0.89	0.856	0.854 - 0.857
2,3',4,5'-TeCB	68			0.98	M/M+2	0.75	0.65-0.89	0.831	0.829 - 0.832
2,3',4,6'-TeCB	69	49 + 69	C49						
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61						
2,3',4',6'-TeCB	71	40 + 41 + 71	C40						
2,3',5,5'-TeCB	72			1.00	M/M+2	0.74	0.65-0.89	0.822	0.821 - 0.824
2,3',5,6'-TeCB	73			1.14	M/M+2	0.79	0.65-0.89	1.241	1.239 - 1.244
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61						
2,4,4',6'-TeCB	75	59 + 62 + 75	C59						
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61						
3,3',4,5'-TeCB	78			0.90	M/M+2	0.76	0.65-0.89	0.986	0.985 - 0.988
3,3',4,5'-TeCB	79			1.09	M/M+2	0.74	0.65-0.89	0.970	0.969 - 0.971
3,3',5,5'-TeCB	80			0.97	M/M+2	0.72	0.65-0.89	0.923	0.922 - 0.924
2,2',3,3',4'-PeCB	82			0.81	M+2/M+4	1.57	1.32-1.78	0.933	0.932 - 0.935
2,2',3,3',5'-PeCB	83	83 + 99	C	0.86	M+2/M+4	1.56	1.32-1.78	0.884	0.881 - 0.887
2,2',3,3',6'-PeCB	84			0.77	M+2/M+4	1.56	1.32-1.78	1.163	1.162 - 1.165
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1.03	M+2/M+4	1.55	1.32-1.78	0.919	0.916 - 0.922
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C	1.04	M+2/M+4	1.58	1.32-1.78	0.900	0.897 - 0.904
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 108 + 119 + 125	C86						
2,2',3,4,6'-PeCB	88	88 + 91	C	0.90	M+2/M+4	1.61	1.32-1.78	1.153	1.149 - 1.157
2,2',3,4,6'-PeCB	89			0.83	M+2/M+4	1.58	1.32-1.78	1.183	1.181 - 1.185
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	1.03	M+2/M+4	1.59	1.32-1.78	0.868	0.866 - 0.870
2,2',3,4',6'-PeCB	91	88 + 91	C88						
2,2',3,5,5'-PeCB	92			0.86	M+2/M+4	1.59	1.32-1.78	0.852	0.851 - 0.854
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	0.94	M+2/M+4	1.60	1.32-1.78	1.129	1.119 - 1.140
2,2',3,5,6'-PeCB	94			0.82	M+2/M+4	1.56	1.32-1.78	1.103	1.101 - 1.104
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93						
2,2',3,6,6'-PeCB	96			1.07	M+2/M+4	1.64	1.32-1.78	1.017	1.013 - 1.020
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 108 + 119 + 125	C86						
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93						
2,2',4,4',5'-PeCB	99	83 + 99	C83						
2,2',4,4',6'-PeCB	100	93 + 95 + 98 + 100 + 102	C93						
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90						
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93						
2,2',4,5',6'-PeCB	103			0.98	M+2/M+4	1.57	1.32-1.78	1.094	1.092 - 1.096
2,3,3',4,5'-PeCB	106			1.02	M+2/M+4	1.46	1.32-1.78	1.004	1.002 - 1.005
2,3,3',4',5'-PeCB	107	107 + 124	C	0.92	M+2/M+4	1.51	1.32-1.78	0.991	0.988 - 0.993
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86						
2,3,3',4,6'-PeCB	109			0.96	M+2/M+4	1.52	1.32-1.78	0.997	0.996 - 0.999
2,3,3',4',6'-PeCB	110	110 + 115	C	1.18	M+2/M+4	1.59	1.32-1.78	0.926	0.924 - 0.928
2,3,3',5,5'-PeCB	111			1.23	M+2/M+4	1.56	1.32-1.78	0.945	0.944 - 0.946
2,3,3',5,6'-PeCB	112			1.24	M+2/M+4	1.56	1.32-1.78	0.889	0.888 - 0.890
2,3,3',5',6'-PeCB	113	90 + 101 + 113	C90						
2,3,4,4',6'-PeCB	115	110 + 115	C110						
2,3,4,5,6'-PeCB	116	85 + 116 + 117	C85						
2,3,4',5,6'-PeCB	117	85 + 116 + 117	C85						
2,3',4,4',6'-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86						
2,3',4,5,5'-PeCB	120			1.22	M+2/M+4	1.58	1.32-1.78	0.958	0.957 - 0.960
2,3',4,5',6'-PeCB	121			1.16	M+2/M+4	1.55	1.32-1.78	1.200	1.198 - 1.202
2',3,3',4,5'-PeCB	122			0.85	M+2/M+4	1.54	1.32-1.78	1.010	1.009 - 1.012
2',3,4,5,5'-PeCB	124	107 + 124	C107						
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 108 + 119 + 125	C86						

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
3,3',4,5,5'-PeCB	127			0.93	M+2/M+4	1.51	1.32-1.78	1.041	1.040 - 1.042
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1.03	M+2/M+4	1.28	1.05-1.43	0.958	0.956 - 0.960
2,2',3,3',4,5'-HxCB	129	129 + 138 + 160 + 163	C	1.01	M+2/M+4	1.25	1.05-1.43	0.930	0.927 - 0.932
2,2',3,3',4,5'-HxCB	130			0.80	M+2/M+4	1.27	1.05-1.43	0.913	0.912 - 0.914
2,2',3,3',4,6'-HxCB	131			0.85	M+2/M+4	1.24	1.05-1.43	1.160	1.158 - 1.161
2,2',3,3',4,6'-HxCB	132			0.79	M+2/M+4	1.24	1.05-1.43	1.176	1.173 - 1.178
2,2',3,3',5,5'-HxCB	133			0.85	M+2/M+4	1.27	1.05-1.43	1.192	1.190 - 1.193
2,2',3,3',5,6'-HxCB	134	134 + 143	C	0.83	M+2/M+4	1.24	1.05-1.43	1.142	1.139 - 1.145
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	0.74	M+2/M+4	1.26	1.05-1.43	1.107	1.101 - 1.113
2,2',3,3',6,6'-HxCB	136			0.98	M+2/M+4	1.25	1.05-1.43	1.025	1.024 - 1.027
2,2',3,4,4',5'-HxCB	137			0.86	M+2/M+4	1.27	1.05-1.43	0.918	0.917 - 0.919
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129						
2,2',3,4,4',6'-HxCB	139	139 + 140	C	0.90	M+2/M+4	1.27	1.05-1.43	1.154	1.151 - 1.156
2,2',3,4,4',6'-HxCB	140	139 + 140	C139						
2,2',3,4,5,5'-HxCB	141			0.90	M+2/M+4	1.28	1.05-1.43	0.903	0.902 - 0.904
2,2',3,4,5,6'-HxCB	142			0.82	M+2/M+4	1.23	1.05-1.43	1.166	1.164 - 1.167
2,2',3,4,5,6'-HxCB	143	134 + 143	C134						
2,2',3,4,5,6'-HxCB	144			0.72	M+2/M+4	1.26	1.05-1.43	1.122	1.121 - 1.124
2,2',3,4,6,6'-HxCB	145			0.92	M+2/M+4	1.30	1.05-1.43	1.034	1.033 - 1.036
2,2',3,4',5,5'-HxCB	146			1.00	M+2/M+4	1.27	1.05-1.43	0.884	0.882 - 0.885
2,2',3,4',5,6'-HxCB	147	147 + 149	C	0.94	M+2/M+4	1.23	1.05-1.43	1.134	1.132 - 1.137
2,2',3,4',5,6'-HxCB	148			0.75	M+2/M+4	1.24	1.05-1.43	1.084	1.083 - 1.086
2,2',3,4',5',6'-HxCB	149	147 + 149	C147						
2,2',3,4',6,6'-HxCB	150			0.97	M+2/M+4	1.27	1.05-1.43	1.013	1.011 - 1.014
2,2',3,5,5',6'-HxCB	151	135 + 151 + 154	C135						
2,2',3,5,6,6'-HxCB	152			1.04	M+2/M+4	1.25	1.05-1.43	1.007	1.006 - 1.009
2,2',4,4',5,5'-HxCB	153	153 + 168	C	1.10	M+2/M+4	1.25	1.05-1.43	0.899	0.897 - 0.901
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135						
2,3,3',4,4',6'-HxCB	158			1.32	M+2/M+4	1.28	1.05-1.43	0.938	0.937 - 0.939
2,3,3',4,5,5'-HxCB	159			1.24	M+2/M+4	1.25	1.05-1.43	0.982	0.981 - 0.983
2,3,3',4,5,6'-HxCB	160	129 + 138 + 160 + 163	C129						
2,3,3',4,5,6'-HxCB	161			1.15	M+2/M+4	1.30	1.05-1.43	0.887	0.886 - 0.888
2,3,3',4',5,5'-HxCB	162			1.37	M+2/M+4	1.28	1.05-1.43	0.989	0.988 - 0.990
2,3,3',4',5,6'-HxCB	163	129 + 138 + 160 + 163	C129						
2,3,3',4',5',6'-HxCB	164			1.16	M+2/M+4	1.27	1.05-1.43	0.921	0.920 - 0.922
2,3,3',5,5',6'-HxCB	165			1.02	M+2/M+4	1.26	1.05-1.43	0.878	0.877 - 0.879
2,3,4,4',5,6'-HxCB	166	128 + 166	C128						
2,3',4,4',5',6'-HxCB	168	153 + 168	C153						
2,2',3,3',4,4',5'-HpCB	170			1.15	M+2/M+4	1.03	0.89-1.21	1.000	0.999 - 1.001
2,2',3,3',4,4',6'-HpCB	171	171 + 173	C	0.82	M+2/M+4	1.04	0.89-1.21	1.163	1.161 - 1.165
2,2',3,3',4,5,5'-HpCB	172			0.79	M+2/M+4	1.06	0.89-1.21	0.896	0.895 - 0.897
2,2',3,3',4,5,6'-HpCB	173	171 + 173	C171						
2,2',3,3',4,5,6'-HpCB	174			0.88	M+2/M+4	1.05	0.89-1.21	1.134	1.133 - 1.136
2,2',3,3',4,5',6'-HpCB	175			0.85	M+2/M+4	1.08	0.89-1.21	1.103	1.101 - 1.104
2,2',3,3',4,6,6'-HpCB	176			1.11	M+2/M+4	1.06	0.89-1.21	1.034	1.033 - 1.036
2,2',3,3',4',5,6'-HpCB	177			1.03	M+2/M+4	1.01	0.89-1.21	1.146	1.145 - 1.147
2,2',3,3',5,5',6'-HpCB	178			0.86	M+2/M+4	1.11	0.89-1.21	1.085	1.084 - 1.087
2,2',3,3',5,6,6'-HpCB	179			1.11	M+2/M+4	1.06	0.89-1.21	1.011	1.009 - 1.012
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	1.04	M+2/M+4	1.06	0.89-1.21	1.000	0.999 - 1.001
2,2',3,4,4',5,6'-HpCB	181			0.84	M+2/M+4	1.08	0.89-1.21	1.157	1.156 - 1.158
2,2',3,4,4',5,6'-HpCB	182			0.88	M+2/M+4	1.04	0.89-1.21	1.116	1.114 - 1.117
2,2',3,4,4',5',6'-HpCB	183	183 + 185	C	0.84	M+2/M+4	1.04	0.89-1.21	1.129	1.127 - 1.130
2,2',3,4,4',6,6'-HpCB	184			1.12	M+2/M+4	1.06	0.89-1.21	1.025	1.023 - 1.026
2,2',3,4,5,5',6'-HpCB	185	183 + 185	C183						
2,2',3,4,5,6,6'-HpCB	186			1.04	M+2/M+4	1.07	0.89-1.21	1.047	1.046 - 1.048
2,2',3,4',5,5',6'-HpCB	187			0.89	M+2/M+4	1.09	0.89-1.21	1.110	1.109 - 1.111
2,3,3',4,4',5,6'-HpCB	190			1.06	M+2/M+4	1.05	0.89-1.21	0.947	0.946 - 0.948
2,3,3',4,4',5',6'-HpCB	191			1.05	M+2/M+4	1.03	0.89-1.21	0.917	0.916 - 0.918
2,3,3',4,5,5',6'-HpCB	192			0.96	M+2/M+4	1.07	0.89-1.21	0.902	0.901 - 0.903
2,3,3',4',5,5',6'-HpCB	193	180 + 193	C180						
2,2',3,3',4,4',5,5'-OcCB	194			0.94	M+2/M+4	0.89	0.76-1.02	0.991	0.990 - 0.992
2,2',3,3',4,4',5,6'-OcCB	195			0.83	M+2/M+4	0.88	0.76-1.02	0.945	0.944 - 0.946
2,2',3,3',4,4',5,6'-OcCB	196			0.70	M+2/M+4	0.90	0.76-1.02	0.915	0.914 - 0.916

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
2,2',3,3',4,4',6,6'-OcCB	197	197 + 200	C	0.96	M+2/M+4	0.91	0.76-1.02	1.045	1.043 - 1.048
2,2',3,3',4,5,5',6-OcCB	198	198 + 199	C	0.68	M+2/M+4	0.91	0.76-1.02	1.114	1.112 - 1.116
2,2',3,3',4,5,5',6'-OcCB	199	198 + 199	C198						
2,2',3,3',4,5,6,6'-OcCB	200	197 + 200	C197						
2,2',3,3',4,5',6,6'-OcCB	201			0.96	M+2/M+4	0.89	0.76-1.02	1.022	1.020 - 1.024
2,2',3,4,4',5,5',6-OcCB	203			0.74	M+2/M+4	0.93	0.76-1.02	0.919	0.918 - 0.920
2,2',3,4,4',5,6,6'-OcCB	204			0.94	M+2/M+4	0.92	0.76-1.02	1.038	1.037 - 1.039
2,2',3,3',4,4',5,6,6'-NoCB	207			1.24	M+2/M+4	0.81	0.65-0.89	1.020	1.019 - 1.021

(1) Where applicable, custom lab flags have been used on this report.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 3B

PCB CONGENER INITIAL CALIBRATION RELATIVE RESPONSES,
ION ABUNDANCE RATIOS, AND RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

CAL Data Filename: PB8C_362 S: 1

Instrument ID: HR GC/MS

Analysis Date: 22-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:11:08

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	RRF	MZ's FORMING RATIO ³	ION ABUND. RATIO	RATIO QC LIMITS ⁴	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			1.11	M/M+2	3.15	2.66-3.60	0.719	0.703 - 0.735
13C12-4-MoCB	3L			1.02	M/M+2	3.09	2.66-3.60	0.858	0.843 - 0.874
13C12-2,2'-DiCB	4L			0.62	M/M+2	1.60	1.33-1.79	0.873	0.857 - 0.889
13C12-4,4'-DiCB	15L			0.92	M/M+2	1.54	1.33-1.79	1.253	1.237 - 1.268
13C12-2,2',6'-TriCB	19L			0.51	M/M+2	1.08	0.88-1.20	1.071	1.055 - 1.086
13C12-3,4,4'-TriCB	37L			1.41	M/M+2	1.04	0.88-1.20	1.092	1.082 - 1.102
13C12-2,2',6,6'-TeCB	54L			1.40	M/M+2	0.79	0.65-0.89	0.811	0.804 - 0.818
13C12-3,3',4,4'-TeCB	77L			1.25	M/M+2	0.75	0.65-0.89	1.397	1.390 - 1.403
13C12-3,4,4',5'-TeCB	81L			1.21	M/M+2	0.76	0.65-0.89	1.373	1.367 - 1.380
13C12-2,2',4,6,6'-PeCB	104L			1.05	M+2/M+4	1.64	1.32-1.78	0.808	0.803 - 0.813
13C12-2,3,3',4,4'-PeCB	105L			1.17	M+2/M+4	1.53	1.32-1.78	1.200	1.195 - 1.205
13C12-2,3,4,4',5'-PeCB	114L			1.16	M+2/M+4	1.54	1.32-1.78	1.179	1.174 - 1.184
13C12-2,3',4,4',5'-PeCB	118L			1.18	M+2/M+4	1.55	1.32-1.78	1.162	1.156 - 1.167
13C12-2',3,4,4',5'-PeCB	123L			1.24	M+2/M+4	1.52	1.32-1.78	1.151	1.146 - 1.156
13C12-3,3',4,4',5'-PeCB	126L			1.13	M+2/M+4	1.57	1.32-1.78	1.301	1.296 - 1.306
13C12-2,2',4,4',6,6'-HxCB	155L			1.08	M+2/M+4	1.25	1.05-1.43	0.785	0.781 - 0.789
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C	1.20	M+2/M+4	1.24	1.05-1.43	1.108	1.104 - 1.112
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L						
13C12-2,3',4,4',5,5'-HxCB	167L			1.15	M+2/M+4	1.30	1.05-1.43	1.078	1.074 - 1.082
13C12-3,3',4,4',5,5'-HxCB	169L			1.17	M+2/M+4	1.24	1.05-1.43	1.192	1.188 - 1.196
13C12-2,2',3,3',4,4',5'-HpCB	170L			0.91	M+2/M+4	1.04	0.89-1.21	0.897	0.894 - 0.900
13C12-2,2',3,4,4',5,5'-HpCB	180L			1.07	M+2/M+4	1.04	0.89-1.21	0.872	0.869 - 0.875
13C12-2,2',3,4,5,6,6'-HpCB	188L			1.44	M+2/M+4	1.07	0.89-1.21	0.712	0.708 - 0.715
13C12-2,3,3',4,4',5,5'-HpCB	189L			1.17	M+2/M+4	1.03	0.89-1.21	0.959	0.956 - 0.962
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			1.07	M+2/M+4	0.91	0.76-1.02	0.817	0.814 - 0.821
13C12-2,3,3',4,4',5,5',6-OxCB	205L			1.42	M+2/M+4	0.90	0.76-1.02	1.009	1.005 - 1.014
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			1.05	M+2/M+4	0.78	0.65-0.89	1.043	1.039 - 1.048
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			1.19	M+2/M+4	0.78	0.65-0.89	0.949	0.946 - 0.952

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_362S1__Form346B_SJ2452608_GS78312.html; Workgroup: WG65146; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 4A
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_362 S: 11

Instrument ID: HR GC/MS

Analysis Date: 23-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 06:48:56

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
2-MoCB	1			M/M+2	3.05	2.66-3.60	21.3	17.5 - 32.5
4-MoCB	3			M/M+2	2.98	2.66-3.60	22.4	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.49	1.33-1.79	20.9	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.48	1.33-1.79	24.2	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.06	0.88-1.20	27.2	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	0.99	0.88-1.20	20.3	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.79	0.65-0.89	51.9	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.75	0.65-0.89	43.2	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.72	0.65-0.89	46.6	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.54	1.32-1.78	54.5	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.48	1.32-1.78	45.6	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.54	1.32-1.78	44.4	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.48	1.32-1.78	41.8	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.49	1.32-1.78	43.6	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.48	1.32-1.78	45.7	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.32	1.05-1.43	52.5	35.0 - 65.0
2,3,3',4,4',5-HxCB	156	156 + 157	C	M+2/M+4	1.25	1.05-1.43	104	70.0 - 130
2,3,3',4,4',5'-HxCB	157	156 + 157	C156					
2,3',4,4',5,5'-HxCB	167			M+2/M+4	1.26	1.05-1.43	58.6	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.27	1.05-1.43	54.5	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.02	0.89-1.21	53.1	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	0.99	0.89-1.21	40.1	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.94	0.76-1.02	90.8	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.90	0.76-1.02	74.0	52.5 - 97.5
2,2',3,3',4,4',5,5',6-NoCB	206			M+2/M+4	0.80	0.65-0.89	76.5	52.5 - 97.5
2,2',3,3',4,5,5',6,6'-NoCB	208			M+2/M+4	0.77	0.65-0.89	88.5	58.7 - 109
2,2',3,3',4,4',5,5',6,6'-DeCB	209			M+4/M+6	1.24	0.99-1.33	79.1	52.5 - 97.5

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) See Table 8, Method 1668A, for m/z specifications.

(3) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 4B
PCB CONGENER CALIBRATION VERIFICATION

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_362 S: 11

Instrument ID: HR GC/MS

Analysis Date: 23-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 06:48:56

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	MZ's FORMING RATIO ³	ION ABUND. RATIO	QC LIMITS ⁴	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
13C12-2-MoCB	1L			M/M+2	3.17	2.66-3.60	101	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.11	2.66-3.60	98.8	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.56	1.33-1.79	90.7	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.57	1.33-1.79	88.6	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.08	0.88-1.20	91.3	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.03	0.88-1.20	80.6	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.79	0.65-0.89	88.6	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.76	0.65-0.89	88.4	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.74	0.65-0.89	86.2	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.61	1.32-1.78	74.2	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.54	1.32-1.78	86.4	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.59	1.32-1.78	86.0	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.54	1.32-1.78	85.1	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.60	1.32-1.78	92.8	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.57	1.32-1.78	85.4	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.32	1.05-1.43	69.3	50.0 - 150
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	M+2/M+4	1.24	1.05-1.43	183	100 - 300
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			M+2/M+4	1.26	1.05-1.43	90.9	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.29	1.05-1.43	94.1	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.05	0.89-1.21	81.6	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.02	0.89-1.21	86.6	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.95	0.76-1.02	62.5	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.86	0.76-1.02	92.7	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.78	0.65-0.89	91.0	50.0 - 150
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			M+2/M+4	0.80	0.65-0.89	84.3	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6	1.16	0.99-1.33	74.8	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.04	0.88-1.20	87.6	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.60	1.32-1.78	91.5	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.05	0.89-1.21	84.1	60.0 - 130

(1) Suffix "L" indicates labeled compound.

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(3) See Table 8, Method 1668A, for m/z specifications.

(4) Ion Abundance Ratio Control Limits as specified in Table 8, Method 1668A.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 6A
PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_362 S: 11

Instrument ID: HR GC/MS

Analysis Date: 23-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 06:48:56

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RETENTION TIME REFERENCE	IUPAC NO. ²	RRT	RRT QC LIMITS
2-MoCB	1			13C12-2-MoCB	1L	1.001	0.999-1.004
4-MoCB	3			13C12-4-MoCB	3L	1.001	0.999-1.004
2,2'-DiCB	4			13C12-2,2'-DiCB	4L	1.001	0.999-1.004
4,4'-DiCB	15			13C12-4,4'-DiCB	15L	1.001	0.999-1.002
2,2',6-TriCB	19			13C12-2,2',6-TriCB	19L	1.001	0.999-1.003
3,4,4'-TriCB	37			13C12-3,4,4'-TriCB	37L	1.001	0.999-1.002
2,2',6,6'-TeCB	54			13C12-2,2',6,6'-TeCB	54L	1.001	0.999-1.002
3,3',4,4'-TeCB	77			13C12-3,3',4,4'-TeCB	77L	1.001	1.000-1.001
3,4,4',5-TeCB	81			13C12-3,4,4',5-TeCB	81L	1.000	1.000-1.001
2,2',4,6,6'-PeCB	104			13C12-2,2',4,6,6'-PeCB	104L	1.001	0.999-1.002
2,3,3',4,4'-PeCB	105			13C12-2,3,3',4,4'-PeCB	105L	1.001	1.000-1.001
2,3,4,4',5-PeCB	114			13C12-2,3,4,4',5-PeCB	114L	1.001	1.000-1.001
2,3',4,4',5-PeCB	118			13C12-2,3',4,4',5-PeCB	118L	1.001	1.000-1.001
2',3,4,4',5-PeCB	123			13C12-2',3,4,4',5-PeCB	123L	1.000	1.000-1.001
3,3',4,4',5-PeCB	126			13C12-3,3',4,4',5-PeCB	126L	1.001	1.000-1.001
2,2',4,4',6,6'-HxCB	155			13C12-2,2',4,4',6,6'-HxCB	155L	1.001	0.999-1.002
2,3,3',4,4',5-HxCB	156	156 + 157	C	13C12-2,3,3',4,4',5-HxCB and 13C12-2,3,3',4,4',5'-HxCB	156L/157L	1.001	0.999-1.003
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3',4,4',5,5'-HxCB	167			13C12-2,3',4,4',5,5'-HxCB	167L	1.001	1.000-1.001
3,3',4,4',5,5'-HxCB	169			13C12-3,3',4,4',5,5'-HxCB	169L	1.000	1.000-1.001
2,2',3,4',5,6,6'-HpCB	188			13C12-2,2',3,4',5,6,6'-HpCB	188L	1.001	1.000-1.001
2,3,3',4,4',5,5'-HpCB	189			13C12-2,3,3',4,4',5,5'-HpCB	189L	1.001	1.000-1.001
2,2',3,3',5,5',6,6'-OxCB	202			13C12-2,2',3,3',5,5',6,6'-OxCB	202L	1.001	1.000-1.001
2,3,3',4,4',5,5',6-OxCB	205			13C12-2,3,3',4,4',5,5',6-OxCB	205L	1.000	1.000-1.001
2,2',3,3',4,4',5,5',6-NoCB	206			13C12-2,2',3,3',4,4',5,5',6-NoCB	206L	1.001	1.000-1.001
2,2',3,3',4,5,5',6,6'-NoCB	208			13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L	1.001	1.000-1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L	1.001	1.000-1.001

(1) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

(2) Suffix "L" indicates labeled compound

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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SGS AXYS METHOD MLA-010 Rev 12

Form 6B

PCB CONGENER RELATIVE RETENTION TIMES

SGS AXYS ANALYTICAL SERVICES

2045 MILLS RD., SIDNEY, B.C., CANADA
V8L 5X2 TEL (250) 655-5800 FAX (250) 655-5811

Initial Calibration Date: 07-Jul-2018

VER Data Filename: PB8C_362 S: 11

Instrument ID: HR GC/MS

Analysis Date: 23-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 06:48:56

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	RETENTION TIME REFERENCE	IUPAC NO. ¹	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			13C12-2,5-DiCB	9L	0.719	0.688-0.751
13C12-4-MoCB	3L			13C12-2,5-DiCB	9L	0.858	0.827-0.889
13C12-2,2'-DiCB	4L			13C12-2,5-DiCB	9L	0.874	0.843-0.905
13C12-4,4'-DiCB	15L			13C12-2,5-DiCB	9L	1.253	1.222-1.285
13C12-2,2',6'-TriCB	19L			13C12-2,5-DiCB	9L	1.072	1.041-1.103
13C12-3,4,4'-TriCB	37L			13C12-2,2',5,5'-TeCB	52L	1.093	1.073-1.113
13C12-2,2',6,6'-TeCB	54L			13C12-2,2',5,5'-TeCB	52L	0.811	0.798-0.825
13C12-3,3',4,4'-TeCB	77L			13C12-2,2',5,5'-TeCB	52L	1.398	1.384-1.411
13C12-3,4,4',5'-TeCB	81L			13C12-2,2',5,5'-TeCB	52L	1.374	1.361-1.388
13C12-2,2',4,6,6'-PeCB	104L			13C12-2,2',4,5,5'-PeCB	101L	0.808	0.798-0.819
13C12-2,3,3',4,4'-PeCB	105L			13C12-2,2',4,5,5'-PeCB	101L	1.201	1.190-1.211
13C12-2,3,4,4',5'-PeCB	114L			13C12-2,2',4,5,5'-PeCB	101L	1.179	1.169-1.190
13C12-2,3',4,4',5'-PeCB	118L			13C12-2,2',4,5,5'-PeCB	101L	1.162	1.152-1.173
13C12-2',3,4,4',5'-PeCB	123L			13C12-2,2',4,5,5'-PeCB	101L	1.152	1.142-1.162
13C12-3,3',4,4',5'-PeCB	126L			13C12-2,2',4,5,5'-PeCB	101L	1.302	1.291-1.312
13C12-2,2',4,4',6,6'-HxCB	155L			13C12-2,2',3,4,4',5'-HxCB	138L	0.785	0.777-0.794
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C	13C12-2,2',3,4,4',5'-HxCB	138L	1.108	1.100-1.116
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L				
13C12-2,3',4,4',5,5'-HxCB	167L			13C12-2,2',3,4,4',5'-HxCB	138L	1.078	1.070-1.086
13C12-3,3',4,4',5,5'-HxCB	169L			13C12-2,2',3,4,4',5'-HxCB	138L	1.192	1.184-1.200
13C12-2,2',3,4',5,6,6'-HpCB	188L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	0.712	0.706-0.718
13C12-2,3,3',4,4',5,5'-HpCB	189L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	0.959	0.953-0.965
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	0.817	0.811-0.824
13C12-2,3,3',4,4',5,5',6-OxCB	205L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	1.009	1.000-1.019
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	1.043	1.034-1.052
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	0.949	0.942-0.955
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			13C12-2,2',3,3',4,4',5,5'-OxCB	194L	1.074	1.065-1.084

CLEANUP STANDARD

13C12-2,4,4'-TriCB	28L	13C12-2,2',5,5'-TeCB	52L	0.925	0.912-0.939
13C12-2,3,3',5,5'-PeCB	111L	13C12-2,2',4,5,5'-PeCB	101L	1.088	1.078-1.098
13C12-2,2',3,3',5,5',6-HpCB	178L	13C12-2,2',3,4,4',5'-HxCB	138L	1.011	1.003-1.020

(1) Suffix "L" indicates labeled compound

(2) Where applicable, custom lab flags have been used on this report; C = co-eluting congener.

These data are validated and reported as accurate and in accord with SGS AXYS Analytical Services Ltd. ISO17025 compliant quality assurance processes.

Signed: _____ Leanne Henley _____

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Report Filename: 1668_PCB1668_PB8C_362S11__Form6B_SJ2452727.html; Workgroup: WG65146; Design ID: 3360]

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Accreditation Scope

SGS AXYS Analytical Services Ltd.
file ref.: ACC-101 Rev. 40

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Accreditation Scope																		Serum									Tissue		Urine	Water	Water, Non-Potable							
SGS AXYS Analytical Services Ltd. file ref.: ACC-101 Rev. 40																			Solids																			
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB ISO 17025	ANAB DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	ANAB ISO 17025	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB ISO 17025	ANAB DoD **				
	Oxychlordane	SGS AXYS MLA-028	MLA-028	Y	Y	Y					Y			Y		Y							Y	Y	Y				Y			Y						
		SGS AXYS MLA-007	MLA-007	Y	Y	Y								Y		Y							Y	Y	Y							Y						
		EPA 8270	MLA-007			Y					Y														Y							Y						
		EPA 1699	MLA-028			Y								Y											Y							Y						
	Toxaphene	SGS AXYS MLA-028	MLA-028	Y	Y	Y					Y		Y		Y		Y						Y	Y	Y				Y			Y						
		SGS AXYS MLA-007	MLA-007	Y	Y	Y											Y						Y	Y	Y							Y						
		EPA 8270	MLA-007								Y																											
		SGS AXYS MLA-007	MLA-007		Y												Y						Y															
	trans-Chlordane (gamma-Chlordane)	EPA 8270	MLA-007				Y			Y		Y	Y	Y											Y			Y			Y		Y					
		EPA 1699	MLA-028				Y								Y										Y							Y						
		SGS AXYS MLA-028	MLA-028	Y	Y	Y					Y		Y		Y		Y						Y	Y	Y				Y			Y						
		SGS AXYS MLA-007	MLA-007	Y	Y	Y									Y		Y						Y	Y	Y							Y						
	trans-Nonachlor	EPA 8270	MLA-007				Y					Y	Y												Y							Y						
		EPA 1699	MLA-028				Y							Y											Y							Y						
		SGS AXYS MLA-028	MLA-028	Y	Y	Y					Y		Y		Y		Y						Y	Y	Y				Y			Y						
		SGS AXYS MLA-007	MLA-007	Y	Y	Y									Y		Y						Y	Y	Y							Y						
PAH	1,2,6-Trimethylphenanthrene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	1,2-Dimethylnaphthalene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	1,4,6,7-Tetramethylnaphthalene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	1,7-Dimethylfluorene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	1,7-Dimethylphenanthrene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	1,8-Dimethylphenanthrene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	1-Methylchrysene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	1-Methylnaphthalene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	1-Methylphenanthrene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	2,3,5-Trimethylnaphthalene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	2,3,6-Trimethylnaphthalene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	2,4-Dimethyldibenzothiophene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	2,6-Dimethylnaphthalene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	2,6-Dimethylphenanthrene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	2-Methylantracene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	2-Methyldibenzothiophene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	2-Methylfluorene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	2-Methylnaphthalene	EPA 1625	MLA-021																															Y				
		EPA 8270	MLA-021				Y			Y					Y										Y													
		SGS AXYS MLA-021	MLA-021		Y	Y									Y								Y										Y					
	2-Methylphenanthrene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	3,6-Dimethylphenanthrene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	3-Methyldibenzothiophene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	3-Methylfluoranthene/ Benzo(a)fluorene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	3-Methylphenanthrene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	5,9-Dimethylchrysene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	5/6-Methylchrysenes	SGS AXYS MLA-021	MLA-021		Y																	Y																
	7-Methylbenzo(a)pyrene	SGS AXYS MLA-021	MLA-021		Y																	Y																
	9/4-Methylphenanthrenes	SGS AXYS MLA-021	MLA-021		Y																	Y																
	Acenaphthene	EPA 1625	MLA-021																					Y		Y	Y						Y					
		EPA 8270	MLA-021				Y			Y	Y		Y	Y																								
		SGS AXYS MLA-021	MLA-021		Y	Y									Y		Y					Y		Y									Y					
	Acenaphthylene	EPA 1625	MLA-021																																			
		EPA 8270	MLA-021				Y			Y	Y		Y	Y																								

Accreditation Scope				Serum		Solids		Tissue		Urine		Water		Water, Non-Potable	
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB ISO 17025	ANAB DoD **
Anthracene		SGS AXYS MLA-021	MLA-021		Y	Y									
		EPA 1625	MLA-021												
		EPA 8270	MLA-021			Y			Y	Y					
		SGS AXYS MLA-021	MLA-021		Y	Y				Y					
Benz[a]anthracene		EPA 1625	MLA-021												
		EPA 8270	MLA-021			Y			Y	Y					
		SGS AXYS MLA-021	MLA-021		Y	Y				Y					
Benzo[a]pyrene		EPA 1625	MLA-021												
		EPA 8270	MLA-021			Y			Y	Y					
		SGS AXYS MLA-021	MLA-021		Y	Y				Y					
Benzo[b]fluoranthene		EPA 1625	MLA-021												
		EPA 8270	MLA-021			Y			Y	Y					
		SGS AXYS MLA-021	MLA-021		Y	Y				Y					
Benzo[e]pyrene		SGS AXYS MLA-021	MLA-021		Y										
		EPA 1625	MLA-021												
		EPA 8270	MLA-021			Y			Y	Y					
		SGS AXYS MLA-021	MLA-021		Y	Y				Y					
Benzo[ghi]perylene		SGS AXYS MLA-021	MLA-021		Y										
		EPA 1625	MLA-021												
		EPA 8270	MLA-021			Y			Y	Y					
		SGS AXYS MLA-021	MLA-021		Y	Y				Y					
Benzofluoranthenes		SGS AXYS MLA-021	MLA-021		Y										
		EPA 1625	MLA-021												
		EPA 8270	MLA-021			Y			Y	Y					
		SGS AXYS MLA-021	MLA-021			Y				Y					
Benzokjfluoranthene		SGS AXYS MLA-021	MLA-021												
		EPA 1625	MLA-021												
		EPA 8270	MLA-021			Y			Y	Y					
		SGS AXYS MLA-021	MLA-021			Y				Y					
Biphenyl		SGS AXYS MLA-021	MLA-021		Y										
C1-Acenaphthenes		SGS AXYS MLA-021	MLA-021		Y										
C1-Benz(a)anthracenes/chrysenes		SGS AXYS MLA-021	MLA-021		Y										
C1-Benzofluoranthenes/ Benzopyrenes		SGS AXYS MLA-021	MLA-021		Y										
C1-Biphenyls		SGS AXYS MLA-021	MLA-021		Y										
C1-Dibenzothiophene		SGS AXYS MLA-021	MLA-021		Y										
C1-Fluoranthenes/Pyrenes		SGS AXYS MLA-021	MLA-021		Y										
C1-Fluorenes		SGS AXYS MLA-021	MLA-021		Y										
C1-Naphthalenes		SGS AXYS MLA-021	MLA-021		Y										
C1-Phenanthrenes/Anthracenes		SGS AXYS MLA-021	MLA-021		Y										
C2-Benz(a)anthracenes/Chrysenes		SGS AXYS MLA-021	MLA-021		Y										
C2-Benzofluoranthenes/ Benzopyrenes		SGS AXYS MLA-021	MLA-021		Y										
C2-Biphenyls		SGS AXYS MLA-021	MLA-021		Y										
C2-Dibenzothiophene		SGS AXYS MLA-021	MLA-021		Y										
C2-Fluoranthenes/Pyrenes		SGS AXYS MLA-021	MLA-021		Y										
C2-Fluorenes		SGS AXYS MLA-021	MLA-021		Y										
C2-Naphthalenes		SGS AXYS MLA-021	MLA-021		Y										
C2-Phenanthrenes/Anthracenes		SGS AXYS MLA-021	MLA-021		Y										
C3-Benz(a)anthracenes/Chrysenes		SGS AXYS MLA-021	MLA-021		Y										
C3-Dibenzothiophene		SGS AXYS MLA-021	MLA-021		Y										
C3-Fluoranthenes/Pyrenes		SGS AXYS MLA-021	MLA-021		Y										
C3-Fluorenes		SGS AXYS MLA-021	MLA-021		Y										
C3-Naphthalenes		SGS AXYS MLA-021	MLA-021		Y										
C3-Phenanthrenes/Anthracenes		SGS AXYS MLA-021	MLA-021		Y										
C4-Benz(a)anthracenes/Chrysenes		SGS AXYS MLA-021	MLA-021		Y										
C4-Dibenzothiophene		SGS AXYS MLA-021	MLA-021		Y										
C4-Fluoranthenes/Pyrenes		SGS AXYS MLA-021	MLA-021		Y										
C4-Naphthalenes		SGS AXYS MLA-021	MLA-021		Y										
C4-Phenanthrenes/Anthracenes		SGS AXYS MLA-021	MLA-021		Y										

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SGS AXYS Analytical Services Ltd. file ref.: ACC-101 Rev. 40																																																															
				Serum										Solids										Tissue										Urine										Water										Water, Non-Potable									
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB ISO 17025	ANAB DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	ANAB ISO 17025	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB ISO 17025	ANAB DoD **																													
	Chrysene	EPA 1625	MLA-021																						Y				Y				Y																														
		EPA 8270	MLA-021				Y			Y	Y		Y	Y																																																	
		SGS AXYS MLA-021	MLA-021		Y	Y									Y		Y							Y		Y							Y																														
	Dibenz[a,h]anthracene	EPA 1625	MLA-021																							Y			Y	Y				Y																													
		EPA 8270	MLA-021				Y			Y	Y		Y	Y														Y	Y					Y																													
		SGS AXYS MLA-021	MLA-021		Y	Y									Y		Y							Y		Y							Y																														
	Dibenzothiophene	SGS AXYS MLA-021	MLA-021		Y																			Y																																							
	Fluoranthene	EPA 1625	MLA-021																							Y			Y	Y				Y																													
		EPA 8270	MLA-021				Y			Y	Y		Y	Y																																																	
		SGS AXYS MLA-021	MLA-021		Y	Y									Y		Y							Y		Y								Y																													
	Fluorene	EPA 1625	MLA-021																							Y			Y	Y				Y																													
		EPA 8270	MLA-021				Y			Y	Y		Y	Y														Y	Y					Y																													
		SGS AXYS MLA-021	MLA-021		Y	Y									Y		Y							Y		Y								Y																													
	Indeno[1,2,3-cd]pyrene	EPA 1625	MLA-021																							Y			Y	Y				Y																													
		EPA 8270	MLA-021				Y			Y	Y		Y	Y																																																	
		SGS AXYS MLA-021	MLA-021		Y	Y									Y		Y							Y		Y								Y																													
	Naphthalene	EPA 1625	MLA-021																							Y			Y	Y				Y																													
		EPA 8270	MLA-021				Y			Y	Y		Y	Y																																																	
		SGS AXYS MLA-021	MLA-021		Y	Y									Y		Y							Y		Y								Y																													
	Perylene	SGS AXYS MLA-021	MLA-021		Y												Y						Y																																								
	Phenanthrene	EPA 1625	MLA-021																							Y			Y	Y				Y																													
		EPA 8270	MLA-021				Y			Y	Y		Y	Y																																																	
		SGS AXYS MLA-021	MLA-021		Y	Y									Y		Y							Y		Y								Y																													
	Pyrene	EPA 1625	MLA-021																							Y			Y	Y				Y																													
		EPA 8270	MLA-021				Y			Y	Y		Y	Y														Y	Y					Y																													
		SGS AXYS MLA-021	MLA-021		Y	Y									Y		Y							Y		Y								Y																													
	Retene	SGS AXYS MLA-021	MLA-021		Y																			Y																																							
PBDPE	BDE 10 2,6-dibromodiphenylether	EPA 1614	MLA-033								Y																				Y																																
		SGS AXYS MLA-033	MLA-033	Y	Y												Y						Y																																								
	BDE 100 2,2',4,4',6-pentabromodiphenylether	EPA 1614	MLA-033									Y																				Y																															
		SGS AXYS MLA-033	MLA-033	Y	Y													Y						Y																																							
	BDE 105 2,3,3',4,4'-pentabromodiphenylether	EPA 1614	MLA-033									Y																				Y																															
		SGS AXYS MLA-033	MLA-033	Y	Y													Y						Y									Y																														
	BDE 11 3,3'-dibromodiphenylether	EPA 1614	MLA-033									Y																				Y																															
		SGS AXYS MLA-033	MLA-033	Y	Y													Y						Y									Y																														
	BDE 116 2,3,4,5,6-pentabromodiphenylether	EPA 1614	MLA-033									Y																				Y																															
		SGS AXYS MLA-033	MLA-033	Y	Y													Y						Y								Y																															
	BDE 119 2,3',4,4',6-pentabromodiphenylether	EPA 1614	MLA-033									Y																				Y																															
		SGS AXYS MLA-033	MLA-033	Y	Y													Y						Y									Y																														
	BDE 12 3,4-dibromodiphenylether	EPA 1614	MLA-033									Y																				Y																															
		SGS AXYS MLA-033	MLA-033	Y	Y													Y						Y																																							
	BDE 126 3,3',4,4',5-pentabromodiphenylether	EPA 1614	MLA-033									Y																				Y																															
		SGS AXYS MLA-033	MLA-033	Y	Y													Y						Y									Y																														
	BDE 13 3,4'-dibromodiphenylether	EPA 1614	MLA-033									Y																					Y																														
		SGS AXYS MLA-033	MLA-033	Y	Y													Y						Y																																							
	BDE 140 2,2',3,4,4',6'-hexabromodiphenylether	EPA 1614	MLA-033									Y																				Y																															
		SGS AXYS MLA-033	MLA-033	Y	Y													Y						Y																																							
BDE 15 4,4'-dibromodiphenylether	EPA 1614	MLA-033									Y																				Y																																
	SGS AXYS MLA-033	MLA-033	Y	Y													Y						Y																																								
BDE 153 2,2',4,4',5,5'-hexabromodiphenylether	EPA 1614	MLA-033								Y																				Y																																	

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Accreditation Scope																Serum													Urine	Water	Water, Non-Potable																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
																CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB ISO 17025	ANAB DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	ANAB ISO 17025	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB ISO 17025	ANAB DoD **																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	Y	Y											Y																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												</

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Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB ISO 17025	ANAB DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	ANAB ISO 17025	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB ISO 17025	ANAB DoD **	
	PCB 101 2,2',4,5,5'-Pentachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y		Y	Y		
		SGS AXYS MLA-010	MLA-010	Y	Y		Y								Y		Y				Y		Y	Y	Y							Y			
	PCB 101/90/89	EPA 8270	MLA-007									Y														Y	Y	Y	Y	Y	Y				
		SGS AXYS MLA-007	MLA-007		Y												Y							Y											
	PCB 102 2,2',4,5,6'-Pentachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y		Y	Y	
		SGS AXYS MLA-010	MLA-010	Y	Y		Y								Y		Y				Y		Y	Y	Y		Y					Y			
	PCB 103 2,2',4,5',6-Pentachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y		Y	Y	
		EPA 8270	MLA-007									Y																							
		SGS AXYS MLA-010	MLA-010	Y	Y		Y								Y		Y				Y		Y		Y								Y		
	PCB 104 2,2',4,6,6'-Pentachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y		Y	Y	
		EPA 8270	MLA-007									Y																							
		SGS AXYS MLA-010	MLA-010	Y	Y		Y								Y		Y				Y		Y		Y								Y		
	PCB 105 2,3,3',4,4'-Pentachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y		Y	Y	
		SGS AXYS MLA-010	MLA-010	Y	Y		Y								Y		Y				Y		Y	Y	Y		Y						Y		
	PCB 105/127	EPA 8270	MLA-007									Y																							
		SGS AXYS MLA-007	MLA-007		Y												Y							Y											
	PCB 106 2,3,3',4,5-Pentachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y		Y	Y	
		SGS AXYS MLA-010	MLA-010	Y	Y		Y								Y		Y				Y		Y	Y	Y		Y						Y		
	PCB 107 2,3,3',4',5-Pentachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y		Y	Y	
		SGS AXYS MLA-010	MLA-010	Y	Y		Y								Y		Y				Y		Y	Y	Y		Y						Y		
	PCB 107/109	EPA 8270	MLA-007									Y																							
		SGS AXYS MLA-007	MLA-007		Y												Y							Y											
	PCB 108 2,3,3',4,5'-Pentachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y		Y	Y	
		SGS AXYS MLA-010	MLA-010	Y	Y		Y								Y		Y				Y		Y	Y	Y		Y						Y		
	PCB 109 2,3,3',4,6-Pentachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y		Y	Y	
		SGS AXYS MLA-010	MLA-010	Y	Y		Y								Y		Y				Y		Y	Y	Y		Y						Y		
		EPA 8270	MLA-007									Y																							
	PCB 11 3,3'-Dichlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y		Y	Y	
		EPA 8270	MLA-007									Y																							
		SGS AXYS MLA-010	MLA-010	Y	Y		Y								Y		Y				Y		Y	Y	Y		Y						Y		
	PCB 110 2,3,3',4',6-Pentachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y		Y	Y	
		EPA 8270	MLA-007									Y																							
		SGS AXYS MLA-010	MLA-010	Y	Y		Y								Y		Y				Y		Y	Y		Y							Y		
		SGS AXYS MLA-007	MLA-007		Y													Y						Y											
	PCB 111 2,3,3',5,5'-Pentachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y		Y	Y	
		SGS AXYS MLA-010	MLA-010	Y	Y		Y								Y		Y				Y		Y	Y		Y							Y		
	PCB 111/117	EPA 8270	MLA-007									Y																							
		EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y		Y	Y		
	PCB 112 2,3,3',5,6-Pentachlorobiphenyl	EPA 8270	MLA-007									Y																							
		SGS AXYS MLA-010	MLA-010	Y	Y		Y								Y		Y				Y		Y	Y		Y							Y		
	PCB 113 2,3,3',5',6-Pentachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y		Y	Y	
		EPA 8270	MLA-007									Y																							
		SGS AXYS MLA-010	MLA-010	Y	Y		Y								Y		Y				Y		Y	Y		Y							Y		
	PCB 114 2,3,4,4',5-Pentachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y		Y	Y	
		EPA 8270	MLA-007									Y																							
		SGS AXYS MLA-010	MLA-010	Y	Y		Y								Y		Y				Y		Y	Y		Y							Y		
	PCB 115 2,3,4,4',6-Pentachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y		Y	Y	
		SGS AXYS MLA-010	MLA-010	Y	Y		Y								Y		Y				Y		Y	Y		Y							Y		
EPA 1668		MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y		Y	Y		
PCB 116 2,3,4,5,6-Pentachlorobiphenyl	SGS AXYS MLA-010	MLA-010	Y	Y		Y								Y		Y				Y		Y	Y		Y							Y			
	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y		Y	Y		
PCB 117 2,3,4',5,6-Pentachlorobiphenyl	SGS AXYS MLA-010	MLA-010	Y	Y		Y								Y		Y				Y		Y	Y		Y							Y	Y		
	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y		Y	Y		

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SGS AXYS Analytical Services Ltd. file ref.: ACC-101 Rev. 40																																		
				Serum	Solids									Tissue					Urine	Water	Water, Non-Potable													
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB ISO 17025	ANAB DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	ANAB ISO 17025	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB ISO 17025	ANAB DoD **
	PCB 131/142	EPA 8270	MLA-007								Y						Y																	
		SGS AXYS MLA-007	MLA-007		Y												Y							Y										
	PCB 132 2,2',3,3',4,6'-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y						Y					Y		Y	Y	Y		Y	Y	
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y					Y	Y	Y									Y	
	PCB 132/168	EPA 8270	MLA-007									Y																						
	PCB 133 2,2',3,3',5,5'-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y				Y		Y	Y	Y		Y	Y	
		EPA 8270	MLA-007										Y																					
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y					Y	Y	Y									Y	
	PCB 134 2,2',3,3',5,6'-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y				Y		Y	Y	Y		Y	Y	
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y					Y	Y	Y									Y	
	PCB 134/143	EPA 8270	MLA-007									Y																						
		SGS AXYS MLA-007	MLA-007		Y												Y								Y									
	PCB 135 2,2',3,3',5,6'-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y					Y		Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y					Y	Y	Y			Y		Y	Y	Y		Y	
	PCB 136 2,2',3,3',6,6'-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y					Y		Y	Y	Y		Y	Y
		EPA 8270	MLA-007										Y																					
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y					Y	Y	Y			Y		Y				Y	
		SGS AXYS MLA-007	MLA-007		Y												Y							Y										
	PCB 137 2,2',3,4,4',5'-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y					Y		Y	Y	Y		Y	Y
		EPA 8270	MLA-007										Y																					
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y					Y	Y	Y			Y		Y				Y	
		SGS AXYS MLA-007	MLA-007		Y												Y							Y										
	PCB 138 2,2',3,4,4',5'-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y					Y		Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y					Y	Y	Y			Y		Y				Y	
		SGS AXYS MLA-901	MLA-901	Y																														
	PCB 138/163/164	EPA 8270	MLA-007										Y																					
		SGS AXYS MLA-007	MLA-007		Y												Y																	
	PCB 139 2,2',3,4,4',6'-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y					Y		Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y					Y	Y	Y			Y		Y				Y	
	PCB 14 3,5-Dichlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y					Y		Y	Y	Y		Y	Y
		EPA 8270	MLA-007										Y																					
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y					Y	Y	Y			Y		Y				Y	
	PCB 140 2,2',3,4,4',6'-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y					Y		Y	Y	Y		Y	Y
		EPA 8270	MLA-007										Y																					
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y					Y	Y	Y			Y		Y				Y	
	PCB 141 2,2',3,4,5,5'-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y					Y		Y	Y	Y		Y	Y
		EPA 8270	MLA-007										Y																					
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y					Y	Y	Y			Y		Y				Y	
	PCB 142 2,2',3,4,5,6'-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y					Y		Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y					Y	Y	Y			Y		Y				Y	
	PCB 143 2,2',3,4,5,6'-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y					Y		Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y					Y	Y	Y			Y		Y				Y	
	PCB 144 2,2',3,4,5',6'-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y					Y		Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y					Y	Y	Y			Y		Y				Y	
	PCB 144/135	EPA 8270	MLA-007										Y																					
		SGS AXYS MLA-007	MLA-007		Y												Y																	
	PCB 145 2,2',3,4,6,6'-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y					Y		Y	Y	Y		Y	Y
		EPA 8270	MLA-007										Y																					
	SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y					Y	Y	Y			Y		Y				Y		
PCB 146 2,2',3,4',5,5'-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y							Y					Y		Y	Y	Y		Y	Y	

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Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	Serum	Solids									Tissue					Urine	Water	Water, Non-Potable												
				CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB ISO 17025	ANAB DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	ANAB ISO 17025	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB ISO 17025
	PCB 158/160	EPA 8270	MLA-007									Y																					
		SGS AXYS MLA-007	MLA-007		Y										Y								Y										
	PCB 159 2,3,3',4,5,5'-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y					Y							Y		Y	Y	Y	Y		Y	Y
		EPA 8270	MLA-007									Y																					
		SGS AXYS MLA-010	MLA-010	Y	Y		Y						Y		Y		Y		Y		Y		Y	Y							Y		
		SGS AXYS MLA-007	MLA-007		Y										Y							Y		Y									
	PCB 16 2,2',3-Trichlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y					Y						Y		Y	Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y		Y						Y		Y		Y		Y		Y		Y	Y		Y					Y		
	PCB 16/32	EPA 8270	MLA-007									Y																					
		SGS AXYS MLA-007	MLA-007		Y										Y								Y										
	PCB 160 2,3,3',4,5,6-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y					Y						Y		Y	Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y		Y						Y		Y		Y		Y		Y		Y	Y							Y		
		SGS AXYS MLA-007	MLA-007		Y										Y								Y		Y								
		EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y					Y					Y		Y	Y	Y	Y		Y	Y
	PCB 161 2,3,3',4,5',6-Hexachlorobiphenyl	EPA 8270	MLA-007									Y																					
		SGS AXYS MLA-010	MLA-010	Y	Y		Y						Y		Y		Y		Y		Y		Y	Y							Y		
		SGS AXYS MLA-007	MLA-007		Y										Y								Y		Y								
		EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y					Y					Y		Y	Y	Y	Y		Y	Y
	PCB 162 2,3,3',4',5,5'-Hexachlorobiphenyl	EPA 8270	MLA-007									Y																					
		SGS AXYS MLA-010	MLA-010	Y	Y		Y						Y		Y		Y		Y		Y		Y	Y								Y	
		EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y					Y					Y		Y	Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y		Y							Y		Y		Y		Y		Y		Y	Y							Y	
	PCB 163 2,3,3',4',5,6-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y					Y					Y		Y	Y	Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y		Y						Y		Y		Y		Y		Y		Y	Y								Y	
		EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y					Y					Y		Y	Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y		Y							Y		Y		Y		Y		Y		Y	Y							Y	
	PCB 164 2,3,3',4',5',6-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y					Y					Y		Y	Y	Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y		Y							Y		Y		Y		Y		Y		Y	Y							Y	
		EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y					Y					Y		Y	Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y		Y							Y		Y		Y		Y		Y		Y	Y							Y	
	PCB 165 2,3,3',5,5',6-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y					Y					Y		Y	Y	Y	Y	Y		Y	Y
		EPA 8270	MLA-007									Y																					
		SGS AXYS MLA-010	MLA-010	Y	Y		Y							Y		Y		Y		Y		Y		Y								Y	
		EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y					Y					Y		Y	Y	Y	Y		Y	Y
	PCB 166 2,3,4,4',5,6-Hexachlorobiphenyl	EPA 8270	MLA-007								Y																						
		SGS AXYS MLA-010	MLA-010	Y	Y		Y							Y		Y		Y		Y		Y		Y								Y	
		EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y					Y					Y		Y	Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y		Y							Y		Y		Y		Y		Y		Y	Y								
	PCB 167 2,3',4,4',5,5'-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y										Y		Y	Y	Y	Y	Y		Y	Y
		EPA 8270	MLA-007									Y																					
		SGS AXYS MLA-010	MLA-010	Y	Y		Y							Y		Y		Y		Y		Y		Y								Y	
	PCB 168 2,3',4,4',5',6-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y										Y		Y	Y	Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y		Y							Y		Y		Y		Y		Y		Y		Y						Y	
	PCB 169 3,3',4,4',5,5'-Hexachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y										Y		Y	Y	Y	Y	Y		Y	Y
		EPA 8270	MLA-007									Y																					
		SGS AXYS MLA-010	MLA-010	Y	Y		Y							Y		Y		Y		Y		Y		Y		Y						Y	
		SGS AXYS MLA-007	MLA-007		Y																												
	PCB 17 2,2',4-Trichlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y										Y		Y	Y	Y	Y	Y		Y	Y
		EPA 8270	MLA-007									Y																					
		SGS AXYS MLA-010	MLA-010	Y	Y		Y							Y		Y		Y		Y		Y		Y		Y						Y	
		SGS AXYS MLA-007	MLA-007		Y																												
	PCB 170 2,2',3,3',4,4',5-Heptachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y										Y		Y	Y	Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y		Y							Y		Y		Y		Y		Y		Y		Y						Y	
		SGS AXYS MLA-901	MLA-901	Y																													
	PCB 170/190	EPA 8270	MLA-007									Y																					
		SGS AXYS MLA-007	MLA-007		Y																												
	PCB 171 2,2',3,3',4,4',6-Heptachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y										Y		Y	Y	Y	Y	Y		Y	Y
		EPA 8270	MLA-007										Y																				

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Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID																																	
				CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB ISO 17025	ANAB DoD **		CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	ANAB ISO 17025		CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB ISO 17025	ANAB DoD **
	PCB 35 3,3',4-Trichlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y													Y				Y					
		EPA 8270	MLA-007										Y																							
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y		Y						Y									Y		
		EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y									Y				Y		Y	Y	Y		Y	Y	
	PCB 36 3,3',5-Trichlorobiphenyl	EPA 8270	MLA-007									Y																								
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y		Y						Y									Y		
		EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y									Y				Y		Y	Y	Y		Y	Y	
		SGS AXYS MLA-010	MLA-010	Y	Y	Y										Y		Y		Y					Y											
	PCB 37 3,4,4'-Trichlorobiphenyl	EPA 1668	MLA-010					Y		Y	Y	Y	Y	Y	Y											Y				Y				Y	Y	
		EPA 8270	MLA-007										Y																							
		SGS AXYS MLA-010	MLA-010	Y	Y	Y										Y		Y		Y					Y									Y		
		SGS AXYS MLA-010	MLA-010				Y																													
	PCB 38 3,4,5-Trichlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y												Y		Y						Y	Y	
		EPA 8270	MLA-007										Y																							
		SGS AXYS MLA-010	MLA-010	Y	Y	Y										Y		Y		Y					Y									Y		
		SGS AXYS MLA-010	MLA-010																																	
	PCB 39 3,4',5-Trichlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y											Y		Y		Y	Y	Y		Y	Y	
		EPA 8270	MLA-007										Y																							
		SGS AXYS MLA-010	MLA-010	Y	Y	Y										Y		Y		Y					Y									Y		
		SGS AXYS MLA-010	MLA-010				Y																													
	PCB 4 2,2'-Dichlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y											Y		Y		Y	Y	Y		Y	Y	
		SGS AXYS MLA-010	MLA-010	Y	Y	Y										Y		Y		Y					Y									Y		
		EPA 8270	MLA-007										Y																							
		SGS AXYS MLA-010	MLA-010				Y																													
	PCB 4/10	EPA 8270	MLA-007									Y																								
		EPA 1668	MLA-010										Y																							
		EPA 8270	MLA-007										Y																							
		SGS AXYS MLA-010	MLA-010				Y																													
	PCB 40 2,2',3,3'-Tetrachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y	Y											Y			Y	Y	Y	Y		Y	Y	
		EPA 8270	MLA-007										Y																							
		SGS AXYS MLA-010	MLA-010	Y	Y	Y										Y		Y		Y					Y									Y		
		SGS AXYS MLA-007	MLA-007			Y																														

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SGS AXYS Analytical Services Ltd.
file ref.: ACC-101 Rev. 40

Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB ISO 17025	ANAB DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	ANAB ISO 17025	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB ISO 17025	ANAB DoD **
	PCB 49 2,2',4,5'-Tetrachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y		Y	Y		
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y		Y			Y		Y		Y							Y		
	PCB 49/43	EPA 8270	MLA-007									Y													Y	Y	Y	Y	Y					
		SGS AXYS MLA-007	MLA-007		Y													Y						Y										
	PCB 5 2,3-Dichlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y		Y	Y		
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y				Y		Y		Y							Y		
	PCB 50 2,2',4,6-Tetrachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y				Y	Y		Y	Y	Y	Y		Y	Y
		EPA 8270	MLA-007									Y																						
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y				Y		Y		Y								Y	
		SGS AXYS MLA-007	MLA-007		Y													Y				Y		Y		Y								
	PCB 51 2,2',4,6'-Tetrachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y				Y	Y		Y	Y	Y	Y		Y	Y
		EPA 8270	MLA-007									Y																						
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y				Y		Y		Y								Y	
	PCB 52 2,2',5,5'-Tetrachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y			Y	Y		Y	Y	Y	Y		Y	Y	
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y				Y		Y		Y								Y	
		EPA 8270	MLA-007									Y																						
	PCB 52/73	EPA 8270	MLA-007									Y																						
		SGS AXYS MLA-007	MLA-007		Y													Y						Y										
	PCB 53 2,2',5,6'-Tetrachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y				Y	Y		Y	Y	Y	Y		Y	Y
		EPA 8270	MLA-007									Y																						
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y				Y		Y		Y								Y	
	PCB 54 2,2',6,6'-Tetrachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y			Y	Y		Y	Y	Y	Y		Y	Y	
		EPA 8270	MLA-007									Y																						
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y				Y		Y		Y								Y	
	PCB 55 2,3,3',4-Tetrachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y				Y	Y		Y	Y	Y	Y		Y	Y
		EPA 8270	MLA-007									Y																						
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y				Y		Y		Y								Y	
	PCB 56 2,3,3',4'-Tetrachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y				Y	Y		Y	Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y				Y		Y		Y									
	PCB 56/60	EPA 8270	MLA-007									Y																						
SGS AXYS MLA-007		MLA-007		Y													Y						Y											
PCB 57 2,3,3',5-Tetrachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y				Y	Y		Y	Y	Y	Y		Y	Y	
	EPA 8270	MLA-007									Y																							
	SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y				Y		Y		Y								Y		
PCB 58 2,3,3',5'-Tetrachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y				Y	Y		Y	Y	Y	Y		Y	Y	
	EPA 8270	MLA-007									Y																							
	SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y				Y		Y		Y								Y		
PCB 59 2,3,3',6-Tetrachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y				Y	Y		Y	Y	Y	Y		Y	Y	
	SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y				Y		Y		Y								Y		
PCB 6 2,3'-Dichlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y				Y	Y		Y	Y	Y	Y		Y	Y	
	EPA 8270	MLA-007									Y																							
	SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y				Y		Y		Y								Y		
PCB 60 2,3,4,4'-Tetrachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y				Y	Y		Y	Y	Y	Y		Y	Y	
	SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y				Y		Y		Y								Y		
PCB 61 2,3,4,5-Tetrachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y				Y	Y		Y	Y	Y	Y		Y	Y	
	SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y				Y		Y		Y								Y		
PCB 62 2,3,4,6-Tetrachlorobiphenyl	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y				Y	Y		Y	Y	Y	Y		Y	Y	
	SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y				Y		Y		Y								Y		
PCB 62/65	EPA 8270	MLA-007									Y																							
	EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y				Y	Y		Y	Y	Y	Y		Y	Y	
PCB 63 2,3,4',5-Tetrachlorobiphenyl	EPA 8270	MLA-007									Y																							

Accreditation Scope																Serum											Tissue											Urine	Water	Water, Non-Potable									
SGS AXYS Analytical Services Ltd. file ref.: ACC-101 Rev. 40																Solids																																	
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB ISO 17025	ANAB DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	ANAB ISO 17025	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB ISO 17025	ANAB DoD **															
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y																
	PCB 64 2,3,4',6-Tetrachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y		Y					Y		Y		Y	Y	Y	Y	Y	Y	Y	Y	Y																
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y																
	PCB 65 2,3,5,6-Tetrachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y		Y					Y		Y		Y	Y	Y	Y	Y	Y	Y	Y	Y																
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y																
	PCB 66 2,3',4,4'-Tetrachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y		Y		Y	Y	Y	Y	Y	Y	Y	Y	Y																
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y																
	PCB 66/80	EPA 8270	MLA-007									Y																						Y															
		SGS AXYS MLA-007	MLA-007		Y											Y							Y		Y																								
	PCB 67 2,3',4,5-Tetrachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
		EPA 8270	MLA-007									Y																																					
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
	PCB 68 2,3',4,5'-Tetrachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
	PCB 69 2,3',4,6-Tetrachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
		EPA 8270	MLA-007									Y																																					
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
	PCB 7 2,4-Dichlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
	PCB 7/9	EPA 8270	MLA-007									Y																																					
	PCB 70 2,3',4',5-Tetrachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
	PCB 70/76	EPA 8270	MLA-007									Y																																					
		SGS AXYS MLA-007	MLA-007		Y												Y							Y		Y																							
	PCB 71 2,3',4',6-Tetrachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
	PCB 72 2,3',5,5'-Tetrachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
		EPA 8270	MLA-007									Y																																					
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
	PCB 73 2,3',5',6-Tetrachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
	PCB 74 2,4,4',5-Tetrachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
		SGS AXYS MLA-901	MLA-901	Y																																													
	PCB 74/61	EPA 8270	MLA-007									Y																																					
		SGS AXYS MLA-007	MLA-007		Y												Y							Y		Y																							
	PCB 75 2,4,4',6-Tetrachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
	PCB 76 2,3',4',5'-Tetrachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
	PCB 77 3,3',4,4'-Tetrachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
		EPA 8270	MLA-007									Y																																					
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
		SGS AXYS MLA-007	MLA-007		Y												Y							Y		Y																							
	PCB 78 3,3',4,5-Tetrachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
		EPA 8270	MLA-007									Y																																					
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
	PCB 79 3,3',4,5'-Tetrachlorobiphenyl	EPA 1668	MLA-010			Y		Y	Y	Y	Y	Y	Y	Y							Y				Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															
		EPA 8270	MLA-007									Y																																					
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y					Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y															

Accreditation Scope																																	
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SGS AXYS Analytical Services Ltd. file ref.: ACC-101 Rev. 40																																				
				Serum	Solids										Tissue										Urine	Water	Water, Non-Potable									
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB ISO 17025	ANAB DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	ANAB ISO 17025	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB ISO 17025	ANAB DoD **		
		SGS AXYS MLA-010	MLA-010											Y						Y													Y			
	Sum - Pentachlorobiphenyls (BZ-83 + BZ-99)	EPA 1668	MLA-010											Y						Y												Y				
		SGS AXYS MLA-010	MLA-010											Y						Y												Y				
	Sum - Pentachlorobiphenyls (BZ-85 + BZ-116 + BZ-117)	EPA 1668	MLA-010											Y						Y												Y				
		SGS AXYS MLA-010	MLA-010											Y						Y												Y				
	Sum - Pentachlorobiphenyls (BZ-86 + BZ-87 + BZ 97 + BZ-109 + BZ-119 + BZ-125)	EPA 1668	MLA-010											Y						Y												Y				
		SGS AXYS MLA-010	MLA-010											Y						Y												Y				
	Sum - Pentachlorobiphenyls (BZ-86 + BZ-87 + BZ-97 + BZ-108 + BZ-119 +BZ-125)	EPA 1668	MLA-010											Y						Y												Y				
		SGS AXYS MLA-010	MLA-010											Y						Y												Y				
	Sum - Pentachlorobiphenyls (BZ-88 + BZ-91)	EPA 1668	MLA-010											Y						Y												Y				
		SGS AXYS MLA-010	MLA-010											Y						Y												Y				
	Sum - Pentachlorobiphenyls (BZ-90 + BZ-101 + BZ-113)	EPA 1668	MLA-010											Y						Y												Y				
		SGS AXYS MLA-010	MLA-010											Y						Y												Y				
	Sum - Pentachlorobiphenyls (BZ-93 + BZ-95 + BZ-98 + BZ-100 + BZ-102)	EPA 1668	MLA-010											Y						Y												Y				
		SGS AXYS MLA-010	MLA-010											Y						Y												Y				
	Sum - Tetrachlorobiphenyls (BZ-40 + BZ-41 + BZ-71)	EPA 1668	MLA-010											Y						Y												Y				
		SGS AXYS MLA-010	MLA-010											Y						Y												Y				
	Sum - Tetrachlorobiphenyls (BZ-44 + BZ-47 + BZ-65)	EPA 1668	MLA-010											Y						Y												Y				
		SGS AXYS MLA-010	MLA-010											Y						Y												Y				
	Sum - Tetrachlorobiphenyls (BZ-45 + BZ-51)	EPA 1668	MLA-010											Y						Y												Y				
		SGS AXYS MLA-010	MLA-010											Y						Y												Y				
	Sum - Tetrachlorobiphenyls (BZ-49 + BZ-69)	EPA 1668	MLA-010											Y						Y												Y				
		SGS AXYS MLA-010	MLA-010											Y						Y												Y				
	Sum - Tetrachlorobiphenyls (BZ-50 + BZ-53)	EPA 1668	MLA-010											Y						Y												Y				
		SGS AXYS MLA-010	MLA-010											Y						Y												Y				
	Sum - Tetrachlorobiphenyls (BZ-59 + BZ-62 + BZ-75)	EPA 1668	MLA-010											Y						Y												Y				
		SGS AXYS MLA-010	MLA-010											Y						Y												Y				
	Sum - Tetrachlorobiphenyls (BZ-61 + BZ-70 + BZ-74 + BZ-76)	EPA 1668	MLA-010											Y						Y												Y				
		SGS AXYS MLA-010	MLA-010											Y						Y												Y				
	Sum - Trichlorobiphenyls (BZ-18 + BZ-30)	EPA 1668	MLA-010											Y						Y												Y				
		SGS AXYS MLA-010	MLA-010											Y						Y												Y				
	Sum - Trichlorobiphenyls (BZ-20 + BZ-28)	EPA 1668	MLA-010											Y						Y												Y				
		SGS AXYS MLA-010	MLA-010											Y						Y												Y				
	Sum - Trichlorobiphenyls (BZ-21 + BZ-33)	EPA 1668	MLA-010											Y						Y												Y				
		SGS AXYS MLA-010	MLA-010											Y						Y												Y				
	Sum - Trichlorobiphenyls (BZ-26 + BZ-29)	EPA 1668	MLA-010											Y						Y												Y				
		SGS AXYS MLA-010	MLA-010											Y						Y												Y				
	Total Dichlorobiphenyls	EPA 1668	MLA-010											Y						Y													Y			
		EPA 8270	MLA-007									Y																								
		SGS AXYS MLA-010	MLA-010	Y	Y									Y		Y				Y		Y										Y				
		SGS AXYS MLA-007	MLA-007		Y															Y																
	Total Heptachlorobiphenyls	EPA 1668	MLA-010											Y						Y												Y				
		EPA 8270	MLA-007									Y																								
		SGS AXYS MLA-010	MLA-010	Y	Y									Y		Y				Y		Y										Y				
		SGS AXYS MLA-007	MLA-007		Y															Y																
	Total Hexachlorobiphenyls	EPA 1668	MLA-010											Y						Y												Y				
		EPA 8270	MLA-007									Y																								
		SGS AXYS MLA-010	MLA-010	Y	Y									Y		Y				Y		Y										Y				
		SGS AXYS MLA-007	MLA-007		Y															Y																
	Total Monochlorobiphenyls	EPA 1668	MLA-010											Y						Y												Y				

Accreditation Scope																Serum								Tissue			Urine	Water	Water, Non-Potable							
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB ISO 17025	ANAB DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	ANAB ISO 17025	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB ISO 17025	ANAB DoD **		
		SGS AXYS MLA-010	MLA-010	Y	Y									Y		Y				Y		Y										Y				
	Total Nonachlorobiphenyls	EPA 1668	MLA-010											Y						Y												Y				
		EPA 8270	MLA-007									Y										Y														
		SGS AXYS MLA-010	MLA-010	Y	Y									Y		Y				Y		Y		Y								Y				
		SGS AXYS MLA-007	MLA-007		Y												Y						Y													
	Total Octachlorobiphenyls	EPA 1668	MLA-010											Y								Y										Y				
		EPA 8270	MLA-007									Y																								
		SGS AXYS MLA-010	MLA-010	Y	Y									Y		Y				Y		Y		Y								Y				
		SGS AXYS MLA-007	MLA-007		Y												Y						Y													
	Total PCBs	EPA 1668	MLA-010											Y								Y										Y				
		SGS AXYS MLA-010	MLA-010											Y								Y										Y				
	Total Pentachlorobiphenyls	EPA 1668	MLA-010											Y								Y										Y				
		EPA 8270	MLA-007									Y																								
		SGS AXYS MLA-010	MLA-010	Y	Y									Y		Y				Y		Y		Y							Y					
		SGS AXYS MLA-007	MLA-007		Y												Y							Y												
	Total Polychlorinated biphenyls	SGS AXYS MLA-007	MLA-007		Y												Y						Y													
	Total Tetrachlorobiphenyls	EPA 1668	MLA-010											Y								Y										Y				
		EPA 8270	MLA-007									Y																								
		SGS AXYS MLA-010	MLA-010	Y	Y									Y		Y				Y		Y		Y								Y				
		SGS AXYS MLA-007	MLA-007		Y												Y																			
	Total Trichlorobiphenyls	EPA 1668	MLA-010											Y								Y										Y				
		EPA 8270	MLA-007									Y																								
		SGS AXYS MLA-010	MLA-010	Y	Y									Y		Y				Y		Y		Y								Y				
		SGS AXYS MLA-007	MLA-007		Y												Y							Y												
	PCDDF	"Dioxins and Dibenzofurans" category (CA only)	EPA 1613	MLA-017																						Y										
			EPA 8290	MLA-017			Y																													
		1,2,3,4,6,7,8-HpCDD	EPA 1613	MLA-017								Y		Y						Y		Y				Y		Y	Y	Y	Y	Y	Y			
			EPA 8290	MLA-017				Y		Y	Y	Y		Y	Y				Y	Y	Y	Y	Y	Y		Y		Y	Y				Y			
		SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y		Y	Y		Y		Y		Y		Y						Y					
1,2,3,4,6,7,8-HpCDF		EPA 1613	MLA-017				Y		Y	Y	Y		Y	Y								Y			Y		Y	Y	Y	Y	Y	Y				
		EPA 8290	MLA-017			Y		Y	Y	Y		Y	Y					Y	Y	Y	Y	Y			Y		Y	Y				Y				
		SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y		Y	Y		Y		Y		Y		Y		Y	Y				Y				
1,2,3,4,7,8,9-HpCDF		EPA 1613	MLA-017						Y		Y		Y	Y								Y			Y		Y	Y	Y	Y	Y	Y	Y			
		EPA 8290	MLA-017				Y		Y	Y	Y		Y	Y					Y	Y	Y	Y			Y		Y	Y				Y				
		SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y		Y	Y		Y		Y		Y		Y		Y	Y				Y				
1,2,3,4,7,8-HxCDD		EPA 1613	MLA-017								Y		Y	Y								Y			Y		Y	Y	Y	Y	Y	Y	Y			
		EPA 8290	MLA-017				Y		Y	Y	Y		Y	Y					Y	Y	Y	Y			Y		Y	Y				Y				
		SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y		Y	Y		Y		Y		Y		Y		Y	Y				Y				
1,2,3,4,7,8-HxCDF		EPA 1613	MLA-017									Y		Y											Y		Y	Y	Y	Y	Y	Y	Y			
		EPA 8290	MLA-017				Y		Y	Y	Y		Y	Y					Y	Y	Y	Y			Y		Y	Y				Y				
		SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y		Y	Y		Y		Y		Y		Y		Y	Y				Y				
1,2,3,6,7,8-HxCDD		EPA 1613	MLA-017									Y		Y											Y		Y	Y	Y	Y	Y	Y	Y			
		EPA 8290	MLA-017				Y		Y	Y	Y		Y	Y					Y	Y	Y	Y			Y		Y	Y				Y				
		SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y		Y	Y		Y		Y		Y		Y		Y	Y				Y				
1,2,3,6,7,8-HxCDF		EPA 1613	MLA-017									Y		Y											Y		Y	Y	Y	Y	Y	Y	Y			
		EPA 8290	MLA-017				Y		Y	Y	Y		Y	Y					Y	Y	Y	Y			Y		Y	Y				Y				
		SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y		Y	Y		Y		Y		Y		Y		Y	Y				Y				
1,2,3,7,8,9-HxCDD		EPA 1613	MLA-017									Y		Y											Y		Y	Y	Y	Y	Y	Y	Y			
		EPA 8290	MLA-017				Y		Y	Y	Y		Y	Y					Y	Y	Y	Y			Y		Y	Y				Y				
		SGS AXYS MLA-017	MLA-017	Y	Y	Y								Y		Y	Y		Y		Y		Y		Y		Y	Y				Y				

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SGS AXYS Analytical Services Ltd. file ref.: ACC-101 Rev. 40																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

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Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB ISO 17025	ANAB DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	ANAB ISO 17025	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB ISO 17025	ANAB DoD **
	2-hydroxy-ibuprofen	SGS AXYS MLA-075	MLA-075		Y																		Y											
	4-Epianhydrochlortetracycline (EACTC)	EPA 1694	MLA-075									Y																			Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	4-Epianhydrotetracycline (EATC)	EPA 1694	MLA-075									Y																			Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	4-Epichlortetracycline (ECTC)	EPA 1694	MLA-075									Y																			Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	4-Epioxytetracycline (EOTC)	EPA 1694	MLA-075									Y																			Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	4-Epitetracycline (ETC)	EPA 1694	MLA-075									Y																			Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Acetaminophen	EPA 1694	MLA-075									Y																			Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Albuterol	EPA 1694	MLA-075									Y																			Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Alprazolam	SGS AXYS MLA-075	MLA-075		Y																		Y											
	Amitriptyline	SGS AXYS MLA-075	MLA-075		Y																		Y											
	Amlodipine	SGS AXYS MLA-075	MLA-075		Y																		Y											
	Amphetamine	SGS AXYS MLA-075	MLA-075		Y																		Y											
	Anhydrochlortetracycline (ACTC)	EPA 1694	MLA-075									Y																			Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Anhydrotetracycline (ATC)	EPA 1694	MLA-075									Y																			Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Atenolol	SGS AXYS MLA-075	MLA-075		Y																		Y											
	Atorvastatin	SGS AXYS MLA-075	MLA-075		Y																		Y											
	Azithromycin	EPA 1694	MLA-075									Y																			Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Benzoyllecgonine	SGS AXYS MLA-075	MLA-075		Y																		Y											
	Benztropine	SGS AXYS MLA-075	MLA-075		Y																		Y											
	Betamethasone	SGS AXYS MLA-075	MLA-075		Y																		Y											
	Bisphenol A	EPA 1694	MLA-075									Y																			Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Caffeine	EPA 1694	MLA-075									Y																			Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Carbadox	EPA 1694	MLA-075									Y																			Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Carbamazepine	EPA 1694	MLA-075									Y																			Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Cefotaxime	EPA 1694	MLA-075									Y																			Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Chlortetracycline (CTC)	EPA 1694	MLA-075									Y																			Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Cimetidine	EPA 1694	MLA-075									Y																			Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Ciprofloxacin	EPA 1694	MLA-075									Y																			Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Clarithromycin	EPA 1694	MLA-075									Y																			Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
Clinafloxacin	EPA 1694	MLA-075									Y																			Y				
	SGS AXYS MLA-075	MLA-075		Y																		Y												

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Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB ISO 17025	ANAB DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	ANAB ISO 17025	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB ISO 17025	ANAB DoD **
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Lomefloxacin	EPA 1694	MLA-075									Y																			Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Meprobamate	SGS AXYS MLA-075	MLA-075		Y																		Y											
	Metformin	EPA 1694	MLA-075									Y																		Y				
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Methylprednisolone	SGS AXYS MLA-075	MLA-075		Y																		Y											
	Metoprolol	SGS AXYS MLA-075	MLA-075		Y																		Y											
	Miconazole	EPA 1694	MLA-075										Y																	Y				
		SGS AXYS MLA-075	MLA-075		Y																		Y								Y			
	Minocycline	EPA 1694	MLA-075										Y																	Y				
		SGS AXYS MLA-075	MLA-075		Y																		Y								Y			
	Naproxen	EPA 1694	MLA-075										Y																	Y				
		SGS AXYS MLA-075	MLA-075		Y																		Y								Y			
	Norfloxacin	EPA 1694	MLA-075										Y																	Y				
		SGS AXYS MLA-075	MLA-075		Y																		Y								Y			
	Norfluoxetine	SGS AXYS MLA-075	MLA-075		Y																		Y											
	Norgestimate	EPA 1694	MLA-075										Y											Y							Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y								Y			
	Norverapamil	SGS AXYS MLA-075	MLA-075		Y																		Y											
	Ofloxacin	EPA 1694	MLA-075										Y																	Y				
		SGS AXYS MLA-075	MLA-075		Y																		Y								Y			
	Ormetoprim	EPA 1694	MLA-075										Y																	Y				
		SGS AXYS MLA-075	MLA-075		Y																		Y								Y			
	Oxacillin	EPA 1694	MLA-075										Y																	Y				
		SGS AXYS MLA-075	MLA-075		Y																		Y								Y			
	Oxolinic acid	EPA 1694	MLA-075										Y																	Y				
		SGS AXYS MLA-075	MLA-075		Y																		Y								Y			
	Oxycodone	EPA 1694	MLA-075										Y																	Y				
		SGS AXYS MLA-075	MLA-075		Y																		Y								Y			
Oxytetracycline (OTC)	EPA 1694	MLA-075										Y																	Y					
	SGS AXYS MLA-075	MLA-075		Y																		Y								Y				
Paroxetine	EPA 1694	MLA-075										Y																	Y					
	SGS AXYS MLA-075	MLA-075		Y																		Y								Y				
Penicillin G	EPA 1694	MLA-075										Y																	Y					
	SGS AXYS MLA-075	MLA-075		Y																		Y								Y				
Penicillin V	EPA 1694	MLA-075										Y																	Y					
	SGS AXYS MLA-075	MLA-075		Y																		Y								Y				
Prednisolone	SGS AXYS MLA-075	MLA-075		Y																		Y												
Prednisone	SGS AXYS MLA-075	MLA-075		Y																		Y												
Promethazine	SGS AXYS MLA-075	MLA-075		Y																		Y												
Propoxyphene	SGS AXYS MLA-075	MLA-075		Y																		Y												
Propranolol	SGS AXYS MLA-075	MLA-075		Y																		Y												
Ranitidine	EPA 1694	MLA-075										Y																	Y					
	SGS AXYS MLA-075	MLA-075		Y																		Y								Y				
Roxithromycin	EPA 1694	MLA-075										Y																	Y					
	SGS AXYS MLA-075	MLA-075		Y																		Y								Y				
Sarafloxacin	EPA 1694	MLA-075										Y																	Y					
	SGS AXYS MLA-075	MLA-075		Y																		Y								Y				
Sertraline	SGS AXYS MLA-075	MLA-075		Y																		Y												
Simvastatin	SGS AXYS MLA-075	MLA-075		Y																		Y												
Sulfachloropyridazine	EPA 1694	MLA-075										Y																	Y					
	SGS AXYS MLA-075	MLA-075		Y																		Y								Y				
Sulfadiazine	EPA 1694	MLA-075										Y																	Y					
	SGS AXYS MLA-075	MLA-075		Y																		Y								Y				
Sulfadimethoxine	EPA 1694	MLA-075										Y																	Y					
	SGS AXYS MLA-075	MLA-075		Y																		Y								Y				

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				Serum	Solids								Tissue				Urine	Water	Water, Non-Potable															
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB ISO 17025	ANAB DoD **	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	ANAB ISO 17025	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB ISO 17025	ANAB DoD **
	Sulfamerazine	EPA 1694	MLA-075										Y																	Y				
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Sulfamethazine	EPA 1694	MLA-075										Y											Y							Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Sulfamethizole	EPA 1694	MLA-075										Y																		Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Sulfamethoxazole	EPA 1694	MLA-075										Y																		Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Sulfanilamide	EPA 1694	MLA-075										Y											Y								Y		
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Sulfathiazole	EPA 1694	MLA-075										Y																		Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Tetracycline (TC)	EPA 1694	MLA-075										Y																		Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Theophylline	SGS AXYS MLA-075	MLA-075		Y																		Y											
	Thiabendazole	EPA 1694	MLA-075										Y																		Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Trenbolone	SGS AXYS MLA-075	MLA-075		Y																		Y											
	Trenbolone acetate	SGS AXYS MLA-075	MLA-075		Y																		Y											
	Triamterene	SGS AXYS MLA-075	MLA-075		Y																		Y											
	Triclocarban	EPA 1694	MLA-075										Y																		Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Triclosan	EPA 1694	MLA-075										Y																		Y			
		SGS AXYS MLA-075	MLA-075		Y																		Y											
Trimethoprim	EPA 1694	MLA-075										Y											Y							Y				
	SGS AXYS MLA-075	MLA-075		Y																		Y												
Tylosin	EPA 1694	MLA-075										Y																		Y				
	SGS AXYS MLA-075	MLA-075		Y																		Y												
Valsartan	SGS AXYS MLA-075	MLA-075		Y																		Y												
Verapamil	SGS AXYS MLA-075	MLA-075		Y																		Y												
Virginiamycin	EPA 1694	MLA-075										Y																		Y				
	SGS AXYS MLA-075	MLA-075		Y																		Y												
Warfarin	EPA 1694	MLA-075										Y																		Y				
	SGS AXYS MLA-075	MLA-075		Y																		Y												
Targeted Metabolites	11, 14, 17-eicosatrienoic acid (eicosatrienoic acid)	SGS AXYS MLM-001	MLM-001											Y																				
	11, 14-eicosadienoic acid	SGS AXYS MLM-001	MLM-001											Y																				
	3-hydroxytyrosine	SGS AXYS MLM-001	MLM-001	Y										Y								Y												
	Acetylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y								Y												
	Acetylmethionine	SGS AXYS MLM-001	MLM-001	Y										Y								Y												
	Alanine	SGS AXYS MLM-001	MLM-001	Y										Y								Y												
	alpha-Aminoadipic acid	SGS AXYS MLM-001	MLM-001	Y										Y								Y												
	Arginine	SGS AXYS MLM-001	MLM-001	Y										Y								Y												
	Asparagine	SGS AXYS MLM-001	MLM-001	Y										Y								Y												
	Aspartate	SGS AXYS MLM-001	MLM-001	Y										Y								Y												
	Asymmetric dimethylarginine	SGS AXYS MLM-001	MLM-001	Y										Y								Y												
	Butenylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y								Y												
	Butyrylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y								Y												
	C22:5 ISOMER 1 (tentatively all-cis-4, 8, 12, 15, 19-docosapentaenoic acid)	SGS AXYS MLM-001	MLM-001											Y																				
	C22:5 ISOMER 2 (all-cis-7,10,13,16,19-docosapentaenoic acid (DPA)	SGS AXYS MLM-001	MLM-001											Y																				
	C22:5 ISOMER 3 (tentatively all-cis-4, 7, 10, 13, 16-docosapentaenoic acid)	SGS AXYS MLM-001	MLM-001											Y																				
	Carnitine	SGS AXYS MLM-001	MLM-001	Y										Y								Y												
	Carnosine	SGS AXYS MLM-001	MLM-001	Y										Y								Y												
	chenodeoxycholic acid	SGS AXYS MLM-001	MLM-001	Y										Y								Y												
	cholic acid	SGS AXYS MLM-001	MLM-001	Y										Y								Y												
	Citrulline	SGS AXYS MLM-001	MLM-001	Y										Y								Y												
	Creatinine	SGS AXYS MLM-001	MLM-001	Y										Y								Y												
	Decadienylcarnitine	SGS AXYS MLM-001	MLM-001	Y										Y								Y												
	decanoic acid (capric acid)	SGS AXYS MLM-001	MLM-001											Y																				

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SGS AXYS Analytical Services Ltd. file ref.: ACC-101 Rev. 40				CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	Pennsylvania DEP	ANAB ISO 17025
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	Pennsylvania DEP	ANAB ISO 17025
	Decanoylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	Decenoylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	deoxycholic acid	SGS AXYS MLM-001	MLM-001	Y											
	docosahexaenoic acid (DHA)	SGS AXYS MLM-001	MLM-001												
	docosatetraenoic acid (adrenic acid)	SGS AXYS MLM-001	MLM-001												
	Dodecanedioylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	Dodecanoylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	Dodecenoylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	Dopamine	SGS AXYS MLM-001	MLM-001	Y											
	eicosapentaenoic acid (EPA)	SGS AXYS MLM-001	MLM-001												
	Eicosatetraenoic acid (arachidonic acid)	SGS AXYS MLM-001	MLM-001												
	eicosatrienoic acid (dihomo-γ-linolenic acid)	SGS AXYS MLM-001	MLM-001												
	Glutaconylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	Glutamate	SGS AXYS MLM-001	MLM-001	Y											
	Glutamine	SGS AXYS MLM-001	MLM-001	Y											
	Glutaryl carnitine (Hydroxyhexanoylcarnitine)	SGS AXYS MLM-001	MLM-001	Y											
	Glycine	SGS AXYS MLM-001	MLM-001	Y											
	glycochenodeoxycholic acid	SGS AXYS MLM-001	MLM-001	Y											
	glycocholic acid	SGS AXYS MLM-001	MLM-001	Y											
	glycodeoxycholic acid	SGS AXYS MLM-001	MLM-001	Y											
	Hexadecadienylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	hexadecanoic acid (palmitic acid)	SGS AXYS MLM-001	MLM-001												
	Hexadecanoylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	hexadecenoic acid (palmitoleic acid)	SGS AXYS MLM-001	MLM-001												
	Hexadecenoylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	Hexanoylcarnitine (Fumaryl carnitine)	SGS AXYS MLM-001	MLM-001	Y											
	Hexenoylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	Hexose (sum isomers)	SGS AXYS MLM-001	MLM-001	Y											
	Histamine	SGS AXYS MLM-001	MLM-001	Y											
	Histidine	SGS AXYS MLM-001	MLM-001	Y											
	Hydroxyhexadecadienylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	Hydroxyhexadecanoylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	Hydroxyhexadecenoylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	Hydroxybutyrylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	Hydroxyoctadecenoylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	Hydroxyproline	SGS AXYS MLM-001	MLM-001	Y											
	Hydroxypropionylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	Hydroxysphingomyeline C14:1	SGS AXYS MLM-001	MLM-001	Y											
	Hydroxysphingomyeline C16:1	SGS AXYS MLM-001	MLM-001	Y											
	Hydroxysphingomyeline C22:1	SGS AXYS MLM-001	MLM-001	Y											
	Hydroxysphingomyeline C22:2	SGS AXYS MLM-001	MLM-001	Y											
	Hydroxysphingomyeline C24:1	SGS AXYS MLM-001	MLM-001	Y											
	Hydroxytetradecadienylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	Hydroxytetradecenoylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	Hydroxyvaleryl carnitine (Methylmalonylcarnitine)	SGS AXYS MLM-001	MLM-001	Y											
	Isoleucine	SGS AXYS MLM-001	MLM-001	Y											
	Kynurenine	SGS AXYS MLM-001	MLM-001	Y											
	Leucine	SGS AXYS MLM-001	MLM-001	Y											
	lithocholic acid	SGS AXYS MLM-001	MLM-001	Y											
	Lysine	SGS AXYS MLM-001	MLM-001	Y											
	lysoPhosphatidylcholine acyl C14:0	SGS AXYS MLM-001	MLM-001	Y											
	lysoPhosphatidylcholine acyl C16:0	SGS AXYS MLM-001	MLM-001	Y											
	lysoPhosphatidylcholine acyl C16:1	SGS AXYS MLM-001	MLM-001	Y											
	lysoPhosphatidylcholine acyl C17:0	SGS AXYS MLM-001	MLM-001	Y											
	lysoPhosphatidylcholine acyl C18:0	SGS AXYS MLM-001	MLM-001	Y											
	lysoPhosphatidylcholine acyl C18:1	SGS AXYS MLM-001	MLM-001	Y											
	lysoPhosphatidylcholine acyl C18:2	SGS AXYS MLM-001	MLM-001	Y											
	lysoPhosphatidylcholine acyl C20:3	SGS AXYS MLM-001	MLM-001	Y											

Accreditation Scope				Serum		Solids		Tissue		Urine		Water		Water, Non-Potable	
SGS AXYS Analytical Services Ltd. file ref.: ACC-101 Rev. 40															
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB ISO 17025	ANAB DoD **
	lysoPhosphatidylcholine acyl C20:4	SGS AXYS MLM-001	MLM-001	Y											
	lysoPhosphatidylcholine acyl C24:0	SGS AXYS MLM-001	MLM-001	Y											
	lysoPhosphatidylcholine acyl C26:1	SGS AXYS MLM-001	MLM-001	Y											
	lysoPhosphatidylcholine acyl C28:0	SGS AXYS MLM-001	MLM-001	Y											
	lysoPhosphatidylcholine acyl C28:1	SGS AXYS MLM-001	MLM-001	Y											
	Methionine	SGS AXYS MLM-001	MLM-001	Y											
	Methioninesulfoxide	SGS AXYS MLM-001	MLM-001	Y											
	Methylglutaryl carnitine	SGS AXYS MLM-001	MLM-001	Y											
	Nitrotyrosine	SGS AXYS MLM-001	MLM-001	Y											
	Nonacyl carnitine	SGS AXYS MLM-001	MLM-001	Y											
	octadecadienoic acid (linoleic acid)	SGS AXYS MLM-001	MLM-001												
	Octadecadienyl carnitine	SGS AXYS MLM-001	MLM-001	Y											
	octadecanoic acid (stearic acid)	SGS AXYS MLM-001	MLM-001												
	Octadecanoyl carnitine	SGS AXYS MLM-001	MLM-001	Y											
	octadecatrienoic acid (γ-linolenic acid)	SGS AXYS MLM-001	MLM-001												
	Octadecenoyl carnitine	SGS AXYS MLM-001	MLM-001	Y											
	Octanoyl carnitine	SGS AXYS MLM-001	MLM-001	Y											
	Ornithine	SGS AXYS MLM-001	MLM-001	Y											
	Phenylalanine	SGS AXYS MLM-001	MLM-001	Y											
	Phenylethylamine	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C30:0	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C30:1	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C30:2	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C32:1	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C32:2	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C34:0	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C34:1	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C34:2	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C34:3	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C36:0	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C36:1	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C36:2	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C36:3	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C36:4	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C36:5	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C38:0	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C38:1	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C38:2	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C38:3	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C38:5	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C38:6	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C40:1	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C40:2	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C40:3	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C40:4	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C40:5	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C40:6	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C42:0	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C42:1	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C42:2	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C42:3	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C42:4	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C42:5	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C44:3	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C44:4	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C44:5	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine acyl-alkyl C44:6	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C24:0	SGS AXYS MLM-001	MLM-001	Y											

Accreditation Scope				Serum		Solids		Tissue		Urine		Water		Water, Non-Potable	
SGS AXYS Analytical Services Ltd. file ref.: ACC-101 Rev. 40				CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB ISO 17025
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	Pennsylvania DEP	ANAB ISO 17025
	Phosphatidylcholine diacyl C26:0	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C28:1	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C30:0	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C30:2	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C32:0	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C32:1	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C32:2	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C32:3	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C34:1	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C34:2	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C34:3	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C34:4	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C36:0	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C36:1	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C36:2	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C36:3	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C36:4	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C36:5	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C36:6	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C38:0	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C38:1	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C38:3	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C38:4	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C38:5	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C38:6	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C40:1	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C40:2	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C40:3	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C40:4	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C40:5	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C40:6	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C42:0	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C42:1	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C42:2	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C42:4	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C42:5	SGS AXYS MLM-001	MLM-001	Y											
	Phosphatidylcholine diacyl C42:6	SGS AXYS MLM-001	MLM-001	Y											
	Pimelylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	Proline	SGS AXYS MLM-001	MLM-001	Y											
	Propenoylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	Propionylcarnitine	SGS AXYS MLM-001	MLM-001	Y											
	Putrescine	SGS AXYS MLM-001	MLM-001	Y											
	Sarcosine	SGS AXYS MLM-001	MLM-001	Y											
	Serine	SGS AXYS MLM-001	MLM-001	Y											
	Serotonin	SGS AXYS MLM-001	MLM-001	Y											
	Spermidine	SGS AXYS MLM-001	MLM-001	Y											
	Spermine	SGS AXYS MLM-001	MLM-001	Y											
	Sphingomyeline C16:0	SGS AXYS MLM-001	MLM-001	Y											
	Sphingomyeline C16:1	SGS AXYS MLM-001	MLM-001	Y											
	Sphingomyeline C18:0	SGS AXYS MLM-001	MLM-001	Y											
	Sphingomyeline C18:1	SGS AXYS MLM-001	MLM-001	Y											
	Sphingomyeline C20:2	SGS AXYS MLM-001	MLM-001	Y											
	Sphingomyeline C22:3	SGS AXYS MLM-001	MLM-001	Y											
	Sphingomyeline C24:0	SGS AXYS MLM-001	MLM-001	Y											
	Sphingomyeline C24:1	SGS AXYS MLM-001	MLM-001	Y											
	Sphingomyeline C26:0	SGS AXYS MLM-001	MLM-001	Y											
	Sphingomyeline C26:1	SGS AXYS MLM-001	MLM-001	Y											
	Symmetric dimethylarginine	SGS AXYS MLM-001	MLM-001	Y											

Accreditation Scope																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																</

Legend

Y	Accreditation scope
BFR	Brominated flame retardants (non-PBDPE)
BPA and mPE	Bisphenol A and mono-Phthalate Esters
HBCDD	Hexabromocyclododecane
OC Pesticides	Organochlorine Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PBDPE	Polybrominated diphenylethers
PCB	Polychlorinated Biphenyls
PCDDF	Polychlorinated dibenzodioxins/furans
PFAS	Per- and Polyfluoroalkyl Substances
PPCP	Pharmaceutical and Personal Care Products
TBBPA	Tetrabromobisphenol A
TOP	Total Oxidizable Precursors
California DPH	California Department of Public Health, Lab ID 2911
Florida DOH	Florida Department of Health, Lab ID E871007, (NELAC Standard)
Pennsylvania DEP	Pennsylvania Department of Environmental Protection
Minnesota DOH	Minnesota Department of Health, Lab ID 232-999-430, (NELAC Standard)
New Jersey DEP	New Jersey Department of Environmental Protection, Lab ID CANA005, (NELAC Standard)
New York DOH	New York Department of Health, Lab ID 11674, (NELAC Standard)
Washington DE	Washington Department of Ecology, Lab ID C404
Virginia DGS	Virginia Department of General Services, Division of Consolidated Laboratory Services, Lab ID 460224, (NELAC Standard)
Maine DOH	Maine Center for Disease Control and Prevention, Department of Health and Human Services, Lab ID CN00003

ANAB DoD ANSI-ASQ National Accreditation Board, certificate ADE-1861, (US DoD QSM 5.1 Standard)



CALA Canadian Association for Laboratory Accreditation Inc., Lab ID A2637, (ISO/IEC 17025:2005 Standard)



CALA
Testing
Accreditation No. A 2637



ANAB ISO 17025 ANSI-ASQ National Accreditation Board, certificate ADE-1861.01, (ISO/IEC 17025:2005 Standard)

