

SGS

AXYS

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SGS AXYS Client No.: 4972

Client Address: AECOM
1111 Third Avenue, Suite 1600
Seattle, WA, US, 98101

The SGS AXYS contact for these data is Sean Campbell.

BATCH SUMMARY

Batch ID:	WG65145	Date:	31-Oct-2018
Analysis Type:	PCB Congener	Matrix Type:	Tissue
BATCH MAKEUP			
Contract:	4972	Blank:	WG65145-101
Samples:			
L29935-1	PDI-TF-SMB043		
L29935-2	PDI-TF-SMB032		
L29935-3	PDI-TF-SMB029		
L29935-4	PDI-TF-SMB042		
L29935-5	PDI-TF-SMB030		
L29935-6	PDI-TF-SMB036		
L29935-7	PDI-TF-SMB044		
L29935-8	PDI-TF-SMB014		
L29935-9	PDI-TF-SMB038		
L29935-10	PDI-TF-SMB028		
L29935-11	PDI-TF-SMB039		
L29935-12	PDI-TF-SMB040		
L29935-13	PDI-TF-SMB020		
L29935-14	PDI-TF-SMB010		
L29935-15	PDI-TF-SMB022		
L29935-16	PDI-TF-SMB024		
L29935-17	PDI-TF-SMB021		
L29935-18	PDI-TF-SMB023		
L29935-19	PDI-TF-SMB015		
L29935-20	PDI-TF-SMB025		
		Reference or Spike:	WG65145-102
		Duplicate:	WG65145-103
Comments: Resubmission on 20-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. 1. Data are considered final. 2. Data are not blank corrected. Blank data should be taken into consideration when evaluating sample data. 3. Blank data should be evaluated against specifications using the same blank sample size as the size of the client samples. 4. The recoveries of ¹³C-PCB-19, ¹³C-PCB-202 and ¹³C-PCB-209 in sample PDI-TF-SMB030 (SGS AXYS ID: L29935-5) did not meet the method criteria; these compounds are flagged with a 'V'. As the isotope dilution/internal standard method of quantification produces data that are recovery corrected, the slight variances from the method acceptance criteria are deemed not to affect the quantification of these analytes. Percent surrogate recoveries are used as general method performance indicator only.			

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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-SMB043
Sample Collection:
20-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.:	L29935-1
Sample Receipt Date:	23-Aug-2018	Sample Size:	10.3 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	14-Oct-2018 Time: 00:29:59	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_348 S: 5
Dilution Factor:	N/A	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_348 S: 1
		% Lipid:	4.68

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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			11.2	0.175 (S)	3.02	1.001
3-MoCB	2		J	0.908	0.178 (S)	2.86	0.988
4-MoCB	3			4.23	0.183 (S)	2.95	1.001
2,2'-DiCB	4			1360	1.04 (S)	1.51	1.001
2,3-DiCB	5		U		0.922 (S)		
2,3'-DiCB	6			23.3	0.826 (S)	1.49	1.177
2,4-DiCB	7			5.93	0.849 (S)	1.49	1.158
2,4'-DiCB	8			76.1	0.757 (S)	1.50	1.209
2,5-DiCB	9			5.62	0.825 (S)	1.45	1.147
2,6-DiCB	10			152	0.827 (S)	1.52	1.013
3,3'-DiCB	11			48.9	0.845 (S)	1.46	0.968
3,4-DiCB	12	12 + 13	C	7.82	0.856 (S)	1.34	0.984
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.834 (S)		
4,4'-DiCB	15			28.0	0.843 (S)	1.57	1.001
2,2',3-TriCB	16			46.9	0.108 (S)	0.99	1.166
2,2',4-TriCB	17			491	0.0903 (S)	1.05	1.137
2,2',5-TriCB	18	18 + 30	C	186	0.0769 (S)	1.10	1.112
2,2',6-TriCB	19			4470	0.124 (S)	1.08	1.000
2,3,3'-TriCB	20	20 + 28	C	614	1.18 (S)	0.99	0.847
2,3,4-TriCB	21	21 + 33	C	116	1.18 (S)	0.96	0.857
2,3,4'-TriCB	22			102	1.30 (S)	0.97	0.871
2,3,5-TriCB	23		U		1.29 (S)		
2,3,6-TriCB	24			7.45	0.0702 (Q)	1.10	1.158
2,3',4-TriCB	25			68.7	1.07 (S)	0.97	0.824
2,3',5-TriCB	26	26 + 29	C	89.8	1.20 (S)	0.97	1.301
2,3',6-TriCB	27			254	0.0702 (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			271	1.13 (S)	0.99	0.836
2,4',6-TriCB	32			205	1.16 (S)	0.96	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			5.57	1.23 (S)	0.90	1.273
3,3',4-TriCB	35		U		1.28 (S)		
3,3',5-TriCB	36		U		1.19 (S)		
3,4,4'-TriCB	37			42.9	1.06 (S)	0.96	1.001
3,4,5-TriCB	38		K	2.92	1.22 (S)	0.87	0.968
3,4',5-TriCB	39			4.98	1.18 (S)	1.08	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	450	0.623 (S)	0.78	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			229	0.645 (S)	0.78	1.312
2,2',3,5'-TeCB	43			51.2	0.704 (S)	0.81	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	8360	0.577 (S)	0.80	1.287
2,2',3,6'-TeCB	45	45 + 51	C	863	0.639 (S)	0.80	1.148
2,2',3,6'-TeCB	46			37.5	0.731 (S)	0.78	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			148	0.631 (S)	0.80	1.274
2,2',4,5'-TeCB	49	49 + 69	C	2010	0.534 (S)	0.79	1.259
2,2',4,6'-TeCB	50	50 + 53	C	564	0.617 (S)	0.79	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			2080	0.594 (S)	0.79	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			803	0.545 (S)	0.78	1.001
2,3,3',4'-TeCB	55		U		4.29 (S)		
2,3,3',4'-TeCB	56			202	4.25 (S)	0.76	0.904
2,3,3',5'-TeCB	57			13.3	4.01 (S)	0.74	0.843
2,3,3',5'-TeCB	58		U		4.11 (S)		
2,3,3',6'-TeCB	59	59 + 62 + 75	C	271	0.471 (S)	0.81	1.303
2,3,4,4'-TeCB	60			416	4.26 (S)	0.76	0.910
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	2020	3.98 (S)	0.77	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			132	3.92 (S)	0.74	0.864
2,3,4',6'-TeCB	64			527	0.455 (S)	0.79	1.349
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			2220	3.96 (S)	0.77	0.884
2,3',4,5'-TeCB	67			23.6	3.57 (S)	0.76	0.856
2,3',4,5'-TeCB	68			195	3.83 (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			65.6	3.78 (S)	0.76	0.822
2,3',5',6'-TeCB	73			126	0.504 (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			77.2	3.71 (S)	0.75	1.000
3,3',4,5'-TeCB	78		U		4.10 (S)		
3,3',4,5'-TeCB	79			30.1	3.41 (S)	0.72	0.968
3,3',5,5'-TeCB	80		U		3.76 (S)		
3,4,4',5'-TeCB	81			3.70	3.68 (S)	0.68	1.000
2,2',3,3',4'-PeCB	82			121	2.87 (S)	1.67	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	6250	2.64 (S)	1.59	0.885
2,2',3,3',6'-PeCB	84			263	2.99 (S)	1.63	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1120	2.18 (S)	1.60	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	2040	2.24 (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	532	2.63 (S)	1.61	1.155
2,2',3,4,6'-PeCB	89			10.5	2.80 (S)	1.64	1.184
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	5940	2.28 (S)	1.58	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			1140	2.65 (S)	1.55	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	4050	2.56 (S)	1.62	1.125
2,2',3,5,6'-PeCB	94			38.5	2.85 (S)	1.55	1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			37.7	0.128 (S)	1.60	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			280	2.34 (S)	1.62	1.093
2,2',4,6,6'-PeCB	104		K	44.2	0.143 (S)	1.80	1.001
2,3,3',4,4'-PeCB	105			1740	10.0 (S)	1.51	1.000
2,3,3',4,5-PeCB	106		U		10.4 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	137	11.4 (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			583	10.7 (S)	1.49	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	2770	1.91 (S)	1.60	0.924
2,3,3',5,5'-PeCB	111			31.1	1.94 (S)	1.70	0.945
2,3,3',5,6-PeCB	112		U		1.90 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			151	10.7 (S)	1.54	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			5860	9.47 (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			85.5	1.83 (S)	1.66	0.958
2,3',4,5',6-PeCB	121			67.1	2.00 (S)	1.59	1.200
2',3,3',4,5-PeCB	122			25.6	12.1 (S)	1.55	1.010
2',3,4,4',5-PeCB	123			109	10.2 (S)	1.50	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	30.9	9.93 (S)	1.43	1.001
3,3',4,5,5'-PeCB	127			18.4	11.2 (S)	1.74	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1510	6.82 (S)	1.33	0.958
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	26900	7.00 (S)	1.27	0.928
2,2',3,3',4,5'-HxCB	130			825	8.67 (S)	1.25	0.913
2,2',3,3',4,6-HxCB	131			33.8	8.19 (S)	1.31	1.161
2,2',3,3',4,6'-HxCB	132			1280	8.61 (S)	1.27	1.176
2,2',3,3',5,5'-HxCB	133			662	8.09 (S)	1.25	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	339	8.21 (S)	1.30	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	5060	0.265 (S)	1.28	1.105
2,2',3,3',6,6'-HxCB	136			733	0.208 (S)	1.27	1.025
2,2',3,4,4',5-HxCB	137			776	7.88 (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	228	7.47 (S)	1.23	1.153
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			2470	7.51 (S)	1.26	0.904
2,2',3,4,5,6-HxCB	142		U		8.37 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			447	0.271 (S)	1.27	1.122
2,2',3,4,6,6'-HxCB	145		J	2.26	0.221 (S)	1.29	1.034
2,2',3,4',5,5'-HxCB	146			6430	6.83 (S)	1.27	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C	8000	7.52 (S)	1.27	1.134
2,2',3,4',5,6'-HxCB	148			103	0.276 (S)	1.29	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			40.3	0.209 (S)	1.23	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			21.1	0.204 (S)	1.24	1.008
2,2',4,4',5,5'-HxCB	153	153 + 168	C	42000	6.17 (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			69.6	0.201 (S)	1.33	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	2560	7.55 (S)	1.26	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			1460	5.28 (S)	1.27	0.938
2,3,3',4,5,5'-HxCB	159			172	5.71 (S)	1.26	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		5.92 (S)		
2,3,3',4',5,5'-HxCB	162			65.0	5.66 (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			848	5.84 (S)	1.27	0.921
2,3,3',5,5',6-HxCB	165			39.6	6.55 (S)	1.32	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			1200	6.17 (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		51.4 (S)		
2,2',3,3',4,4',5-HpCB	170			10500	0.363 (S)	1.06	1.001
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	2000	0.335 (S)	1.05	1.163
2,2',3,3',4,5,5'-HpCB	172			1860	0.339 (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			3470	0.306 (S)	1.06	1.134
2,2',3,3',4,5',6-HpCB	175			380	0.310 (S)	1.04	1.103
2,2',3,3',4,6,6'-HpCB	176			251	0.240 (S)	1.07	1.035
2,2',3,3',4',5,6-HpCB	177			4520	0.296 (S)	1.06	1.146
2,2',3,3',5,5',6-HpCB	178			2470	0.321 (S)	1.05	1.085
2,2',3,3',5,6,6'-HpCB	179			1280	0.235 (S)	1.05	1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	41500	0.320 (S)	1.05	1.000
2,2',3,4,4',5,6-HpCB	181			81.7	0.321 (S)	1.17	1.157
2,2',3,4,4',5,6'-HpCB	182			71.4	0.302 (S)	1.09	1.116
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	7530	0.309 (S)	1.05	1.127
2,2',3,4,4',6,6'-HpCB	184			13.5	0.234 (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		0.255 (S)		
2,2',3,4',5,5',6-HpCB	187			21600	0.296 (S)	1.05	1.111
2,2',3,4',5,6,6'-HpCB	188			63.6	0.289 (S)	1.07	1.001
2,3,3',4,4',5,5'-HpCB	189			386	1.43 (S)	0.98	1.001
2,3,3',4,4',5,6-HpCB	190			2380	0.254 (S)	1.06	0.947
2,3,3',4,4',5',6-HpCB	191			514	0.249 (S)	1.03	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.274 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			6200	1.42 (S)	0.90	0.991
2,2',3,3',4,4',5,6-OxCB	195			2490	1.51 (S)	0.89	0.945
2,2',3,3',4,4',5,6'-OxCB	196			3210	0.149 (S)	0.90	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C	430	0.111 (S)	0.92	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	6220	0.153 (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			722	0.109 (S)	0.91	1.023
2,2',3,3',5,5',6,6'-OxCB	202			1450	0.148 (S)	0.92	1.000
2,2',3,4,4',5,5',6-OxCB	203			3370	0.144 (S)	0.91	0.919
2,2',3,4,4',5,6,6'-OxCB	204			3.05	0.110 (S)	0.90	1.039
2,3,3',4,4',5,5',6-OxCB	205			229	1.16 (S)	0.88	1.001
2,2',3,3',4,4',5,5',6-NoCB	206			972	0.104 (S)	0.79	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207			178	0.0761 (S)	0.78	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			318	0.100 (S)	0.78	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			177	0.0920 (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; 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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB043
Sample Collection:
20-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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 14-Oct-2018 Time: 00:29:59
 Extract Volume (uL): 100
 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.: L29935-1
 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_348 S: 5
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_348 S: 1
 % Lipid: 4.68

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	737	36.9	3.15	0.718
13C12-4-MoCB	3L			2000	907	45.3	3.29	0.858
13C12-2,2'-DiCB	4L			2000	1090	54.4	1.57	0.873
13C12-4,4'-DiCB	15L			2000	1270	63.4	1.54	1.255
13C12-2,2',6-TriCB	19L			2000	1020	50.8	1.07	1.072
13C12-3,4,4'-TriCB	37L			2000	1750	87.6	0.99	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1260	63.0	0.83	0.811
13C12-3,3',4,4'-TeCB	77L			2000	2180	109	0.77	1.397
13C12-3,4,4',5-TeCB	81L			2000	2220	111	0.80	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	1100	55.2	1.67	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1980	99.2	1.53	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1880	94.2	1.56	1.179
13C12-2,3',4,4',5-PeCB	118L			2000	2070	104	1.53	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	2010	100	1.59	1.151
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	978	48.9	1.25	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	3270	81.8	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	1560	78.2	1.24	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1640	82.2	1.32	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1640	82.2	1.01	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1730	86.7	1.03	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1020	51.0	1.05	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1600	79.8	0.97	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	794	39.7	0.98	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1660	82.8	0.91	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1450	72.6	0.79	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1350	67.7	0.86	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	1010	50.4	1.30	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1900	94.9	1.03	0.924
13C12-2,3,3',5,5'-PeCB	111L			2000	1720	86.2	1.62	1.087
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1290	64.7	1.08	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB032
Sample Collection:
20-Aug-2018 12:41

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.:	L29935-2
Sample Receipt Date:	23-Aug-2018	Sample Size:	9.95 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	14-Oct-2018 Time: 01:33:48	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_348 S: 6
Dilution Factor:	N/A	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_348 S: 1
		% Lipid:	4.83

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			4.14	0.167 (S)	3.16	1.001
3-MoCB	2		J	0.950	0.171 (S)	3.20	0.988
4-MoCB	3		J	1.74	0.177 (S)	3.02	1.001
2,2'-DiCB	4			134	0.594 (S)	1.49	1.000
2,3-DiCB	5		J	0.814	0.503 (S)	1.36	1.197
2,3'-DiCB	6			13.0	0.451 (S)	1.51	1.174
2,4-DiCB	7		K	3.15	0.464 (S)	1.30	1.158
2,4'-DiCB	8			58.0	0.414 (S)	1.46	1.207
2,5-DiCB	9			4.41	0.450 (S)	1.69	1.145
2,6-DiCB	10			7.23	0.452 (S)	1.55	1.013
3,3'-DiCB	11			54.2	0.461 (S)	1.47	0.968
3,4-DiCB	12	12 + 13	C J	2.17	0.468 (S)	1.65	0.984
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.456 (S)		
4,4'-DiCB	15			82.0	0.448 (S)	1.51	1.000
2,2',3-TriCB	16			65.5	0.123 (S)	1.11	1.166
2,2',4-TriCB	17			182	0.103 (S)	1.07	1.137
2,2',5-TriCB	18	18 + 30	C	212	0.0881 (S)	1.08	1.113
2,2',6-TriCB	19			365	0.136 (S)	1.11	1.001
2,3,3'-TriCB	20	20 + 28	C	1150	1.42 (S)	0.98	0.847
2,3,4-TriCB	21	21 + 33	C	116	1.42 (S)	0.96	0.856
2,3,4'-TriCB	22			149	1.57 (S)	0.98	0.872
2,3,5-TriCB	23		U		1.55 (S)		
2,3,6-TriCB	24			3.66	0.0786 (S)	1.14	1.159
2,3',4-TriCB	25			53.4	1.29 (S)	1.00	0.824
2,3',5-TriCB	26	26 + 29	C	114	1.45 (S)	0.99	1.302
2,3',6-TriCB	27			38.8	0.0743 (S)	1.10	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			411	1.36 (S)	0.97	0.836
2,4',6-TriCB	32			82.2	1.40 (S)	0.98	1.197
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			4.36	1.48 (S)	0.98	1.274
3,3',4-TriCB	35		U		1.55 (S)		
3,3',5-TriCB	36		U		1.44 (S)		
3,4,4'-TriCB	37			446	1.30 (S)	0.97	1.001
3,4,5-TriCB	38		U		1.47 (S)		
3,4',5-TriCB	39			4.85	1.42 (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	375	0.271 (S)	0.78	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			327	0.280 (S)	0.79	1.312
2,2',3,5'-TeCB	43			38.3	0.306 (S)	0.79	1.247
2,2',3,5'-TeCB	44	44 + 47 + 65	C	2110	0.251 (S)	0.79	1.287
2,2',3,6'-TeCB	45	45 + 51	C	297	0.278 (S)	0.78	1.148
2,2',3,6'-TeCB	46			36.8	0.318 (S)	0.78	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			138	0.274 (S)	0.77	1.273
2,2',4,5'-TeCB	49	49 + 69	C	1370	0.232 (S)	0.79	1.259
2,2',4,6'-TeCB	50	50 + 53	C	193	0.268 (S)	0.80	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			2100	0.258 (S)	0.78	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			75.6	0.212 (S)	0.80	1.001
2,3,3',4'-TeCB	55		U		5.89 (S)		
2,3,3',4'-TeCB	56			367	5.83 (S)	0.76	0.904
2,3,3',5'-TeCB	57			9.43	5.50 (S)	0.85	0.843
2,3,3',5'-TeCB	58		K	8.78	5.63 (S)	0.91	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	139	0.205 (S)	0.79	1.302
2,3,4,4'-TeCB	60			485	5.85 (S)	0.76	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	2600	5.45 (S)	0.76	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			139	5.38 (S)	0.76	0.864
2,3,4',6'-TeCB	64			657	0.198 (S)	0.78	1.348
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			2430	5.43 (S)	0.75	0.884
2,3',4,5'-TeCB	67			36.5	4.89 (S)	0.87	0.856
2,3',4,5'-TeCB	68			33.2	5.25 (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			35.0	5.18 (S)	0.82	0.822
2,3',5',6'-TeCB	73			42.0	0.219 (S)	0.74	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			187	5.15 (S)	0.78	1.000
3,3',4,5'-TeCB	78		U		5.63 (S)		
3,3',4,5'-TeCB	79			28.4	4.67 (S)	0.75	0.969
3,3',5,5'-TeCB	80		U		5.15 (S)		
3,4,4',5'-TeCB	81			10.8	5.40 (S)	0.87	1.000
2,2',3,3',4'-PeCB	82			207	1.73 (S)	1.64	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	2880	1.58 (S)	1.59	0.885
2,2',3,3',6'-PeCB	84			489	1.80 (S)	1.59	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	745	1.31 (S)	1.60	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	1860	1.35 (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	532	1.58 (S)	1.59	1.155
2,2',3,4,6'-PeCB	89			12.5	1.68 (S)	1.60	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	3780	1.37 (S)	1.57	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			765	1.59 (S)	1.59	0.852
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	2180	1.54 (S)	1.60	1.122
2,2',3,5,6'-PeCB	94			20.4	1.71 (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			20.5	0.274 (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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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			90.9	1.41 (S)	1.63	1.094
2,2',4,6,6'-PeCB	104			10.4	0.273 (S)	1.42	1.001
2,3,3',4,4'-PeCB	105			1150	5.30 (S)	1.51	1.000
2,3,3',4,5-PeCB	106		U		5.59 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	110	6.12 (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			365	5.70 (S)	1.50	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	3010	1.15 (S)	1.60	0.925
2,3,3',5,5'-PeCB	111			6.57	1.16 (S)	1.61	0.945
2,3,3',5,6-PeCB	112		U		1.14 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			106	5.89 (S)	1.53	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			3430	5.11 (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			26.6	1.10 (S)	1.64	0.958
2,3',4,5',6-PeCB	121			6.19	1.20 (S)	1.33	1.200
2',3,3',4,5-PeCB	122			23.5	6.45 (S)	1.43	1.010
2',3,4,4',5-PeCB	123			62.8	5.73 (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	9.11	5.64 (S)	1.37	1.000
3,3',4,5,5'-PeCB	127			8.35	6.00 (S)	1.67	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	796	6.20 (S)	1.26	0.958
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	5930	6.37 (S)	1.27	0.928
2,2',3,3',4,5'-HxCB	130			311	7.89 (S)	1.25	0.912
2,2',3,3',4,6-HxCB	131			30.5	7.45 (S)	1.15	1.160
2,2',3,3',4,6'-HxCB	132			894	7.83 (S)	1.24	1.176
2,2',3,3',5,5'-HxCB	133			132	7.36 (S)	1.27	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	147	7.47 (S)	1.33	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	1690	0.476 (S)	1.27	1.105
2,2',3,3',6,6'-HxCB	136			355	0.374 (S)	1.29	1.025
2,2',3,4,4',5-HxCB	137			280	7.16 (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	87.8	6.80 (S)	1.27	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			721	6.83 (S)	1.27	0.903
2,2',3,4,5,6-HxCB	142		U		7.61 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			179	0.487 (S)	1.29	1.122
2,2',3,4,6,6'-HxCB	145		K J	0.864	0.398 (S)	0.78	1.035
2,2',3,4',5,5'-HxCB	146			1220	6.21 (S)	1.27	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C	3290	6.84 (S)	1.27	1.134
2,2',3,4',5,6'-HxCB	148		K	22.9	0.497 (S)	1.47	1.085
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			19.0	0.376 (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	5.36	0.366 (S)	1.05	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C	6270	5.61 (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			8.60	0.408 (S)	1.27	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	625	6.70 (S)	1.27	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			411	4.80 (S)	1.29	0.938
2,3,3',4,5,5'-HxCB	159			31.9	5.20 (S)	1.19	0.981
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		5.38 (S)		
2,3,3',4',5,5'-HxCB	162			19.6	5.15 (S)	1.20	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			259	5.31 (S)	1.26	0.921
2,3,3',5,5',6-HxCB	165		U		5.96 (S)		
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			256	5.28 (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		5.61 (S)		
2,2',3,3',4,4',5-HpCB	170			913	0.301 (S)	1.07	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	326	0.315 (S)	1.05	1.163
2,2',3,3',4,5,5'-HpCB	172			215	0.318 (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			714	0.287 (S)	1.04	1.134
2,2',3,3',4,5',6-HpCB	175			48.0	0.291 (S)	0.98	1.103
2,2',3,3',4,6,6'-HpCB	176			95.3	0.225 (S)	1.07	1.034
2,2',3,3',4',5,6-HpCB	177			590	0.277 (S)	1.05	1.146
2,2',3,3',5,5',6-HpCB	178			308	0.301 (S)	1.08	1.085
2,2',3,3',5,6,6'-HpCB	179			366	0.220 (S)	1.07	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	3480	0.289 (S)	1.05	1.000
2,2',3,4,4',5,6-HpCB	181			16.6	0.301 (S)	1.09	1.157
2,2',3,4,4',5,6'-HpCB	182			12.2	0.284 (S)	1.19	1.115
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	920	0.290 (S)	1.05	1.127
2,2',3,4,4',6,6'-HpCB	184		K	8.00	0.220 (S)	1.25	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.239 (S)		
2,2',3,4',5,5',6-HpCB	187			2530	0.278 (S)	1.06	1.111
2,2',3,4',5,6,6'-HpCB	188			5.22	0.247 (S)	0.99	1.001
2,3,3',4,4',5,5'-HpCB	189			31.8	0.394 (S)	0.99	1.000
2,3,3',4,4',5,6-HpCB	190			238	0.239 (S)	1.07	0.947
2,3,3',4,4',5',6-HpCB	191			46.1	0.233 (S)	1.15	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.257 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			365	0.270 (S)	0.89	0.991
2,2',3,3',4,4',5,6-OxCB	195			147	0.287 (S)	0.89	0.945
2,2',3,3',4,4',5,6'-OxCB	196			220	0.111 (S)	0.88	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C	57.9	0.0828 (S)	0.84	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	549	0.114 (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			64.8	0.0816 (S)	0.97	1.022
2,2',3,3',5,5',6,6'-OxCB	202			159	0.107 (S)	0.92	1.000
2,2',3,4,4',5,5',6-OxCB	203			361	0.107 (S)	0.88	0.919
2,2',3,4,4',5,6,6'-OxCB	204		K J	0.769	0.0818 (S)	0.64	1.039
2,3,3',4,4',5,5',6-OxCB	205			17.4	0.224 (S)	0.86	1.001
2,2',3,3',4,4',5,5',6-NoCB	206			148	0.130 (S)	0.81	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207			20.2	0.0948 (S)	0.78	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			69.3	0.123 (S)	0.80	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			80.8	0.126 (S)	1.16	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB032
Sample Collection:
20-Aug-2018 12:41

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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 14-Oct-2018 Time: 01:33:48
 Extract Volume (uL): 100
 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.: L29935-2
 Sample Size: 9.95 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_348 S: 6
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_348 S: 1
 % Lipid: 4.83

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	824	41.2	3.31	0.718
13C12-4-MoCB	3L			2000	974	48.7	3.20	0.858
13C12-2,2'-DiCB	4L			2000	1100	55.0	1.51	0.874
13C12-4,4'-DiCB	15L			2000	1370	68.5	1.60	1.255
13C12-2,2',6-TriCB	19L			2000	1010	50.4	1.08	1.072
13C12-3,4,4'-TriCB	37L			2000	1620	81.1	1.01	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1300	64.9	0.82	0.811
13C12-3,3',4,4'-TeCB	77L			2000	1940	96.9	0.78	1.397
13C12-3,4,4',5-TeCB	81L			2000	1900	94.9	0.76	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	1080	54.1	1.55	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1760	88.1	1.58	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1640	82.1	1.57	1.180
13C12-2,3',4,4',5-PeCB	118L			2000	1840	92.0	1.55	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1770	88.3	1.51	1.152
13C12-3,3',4,4',5-PeCB	126L			2000	2050	102	1.51	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	863	43.1	1.22	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	3270	81.7	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	1620	80.9	1.30	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1620	80.8	1.27	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1720	86.2	1.18	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1650	82.5	1.09	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1040	52.0	1.07	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1350	67.5	1.05	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	836	41.8	0.94	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1610	80.7	0.90	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1370	68.7	0.84	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1220	60.9	0.80	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	728	36.4	1.25	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1690	84.5	1.03	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1560	78.2	1.65	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1330	66.4	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB029
Sample Collection:
20-Aug-2018 13:42

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.:	L29935-3
Sample Receipt Date:	23-Aug-2018	Sample Size:	10.4 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	14-Oct-2018 Time: 10:15:15	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_349 S: 3
Dilution Factor:	N/A	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_349 S: 1
		% Lipid:	5.20

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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			4.39	0.309 (S)	2.67	1.001
3-MoCB	2		J	1.15	0.271 (S)	2.91	0.988
4-MoCB	3		J	1.60	0.249 (S)	3.54	1.001
2,2'-DiCB	4			141	0.843 (S)	1.47	1.001
2,3-DiCB	5		J	0.972	0.548 (S)	1.61	1.197
2,3'-DiCB	6			16.4	0.494 (S)	1.42	1.174
2,4-DiCB	7		K	2.93	0.503 (S)	1.33	1.158
2,4'-DiCB	8			75.4	0.461 (S)	1.47	1.207
2,5-DiCB	9			4.99	0.495 (S)	1.48	1.145
2,6-DiCB	10		K	6.21	0.490 (S)	1.29	1.012
3,3'-DiCB	11			53.6	0.503 (S)	1.53	0.968
3,4-DiCB	12	12 + 13	C J	2.79	0.508 (S)	1.68	0.983
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.500 (S)		
4,4'-DiCB	15			30.8	0.444 (S)	1.49	1.000
2,2',3-TriCB	16			75.1	0.178 (S)	1.09	1.166
2,2',4-TriCB	17			175	0.155 (S)	1.07	1.138
2,2',5-TriCB	18	18 + 30	C	252	0.133 (S)	1.07	1.113
2,2',6-TriCB	19			365	0.242 (S)	1.05	1.001
2,3,3'-TriCB	20	20 + 28	C	980	1.03 (S)	0.96	0.847
2,3,4-TriCB	21	21 + 33	C	192	1.05 (S)	0.98	0.855
2,3,4'-TriCB	22			182	1.15 (S)	0.96	0.871
2,3,5-TriCB	23		U		1.14 (S)		
2,3,6-TriCB	24			3.47	0.120 (S)	1.19	1.159
2,3',4-TriCB	25			51.7	0.939 (S)	1.00	0.824
2,3',5-TriCB	26	26 + 29	C	135	1.08 (S)	0.96	1.302
2,3',6-TriCB	27			42.0	0.109 (S)	1.16	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			463	1.01 (S)	1.00	0.836
2,4',6-TriCB	32			120	1.01 (S)	0.95	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			4.53	1.09 (S)	1.05	1.274
3,3',4-TriCB	35		U		1.04 (S)		
3,3',5-TriCB	36			58.9	0.979 (S)	0.93	0.934
3,4,4'-TriCB	37			79.6	0.904 (S)	0.97	1.000
3,4,5-TriCB	38		J	1.74	1.07 (S)	0.90	0.966
3,4',5-TriCB	39			7.22	1.04 (S)	1.09	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	616	0.310 (S)	0.79	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			437	0.327 (S)	0.78	1.311
2,2',3,5'-TeCB	43			62.3	0.363 (S)	0.78	1.247
2,2',3,5'-TeCB	44	44 + 47 + 65	C	2620	0.284 (S)	0.79	1.287
2,2',3,6'-TeCB	45	45 + 51	C	254	0.318 (S)	0.80	1.147
2,2',3,6'-TeCB	46			41.1	0.363 (S)	0.81	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			231	0.315 (S)	0.80	1.273
2,2',4,5'-TeCB	49	49 + 69	C	1800	0.265 (S)	0.79	1.259
2,2',4,6'-TeCB	50	50 + 53	C	231	0.308 (S)	0.80	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			2660	0.288 (S)	0.79	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			58.5	0.265 (S)	0.77	1.001
2,3,3',4'-TeCB	55		U		7.10 (S)		
2,3,3',4'-TeCB	56			454	7.24 (S)	0.74	0.904
2,3,3',5'-TeCB	57			10.6	6.62 (S)	0.76	0.843
2,3,3',5'-TeCB	58			9.75	6.89 (S)	0.71	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	187	0.234 (S)	0.79	1.302
2,3,4,4'-TeCB	60			652	7.11 (S)	0.76	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	2970	6.66 (S)	0.75	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			159	6.54 (S)	0.75	0.864
2,3,4',6'-TeCB	64			922	0.222 (S)	0.79	1.348
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			2950	6.46 (S)	0.75	0.884
2,3',4,5'-TeCB	67			41.7	5.83 (S)	0.77	0.855
2,3',4,5'-TeCB	68			42.2	6.28 (S)	0.72	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			48.0	6.24 (S)	0.74	0.822
2,3',5',6'-TeCB	73		U		0.243 (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			105	6.28 (S)	0.73	1.000
3,3',4,5'-TeCB	78		U		6.83 (S)		
3,3',4,5'-TeCB	79			42.6	5.60 (S)	0.72	0.969
3,3',5,5'-TeCB	80		U		6.17 (S)		
3,4,4',5'-TeCB	81		U		6.26 (S)		
2,2',3,3',4'-PeCB	82			291	1.18 (S)	1.62	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	4780	1.05 (S)	1.60	0.885
2,2',3,3',6'-PeCB	84			513	1.20 (S)	1.61	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1340	0.890 (S)	1.62	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	2800	0.914 (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	695	1.07 (S)	1.57	1.155
2,2',3,4,6'-PeCB	89			17.5	1.12 (S)	1.68	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	5890	0.923 (S)	1.56	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			1230	1.08 (S)	1.60	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	2910	1.05 (S)	1.58	1.121
2,2',3,5,6'-PeCB	94			15.0	1.15 (S)	1.68	1.102
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			21.2	0.0898 (S)	1.59	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.
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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			110	0.938 (S)	1.62	1.094
2,2',4,6,6'-PeCB	104			4.56	0.0929 (S)	1.38	1.001
2,3,3',4,4'-PeCB	105			2030	7.74 (S)	1.49	1.000
2,3,3',4,5-PeCB	106		U		8.66 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	158	8.99 (S)	1.47	0.990
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109			545	8.03 (S)	1.48	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	4590	0.798 (S)	1.60	0.925
2,3,3',5,5'-PeCB	111			10.5	0.796 (S)	1.40	0.945
2,3,3',5,6-PeCB	112		U		0.799 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			156	8.74 (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			5700	7.45 (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			49.5	0.746 (S)	1.44	0.958
2,3',4,5',6-PeCB	121			10.6	0.815 (S)	1.54	1.200
2',3,3',4,5-PeCB	122			30.1	9.70 (S)	1.64	1.010
2',3,4,4',5-PeCB	123			96.0	8.55 (S)	1.49	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	34.0	7.70 (S)	1.64	1.001
3,3',4,5,5'-PeCB	127			13.8	8.83 (S)	1.33	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1720	7.70 (S)	1.27	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	11700	7.74 (S)	1.26	0.928
2,2',3,3',4,5'-HxCB	130			577	9.69 (S)	1.27	0.913
2,2',3,3',4,6-HxCB	131			40.9	9.67 (S)	1.27	1.161
2,2',3,3',4,6'-HxCB	132			1320	9.58 (S)	1.25	1.176
2,2',3,3',5,5'-HxCB	133			246	9.02 (S)	1.26	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	228	9.15 (S)	1.29	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	2840	0.108 (S)	1.29	1.105
2,2',3,3',6,6'-HxCB	136			496	0.0842 (S)	1.26	1.025
2,2',3,4,4',5-HxCB	137			559	9.43 (S)	1.25	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	181	8.50 (S)	1.28	1.153
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			1290	8.23 (S)	1.26	0.903
2,2',3,4,5,6-HxCB	142		U		9.21 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			297	0.111 (S)	1.28	1.122
2,2',3,4,6,6'-HxCB	145		U		0.0898 (S)		
2,2',3,4',5,5'-HxCB	146			2310	7.78 (S)	1.26	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C	4670	8.28 (S)	1.24	1.134
2,2',3,4',5,6'-HxCB	148			41.5	0.111 (S)	1.14	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			22.2	0.0854 (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			6.24	0.0830 (S)	1.15	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C	12200	6.99 (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			15.3	0.0901 (S)	1.32	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	1110	8.22 (S)	1.27	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			939	5.98 (S)	1.25	0.938
2,3,3',4,5,5'-HxCB	159			51.6	6.42 (S)	1.24	0.981
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		6.41 (S)		
2,3,3',4',5,5'-HxCB	162			33.0	6.30 (S)	1.24	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			430	6.32 (S)	1.25	0.921
2,3,3',5,5',6-HxCB	165			11.8	7.36 (S)	1.23	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			453	6.68 (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		13.6 (S)		
2,2',3,3',4,4',5-HpCB	170			2120	0.352 (S)	1.07	1.001
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	708	0.360 (S)	1.07	1.163
2,2',3,3',4,5,5'-HpCB	172			468	0.374 (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			1240	0.339 (S)	1.06	1.134
2,2',3,3',4,5',6-HpCB	175			94.6	0.335 (S)	1.06	1.103
2,2',3,3',4,6,6'-HpCB	176			147	0.253 (S)	1.04	1.035
2,2',3,3',4',5,6-HpCB	177			1130	0.317 (S)	1.05	1.146
2,2',3,3',5,5',6-HpCB	178			687	0.343 (S)	1.07	1.085
2,2',3,3',5,6,6'-HpCB	179			625	0.250 (S)	1.06	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	6880	0.316 (S)	1.05	1.000
2,2',3,4,4',5,6-HpCB	181			35.1	0.348 (S)	1.05	1.157
2,2',3,4,4',5,6'-HpCB	182			28.7	0.323 (S)	1.20	1.116
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	1890	0.327 (S)	1.05	1.127
2,2',3,4,4',6,6'-HpCB	184			14.1	0.249 (S)	0.90	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.270 (S)		
2,2',3,4',5,5',6-HpCB	187			4990	0.311 (S)	1.06	1.111
2,2',3,4',5,6,6'-HpCB	188			12.5	0.278 (S)	1.20	1.001
2,3,3',4,4',5,5'-HpCB	189			65.3	0.553 (S)	0.99	1.001
2,3,3',4,4',5,6-HpCB	190			506	0.267 (S)	1.09	0.947
2,3,3',4,4',5',6-HpCB	191			102	0.263 (S)	1.05	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.294 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			889	0.479 (S)	0.90	0.991
2,2',3,3',4,4',5,6-OxCB	195			389	0.521 (S)	0.90	0.945
2,2',3,3',4,4',5,6'-OxCB	196			513	0.152 (S)	0.90	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C	119	0.111 (S)	0.91	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	1210	0.154 (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			139	0.110 (S)	0.86	1.023
2,2',3,3',5,5',6,6'-OxCB	202			374	0.144 (S)	0.92	1.000
2,2',3,4,4',5,5',6-OxCB	203			848	0.146 (S)	0.91	0.919
2,2',3,4,4',5,6,6'-OxCB	204		J	1.39	0.111 (S)	0.92	1.038
2,3,3',4,4',5,5',6-OxCB	205			44.0	0.403 (S)	0.90	1.000
2,2',3,3',4,4',5,5',6-NoCB	206			379	0.120 (S)	0.80	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207			49.1	0.0844 (S)	0.77	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			149	0.106 (S)	0.76	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			191	0.133 (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; 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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB029
Sample Collection:
20-Aug-2018 13:42

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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 14-Oct-2018 Time: 10:15:15
 Extract Volume (uL): 100
 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.: L29935-3
 Sample Size: 10.4 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_349 S: 3
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_349 S: 1
 % Lipid: 5.20

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	350	17.5	3.32	0.718
13C12-4-MoCB	3L			2000	535	26.8	3.35	0.858
13C12-2,2'-DiCB	4L			2000	637	31.9	1.59	0.874
13C12-4,4'-DiCB	15L			2000	1160	58.0	1.49	1.255
13C12-2,2',6-TriCB	19L			2000	724	36.2	1.08	1.072
13C12-3,4,4'-TriCB	37L			2000	1590	79.3	1.06	1.093
13C12-2,2',6,6'-TeCB	54L			2000	1110	55.4	0.84	0.811
13C12-3,3',4,4'-TeCB	77L			2000	1860	92.8	0.77	1.397
13C12-3,4,4',5-TeCB	81L			2000	1900	95.1	0.76	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	985	49.2	1.63	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1620	81.1	1.59	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1520	75.9	1.53	1.180
13C12-2,3',4,4',5-PeCB	118L			2000	1660	83.1	1.54	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1610	80.3	1.50	1.152
13C12-3,3',4,4',5-PeCB	126L			2000	1900	95.0	1.52	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	869	43.4	1.28	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	3240	81.1	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			2000	1560	77.8	1.26	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1510	75.3	1.30	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1710	85.6	1.16	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1760	88.2	0.98	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1060	52.8	1.09	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1390	69.6	1.00	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	826	41.3	0.92	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1560	78.2	0.90	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1370	68.5	0.80	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1310	65.6	0.75	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	753	37.6	1.16	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1590	79.3	1.01	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1450	72.3	1.66	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1280	63.9	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB042
Sample Collection:
20-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.:	L29935-4
Sample Receipt Date:	23-Aug-2018	Sample Size:	10.2 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	14-Oct-2018 Time: 11:19:03	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_349 S: 4
Dilution Factor:	N/A	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_349 S: 1
		% Lipid:	5.78

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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			7.06	0.214 (S)	2.78	1.000
3-MoCB	2		J	1.21	0.218 (S)	2.80	0.987
4-MoCB	3		J	2.68	0.226 (S)	2.87	1.000
2,2'-DiCB	4			170	0.792 (S)	1.46	1.001
2,3-DiCB	5		J	1.46	0.620 (S)	1.42	1.197
2,3'-DiCB	6			25.9	0.558 (S)	1.49	1.175
2,4-DiCB	7		K	4.25	0.568 (S)	1.27	1.158
2,4'-DiCB	8			99.3	0.522 (S)	1.47	1.208
2,5-DiCB	9			6.93	0.560 (S)	1.52	1.146
2,6-DiCB	10			8.37	0.554 (S)	1.45	1.013
3,3'-DiCB	11			59.8	0.569 (S)	1.46	0.968
3,4-DiCB	12	12 + 13	C	3.25	0.575 (S)	1.70	0.983
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.565 (S)		
4,4'-DiCB	15			20.5	0.540 (S)	1.51	1.001
2,2',3-TriCB	16			99.8	0.0824 (S)	1.12	1.167
2,2',4-TriCB	17			229	0.0720 (S)	1.13	1.138
2,2',5-TriCB	18	18 + 30	C	324	0.0718 (Q)	1.08	1.113
2,2',6-TriCB	19			357	0.101 (S)	1.10	1.001
2,3,3'-TriCB	20	20 + 28	C	1380	1.72 (S)	0.99	0.847
2,3,4-TriCB	21	21 + 33	C	212	1.75 (S)	0.98	0.856
2,3,4'-TriCB	22			287	1.91 (S)	0.98	0.871
2,3,5-TriCB	23		U		1.89 (S)		
2,3,6-TriCB	24		K	5.59	0.0718 (Q)	1.35	1.159
2,3',4-TriCB	25			78.1	1.56 (S)	0.97	0.824
2,3',5-TriCB	26	26 + 29	C	157	1.79 (S)	0.99	1.301
2,3',6-TriCB	27			69.4	0.0718 (Q)	1.13	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			523	1.69 (S)	0.96	0.836
2,4',6-TriCB	32			399	1.68 (S)	0.99	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			8.12	1.81 (S)	1.00	1.274
3,3',4-TriCB	35		U		1.73 (S)		
3,3',5-TriCB	36		U		1.63 (S)		
3,4,4'-TriCB	37			102	1.56 (S)	0.94	1.001
3,4,5-TriCB	38			7.77	1.78 (S)	1.09	0.967
3,4',5-TriCB	39			40.0	1.73 (S)	0.96	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	3360	0.261 (S)	0.79	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			2180	0.275 (S)	0.80	1.313
2,2',3,5'-TeCB	43			367	0.305 (S)	0.76	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	10100	0.239 (S)	0.80	1.286
2,2',3,6'-TeCB	45	45 + 51	C	851	0.268 (S)	0.80	1.147
2,2',3,6'-TeCB	46			153	0.305 (S)	0.80	1.162
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			1230	0.265 (S)	0.80	1.274
2,2',4,5'-TeCB	49	49 + 69	C	7930	0.223 (S)	0.80	1.260
2,2',4,6'-TeCB	50	50 + 53	C	597	0.259 (S)	0.79	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			11700	0.242 (S)	0.80	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			64.1	0.243 (S)	0.80	1.001
2,3,3',4'-TeCB	55		U		15.4 (S)		
2,3,3',4'-TeCB	56			2320	15.7 (S)	0.74	0.904
2,3,3',5'-TeCB	57		K	43.8	14.3 (S)	0.63	0.843
2,3,3',5'-TeCB	58			20.5	14.9 (S)	0.71	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	696	0.197 (S)	0.81	1.303
2,3,4,4'-TeCB	60			4940	15.4 (S)	0.77	0.910
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	11000	14.4 (S)	0.76	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			828	14.2 (S)	0.75	0.864
2,3,4',6'-TeCB	64			5560	0.187 (S)	0.80	1.350
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			17300	14.0 (S)	0.75	0.884
2,3',4,5'-TeCB	67			122	12.6 (S)	0.76	0.855
2,3',4,5'-TeCB	68			39.3	13.6 (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			92.1	13.5 (S)	0.78	0.821
2,3',5',6'-TeCB	73		U		0.204 (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			486	12.8 (S)	0.76	1.000
3,3',4,5'-TeCB	78		U		14.8 (S)		
3,3',4,5'-TeCB	79			93.3	12.1 (S)	0.76	0.969
3,3',5,5'-TeCB	80		U		13.4 (S)		
3,4,4',5'-TeCB	81			24.1	13.6 (S)	0.75	1.000
2,2',3,3',4'-PeCB	82			665	3.03 (S)	1.63	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	10700	2.70 (S)	1.59	0.885
2,2',3,3',6'-PeCB	84			949	3.09 (S)	1.61	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	4000	2.29 (S)	1.59	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	6410	2.35 (S)	1.64	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	1270	2.76 (S)	1.60	1.155
2,2',3,4,6'-PeCB	89			84.1	2.88 (S)	1.67	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	11300	2.37 (S)	1.61	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			2200	2.77 (S)	1.59	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	4590	2.70 (S)	1.60	1.121
2,2',3,5,6'-PeCB	94			28.8	2.97 (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			61.1	0.131 (S)	1.60	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			118	2.41 (S)	1.54	1.093
2,2',4,6,6'-PeCB	104			6.84	0.159 (S)	1.46	1.001
2,3,3',4,4'-PeCB	105			6620	19.0 (S)	1.51	1.000
2,3,3',4,5-PeCB	106		U		22.2 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	388	23.1 (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			1150	20.6 (S)	1.51	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	9650	2.05 (S)	1.59	0.925
2,3,3',5,5'-PeCB	111		K	12.2	2.05 (S)	1.17	0.945
2,3,3',5,6-PeCB	112		U		2.05 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			482	21.2 (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			14100	19.4 (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			51.5	1.92 (S)	1.50	0.958
2,3',4,5',6-PeCB	121			9.63	2.09 (S)	1.68	1.199
2',3,3',4,5-PeCB	122			75.9	24.9 (S)	1.50	1.010
2',3,4,4',5-PeCB	123			341	21.7 (S)	1.50	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	26.6	20.8 (S)	1.46	1.000
3,3',4,5,5'-PeCB	127		U		22.7 (S)		
2,2',3,3',4,4'-HxCB	128	128 + 166	C	2480	9.65 (S)	1.28	0.958
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	17500	9.71 (S)	1.26	0.928
2,2',3,3',4,5'-HxCB	130			683	12.1 (S)	1.28	0.912
2,2',3,3',4,6-HxCB	131			43.7	12.1 (S)	1.25	1.161
2,2',3,3',4,6'-HxCB	132			1370	12.0 (S)	1.26	1.176
2,2',3,3',5,5'-HxCB	133			330	11.3 (S)	1.30	1.193
2,2',3,3',5,6-HxCB	134	134 + 143	C	255	11.5 (S)	1.26	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	3450	0.413 (S)	1.27	1.105
2,2',3,3',6,6'-HxCB	136			574	0.322 (S)	1.26	1.025
2,2',3,4,4',5-HxCB	137			847	11.8 (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	268	10.7 (S)	1.24	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			2090	10.3 (S)	1.26	0.903
2,2',3,4,5,6-HxCB	142		U		11.5 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			340	0.423 (S)	1.27	1.123
2,2',3,4,6,6'-HxCB	145		K J	2.02	0.343 (S)	0.95	1.035
2,2',3,4',5,5'-HxCB	146			3220	9.76 (S)	1.28	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C	4500	10.4 (S)	1.26	1.134
2,2',3,4',5,6'-HxCB	148			37.4	0.426 (S)	1.22	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			16.5	0.326 (S)	1.23	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			9.01	0.318 (S)	1.19	1.008
2,2',4,4',5,5'-HxCB	153	153 + 168	C	18900	8.77 (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			12.2	0.320 (S)	1.13	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	1760	10.7 (S)	1.26	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			1420	7.50 (S)	1.26	0.938
2,3,3',4,5,5'-HxCB	159			56.0	8.05 (S)	1.26	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		8.03 (S)		
2,3,3',4',5,5'-HxCB	162			51.7	7.89 (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			596	7.93 (S)	1.27	0.921
2,3,3',5,5',6-HxCB	165		K	12.7	9.23 (S)	1.51	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			613	8.39 (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		21.6 (S)		
2,2',3,3',4,4',5-HpCB	170			3100	0.625 (S)	1.04	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	929	0.646 (S)	1.06	1.163
2,2',3,3',4,5,5'-HpCB	172			611	0.672 (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			1080	0.609 (S)	1.03	1.134
2,2',3,3',4,5',6-HpCB	175			120	0.602 (S)	1.05	1.103
2,2',3,3',4,6,6'-HpCB	176			115	0.454 (S)	1.03	1.035
2,2',3,3',4',5,6-HpCB	177			1090	0.569 (S)	1.07	1.146
2,2',3,3',5,5',6-HpCB	178			824	0.617 (S)	1.06	1.085
2,2',3,3',5,6,6'-HpCB	179			635	0.448 (S)	1.05	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	10100	0.597 (S)	1.06	1.000
2,2',3,4,4',5,6-HpCB	181			86.7	0.625 (S)	1.11	1.157
2,2',3,4,4',5,6'-HpCB	182		K	28.3	0.581 (S)	0.86	1.116
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	2570	0.588 (S)	1.06	1.127
2,2',3,4,4',6,6'-HpCB	184			13.3	0.447 (S)	0.99	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.485 (S)		
2,2',3,4',5,5',6-HpCB	187			5790	0.558 (S)	1.06	1.111
2,2',3,4',5,6,6'-HpCB	188			11.6	0.511 (S)	1.02	1.001
2,3,3',4,4',5,5'-HpCB	189			95.4	0.630 (S)	0.98	1.000
2,3,3',4,4',5,6-HpCB	190			685	0.479 (S)	1.05	0.947
2,3,3',4,4',5',6-HpCB	191			143	0.473 (S)	1.06	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.527 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			1320	0.785 (S)	0.89	0.991
2,2',3,3',4,4',5,6-OxCB	195			575	0.853 (S)	0.89	0.945
2,2',3,3',4,4',5,6'-OxCB	196			708	0.150 (S)	0.91	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C	124	0.109 (S)	0.90	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	1460	0.152 (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			154	0.108 (S)	0.89	1.023
2,2',3,3',5,5',6,6'-OxCB	202			453	0.146 (S)	0.90	1.000
2,2',3,4,4',5,5',6-OxCB	203			1160	0.144 (S)	0.90	0.919
2,2',3,4,4',5,6,6'-OxCB	204			3.18	0.110 (S)	0.89	1.039
2,3,3',4,4',5,5',6-OxCB	205			68.0	0.644 (S)	0.87	1.001
2,2',3,3',4,4',5,5',6-NoCB	206			490	0.222 (S)	0.80	1.001
2,2',3,3',4,4',5,6,6'-NoCB	207			67.7	0.152 (S)	0.79	1.019
2,2',3,3',4,5,5',6,6'-NoCB	208			151	0.187 (S)	0.79	1.000
2,2',3,3',4,4',5,5',6,6'-DeCB	209			208	0.115 (S)	1.13	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB042
Sample Collection:
20-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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 14-Oct-2018 Time: 11:19:03
 Extract Volume (uL): 100
 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.: L29935-4
 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_349 S: 4
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_349 S: 1
 % Lipid: 5.78

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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	631	31.5	3.34	0.719
13C12-4-MoCB	3L			2000	734	36.7	3.49	0.859
13C12-2,2'-DiCB	4L			2000	845	42.3	1.64	0.874
13C12-4,4'-DiCB	15L			2000	1170	58.6	1.58	1.255
13C12-2,2',6-TriCB	19L			2000	786	39.3	1.12	1.072
13C12-3,4,4'-TriCB	37L			2000	1460	72.9	1.00	1.093
13C12-2,2',6,6'-TeCB	54L			2000	1020	51.2	0.85	0.811
13C12-3,3',4,4'-TeCB	77L			2000	1860	93.0	0.76	1.397
13C12-3,4,4',5-TeCB	81L			2000	1840	92.2	0.78	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	861	43.0	1.53	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1750	87.4	1.49	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1660	82.8	1.57	1.179
13C12-2,3',4,4',5-PeCB	118L			2000	1730	86.3	1.52	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1670	83.6	1.57	1.151
13C12-3,3',4,4',5-PeCB	126L			2000	1940	96.8	1.58	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	812	40.6	1.32	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	2680	67.1	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	1340	66.9	1.23	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1350	67.4	1.25	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1560	77.9	1.06	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1560	78.0	1.05	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	971	48.5	1.12	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1310	65.5	0.99	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	734	36.7	0.94	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1420	71.2	0.88	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1170	58.5	0.78	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1190	59.7	0.81	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	790	39.5	1.22	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1530	76.3	0.99	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1430	71.5	1.59	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1120	56.2	1.08	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB030
Sample Collection:
20-Aug-2018 13:23

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.:	L29935-5 (A)
Sample Receipt Date:	23-Aug-2018	Sample Size:	10.5 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	14-Oct-2018 Time: 12:22:49	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_349 S: 5
Dilution Factor:	N/A	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_349 S: 1
		% Lipid:	5.54

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			4.69	0.207 (S)	2.82	1.001
3-MoCB	2		K J	1.00	0.218 (S)	3.69	0.988
4-MoCB	3		J	1.98	0.231 (S)	3.60	1.001
2,2'-DiCB	4			145	0.840 (S)	1.48	1.001
2,3-DiCB	5		J	1.00	0.737 (S)	1.74	1.197
2,3'-DiCB	6			17.4	0.664 (S)	1.49	1.175
2,4-DiCB	7			3.35	0.676 (S)	1.40	1.158
2,4'-DiCB	8			83.1	0.621 (S)	1.53	1.207
2,5-DiCB	9			5.05	0.666 (S)	1.40	1.145
2,6-DiCB	10			8.75	0.659 (S)	1.38	1.013
3,3'-DiCB	11			47.3	0.677 (S)	1.44	0.968
3,4-DiCB	12	12 + 13	C K J	2.42	0.684 (S)	1.25	0.984
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.672 (S)		
4,4'-DiCB	15			22.1	0.684 (S)	1.45	1.000
2,2',3-TriCB	16			73.1	0.243 (S)	1.11	1.166
2,2',4-TriCB	17			179	0.212 (S)	1.07	1.137
2,2',5-TriCB	18	18 + 30	C	226	0.182 (S)	1.10	1.113
2,2',6-TriCB	19			341	0.291 (S)	1.09	1.001
2,3,3'-TriCB	20	20 + 28	C	828	1.10 (S)	0.98	0.847
2,3,4-TriCB	21	21 + 33	C	202	1.12 (S)	0.99	0.856
2,3,4'-TriCB	22			174	1.22 (S)	1.03	0.871
2,3,5-TriCB	23		U		1.21 (S)		
2,3,6-TriCB	24		K	2.93	0.164 (S)	1.35	1.159
2,3',4-TriCB	25			51.9	1.00 (S)	0.96	0.824
2,3',5-TriCB	26	26 + 29	C	118	1.15 (S)	1.00	1.302
2,3',6-TriCB	27			40.1	0.149 (S)	0.97	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			444	1.08 (S)	0.97	0.836
2,4',6-TriCB	32			122	1.08 (S)	0.96	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			3.87	1.16 (S)	1.04	1.274
3,3',4-TriCB	35		U		1.11 (S)		
3,3',5-TriCB	36			63.2	1.04 (S)	0.99	0.934
3,4,4'-TriCB	37			65.1	1.01 (S)	0.94	1.001
3,4,5-TriCB	38		K J	1.97	1.14 (S)	0.77	0.967
3,4',5-TriCB	39			8.38	1.11 (S)	1.12	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	618	0.367 (S)	0.79	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			385	0.387 (S)	0.78	1.312
2,2',3,5'-TeCB	43			62.8	0.430 (S)	0.74	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	2520	0.336 (S)	0.80	1.286
2,2',3,6'-TeCB	45	45 + 51	C	265	0.376 (S)	0.80	1.147
2,2',3,6'-TeCB	46			40.5	0.429 (S)	0.78	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			243	0.372 (S)	0.77	1.274
2,2',4,5'-TeCB	49	49 + 69	C	1760	0.314 (S)	0.79	1.259
2,2',4,6'-TeCB	50	50 + 53	C	218	0.365 (S)	0.79	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			2560	0.340 (S)	0.79	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			66.2	0.314 (S)	0.81	1.001
2,3,3',4'-TeCB	55		U		12.1 (S)		
2,3,3',4'-TeCB	56			428	12.4 (S)	0.75	0.904
2,3,3',5'-TeCB	57		U		11.3 (S)		
2,3,3',5'-TeCB	58		U		11.8 (S)		
2,3,3',6'-TeCB	59	59 + 62 + 75	C	171	0.277 (S)	0.81	1.303
2,3,4,4'-TeCB	60			722	12.1 (S)	0.78	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	3060	11.4 (S)	0.76	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			168	11.2 (S)	0.77	0.864
2,3,4',6'-TeCB	64			845	0.263 (S)	0.81	1.349
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			3180	11.0 (S)	0.75	0.884
2,3',4,5'-TeCB	67			31.2	9.95 (S)	0.75	0.856
2,3',4,5'-TeCB	68			32.8	10.7 (S)	0.68	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			43.9	10.7 (S)	0.77	0.821
2,3',5',6'-TeCB	73		U		0.288 (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			110	10.6 (S)	0.78	1.000
3,3',4,5'-TeCB	78		U		11.7 (S)		
3,3',4,5'-TeCB	79			31.2	9.56 (S)	0.73	0.969
3,3',5,5'-TeCB	80		U		10.5 (S)		
3,4,4',5'-TeCB	81		U		10.8 (S)		
2,2',3,3',4'-PeCB	82			178	2.50 (S)	1.56	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	3860	2.23 (S)	1.58	0.885
2,2',3,3',6'-PeCB	84			335	2.55 (S)	1.61	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1120	1.89 (S)	1.61	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	1930	1.94 (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	420	2.28 (S)	1.60	1.155
2,2',3,4,6'-PeCB	89			15.6	2.37 (S)	1.53	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	3990	1.96 (S)	1.61	0.868
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			866	2.28 (S)	1.60	0.852
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	1990	2.22 (S)	1.59	1.122
2,2',3,5,6'-PeCB	94			13.7	2.45 (S)	1.42	1.102
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			20.7	0.222 (S)	1.53	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			80.1	1.99 (S)	1.58	1.094
2,2',4,6,6'-PeCB	104			6.31	0.250 (S)	1.60	1.001
2,3,3',4,4'-PeCB	105			1820	7.33 (S)	1.50	1.000
2,3,3',4,5-PeCB	106		U		8.33 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	135	8.64 (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			466	7.72 (S)	1.51	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	3030	1.69 (S)	1.59	0.925
2,3,3',5,5'-PeCB	111			10.2	1.69 (S)	1.68	0.945
2,3,3',5,6-PeCB	112		U		1.69 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			146	8.12 (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			5200	7.45 (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			39.4	1.58 (S)	1.53	0.958
2,3',4,5',6-PeCB	121			9.03	1.73 (S)	1.48	1.200
2',3,3',4,5-PeCB	122			23.7	9.33 (S)	1.47	1.010
2',3,4,4',5-PeCB	123			87.6	7.92 (S)	1.48	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	18.0	7.92 (S)	1.43	1.001
3,3',4,5,5'-PeCB	127			11.3	8.49 (S)	1.48	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1280	7.89 (S)	1.26	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	9240	7.93 (S)	1.26	0.928
2,2',3,3',4,5'-HxCB	130			379	9.93 (S)	1.29	0.913
2,2',3,3',4,6-HxCB	131		K	27.7	9.91 (S)	1.00	1.160
2,2',3,3',4,6'-HxCB	132			779	9.82 (S)	1.26	1.176
2,2',3,3',5,5'-HxCB	133			220	9.24 (S)	1.28	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	138	9.38 (S)	1.23	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	1910	0.289 (S)	1.27	1.105
2,2',3,3',6,6'-HxCB	136			329	0.225 (S)	1.28	1.025
2,2',3,4,4',5-HxCB	137			447	9.66 (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	146	8.71 (S)	1.16	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			951	8.43 (S)	1.26	0.903
2,2',3,4,5,6-HxCB	142		U		9.44 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			179	0.296 (S)	1.30	1.122
2,2',3,4,6,6'-HxCB	145		J	0.735	0.240 (S)	1.36	1.034
2,2',3,4',5,5'-HxCB	146			1910	7.98 (S)	1.27	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C	2830	8.48 (S)	1.26	1.134
2,2',3,4',5,6'-HxCB	148		K	28.0	0.298 (S)	1.44	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			13.8	0.228 (S)	1.39	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			5.48	0.222 (S)	1.18	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C	10800	7.17 (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			13.6	0.217 (S)	1.35	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	936	8.65 (S)	1.25	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			707	6.13 (S)	1.25	0.938
2,3,3',4,5,5'-HxCB	159			27.2	6.58 (S)	1.16	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		6.57 (S)		
2,3,3',4',5,5'-HxCB	162			31.2	6.45 (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			296	6.48 (S)	1.24	0.921
2,3,3',5,5',6-HxCB	165			12.1	7.54 (S)	1.10	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			366	6.84 (S)	1.31	1.000
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U		14.0 (S)		
2,2',3,3',4,4',5-HpCB	170			1720	0.298 (S)	1.06	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	489	0.290 (S)	1.10	1.164
2,2',3,3',4,5,5'-HpCB	172			345	0.302 (S)	1.09	0.897
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174			658	0.274 (S)	1.06	1.134
2,2',3,3',4,5',6-HpCB	175			63.7	0.271 (S)	1.07	1.104
2,2',3,3',4,6,6'-HpCB	176			75.3	0.204 (S)	1.08	1.035
2,2',3,3',4',5,6-HpCB	177			646	0.256 (S)	1.06	1.147
2,2',3,3',5,5',6-HpCB	178			499	0.277 (S)	1.04	1.086
2,2',3,3',5,6,6'-HpCB	179			372	0.202 (S)	1.03	1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	5550	0.259 (S)	1.05	1.000
2,2',3,4,4',5,6-HpCB	181			26.9	0.281 (S)	1.05	1.157
2,2',3,4,4',5,6'-HpCB	182		K	17.1	0.261 (S)	0.75	1.117
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	1370	0.264 (S)	1.05	1.128
2,2',3,4,4',6,6'-HpCB	184			11.5	0.201 (S)	0.94	1.025
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.218 (S)		
2,2',3,4',5,5',6-HpCB	187			3340	0.251 (S)	1.06	1.111
2,2',3,4',5,6,6'-HpCB	188			9.43	0.220 (S)	0.98	1.001
2,3,3',4,4',5,5'-HpCB	189			55.4	0.502 (S)	1.01	1.001
2,3,3',4,4',5,6-HpCB	190			393	0.216 (S)	1.05	0.947
2,3,3',4,4',5',6-HpCB	191			74.1	0.213 (S)	1.11	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.237 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			750	0.434 (S)	0.90	0.991
2,2',3,3',4,4',5,6-OxCB	195			319	0.471 (S)	0.91	0.945
2,2',3,3',4,4',5,6'-OxCB	196			413	0.223 (S)	0.91	0.915
2,2',3,3',4,4',6'-OxCB	197	197 + 200	C	76.8	0.163 (S)	0.90	1.045
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	899	0.227 (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			99.4	0.161 (S)	0.93	1.022
2,2',3,3',5,5',6,6'-OxCB	202			298	0.207 (S)	0.94	1.000
2,2',3,4,4',5,5',6-OxCB	203			687	0.214 (S)	0.90	0.919
2,2',3,4,4',5,6,6'-OxCB	204		K J	1.87	0.163 (S)	1.51	1.039
2,3,3',4,4',5,5',6-OxCB	205			39.2	0.370 (S)	0.84	1.000
2,2',3,3',4,4',5,5',6-NoCB	206			342	0.268 (S)	0.80	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207			49.4	0.184 (S)	0.81	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			125	0.226 (S)	0.79	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			164	0.180 (S)	1.28	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB030
Sample Collection:
20-Aug-2018 13:23

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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 14-Oct-2018 Time: 12:22:49
 Extract Volume (uL): 100
 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.: L29935-5 (A)
 Sample Size: 10.5 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_349 S: 5
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_349 S: 1
 % Lipid: 5.54

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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	410	20.5	3.29	0.718
13C12-4-MoCB	3L			2000	458	22.9	3.54	0.858
13C12-2,2'-DiCB	4L			2000	552	27.6	1.63	0.874
13C12-4,4'-DiCB	15L			2000	666	33.3	1.58	1.255
13C12-2,2',6-TriCB	19L		V	2000	461	23.0	0.99	1.072
13C12-3,4,4'-TriCB	37L			2000	887	44.3	0.98	1.093
13C12-2,2',6,6'-TeCB	54L			2000	641	32.0	0.82	0.811
13C12-3,3',4,4'-TeCB	77L			2000	1100	55.2	0.79	1.398
13C12-3,4,4',5-TeCB	81L			2000	1110	55.7	0.79	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	564	28.2	1.61	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1050	52.7	1.56	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	999	50.0	1.54	1.180
13C12-2,3',4,4',5-PeCB	118L			2000	1030	51.3	1.55	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1050	52.7	1.54	1.152
13C12-3,3',4,4',5-PeCB	126L			2000	1130	56.4	1.60	1.303
13C12-2,2',4,4',6,6'-HxCB	155L			2000	525	26.2	1.30	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	1720	43.0	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			2000	828	41.4	1.27	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	813	40.7	1.33	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	899	44.9	1.03	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	945	47.2	1.03	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	604	30.2	1.05	0.711
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	764	38.2	1.02	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L		V	2000	451	22.5	0.85	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	836	41.8	0.95	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	683	34.2	0.76	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	686	34.3	0.76	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L		V	2000	473	23.6	1.21	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	951	47.5	1.03	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	891	44.6	1.67	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	722	36.1	1.11	1.011

(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.

(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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB030 (Duplicate)
Sample Collection:
20-Aug-2018 13:23

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.:	WG65145-103 (DUP L29935-5)
Sample Receipt Date:	23-Aug-2018	Sample Size:	10.0 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	14-Oct-2018 Time: 13:26:34	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_349 S: 6
Dilution Factor:	N/A	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_349 S: 1
		% Lipid:	5.40

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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			4.58	0.148 (S)	2.99	1.001
3-MoCB	2		J	0.903	0.154 (S)	3.08	0.988
4-MoCB	3		J	1.59	0.162 (S)	3.44	1.001
2,2'-DiCB	4			136	0.689 (S)	1.47	1.000
2,3-DiCB	5		K J	0.982	0.575 (S)	1.87	1.199
2,3'-DiCB	6			17.1	0.518 (S)	1.35	1.176
2,4-DiCB	7			2.99	0.528 (S)	1.63	1.158
2,4'-DiCB	8			75.4	0.485 (S)	1.50	1.208
2,5-DiCB	9			4.67	0.520 (S)	1.50	1.146
2,6-DiCB	10			7.15	0.514 (S)	1.55	1.014
3,3'-DiCB	11			44.7	0.528 (S)	1.49	0.968
3,4-DiCB	12	12 + 13	C J	2.58	0.534 (S)	1.56	0.983
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.525 (S)		
4,4'-DiCB	15			20.7	0.518 (S)	1.45	1.000
2,2',3-TriCB	16			73.0	0.142 (S)	1.04	1.167
2,2',4-TriCB	17			174	0.124 (S)	1.08	1.139
2,2',5-TriCB	18	18 + 30	C	214	0.106 (S)	1.06	1.114
2,2',6-TriCB	19			329	0.172 (S)	1.04	1.002
2,3,3'-TriCB	20	20 + 28	C	777	1.20 (S)	0.98	0.847
2,3,4-TriCB	21	21 + 33	C	191	1.22 (S)	0.95	0.856
2,3,4'-TriCB	22			163	1.33 (S)	0.97	0.871
2,3,5-TriCB	23		U		1.32 (S)		
2,3,6-TriCB	24			3.27	0.0953 (S)	1.07	1.160
2,3',4-TriCB	25			48.5	1.09 (S)	0.96	0.824
2,3',5-TriCB	26	26 + 29	C	111	1.25 (S)	0.99	1.302
2,3',6-TriCB	27			40.0	0.0869 (S)	1.11	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			417	1.18 (S)	0.97	0.836
2,4',6-TriCB	32			116	1.17 (S)	0.98	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			3.91	1.26 (S)	0.99	1.275
3,3',4-TriCB	35		U		1.20 (S)		
3,3',5-TriCB	36		U		1.14 (S)		
3,4,4'-TriCB	37			61.3	1.09 (S)	0.98	1.001
3,4,5-TriCB	38		K J	1.71	1.24 (S)	0.81	0.967
3,4',5-TriCB	39			8.13	1.21 (S)	1.06	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	574	0.433 (S)	0.80	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			357	0.458 (S)	0.80	1.311
2,2',3,5'-TeCB	43			59.7	0.508 (S)	0.77	1.247
2,2',3,5'-TeCB	44	44 + 47 + 65	C	2340	0.397 (S)	0.79	1.286
2,2',3,6'-TeCB	45	45 + 51	C	251	0.445 (S)	0.78	1.147
2,2',3,6'-TeCB	46			37.7	0.507 (S)	0.82	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			225	0.440 (S)	0.79	1.273
2,2',4,5'-TeCB	49	49 + 69	C	1630	0.371 (S)	0.79	1.259
2,2',4,6'-TeCB	50	50 + 53	C	208	0.431 (S)	0.78	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			2370	0.402 (S)	0.79	1.233
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			58.5	0.379 (S)	0.82	1.000
2,3,3',4'-TeCB	55		U		3.89 (S)		
2,3,3',4'-TeCB	56			422	3.97 (S)	0.76	0.903
2,3,3',5'-TeCB	57			9.15	3.63 (S)	0.81	0.843
2,3,3',5'-TeCB	58			7.90	3.78 (S)	0.76	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	157	0.327 (S)	0.77	1.302
2,3,4,4'-TeCB	60			703	3.90 (S)	0.76	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	2810	3.65 (S)	0.75	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			160	3.59 (S)	0.74	0.864
2,3,4',6'-TeCB	64			780	0.311 (S)	0.79	1.348
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			2930	3.54 (S)	0.76	0.883
2,3',4,5'-TeCB	67			32.7	3.20 (S)	0.72	0.855
2,3',4,5'-TeCB	68			32.2	3.44 (S)	0.71	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			44.3	3.42 (S)	0.68	0.822
2,3',5',6'-TeCB	73		U		0.340 (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			110	3.33 (S)	0.76	1.000
3,3',4,5'-TeCB	78		U		3.75 (S)		
3,3',4,5'-TeCB	79			30.0	3.07 (S)	0.71	0.969
3,3',5,5'-TeCB	80		U		3.38 (S)		
3,4,4',5'-TeCB	81			5.88	3.50 (S)	0.76	1.000
2,2',3,3',4'-PeCB	82			174	2.03 (S)	1.51	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	3710	1.82 (S)	1.61	0.886
2,2',3,3',6'-PeCB	84			320	2.07 (S)	1.58	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1080	1.54 (S)	1.57	0.920
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	1830	1.58 (S)	1.62	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	402	1.86 (S)	1.62	1.155
2,2',3,4,6'-PeCB	89			15.2	1.93 (S)	1.38	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	3850	1.59 (S)	1.60	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			843	1.86 (S)	1.61	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	1900	1.81 (S)	1.59	1.122
2,2',3,5,6'-PeCB	94			13.0	1.99 (S)	1.58	1.102
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			19.2	0.0780 (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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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			73.7	1.62 (S)	1.60	1.094
2,2',4,6,6'-PeCB	104			6.05	0.0901 (S)	1.45	1.001
2,3,3',4,4'-PeCB	105			1810	7.69 (S)	1.51	1.001
2,3,3',4,5-PeCB	106		U		8.78 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	126	9.10 (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			450	8.13 (S)	1.52	0.998
2,3,3',4',6-PeCB	110	110 + 115	C	2910	1.38 (S)	1.62	0.925
2,3,3',5,5'-PeCB	111			9.55	1.37 (S)	1.55	0.945
2,3,3',5,6-PeCB	112		U		1.38 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			136	8.38 (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			4930	7.72 (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			36.6	1.29 (S)	1.63	0.958
2,3',4,5',6-PeCB	121			9.38	1.41 (S)	1.51	1.200
2',3,3',4,5-PeCB	122			24.5	9.82 (S)	1.49	1.010
2',3,4,4',5-PeCB	123			81.4	8.50 (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	15.3	8.29 (S)	1.29	1.000
3,3',4,5,5'-PeCB	127			10.3	8.94 (S)	1.78	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1220	3.34 (S)	1.27	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	8820	3.36 (S)	1.26	0.928
2,2',3,3',4,5'-HxCB	130			355	4.21 (S)	1.27	0.913
2,2',3,3',4,6-HxCB	131			25.5	4.20 (S)	1.22	1.160
2,2',3,3',4,6'-HxCB	132			739	4.16 (S)	1.26	1.176
2,2',3,3',5,5'-HxCB	133			208	3.92 (S)	1.22	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	132	3.97 (S)	1.22	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	1810	0.266 (S)	1.27	1.105
2,2',3,3',6,6'-HxCB	136			311	0.207 (S)	1.27	1.025
2,2',3,4,4',5-HxCB	137			425	4.09 (S)	1.25	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	139	3.69 (S)	1.29	1.153
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			899	3.57 (S)	1.28	0.903
2,2',3,4,5,6-HxCB	142		U		4.00 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			169	0.272 (S)	1.25	1.122
2,2',3,4,6,6'-HxCB	145		K J	0.552	0.221 (S)	2.29	1.035
2,2',3,4',5,5'-HxCB	146			1820	3.38 (S)	1.27	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C	2700	3.60 (S)	1.27	1.134
2,2',3,4',5,6'-HxCB	148			28.8	0.274 (S)	1.33	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			13.3	0.210 (S)	1.06	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			5.00	0.204 (S)	1.25	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C	10200	3.04 (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			12.8	0.202 (S)	1.32	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	906	3.69 (S)	1.25	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			660	2.60 (S)	1.26	0.938
2,3,3',4,5,5'-HxCB	159			28.8	2.79 (S)	1.38	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		2.78 (S)		
2,3,3',4',5,5'-HxCB	162			32.0	2.73 (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			282	2.75 (S)	1.28	0.921
2,3,3',5,5',6-HxCB	165			11.1	3.20 (S)	1.39	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			343	2.96 (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		12.7 (S)		
2,2',3,3',4,4',5-HpCB	170			1710	0.383 (S)	1.02	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	483	0.359 (S)	1.02	1.163
2,2',3,3',4,5,5'-HpCB	172			334	0.374 (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			626	0.338 (S)	1.04	1.134
2,2',3,3',4,5',6-HpCB	175			60.4	0.335 (S)	1.10	1.103
2,2',3,3',4,6,6'-HpCB	176			75.5	0.252 (S)	1.02	1.034
2,2',3,3',4',5,6-HpCB	177			637	0.316 (S)	1.03	1.146
2,2',3,3',5,5',6-HpCB	178			479	0.343 (S)	1.04	1.085
2,2',3,3',5,6,6'-HpCB	179			351	0.249 (S)	1.05	1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	5430	0.337 (S)	1.06	1.000
2,2',3,4,4',5,6-HpCB	181			26.6	0.348 (S)	1.01	1.157
2,2',3,4,4',5,6'-HpCB	182			16.8	0.323 (S)	1.00	1.116
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	1340	0.327 (S)	1.05	1.128
2,2',3,4,4',6,6'-HpCB	184			12.4	0.248 (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		0.270 (S)		
2,2',3,4',5,5',6-HpCB	187			3100	0.310 (S)	1.04	1.110
2,2',3,4',5,6,6'-HpCB	188			9.03	0.277 (S)	1.20	1.000
2,3,3',4,4',5,5'-HpCB	189			51.7	0.582 (S)	1.03	1.000
2,3,3',4,4',5,6-HpCB	190			379	0.267 (S)	1.02	0.947
2,3,3',4,4',5',6-HpCB	191			74.2	0.263 (S)	1.03	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.293 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			707	0.508 (S)	0.89	0.991
2,2',3,3',4,4',5,6-OxCB	195			300	0.552 (S)	0.89	0.946
2,2',3,3',4,4',5,6'-OxCB	196			377	0.140 (S)	0.90	0.916
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C	72.3	0.102 (S)	0.87	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	832	0.142 (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			89.5	0.101 (S)	0.90	1.023
2,2',3,3',5,5',6,6'-OxCB	202			269	0.133 (S)	0.93	1.000
2,2',3,4,4',5,5',6-OxCB	203			655	0.135 (S)	0.89	0.919
2,2',3,4,4',5,6,6'-OxCB	204		J	1.35	0.102 (S)	0.81	1.039
2,3,3',4,4',5,5',6-OxCB	205			34.5	0.423 (S)	0.96	1.000
2,2',3,3',4,4',5,5',6-NoCB	206			326	0.214 (S)	0.79	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207			44.5	0.142 (S)	0.80	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			114	0.169 (S)	0.82	1.000
2,2',3,3',4,4',5,5',6,6'-DeCB	209			156	0.111 (S)	1.16	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB030 (Duplicate)
Sample Collection:
20-Aug-2018 13:23

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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 14-Oct-2018 Time: 13:26:34
 Extract Volume (uL): 100
 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.: WG65145-103 (DUP L29935-5)
 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_349 S: 6
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_349 S: 1
 % Lipid: 5.40

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	767	38.3	3.28	0.718
13C12-4-MoCB	3L			2000	887	44.4	3.24	0.858
13C12-2,2'-DiCB	4L			2000	1040	52.0	1.60	0.873
13C12-4,4'-DiCB	15L			2000	1310	65.7	1.55	1.255
13C12-2,2',6-TriCB	19L			2000	871	43.6	1.10	1.071
13C12-3,4,4'-TriCB	37L			2000	1630	81.5	0.99	1.093
13C12-2,2',6,6'-TeCB	54L			2000	1200	60.2	0.83	0.811
13C12-3,3',4,4'-TeCB	77L			2000	2070	103	0.77	1.398
13C12-3,4,4',5-TeCB	81L			2000	2050	102	0.78	1.375
13C12-2,2',4,6,6'-PeCB	104L			2000	1030	51.7	1.68	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1910	95.4	1.57	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1880	94.1	1.56	1.179
13C12-2,3',4,4',5-PeCB	118L			2000	1960	98.0	1.60	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1890	94.4	1.58	1.151
13C12-3,3',4,4',5-PeCB	126L			2000	2130	107	1.56	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	947	47.3	1.31	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	3050	76.3	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			2000	1520	75.8	1.30	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1510	75.6	1.28	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1580	78.8	1.08	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1700	85.0	1.10	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1080	53.8	1.07	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1420	70.8	1.02	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	856	42.8	0.87	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1580	78.8	0.87	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1280	63.9	0.78	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1340	66.9	0.77	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	925	46.3	1.25	1.075
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1670	83.5	1.02	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1650	82.3	1.61	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1210	60.4	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: _____ Jason MacKenzie _____

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-SMB030

Concentration Units:

pg/g (wet weight basis)

COMPOUND	IUPAC NO.	L29935-5 (A)		WG65145-103		MEAN	RELATIVE PERCENT DIFFERENCE
		LAB FLAG ¹	CONC. FOUND	LAB FLAG ¹	CONC. FOUND		
2-MoCB	1		4.69		4.58	4.63	2.24
3-MoCB	2	K J	1.00	J	0.903		
4-MoCB	3	J	1.98	J	1.59	1.78	21.8
2,2'-DiCB	4		145		136	141	6.40
2,3-DiCB	5	J	1.00	K J	0.982		
2,3'-DiCB	6		17.4		17.1	17.2	2.07
2,4-DiCB	7		3.35		2.99	3.17	11.2
2,4'-DiCB	8		83.1		75.4	79.2	9.74
2,5-DiCB	9		5.05		4.67	4.86	7.88
2,6-DiCB	10		8.75		7.15	7.95	20.1
3,3'-DiCB	11		47.3		44.7	46.0	5.58
3,4-DiCB	12	C K J	2.42	C J	2.58		
3,4'-DiCB	13	C12		C12			
3,5-DiCB	14	U		U			
4,4'-DiCB	15		22.1		20.7	21.4	6.64
2,2',3-TriCB	16		73.1		73.0	73.1	0.164
2,2',4-TriCB	17		179		174	177	3.00
2,2',5-TriCB	18	C	226	C	214	220	5.28
2,2',6-TriCB	19		341		329	335	3.45
2,3,3'-TriCB	20	C	828	C	777	802	6.38
2,3,4-TriCB	21	C	202	C	191	196	5.66
2,3,4'-TriCB	22		174		163	169	6.44
2,3,5-TriCB	23	U		U			
2,3,6-TriCB	24	K	2.93		3.27		
2,3',4-TriCB	25		51.9		48.5	50.2	6.89
2,3',5-TriCB	26	C	118	C	111	115	5.87
2,3',6-TriCB	27		40.1		40.0	40.0	0.435
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		444		417	431	6.30
2,4',6-TriCB	32		122		116	119	5.15
2',3,4-TriCB	33	C21		C21			
2',3,5-TriCB	34		3.87		3.91	3.89	1.05
3,3',4-TriCB	35	U		U			
3,3',5-TriCB	36		63.2	U			
3,4,4'-TriCB	37		65.1		61.3	63.2	5.99
3,4,5-TriCB	38	K J	1.97	K J	1.71		
3,4',5-TriCB	39		8.38		8.13	8.25	2.99
2,2',3,3'-TeCB	40	C	618	C	574	596	7.36
2,2',3,4-TeCB	41	C40		C40			
2,2',3,4'-TeCB	42		385		357	371	7.63
2,2',3,5-TeCB	43		62.8		59.7	61.2	5.15
2,2',3,5'-TeCB	44	C	2520	C	2340	2430	7.54
2,2',3,6-TeCB	45	C	265	C	251	258	5.21
2,2',3,6'-TeCB	46		40.5		37.7	39.1	7.11
2,2',4,4'-TeCB	47	C44		C44			
2,2',4,5-TeCB	48		243		225	234	7.67
2,2',4,5'-TeCB	49	C	1760	C	1630	1690	7.71
2,2',4,6-TeCB	50	C	218	C	208	213	4.93
2,2',4,6'-TeCB	51	C45		C45			
2,2',5,5'-TeCB	52		2560		2370	2460	7.71
2,2',5,6'-TeCB	53	C50		C50			
2,2',6,6'-TeCB	54		66.2		58.5	62.3	12.4
2,3,3',4-TeCB	55	U		U			

COMPOUND	IUPAC NO.	L29935-5 (A)		WG65145-103		MEAN	RELATIVE PERCENT DIFFERENCE
		LAB FLAG ¹	CONC. FOUND	LAB FLAG ¹	CONC. FOUND		
2,3,3',4'-TeCB	56		428		422	425	1.28
2,3,3',5'-TeCB	57	U			9.15		
2,3,3',5'-TeCB	58	U			7.90		
2,3,3',6'-TeCB	59	C	171	C	157	164	9.08
2,3,4,4'-TeCB	60		722		703	713	2.65
2,3,4,5'-TeCB	61	C	3060	C	2810	2940	8.41
2,3,4,6'-TeCB	62	C59		C59			
2,3,4',5'-TeCB	63		168		160	164	4.96
2,3,4',6'-TeCB	64		845		780	812	7.99
2,3,5,6'-TeCB	65	C44		C44			
2,3',4,4'-TeCB	66		3180		2930	3050	8.31
2,3',4,5'-TeCB	67		31.2		32.7	32.0	4.49
2,3',4,5'-TeCB	68		32.8		32.2	32.5	1.87
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		43.9		44.3	44.1	1.01
2,3',5',6'-TeCB	73	U		U			
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		110		110	110	0.739
3,3',4,5'-TeCB	78	U		U			
3,3',4,5'-TeCB	79		31.2		30.0	30.6	3.64
3,3',5,5'-TeCB	80	U		U			
3,4,4',5'-TeCB	81	U			5.88		
2,2',3,3',4'-PeCB	82		178		174	176	2.17
2,2',3,3',5'-PeCB	83	C	3860	C	3710	3790	3.99
2,2',3,3',6'-PeCB	84		335		320	327	4.39
2,2',3,4,4'-PeCB	85	C	1120	C	1080	1100	4.00
2,2',3,4,5'-PeCB	86	C G	1930	C G	1830	1880	5.22
2,2',3,4,5'-PeCB	87	C86		C86			
2,2',3,4,6'-PeCB	88	C	420	C	402	411	4.57
2,2',3,4,6'-PeCB	89		15.6		15.2	15.4	2.70
2,2',3,4',5'-PeCB	90	C	3990	C	3850	3920	3.59
2,2',3,4',6'-PeCB	91	C88		C88			
2,2',3,5,5'-PeCB	92		866		843	854	2.67
2,2',3,5,6'-PeCB	93	C	1990	C	1900	1950	4.32
2,2',3,5,6'-PeCB	94		13.7		13.0	13.3	4.92
2,2',3,5',6'-PeCB	95	C93		C93			
2,2',3,6,6'-PeCB	96		20.7		19.2	19.9	7.50
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		80.1		73.7	76.9	8.37
2,2',4,6,6'-PeCB	104		6.31		6.05	6.18	4.21
2,3,3',4,4'-PeCB	105		1820		1810	1810	0.347
2,3,3',4,5'-PeCB	106	U		U			
2,3,3',4',5'-PeCB	107	C	135	C	126	130	7.28
2,3,3',4,5'-PeCB	108	C86		C86			
2,3,3',4,6'-PeCB	109		466		450	458	3.55
2,3,3',4',6'-PeCB	110	C	3030	C	2910	2970	4.10
2,3,3',5,5'-PeCB	111		10.2		9.55	9.90	7.10
2,3,3',5,6'-PeCB	112	U		U			
2,3,3',5',6'-PeCB	113	C90		C90			
2,3,4,4',5'-PeCB	114		146		136	141	6.91
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		5200		4930	5060	5.34
2,3',4,4',6'-PeCB	119	C86		C86			

COMPOUND	IUPAC NO.	L29935-5 (A)		WG65145-103		MEAN	RELATIVE PERCENT DIFFERENCE
		LAB FLAG ¹	CONC. FOUND	LAB FLAG ¹	CONC. FOUND		
2,3',4,5,5'-PeCB	120		39.4		36.6	38.0	7.43
2,3',4,5',6-PeCB	121		9.03		9.38	9.20	3.81
2',3,3',4,5-PeCB	122		23.7		24.5	24.1	3.31
2',3,4,4',5-PeCB	123		87.6		81.4	84.5	7.37
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	18.0	K	15.3		
3,3',4,5,5'-PeCB	127		11.3		10.3	10.8	9.31
2,2',3,3',4,4'-HxCB	128	C	1280	C	1220	1250	4.64
2,2',3,3',4,5-HxCB	129	C	9240	C	8820	9030	4.68
2,2',3,3',4,5'-HxCB	130		379		355	367	6.44
2,2',3,3',4,6-HxCB	131	K	27.7		25.5		
2,2',3,3',4,6'-HxCB	132		779		739	759	5.20
2,2',3,3',5,5'-HxCB	133		220		208	214	5.85
2,2',3,3',5,6-HxCB	134	C	138	C	132	135	4.98
2,2',3,3',5,6'-HxCB	135	C	1910	C	1810	1860	5.51
2,2',3,3',6,6'-HxCB	136		329		311	320	5.51
2,2',3,4,4',5-HxCB	137		447		425	436	5.07
2,2',3,4,4',5'-HxCB	138	C129		C129			
2,2',3,4,4',6-HxCB	139	C	146	C	139	143	5.17
2,2',3,4,4',6'-HxCB	140	C139		C139			
2,2',3,4,5,5'-HxCB	141		951		899	925	5.56
2,2',3,4,5,6-HxCB	142	U		U			
2,2',3,4,5,6'-HxCB	143	C134		C134			
2,2',3,4,5',6-HxCB	144		179		169	174	5.77
2,2',3,4,6,6'-HxCB	145	J	0.735	K J	0.552		
2,2',3,4',5,5'-HxCB	146		1910		1820	1860	4.76
2,2',3,4',5,6-HxCB	147	C	2830	C	2700	2770	4.70
2,2',3,4',5,6'-HxCB	148	K	28.0		28.8		
2,2',3,4',5',6-HxCB	149	C147		C147			
2,2',3,4',6,6'-HxCB	150		13.8		13.3	13.6	3.88
2,2',3,5,5',6-HxCB	151	C135		C135			
2,2',3,5,6,6'-HxCB	152		5.48		5.00	5.24	9.31
2,2',4,4',5,5'-HxCB	153	C	10800	C	10200	10500	5.67
2,2',4,4',5,6'-HxCB	154	C135		C135			
2,2',4,4',6,6'-HxCB	155		13.6		12.8	13.2	5.88
2,3,3',4,4',5-HxCB	156	C	936	C	906	921	3.24
2,3,3',4,4',5'-HxCB	157	C156		C156			
2,3,3',4,4',6-HxCB	158		707		660	684	6.80
2,3,3',4,5,5'-HxCB	159		27.2		28.8	28.0	5.93
2,3,3',4,5,6-HxCB	160	C129		C129			
2,3,3',4,5',6-HxCB	161	U		U			
2,3,3',4',5,5'-HxCB	162		31.2		32.0	31.6	2.44
2,3,3',4',5,6-HxCB	163	C129		C129			
2,3,3',4',5',6-HxCB	164		296		282	289	5.00
2,3,3',5,5',6-HxCB	165		12.1		11.1	11.6	9.07
2,3,4,4',5,6-HxCB	166	C128		C128			
2,3',4,4',5,5'-HxCB	167		366		343	355	6.39
2,3',4,4',5',6-HxCB	168	C153		C153			
3,3',4,4',5,5'-HxCB	169	U		U			
2,2',3,3',4,4',5-HpCB	170		1720		1710	1710	0.389
2,2',3,3',4,4',6-HpCB	171	C	489	C	483	486	1.39
2,2',3,3',4,5,5'-HpCB	172		345		334	339	3.44
2,2',3,3',4,5,6-HpCB	173	C171		C171			
2,2',3,3',4,5,6'-HpCB	174		658		626	642	4.93
2,2',3,3',4,5',6-HpCB	175		63.7		60.4	62.1	5.34
2,2',3,3',4,6,6'-HpCB	176		75.3		75.5	75.4	0.238
2,2',3,3',4',5,6-HpCB	177		646		637	641	1.46
2,2',3,3',5,5',6-HpCB	178		499		479	489	4.21
2,2',3,3',5,6,6'-HpCB	179		372		351	362	5.67
2,2',3,4,4',5,5'-HpCB	180	C	5550	C	5430	5490	2.28
2,2',3,4,4',5,6-HpCB	181		26.9		26.6	26.8	1.02
2,2',3,4,4',5,6'-HpCB	182	K	17.1		16.8		
2,2',3,4,4',5',6-HpCB	183	C	1370	C	1340	1350	2.38

COMPOUND	IUPAC NO.	L29935-5 (A)		WG65145-103		MEAN	RELATIVE PERCENT DIFFERENCE
		LAB FLAG ¹	CONC. FOUND	LAB FLAG ¹	CONC. FOUND		
2,2',3,4,4',6,6'-HpCB	184		11.5		12.4	12.0	7.16
2,2',3,4,5,5',6-HpCB	185	C183		C183			
2,2',3,4,5,6,6'-HpCB	186	U		U			
2,2',3,4',5,5',6-HpCB	187		3340		3100	3220	7.35
2,2',3,4',5,6,6'-HpCB	188		9.43		9.03	9.23	4.28
2,3,3',4,4',5,5'-HpCB	189		55.4		51.7	53.5	6.81
2,3,3',4,4',5,6-HpCB	190		393		379	386	3.77
2,3,3',4,4',5',6-HpCB	191		74.1		74.2	74.2	0.140
2,3,3',4,5,5',6-HpCB	192	U		U			
2,3,3',4',5,5',6-HpCB	193	C180		C180			
2,2',3,3',4,4',5,5'-OxCB	194		750		707	728	5.87
2,2',3,3',4,4',5,6-OxCB	195		319		300	310	6.13
2,2',3,3',4,4',5,6'-OxCB	196		413		377	395	9.13
2,2',3,3',4,4',6,6'-OxCB	197	C	76.8	C	72.3	74.5	6.02
2,2',3,3',4,5,5',6-OxCB	198	C	899	C	832	865	7.79
2,2',3,3',4,5,5',6'-OxCB	199	C198		C198			
2,2',3,3',4,5,6,6'-OxCB	200	C197		C197			
2,2',3,3',4,5,6,6'-OxCB	201		99.4		89.5	94.4	10.5
2,2',3,3',5,5',6,6'-OxCB	202		298		269	284	10.2
2,2',3,3',4,4',5,6-OxCB	203		687		655	671	4.81
2,2',3,3',4,4',5,6,6'-OxCB	204	K J	1.87	J	1.35		
2,3,3',4,4',5,5',6-OxCB	205		39.2		34.5	36.8	12.7
2,2',3,3',4,4',5,5',6-NoCB	206		342		326	334	4.67
2,2',3,3',4,4',5,6,6'-NoCB	207		49.4		44.5	47.0	10.4
2,2',3,3',4,5,5',6,6'-NoCB	208		125		114	119	9.00
2,2',3,3',4,4',5,5',6,6'-DeCB	209		164		156	160	5.40

(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.

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

Signed: _____ Jason MacKenzie _____

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 Axy Internal Use Only [XSL Template: RPD.xml; Created: 31-Oct-2018 10:42:40; Application: XMLTransformer-1.16.51; Report Filename: RPD_PCB1668_RPD_WG65145-103_L29935-5_.html; Workgroup: WG65145; Design ID: 3360]

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB036
Sample Collection:
20-Aug-2018 10:34

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.:	L29935-6
Sample Receipt Date:	23-Aug-2018	Sample Size:	10.5 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	14-Oct-2018 Time: 14:30:20	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_349 S: 7
Dilution Factor:	N/A	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_349 S: 1
		% Lipid:	6.21

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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			5.52	0.158 (S)	3.12	1.001
3-MoCB	2		J	1.66	0.167 (S)	3.10	0.988
4-MoCB	3		J	2.26	0.177 (S)	2.94	1.001
2,2'-DiCB	4			161	0.755 (S)	1.49	1.001
2,3-DiCB	5		J	1.54	0.701 (S)	1.54	1.197
2,3'-DiCB	6			23.7	0.631 (S)	1.49	1.176
2,4-DiCB	7			4.39	0.643 (S)	1.34	1.158
2,4'-DiCB	8			107	0.590 (S)	1.51	1.207
2,5-DiCB	9			6.97	0.634 (S)	1.37	1.145
2,6-DiCB	10			9.12	0.627 (S)	1.48	1.013
3,3'-DiCB	11			67.3	0.644 (S)	1.36	0.968
3,4-DiCB	12	12 + 13	C	3.70	0.650 (S)	1.52	0.983
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.639 (S)		
4,4'-DiCB	15			23.1	0.670 (S)	1.48	1.000
2,2',3-TriCB	16			99.9	0.104 (S)	1.07	1.166
2,2',4-TriCB	17			237	0.0910 (S)	1.09	1.138
2,2',5-TriCB	18	18 + 30	C	317	0.0779 (S)	1.08	1.113
2,2',6-TriCB	19			408	0.121 (S)	1.06	1.001
2,3,3'-TriCB	20	20 + 28	C	1200	1.99 (S)	0.98	0.847
2,3,4-TriCB	21	21 + 33	C	271	2.03 (S)	0.99	0.856
2,3,4'-TriCB	22			257	2.22 (S)	0.95	0.872
2,3,5-TriCB	23		U		2.20 (S)		
2,3,6-TriCB	24			4.63	0.0701 (S)	1.11	1.159
2,3',4-TriCB	25			74.9	1.81 (S)	0.98	0.824
2,3',5-TriCB	26	26 + 29	C	159	2.08 (S)	1.00	1.302
2,3',6-TriCB	27			54.4	0.0694 (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			640	1.95 (S)	0.98	0.836
2,4',6-TriCB	32			198	1.95 (S)	0.99	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			6.09	2.10 (S)	0.95	1.274
3,3',4-TriCB	35		U		2.00 (S)		
3,3',5-TriCB	36		U		1.89 (S)		
3,4,4'-TriCB	37			80.7	1.86 (S)	1.00	1.001
3,4,5-TriCB	38		K	3.25	2.06 (S)	0.70	0.967
3,4',5-TriCB	39			16.5	2.01 (S)	1.00	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	1210	0.407 (S)	0.80	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			716	0.429 (S)	0.79	1.312
2,2',3,5'-TeCB	43			122	0.476 (S)	0.81	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	3800	0.373 (S)	0.80	1.287
2,2',3,6'-TeCB	45	45 + 51	C	412	0.417 (S)	0.81	1.147
2,2',3,6'-TeCB	46			63.7	0.476 (S)	0.82	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			446	0.413 (S)	0.80	1.273
2,2',4,5'-TeCB	49	49 + 69	C	2810	0.348 (S)	0.79	1.259
2,2',4,6'-TeCB	50	50 + 53	C	338	0.404 (S)	0.79	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			4220	0.378 (S)	0.80	1.235
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			73.0	0.355 (S)	0.77	1.001
2,3,3',4'-TeCB	55		U		5.43 (S)		
2,3,3',4'-TeCB	56			923	5.54 (S)	0.75	0.904
2,3,3',5'-TeCB	57			14.2	5.06 (S)	0.76	0.843
2,3,3',5'-TeCB	58			13.5	5.27 (S)	0.75	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	268	0.307 (S)	0.78	1.302
2,3,4,4'-TeCB	60			1380	5.44 (S)	0.75	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	4790	5.10 (S)	0.75	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			266	5.01 (S)	0.75	0.864
2,3,4',6'-TeCB	64			1730	0.292 (S)	0.80	1.348
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			5250	4.94 (S)	0.75	0.884
2,3',4,5'-TeCB	67			56.9	4.46 (S)	0.73	0.856
2,3',4,5'-TeCB	68			36.1	4.81 (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			51.6	4.77 (S)	0.69	0.822
2,3',5',6'-TeCB	73		U		0.319 (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			194	4.78 (S)	0.75	1.000
3,3',4,5'-TeCB	78		U		5.23 (S)		
3,3',4,5'-TeCB	79			41.4	4.28 (S)	0.73	0.969
3,3',5,5'-TeCB	80		U		4.72 (S)		
3,4,4',5'-TeCB	81			10.5	4.75 (S)	0.83	1.000
2,2',3,3',4'-PeCB	82			321	1.69 (S)	1.62	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	4850	1.51 (S)	1.60	0.885
2,2',3,3',6'-PeCB	84			552	1.73 (S)	1.60	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1550	1.28 (S)	1.61	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	2870	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	667	1.55 (S)	1.64	1.155
2,2',3,4,6'-PeCB	89			33.1	1.61 (S)	1.48	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	5660	1.33 (S)	1.59	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			1150	1.55 (S)	1.60	0.852
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	2920	1.51 (S)	1.62	1.122
2,2',3,5,6'-PeCB	94			26.4	1.66 (S)	1.46	1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			32.1	0.172 (S)	1.47	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			97.7	1.35 (S)	1.69	1.094
2,2',4,6,6'-PeCB	104			6.22	0.194 (S)	1.56	1.001
2,3,3',4,4'-PeCB	105			2470	6.88 (S)	1.52	1.000
2,3,3',4,5-PeCB	106		U		7.60 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	194	7.88 (S)	1.63	0.990
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109			557	7.04 (S)	1.52	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	4720	1.15 (S)	1.59	0.925
2,3,3',5,5'-PeCB	111			9.83	1.14 (S)	1.43	0.945
2,3,3',5,6-PeCB	112		U		1.15 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			189	7.32 (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			6200	6.59 (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			39.2	1.07 (S)	1.61	0.958
2,3',4,5',6-PeCB	121		K	9.86	1.17 (S)	1.89	1.200
2',3,3',4,5-PeCB	122		K	42.6	8.50 (S)	1.88	1.010
2',3,4,4',5-PeCB	123			115	7.27 (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	23.6	7.56 (S)	1.39	1.001
3,3',4,5,5'-PeCB	127			16.0	7.74 (S)	1.76	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1580	7.52 (S)	1.28	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	11900	7.57 (S)	1.27	0.928
2,2',3,3',4,5'-HxCB	130			482	9.47 (S)	1.28	0.913
2,2',3,3',4,6-HxCB	131			38.9	9.45 (S)	1.39	1.160
2,2',3,3',4,6'-HxCB	132			1200	9.36 (S)	1.28	1.176
2,2',3,3',5,5'-HxCB	133			255	8.82 (S)	1.21	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	203	8.94 (S)	1.18	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	2680	0.348 (S)	1.25	1.105
2,2',3,3',6,6'-HxCB	136			497	0.271 (S)	1.25	1.025
2,2',3,4,4',5-HxCB	137			501	9.22 (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	167	8.31 (S)	1.28	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			1470	8.04 (S)	1.28	0.903
2,2',3,4,5,6-HxCB	142		U		9.00 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			285	0.356 (S)	1.26	1.122
2,2',3,4,6,6'-HxCB	145		K J	1.52	0.289 (S)	1.80	1.034
2,2',3,4',5,5'-HxCB	146			2360	7.61 (S)	1.26	0.884
2,2',3,4',5,6-HxCB	147	147 + 149	C	4260	8.09 (S)	1.25	1.134
2,2',3,4',5,6'-HxCB	148			31.4	0.359 (S)	1.32	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			17.7	0.275 (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			7.97	0.267 (S)	1.34	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C	14600	6.84 (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			13.1	0.261 (S)	1.37	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	1170	8.48 (S)	1.27	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			938	5.84 (S)	1.25	0.938
2,3,3',4,5,5'-HxCB	159			51.6	6.28 (S)	1.30	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		6.26 (S)		
2,3,3',4',5,5'-HxCB	162			39.8	6.15 (S)	1.37	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			420	6.18 (S)	1.29	0.921
2,3,3',5,5',6-HxCB	165			10.9	7.19 (S)	1.27	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			478	6.53 (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		23.3 (S)		
2,2',3,3',4,4',5-HpCB	170			2820	0.379 (S)	1.05	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	763	0.361 (S)	1.06	1.163
2,2',3,3',4,5,5'-HpCB	172			537	0.376 (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			1130	0.341 (S)	1.07	1.134
2,2',3,3',4,5',6-HpCB	175			101	0.337 (S)	1.03	1.103
2,2',3,3',4,6,6'-HpCB	176			142	0.254 (S)	1.04	1.035
2,2',3,3',4',5,6-HpCB	177			1060	0.318 (S)	1.06	1.146
2,2',3,3',5,5',6-HpCB	178			690	0.345 (S)	1.06	1.085
2,2',3,3',5,6,6'-HpCB	179			598	0.251 (S)	1.07	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	9450	0.329 (S)	1.06	1.000
2,2',3,4,4',5,6-HpCB	181			38.0	0.350 (S)	1.15	1.157
2,2',3,4,4',5,6'-HpCB	182			25.4	0.325 (S)	0.94	1.116
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	2180	0.329 (S)	1.07	1.127
2,2',3,4,4',6,6'-HpCB	184			13.5	0.250 (S)	1.02	1.025
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.271 (S)		
2,2',3,4',5,5',6-HpCB	187			4990	0.312 (S)	1.05	1.111
2,2',3,4',5,6,6'-HpCB	188			10.9	0.283 (S)	1.03	1.001
2,3,3',4,4',5,5'-HpCB	189			89.2	0.865 (S)	0.97	1.000
2,3,3',4,4',5,6-HpCB	190			584	0.268 (S)	1.07	0.947
2,3,3',4,4',5',6-HpCB	191			125	0.265 (S)	1.09	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.295 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			1290	0.749 (S)	0.89	0.991
2,2',3,3',4,4',5,6-OxCB	195			524	0.815 (S)	0.91	0.945
2,2',3,3',4,4',5,6'-OxCB	196			671	0.158 (S)	0.91	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C	127	0.115 (S)	0.93	1.045
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	1420	0.161 (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			150	0.114 (S)	0.95	1.023
2,2',3,3',5,5',6,6'-OxCB	202			414	0.151 (S)	0.90	1.000
2,2',3,4,4',5,5',6-OxCB	203			1060	0.152 (S)	0.87	0.919
2,2',3,4,4',5,6,6'-OxCB	204		J	1.92	0.116 (S)	0.89	1.038
2,3,3',4,4',5,5',6-OxCB	205			60.7	0.624 (S)	0.91	1.001
2,2',3,3',4,4',5,5',6-NoCB	206			483	0.461 (S)	0.79	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207			69.8	0.316 (S)	0.79	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			177	0.387 (S)	0.78	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			238	0.132 (S)	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB036
Sample Collection:
20-Aug-2018 10:34

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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 14-Oct-2018 Time: 14:30:20
 Extract Volume (uL): 100
 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.: L29935-6
 Sample Size: 10.5 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_349 S: 7
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_349 S: 1
 % Lipid: 6.21

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	642	32.1	3.43	0.718
13C12-4-MoCB	3L			2000	718	35.9	3.24	0.858
13C12-2,2'-DiCB	4L			2000	877	43.9	1.54	0.874
13C12-4,4'-DiCB	15L			2000	962	48.1	1.51	1.255
13C12-2,2',6-TriCB	19L			2000	763	38.1	1.07	1.072
13C12-3,4,4'-TriCB	37L			2000	1450	72.5	1.08	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1090	54.4	0.80	0.811
13C12-3,3',4,4'-TeCB	77L			2000	1830	91.5	0.80	1.398
13C12-3,4,4',5-TeCB	81L			2000	1870	93.5	0.74	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	878	43.9	1.58	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1600	80.2	1.55	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1560	78.0	1.62	1.180
13C12-2,3',4,4',5-PeCB	118L			2000	1630	81.6	1.52	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1590	79.3	1.53	1.152
13C12-3,3',4,4',5-PeCB	126L			2000	1710	85.7	1.57	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	860	43.0	1.21	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	2670	66.9	1.31	1.108
13C12-2,3,3',4,4',5-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			2000	1340	66.8	1.23	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1310	65.7	1.33	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1420	71.0	1.13	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1510	75.7	1.06	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	965	48.3	1.05	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1240	62.1	1.00	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	727	36.4	0.91	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1370	68.7	0.88	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1120	56.2	0.76	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1120	56.2	0.73	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	787	39.4	1.21	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1560	78.2	1.08	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1380	68.8	1.54	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1080	53.9	1.07	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB044
Sample Collection:
20-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.:	L29935-7
Sample Receipt Date:	23-Aug-2018	Sample Size:	10.1 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	14-Oct-2018 Time: 15:34:09	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_349 S: 8
Dilution Factor:	N/A	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_349 S: 1
		% Lipid:	5.26

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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			37.1	0.194 (S)	3.11	1.001
3-MoCB	2		J	1.54	0.200 (S)	3.38	0.988
4-MoCB	3			10.9	0.208 (S)	2.97	1.001
2,2'-DiCB	4			4520	1.38 (S)	1.48	1.001
2,3-DiCB	5		U		1.16 (S)		
2,3'-DiCB	6			49.5	1.04 (S)	1.47	1.177
2,4-DiCB	7			16.4	1.06 (S)	1.60	1.159
2,4'-DiCB	8			120	0.977 (S)	1.46	1.209
2,5-DiCB	9			11.4	1.05 (S)	1.47	1.147
2,6-DiCB	10			473	1.04 (S)	1.48	1.013
3,3'-DiCB	11			65.6	1.07 (S)	1.42	0.968
3,4-DiCB	12	12 + 13	C	25.1	1.08 (S)	1.41	0.983
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		1.06 (S)		
4,4'-DiCB	15			53.6	1.04 (S)	1.41	1.001
2,2',3-TriCB	16			77.2	0.140 (S)	1.04	1.165
2,2',4-TriCB	17			2270	0.122 (S)	1.07	1.137
2,2',5-TriCB	18	18 + 30	C	502	0.105 (S)	1.10	1.112
2,2',6-TriCB	19			19000	0.157 (S)	1.07	1.000
2,3,3'-TriCB	20	20 + 28	C	1450	2.56 (S)	0.98	0.847
2,3,4-TriCB	21	21 + 33	C	281	2.61 (S)	0.97	0.853
2,3,4'-TriCB	22			170	2.85 (S)	0.98	0.871
2,3,5-TriCB	23		U		2.83 (S)		
2,3,6-TriCB	24			32.3	0.0943 (S)	1.16	1.158
2,3',4-TriCB	25			469	2.33 (S)	0.99	0.824
2,3',5-TriCB	26	26 + 29	C	283	2.68 (S)	0.97	1.301
2,3',6-TriCB	27			1330	0.0860 (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			598	2.52 (S)	0.98	0.836
2,4',6-TriCB	32			804	2.51 (S)	0.98	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			29.6	2.70 (S)	0.98	1.273
3,3',4-TriCB	35		U		2.58 (S)		
3,3',5-TriCB	36		U		2.43 (S)		
3,4,4'-TriCB	37			75.4	2.39 (S)	0.98	1.001
3,4,5-TriCB	38			39.7	2.66 (S)	1.13	0.968
3,4',5-TriCB	39			11.4	2.58 (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	1750	2.37 (S)	0.79	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			695	2.50 (S)	0.78	1.311
2,2',3,5'-TeCB	43			188	2.78 (S)	0.85	1.247
2,2',3,5'-TeCB	44	44 + 47 + 65	C	121000	2.17 (S)	0.79	1.287
2,2',3,6'-TeCB	45	45 + 51	C	6270	2.43 (S)	0.80	1.149
2,2',3,6'-TeCB	46			118	2.77 (S)	0.80	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			382	2.41 (S)	0.88	1.273
2,2',4,5'-TeCB	49	49 + 69	C	17100	2.03 (S)	0.80	1.259
2,2',4,6'-TeCB	50	50 + 53	C	4430	2.36 (S)	0.79	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			6560	2.20 (S)	0.79	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			4220	1.92 (S)	0.80	1.001
2,3,3',4'-TeCB	55		U		20.0 (S)		
2,3,3',4'-TeCB	56			420	20.4 (S)	0.75	0.904
2,3,3',5'-TeCB	57			158	18.7 (S)	0.75	0.843
2,3,3',5'-TeCB	58		U		19.5 (S)		
2,3,3',6'-TeCB	59	59 + 62 + 75	C	3270	1.79 (S)	0.79	1.303
2,3,4,4'-TeCB	60			341	20.1 (S)	0.74	0.910
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	3300	18.8 (S)	0.75	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			362	18.5 (S)	0.75	0.863
2,3,4',6'-TeCB	64			672	1.70 (S)	0.79	1.349
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			4260	18.2 (S)	0.74	0.884
2,3',4,5'-TeCB	67			150	16.5 (S)	0.74	0.857
2,3',4,5'-TeCB	68			2700	17.7 (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			320	17.6 (S)	0.73	0.822
2,3',5',6'-TeCB	73			1860	1.86 (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			94.8	18.0 (S)	0.79	1.000
3,3',4,5'-TeCB	78		U		19.3 (S)		
3,3',4,5'-TeCB	79			267	15.8 (S)	0.79	0.968
3,3',5,5'-TeCB	80		U		17.4 (S)		
3,4,4',5'-TeCB	81		U		18.1 (S)		
2,2',3,3',4'-PeCB	82			589	17.8 (S)	1.58	0.933
2,2',3,3',5'-PeCB	83	83 + 99	C	68000	15.9 (S)	1.61	0.885
2,2',3,3',6'-PeCB	84			2220	18.2 (S)	1.59	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	4750	13.5 (S)	1.58	0.918
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	9260	16.3 (S)	1.57	1.155
2,2',3,4,6'-PeCB	89			54.0	16.9 (S)	1.50	1.184
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	64900	14.0 (S)	1.56	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			13900	16.3 (S)	1.58	0.852
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	74700	15.9 (S)	1.61	1.127
2,2',3,5,6'-PeCB	94			926	17.5 (S)	1.60	1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			342	0.258 (S)	1.55	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			7800	14.2 (S)	1.60	1.093
2,2',4,6,6'-PeCB	104			703	0.278 (S)	1.55	1.001
2,3,3',4,4'-PeCB	105			4330	31.8 (S)	1.50	1.001
2,3,3',4,5-PeCB	106			63.8	34.9 (S)	1.61	1.004
2,3,3',4',5-PeCB	107	107 + 124	C	453	36.2 (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			1620	32.3 (S)	1.48	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	13800	12.1 (S)	1.59	0.924
2,3,3',5,5'-PeCB	111			256	12.0 (S)	1.60	0.945
2,3,3',5,6-PeCB	112			3330	12.1 (S)	1.58	0.889
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		K	188	34.0 (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			18900	30.3 (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			634	11.3 (S)	1.58	0.958
2,3',4,5',6-PeCB	121			1690	12.3 (S)	1.57	1.200
2',3,3',4,5-PeCB	122			80.3	39.0 (S)	1.70	1.010
2',3,4,4',5-PeCB	123			404	33.7 (S)	1.50	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	89.2	31.1 (S)	1.99	1.000
3,3',4,5,5'-PeCB	127			196	35.5 (S)	1.55	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	14000	92.5 (S)	1.26	0.958
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	293000	93.1 (S)	1.13	0.928
2,2',3,3',4,5'-HxCB	130			8400	116 (S)	1.26	0.913
2,2',3,3',4,6-HxCB	131			1060	116 (S)	1.38	1.161
2,2',3,3',4,6'-HxCB	132			32500	115 (S)	1.26	1.176
2,2',3,3',5,5'-HxCB	133			6180	108 (S)	1.28	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	8030	110 (S)	1.27	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	109000	0.519 (S)	1.27	1.105
2,2',3,3',6,6'-HxCB	136			13600	0.405 (S)	1.26	1.025
2,2',3,4,4',5-HxCB	137			6380	113 (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	2350	102 (S)	1.33	1.153
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			63500	98.9 (S)	1.27	0.903
2,2',3,4,5,6-HxCB	142		U		111 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			12900	0.532 (S)	1.25	1.122
2,2',3,4,6,6'-HxCB	145			37.5	0.432 (S)	1.34	1.035
2,2',3,4',5,5'-HxCB	146			60100	93.6 (S)	1.27	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C	198000	99.5 (S)	1.26	1.134
2,2',3,4',5,6'-HxCB	148			1550	0.536 (S)	1.28	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			1190	0.410 (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			676	0.399 (S)	1.27	1.008
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			1630	0.387 (S)	1.26	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	24800	101 (S)	1.26	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			25100	71.9 (S)	1.27	0.938
2,3,3',4,5,5'-HxCB	159			5360	77.2 (S)	1.27	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		77.0 (S)		
2,3,3',4',5,5'-HxCB	162			431	75.7 (S)	1.17	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			13800	76.0 (S)	1.26	0.921
2,3,3',5,5',6-HxCB	165			462	88.5 (S)	1.34	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			11900	82.5 (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		1430 (S)		
2,2',3,3',4,4',5-HpCB	170			166000	3.36 (S)	1.05	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	51200	3.83 (S)	1.05	1.163
2,2',3,3',4,5,5'-HpCB	172			36500	3.98 (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			125000	3.61 (S)	1.06	1.134
2,2',3,3',4,5',6-HpCB	175			7710	3.57 (S)	1.06	1.103
2,2',3,3',4,6,6'-HpCB	176			13900	2.69 (S)	1.06	1.034
2,2',3,3',4',5,6-HpCB	177			94700	3.37 (S)	1.06	1.146
2,2',3,3',5,5',6-HpCB	178			39000	3.66 (S)	1.06	1.085
2,2',3,3',5,6,6'-HpCB	179			34400	2.66 (S)	1.06	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C E				
2,2',3,4,4',5,6-HpCB	181			1260	3.71 (S)	1.05	1.157
2,2',3,4,4',5,6'-HpCB	182			494	3.44 (S)	1.08	1.116
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	146000	3.48 (S)	1.06	1.127
2,2',3,4,4',6,6'-HpCB	184			84.8	2.65 (S)	0.97	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		2.87 (S)		
2,2',3,4',5,5',6-HpCB	187		E				
2,2',3,4',5,6,6'-HpCB	188			573	3.02 (S)	1.06	1.000
2,3,3',4,4',5,5'-HpCB	189			6680	8.43 (S)	0.99	1.000
2,3,3',4,4',5,6-HpCB	190			42900	2.84 (S)	1.06	0.947
2,3,3',4,4',5',6-HpCB	191			8540	2.80 (S)	1.05	0.917
2,3,3',4,5,5',6-HpCB	192		U		3.13 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			107000	12.0 (S)	0.89	0.991
2,2',3,3',4,4',5,6-OxCB	195			43500	13.0 (S)	0.89	0.945
2,2',3,3',4,4',5,6'-OxCB	196			57300	0.405 (S)	0.91	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C	10200	0.296 (S)	0.89	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	101000	0.413 (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			11400	0.294 (S)	0.90	1.023
2,2',3,3',5,5',6,6'-OxCB	202			15300	0.365 (S)	0.89	1.000
2,2',3,4,4',5,5',6-OxCB	203			61100	0.390 (S)	0.91	0.919
2,2',3,4,4',5,6,6'-OxCB	204			19.4	0.297 (S)	0.77	1.039
2,3,3',4,4',5,5',6-OxCB	205			5130	10.5 (S)	0.90	1.000
2,2',3,3',4,4',5,5',6-NoCB	206			13700	1.31 (S)	0.80	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207			2030	0.924 (S)	0.79	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			2190	1.16 (S)	0.80	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			333	0.170 (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; 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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB044
Sample Collection:
20-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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 14-Oct-2018 Time: 15:34:09
 Extract Volume (uL): 100
 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.: L29935-7
 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_349 S: 8
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_349 S: 1
 % Lipid: 5.26

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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	670	33.5	3.31	0.718
13C12-4-MoCB	3L			2000	809	40.5	3.27	0.858
13C12-2,2'-DiCB	4L			2000	888	44.4	1.48	0.873
13C12-4,4'-DiCB	15L			2000	1100	55.0	1.50	1.255
13C12-2,2',6-TriCB	19L			2000	835	41.7	1.09	1.072
13C12-3,4,4'-TriCB	37L			2000	1330	66.5	1.02	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1050	52.3	0.83	0.811
13C12-3,3',4,4'-TeCB	77L			2000	1590	79.6	0.80	1.397
13C12-3,4,4',5-TeCB	81L			2000	1590	79.7	0.75	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	798	39.9	1.62	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1380	69.1	1.56	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1320	66.0	1.61	1.179
13C12-2,3',4,4',5-PeCB	118L			2000	1430	71.4	1.57	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1390	69.6	1.55	1.151
13C12-3,3',4,4',5-PeCB	126L			2000	1560	78.1	1.52	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	685	34.2	1.28	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	2170	54.3	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	1030	51.4	1.25	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1040	52.0	1.26	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1500	74.8	1.04	0.898
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1800	89.8	1.11	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	816	40.8	1.10	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1070	53.5	1.00	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	652	32.6	0.95	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1160	57.9	0.93	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1020	51.1	0.81	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	982	49.1	0.76	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	724	36.2	1.19	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1400	70.0	1.01	0.924
13C12-2,3,3',5,5'-PeCB	111L			2000	1310	65.3	1.67	1.087
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	963	48.2	1.05	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB044
Sample Collection:
20-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.:	L29935-7 W
Sample Receipt Date:	23-Aug-2018	Sample Size:	10.1 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	23-Oct-2018 Time: 23:30:34	Instrument ID:	HR GC/MS
Extract Volume (uL):	500	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_364 S: 4
Dilution Factor:	5	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_364 S: 1
		% Lipid:	5.26

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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		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 D	17300	27.3 (S)	1.56	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 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 D	595000	76.1 (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		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 D	494000	4.07 (S)	1.05	1.000
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		D	390000	6.30 (S)	1.06	1.110
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; D = dilution data; 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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB044
Sample Collection:
20-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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 23-Oct-2018 Time: 23:30:34
 Extract Volume (uL): 500
 Injection Volume (uL): 1.0
 Dilution Factor: 5
 Concentration Units: pg absolute

Project No. PORTLAND HARBOR PDI AND
 BASELINE TISSUE
 Lab Sample I.D.: L29935-7 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_364 S: 4
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_364 S: 1
 % Lipid: 5.26

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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		K D	2000	1010	50.5	1.96	0.807
13C12-2,3,3',4,4'-PeCB	105L		D	2000	1190	59.5	1.54	1.201
13C12-2,3,4,4',5-PeCB	114L		D	2000	1130	56.7	1.62	1.180
13C12-2,3',4,4',5-PeCB	118L		D	2000	1240	62.2	1.76	1.162
13C12-2',3,4,4',5-PeCB	123L		D	2000	1250	62.4	1.50	1.152
13C12-3,3',4,4',5-PeCB	126L		D	2000	1380	69.1	1.51	1.302
13C12-2,2',4,4',6,6'-HxCB	155L		D	2000	621	31.0	1.24	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C D	4000	1770	44.3	1.42	1.108
13C12-2,3,3',4,4',5-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L		K D	2000	859	43.0	1.73	1.078
13C12-3,3',4,4',5,5'-HxCB	169L		D	2000	948	47.4	1.30	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L		D	2000	1460	73.1	0.95	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L		D	2000	1940	97.1	1.17	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L		D	2000	781	39.0	1.18	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L		D	2000	1030	51.6	1.13	0.959
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		X					
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; K = peak detected but did not meet quantification criteria, result reported represents the estimated maximum possible concentration; 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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB014
Sample Collection:
21-Aug-2018 12:11

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.:	L29935-8
Sample Receipt Date:	23-Aug-2018	Sample Size:	10.0 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	14-Oct-2018 Time: 16:37:58	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_349 S: 9
Dilution Factor:	N/A	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_349 S: 1
		% Lipid:	3.86

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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			28.3	0.494 (S)	3.18	1.000
3-MoCB	2		K J	1.81	0.465 (S)	2.50	0.987
4-MoCB	3			6.64	0.450 (S)	3.16	1.001
2,2'-DiCB	4			386	1.30 (S)	1.49	1.001
2,3-DiCB	5			4.69	0.993 (S)	1.73	1.197
2,3'-DiCB	6			72.4	0.895 (S)	1.46	1.177
2,4-DiCB	7			16.1	0.911 (S)	1.47	1.158
2,4'-DiCB	8			415	0.837 (S)	1.49	1.207
2,5-DiCB	9			22.7	0.898 (S)	1.48	1.146
2,6-DiCB	10			21.2	0.888 (S)	1.53	1.013
3,3'-DiCB	11			32.1	0.913 (S)	1.45	0.968
3,4-DiCB	12	12 + 13	C	5.59	0.921 (S)	1.45	0.983
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.906 (S)		
4,4'-DiCB	15			76.6	0.867 (S)	1.51	1.000
2,2',3-TriCB	16			232	0.565 (S)	1.03	1.167
2,2',4-TriCB	17			477	0.494 (S)	1.08	1.138
2,2',5-TriCB	18	18 + 30	C	705	0.423 (S)	1.10	1.113
2,2',6-TriCB	19			481	0.758 (S)	1.06	1.001
2,3,3'-TriCB	20	20 + 28	C	3130	1.99 (S)	0.99	0.847
2,3,4-TriCB	21	21 + 33	C	734	2.03 (S)	0.98	0.856
2,3,4'-TriCB	22			674	2.22 (S)	0.96	0.871
2,3,5-TriCB	23		U		2.20 (S)		
2,3,6-TriCB	24			12.2	0.381 (S)	0.94	1.159
2,3',4-TriCB	25			154	1.81 (S)	0.97	0.824
2,3',5-TriCB	26	26 + 29	C	405	2.08 (S)	0.97	1.302
2,3',6-TriCB	27			111	0.347 (S)	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			1580	1.96 (S)	0.98	0.836
2,4',6-TriCB	32			306	1.95 (S)	0.98	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			9.59	2.10 (S)	0.89	1.274
3,3',4-TriCB	35		U		2.00 (S)		
3,3',5-TriCB	36		U		1.89 (S)		
3,4,4'-TriCB	37			147	1.77 (S)	0.97	1.001
3,4,5-TriCB	38		K	4.87	2.07 (S)	0.86	0.967
3,4',5-TriCB	39			19.9	2.01 (S)	0.97	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	1170	1.06 (S)	0.78	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			788	1.12 (S)	0.79	1.313
2,2',3,5'-TeCB	43			144	1.24 (S)	0.82	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	4700	0.973 (S)	0.79	1.286
2,2',3,6'-TeCB	45	45 + 51	C	442	1.09 (S)	0.80	1.147
2,2',3,6'-TeCB	46			82.2	1.24 (S)	0.81	1.162
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			554	1.08 (S)	0.80	1.274
2,2',4,5'-TeCB	49	49 + 69	C	3300	0.909 (S)	0.80	1.260
2,2',4,6'-TeCB	50	50 + 53	C	341	1.06 (S)	0.79	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			5060	0.985 (S)	0.81	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			71.2	1.01 (S)	0.80	1.001
2,3,3',4'-TeCB	55		U		5.22 (S)		
2,3,3',4'-TeCB	56			623	5.32 (S)	0.75	0.904
2,3,3',5'-TeCB	57			25.2	4.87 (S)	0.73	0.843
2,3,3',5'-TeCB	58			18.5	5.07 (S)	0.76	0.852
2,3,3',6'-TeCB	59	59 + 62 + 75	C	394	0.801 (S)	0.81	1.303
2,3,4,4'-TeCB	60			1010	5.22 (S)	0.75	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	6010	4.90 (S)	0.75	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			295	4.81 (S)	0.76	0.864
2,3,4',6'-TeCB	64			1740	0.761 (S)	0.80	1.350
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			4820	4.75 (S)	0.75	0.884
2,3',4,5'-TeCB	67			94.7	4.29 (S)	0.75	0.855
2,3',4,5'-TeCB	68			71.5	4.62 (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			99.6	4.59 (S)	0.78	0.822
2,3',5',6'-TeCB	73		U		0.833 (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			140	4.48 (S)	0.76	1.000
3,3',4,5'-TeCB	78		U		5.02 (S)		
3,3',4,5'-TeCB	79			86.7	4.11 (S)	0.72	0.969
3,3',5,5'-TeCB	80		U		4.53 (S)		
3,4,4',5'-TeCB	81		K	9.13	4.45 (S)	0.67	1.000
2,2',3,3',4'-PeCB	82			532	3.29 (S)	1.63	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	8790	2.94 (S)	1.59	0.885
2,2',3,3',6'-PeCB	84			931	3.36 (S)	1.63	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	2580	2.49 (S)	1.59	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	5330	2.56 (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	1080	3.01 (S)	1.60	1.155
2,2',3,4,6'-PeCB	89			27.0	3.13 (S)	1.61	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	11700	2.58 (S)	1.61	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			2450	3.01 (S)	1.60	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	5610	2.94 (S)	1.61	1.121
2,2',3,5,6'-PeCB	94			27.3	3.23 (S)	1.46	1.102
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			31.0	0.715 (S)	1.45	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			153	2.62 (S)	1.64	1.093
2,2',4,6,6'-PeCB	104			8.70	0.854 (S)	1.52	1.001
2,3,3',4,4'-PeCB	105			4150	16.0 (S)	1.51	1.000
2,3,3',4,5-PeCB	106		U		18.5 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	343	19.2 (S)	1.51	0.990
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109			1070	17.1 (S)	1.49	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	9260	2.23 (S)	1.58	0.925
2,3,3',5,5'-PeCB	111			18.8	2.23 (S)	1.44	0.945
2,3,3',5,6-PeCB	112		U		2.23 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			296	17.8 (S)	1.53	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			12700	16.4 (S)	1.49	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120			82.0	2.09 (S)	1.52	0.958
2,3',4,5',6-PeCB	121			17.0	2.28 (S)	1.68	1.200
2',3,3',4,5-PeCB	122			60.3	20.7 (S)	1.51	1.010
2',3,4,4',5-PeCB	123			201	17.6 (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	45.0	17.6 (S)	1.52	1.001
3,3',4,5,5'-PeCB	127			41.1	18.8 (S)	1.60	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	4200	18.4 (S)	1.25	0.958
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	30500	18.5 (S)	1.26	0.928
2,2',3,3',4,5'-HxCB	130			1290	23.2 (S)	1.26	0.913
2,2',3,3',4,6-HxCB	131			112	23.1 (S)	1.23	1.161
2,2',3,3',4,6'-HxCB	132			3060	22.9 (S)	1.27	1.176
2,2',3,3',5,5'-HxCB	133			533	21.6 (S)	1.28	1.193
2,2',3,3',5,6-HxCB	134	134 + 143	C	484	21.9 (S)	1.33	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	6250	2.29 (S)	1.27	1.105
2,2',3,3',6,6'-HxCB	136			919	1.79 (S)	1.25	1.025
2,2',3,4,4',5-HxCB	137			1330	22.6 (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	434	20.3 (S)	1.27	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			3490	19.7 (S)	1.27	0.903
2,2',3,4,5,6-HxCB	142		U		22.0 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			711	2.34 (S)	1.23	1.123
2,2',3,4,6,6'-HxCB	145		U		1.90 (S)		
2,2',3,4',5,5'-HxCB	146			5160	18.6 (S)	1.26	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C	11000	19.8 (S)	1.26	1.134
2,2',3,4',5,6'-HxCB	148			61.7	2.36 (S)	1.24	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			28.5	1.81 (S)	1.23	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			10.7	1.76 (S)	1.05	1.008
2,2',4,4',5,5'-HxCB	153	153 + 168	C	31200	16.7 (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			16.2	1.82 (S)	1.17	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	2660	20.0 (S)	1.26	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			2440	14.3 (S)	1.26	0.938
2,3,3',4,5,5'-HxCB	159			133	15.4 (S)	1.22	0.981
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		15.3 (S)		
2,3,3',4',5,5'-HxCB	162			88.3	15.1 (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			1010	15.1 (S)	1.27	0.921
2,3,3',5,5',6-HxCB	165			19.6	17.6 (S)	1.32	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			1120	15.5 (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		38.8 (S)		
2,2',3,3',4,4',5-HpCB	170			5210	2.19 (S)	1.06	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	1640	2.14 (S)	1.04	1.164
2,2',3,3',4,5,5'-HpCB	172			1030	2.23 (S)	1.07	0.897
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174			2600	2.02 (S)	1.06	1.134
2,2',3,3',4,5',6-HpCB	175			218	2.00 (S)	1.04	1.103
2,2',3,3',4,6,6'-HpCB	176			308	1.51 (S)	1.05	1.035
2,2',3,3',4',5,6-HpCB	177			2310	1.89 (S)	1.06	1.146
2,2',3,3',5,5',6-HpCB	178			1450	2.05 (S)	1.06	1.085
2,2',3,3',5,6,6'-HpCB	179			1180	1.49 (S)	1.05	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	17100	2.00 (S)	1.05	1.000
2,2',3,4,4',5,6-HpCB	181			56.0	2.08 (S)	1.20	1.157
2,2',3,4,4',5,6'-HpCB	182			44.4	1.93 (S)	0.94	1.116
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	4560	1.95 (S)	1.05	1.128
2,2',3,4,4',6,6'-HpCB	184			12.5	1.48 (S)	1.17	1.025
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		1.61 (S)		
2,2',3,4',5,5',6-HpCB	187			10400	1.85 (S)	1.06	1.111
2,2',3,4',5,6,6'-HpCB	188			19.9	1.73 (S)	1.03	1.001
2,3,3',4,4',5,5'-HpCB	189			141	1.84 (S)	0.98	1.000
2,3,3',4,4',5,6-HpCB	190			1160	1.59 (S)	1.04	0.947
2,3,3',4,4',5',6-HpCB	191			226	1.57 (S)	1.01	0.917
2,3,3',4,5,5',6-HpCB	192		U		1.75 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			2220	1.29 (S)	0.90	0.991
2,2',3,3',4,4',5,6-OxCB	195			960	1.40 (S)	0.88	0.945
2,2',3,3',4,4',5,6'-OxCB	196			1170	0.494 (S)	0.89	0.915
2,2',3,3',4,4',6'-OxCB	197	197 + 200	C	258	0.361 (S)	0.94	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	2720	0.503 (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			293	0.358 (S)	0.92	1.022
2,2',3,3',5,5',6,6'-OxCB	202			808	0.476 (S)	0.91	1.000
2,2',3,4,4',5,5',6-OxCB	203			2110	0.475 (S)	0.90	0.919
2,2',3,4,4',5,6,6'-OxCB	204		K J	2.46	0.362 (S)	0.75	1.039
2,3,3',4,4',5,5',6-OxCB	205			120	1.07 (S)	0.86	1.000
2,2',3,3',4,4',5,5',6-NoCB	206			945	0.356 (S)	0.79	1.001
2,2',3,3',4,4',5,6,6'-NoCB	207			116	0.236 (S)	0.79	1.019
2,2',3,3',4,5,5',6,6'-NoCB	208			297	0.282 (S)	0.78	1.000
2,2',3,3',4,4',5,5',6,6'-DeCB	209			236	0.134 (S)	1.18	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB014
Sample Collection:
21-Aug-2018 12:11

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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 14-Oct-2018 Time: 16:37:58
 Extract Volume (uL): 100
 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.: L29935-8
 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_349 S: 9
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_349 S: 1
 % Lipid: 3.86

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	394	19.7	3.39	0.719
13C12-4-MoCB	3L			2000	565	28.2	3.31	0.859
13C12-2,2'-DiCB	4L			2000	732	36.6	1.60	0.874
13C12-4,4'-DiCB	15L			2000	1120	55.9	1.56	1.256
13C12-2,2',6-TriCB	19L			2000	733	36.6	1.05	1.072
13C12-3,4,4'-TriCB	37L			2000	1630	81.5	1.01	1.093
13C12-2,2',6,6'-TeCB	54L			2000	1060	52.9	0.83	0.811
13C12-3,3',4,4'-TeCB	77L			2000	2030	101	0.77	1.398
13C12-3,4,4',5-TeCB	81L			2000	2090	105	0.76	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	947	47.4	1.53	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1910	95.5	1.58	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1750	87.7	1.62	1.179
13C12-2,3',4,4',5-PeCB	118L			2000	1880	94.1	1.54	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1870	93.4	1.57	1.151
13C12-3,3',4,4',5-PeCB	126L			2000	2100	105	1.60	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	886	44.3	1.29	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	3020	75.5	1.31	1.108
13C12-2,3,3',4,4',5-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			2000	1470	73.6	1.25	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1410	70.7	1.34	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1600	80.1	1.10	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1630	81.5	1.04	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1040	52.0	1.13	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1440	72.2	1.08	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	811	40.5	0.95	0.818
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1580	79.1	0.91	1.010
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1270	63.7	0.77	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1320	65.8	0.78	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	883	44.2	1.18	1.075
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1690	84.4	1.06	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1610	80.5	1.65	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1210	60.5	1.11	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB038
Sample Collection:
20-Aug-2018 09:47

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.:	L29935-9
Sample Receipt Date:	23-Aug-2018	Sample Size:	9.92 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	14-Oct-2018 Time: 17:41:38	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_349 S: 10
Dilution Factor:	N/A	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_349 S: 1
		% Lipid:	7.67

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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			7.42	0.197 (S)	3.42	1.001
3-MoCB	2		J	1.29	0.216 (S)	2.72	0.987
4-MoCB	3		J	2.64	0.239 (S)	2.71	1.001
2,2'-DiCB	4			304	0.846 (S)	1.50	1.001
2,3-DiCB	5		J	1.53	0.760 (S)	1.41	1.200
2,3'-DiCB	6			22.3	0.685 (S)	1.50	1.177
2,4-DiCB	7			5.07	0.697 (S)	1.50	1.159
2,4'-DiCB	8			96.9	0.640 (S)	1.51	1.209
2,5-DiCB	9			7.64	0.687 (S)	1.50	1.147
2,6-DiCB	10			21.7	0.679 (S)	1.51	1.014
3,3'-DiCB	11			133	0.698 (S)	1.45	0.968
3,4-DiCB	12	12 + 13	C	4.45	0.705 (S)	1.34	0.983
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.693 (S)		
4,4'-DiCB	15			30.1	0.711 (S)	1.43	1.001
2,2',3-TriCB	16			97.9	0.386 (S)	1.05	1.166
2,2',4-TriCB	17			330	0.337 (S)	1.10	1.138
2,2',5-TriCB	18	18 + 30	C	334	0.289 (S)	1.09	1.113
2,2',6-TriCB	19			843	0.409 (S)	1.10	1.001
2,3,3'-TriCB	20	20 + 28	C	1070	0.495 (S)	0.98	0.848
2,3,4-TriCB	21	21 + 33	C	174	0.505 (S)	1.00	0.856
2,3,4'-TriCB	22			260	0.551 (S)	0.99	0.871
2,3,5-TriCB	23		K J	1.11	0.546 (S)	0.68	1.283
2,3,6-TriCB	24		K	7.81	0.260 (S)	0.87	1.159
2,3',4-TriCB	25			100	0.450 (S)	0.98	0.824
2,3',5-TriCB	26	26 + 29	C	194	0.517 (S)	1.00	1.301
2,3',6-TriCB	27			75.2	0.237 (S)	1.10	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			709	0.486 (S)	0.97	0.836
2,4',6-TriCB	32			145	0.484 (S)	0.99	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			8.21	0.522 (S)	0.94	1.274
3,3',4-TriCB	35		U		0.498 (S)		
3,3',5-TriCB	36		U		0.469 (S)		
3,4,4'-TriCB	37			90.9	0.478 (S)	0.98	1.001
3,4,5-TriCB	38		K J	2.50	0.513 (S)	1.26	0.966
3,4',5-TriCB	39			8.48	0.498 (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	604	1.29 (S)	0.80	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			516	1.36 (S)	0.80	1.312
2,2',3,5'-TeCB	43			80.5	1.51 (S)	0.80	1.247
2,2',3,5'-TeCB	44	44 + 47 + 65	C	3680	1.18 (S)	0.80	1.286
2,2',3,6'-TeCB	45	45 + 51	C	600	1.33 (S)	0.77	1.149
2,2',3,6'-TeCB	46			64.9	1.51 (S)	0.76	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			246	1.31 (S)	0.81	1.274
2,2',4,5'-TeCB	49	49 + 69	C	2340	1.11 (S)	0.80	1.260
2,2',4,6'-TeCB	50	50 + 53	C	332	1.28 (S)	0.81	1.112
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			3180	1.20 (S)	0.79	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			162	1.02 (S)	0.76	1.001
2,3,3',4'-TeCB	55		U		7.86 (S)		
2,3,3',4'-TeCB	56			624	8.01 (S)	0.73	0.904
2,3,3',5'-TeCB	57			8.69	7.33 (S)	0.66	0.843
2,3,3',5'-TeCB	58			14.9	7.63 (S)	0.75	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	230	0.975 (S)	0.77	1.302
2,3,4,4'-TeCB	60			456	7.87 (S)	0.74	0.910
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	3470	7.37 (S)	0.75	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			132	7.24 (S)	0.74	0.863
2,3,4',6'-TeCB	64			937	0.927 (S)	0.79	1.349
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			2430	7.15 (S)	0.75	0.884
2,3',4,5'-TeCB	67			53.3	6.45 (S)	0.70	0.855
2,3',4,5'-TeCB	68			65.1	6.95 (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			64.5	6.91 (S)	0.68	0.822
2,3',5',6'-TeCB	73		U		1.01 (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			135	7.27 (S)	0.75	1.000
3,3',4,5'-TeCB	78		U		7.56 (S)		
3,3',4,5'-TeCB	79			58.9	6.20 (S)	0.75	0.968
3,3',5,5'-TeCB	80		U		6.83 (S)		
3,4,4',5'-TeCB	81		U		7.04 (S)		
2,2',3,3',4'-PeCB	82			355	5.60 (S)	1.62	0.933
2,2',3,3',5'-PeCB	83	83 + 99	C	5030	5.00 (S)	1.61	0.885
2,2',3,3',6'-PeCB	84			858	5.71 (S)	1.58	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1230	4.24 (S)	1.61	0.920
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	3460	4.35 (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	1030	5.11 (S)	1.59	1.155
2,2',3,4,6'-PeCB	89			22.3	5.33 (S)	1.69	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	7390	4.39 (S)	1.60	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			1540	5.13 (S)	1.61	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	4340	4.99 (S)	1.58	1.122
2,2',3,5,6'-PeCB	94			45.4	5.50 (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			37.9	0.504 (S)	1.64	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			198	4.46 (S)	1.63	1.093
2,2',4,6,6'-PeCB	104			21.8	0.514 (S)	1.76	1.001
2,3,3',4,4'-PeCB	105			1840	11.6 (S)	1.51	1.001
2,3,3',4,5-PeCB	106		U		12.6 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	198	13.0 (S)	1.46	0.991
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109			542	11.6 (S)	1.49	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	5940	3.80 (S)	1.57	0.925
2,3,3',5,5'-PeCB	111		K	14.6	3.79 (S)	2.03	0.945
2,3,3',5,6-PeCB	112		U		3.80 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			123	12.0 (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			5410	11.5 (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			64.5	3.55 (S)	1.73	0.958
2,3',4,5',6-PeCB	121		K	19.0	3.88 (S)	1.81	1.199
2',3,3',4,5-PeCB	122			50.1	14.1 (S)	1.54	1.010
2',3,4,4',5-PeCB	123			103	12.0 (S)	1.46	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	16.1	12.5 (S)	1.44	1.000
3,3',4,5,5'-PeCB	127			14.1	12.8 (S)	1.50	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1760	12.1 (S)	1.29	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	15200	12.2 (S)	1.27	0.929
2,2',3,3',4,5'-HxCB	130			727	15.3 (S)	1.23	0.913
2,2',3,3',4,6-HxCB	131			78.9	15.2 (S)	1.31	1.160
2,2',3,3',4,6'-HxCB	132			2350	15.1 (S)	1.27	1.176
2,2',3,3',5,5'-HxCB	133			331	14.2 (S)	1.27	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	382	14.4 (S)	1.27	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	4530	1.68 (S)	1.25	1.104
2,2',3,3',6,6'-HxCB	136			878	1.31 (S)	1.28	1.025
2,2',3,4,4',5-HxCB	137			481	14.9 (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	205	13.4 (S)	1.24	1.153
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			2010	13.0 (S)	1.26	0.903
2,2',3,4,5,6-HxCB	142		U		14.5 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			473	1.72 (S)	1.25	1.122
2,2',3,4,6,6'-HxCB	145		K J	2.38	1.39 (S)	0.93	1.034
2,2',3,4',5,5'-HxCB	146			3200	12.3 (S)	1.26	0.884
2,2',3,4',5,6-HxCB	147	147 + 149	C	9060	13.0 (S)	1.27	1.133
2,2',3,4',5,6'-HxCB	148			56.4	1.73 (S)	1.20	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			44.3	1.33 (S)	1.39	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			14.8	1.29 (S)	1.09	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C	17900	11.0 (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			18.7	1.19 (S)	1.08	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	1110	13.7 (S)	1.30	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			1070	9.42 (S)	1.26	0.938
2,3,3',4,5,5'-HxCB	159			95.5	10.1 (S)	1.34	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		10.1 (S)		
2,3,3',4',5,5'-HxCB	162			28.7	9.92 (S)	1.13	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			644	9.96 (S)	1.27	0.921
2,3,3',5,5',6-HxCB	165			15.3	11.6 (S)	1.25	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			517	10.9 (S)	1.25	1.001
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U		27.4 (S)		
2,2',3,3',4,4',5-HpCB	170			3000	2.06 (S)	1.05	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	966	2.03 (S)	1.04	1.163
2,2',3,3',4,5,5'-HpCB	172			655	2.11 (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			2120	1.91 (S)	1.06	1.134
2,2',3,3',4,5',6-HpCB	175			143	1.89 (S)	1.08	1.103
2,2',3,3',4,6,6'-HpCB	176			276	1.42 (S)	1.09	1.034
2,2',3,3',4',5,6-HpCB	177			1800	1.78 (S)	1.06	1.146
2,2',3,3',5,5',6-HpCB	178			952	1.93 (S)	1.05	1.085
2,2',3,3',5,6,6'-HpCB	179			1070	1.41 (S)	1.05	1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	10500	1.80 (S)	1.05	1.000
2,2',3,4,4',5,6-HpCB	181			30.7	1.96 (S)	1.17	1.157
2,2',3,4,4',5,6'-HpCB	182			32.9	1.82 (S)	0.92	1.116
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	2920	1.84 (S)	1.04	1.128
2,2',3,4,4',6,6'-HpCB	184			13.4	1.40 (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		1.52 (S)		
2,2',3,4',5,5',6-HpCB	187			7130	1.75 (S)	1.05	1.111
2,2',3,4',5,6,6'-HpCB	188			19.6	1.56 (S)	1.15	1.000
2,3,3',4,4',5,5'-HpCB	189			95.5	1.47 (S)	1.04	1.000
2,3,3',4,4',5,6-HpCB	190			708	1.50 (S)	1.02	0.947
2,3,3',4,4',5',6-HpCB	191			141	1.48 (S)	1.04	0.917
2,3,3',4,5,5',6-HpCB	192		U		1.65 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			1240	0.825 (S)	0.89	0.991
2,2',3,3',4,4',5,6-OxCB	195			513	0.896 (S)	0.90	0.946
2,2',3,3',4,4',5,6'-OxCB	196			705	0.294 (S)	0.91	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C	171	0.214 (S)	0.93	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	1680	0.299 (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			176	0.213 (S)	0.93	1.023
2,2',3,3',5,5',6,6'-OxCB	202			475	0.285 (S)	0.91	1.001
2,2',3,4,4',5,5',6-OxCB	203			1140	0.283 (S)	0.91	0.919
2,2',3,4,4',5,6,6'-OxCB	204		K J	1.86	0.215 (S)	0.31	1.038
2,3,3',4,4',5,5',6-OxCB	205			60.2	0.687 (S)	0.89	1.001
2,2',3,3',4,4',5,5',6-NoCB	206			502	0.330 (S)	0.79	1.001
2,2',3,3',4,4',5,6,6'-NoCB	207			61.1	0.246 (S)	0.78	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			242	0.325 (S)	0.79	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			326	0.123 (S)	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; 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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB038
Sample Collection:
20-Aug-2018 09:47

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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 14-Oct-2018 Time: 17:41:38
 Extract Volume (uL): 100
 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.: L29935-9
 Sample Size: 9.92 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_349 S: 10
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_349 S: 1
 % Lipid: 7.67

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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	830	41.5	3.33	0.719
13C12-4-MoCB	3L			2000	893	44.6	3.35	0.859
13C12-2,2'-DiCB	4L			2000	1040	52.0	1.50	0.873
13C12-4,4'-DiCB	15L			2000	1170	58.4	1.56	1.255
13C12-2,2',6-TriCB	19L			2000	919	45.9	1.05	1.072
13C12-3,4,4'-TriCB	37L			2000	1470	73.6	1.00	1.093
13C12-2,2',6,6'-TeCB	54L			2000	1190	59.5	0.84	0.811
13C12-3,3',4,4'-TeCB	77L			2000	1740	86.9	0.75	1.398
13C12-3,4,4',5-TeCB	81L			2000	1770	88.7	0.77	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	987	49.4	1.60	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1590	79.7	1.56	1.200
13C12-2,3,4,4',5-PeCB	114L			2000	1610	80.5	1.56	1.179
13C12-2,3',4,4',5-PeCB	118L			2000	1660	83.1	1.61	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1670	83.5	1.55	1.151
13C12-3,3',4,4',5-PeCB	126L			2000	1730	86.3	1.61	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	944	47.2	1.25	0.786
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	2810	70.1	1.34	1.108
13C12-2,3,3',4,4',5-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			2000	1380	69.0	1.29	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1410	70.5	1.29	1.193
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1550	77.4	1.04	0.898
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1530	76.7	1.05	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	975	48.7	1.10	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1240	62.2	0.96	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	730	36.5	0.87	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1470	73.4	0.91	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1350	67.6	0.83	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1180	59.0	0.80	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	926	46.3	1.33	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1560	78.2	0.99	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1510	75.4	1.56	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1150	57.4	1.06	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB028
Sample Collection:
21-Aug-2018 07:26

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.:	L29935-10
Sample Receipt Date:	23-Aug-2018	Sample Size:	9.90 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	15-Oct-2018 Time: 00:28:32	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_350 S: 5
Dilution Factor:	N/A	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_350 S: 1
		% Lipid:	4.86

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			3.17	0.145 (S)	3.16	1.001
3-MoCB	2		J	0.791	0.186 (S)	3.00	0.988
4-MoCB	3		J	1.53	0.179 (S)	2.77	1.001
2,2'-DiCB	4			129	0.791 (S)	1.48	1.001
2,3-DiCB	5		K J	1.11	0.640 (S)	1.01	1.197
2,3'-DiCB	6			16.3	0.577 (S)	1.45	1.177
2,4-DiCB	7		J	2.87	0.589 (S)	1.39	1.159
2,4'-DiCB	8			75.9	0.530 (S)	1.45	1.209
2,5-DiCB	9			4.73	0.571 (S)	1.40	1.147
2,6-DiCB	10			7.18	0.570 (S)	1.51	1.014
3,3'-DiCB	11			47.8	0.613 (S)	1.51	0.968
3,4-DiCB	12	12 + 13	C J	2.36	0.616 (S)	1.44	0.983
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.605 (S)		
4,4'-DiCB	15			17.3	0.546 (S)	1.43	1.000
2,2',3-TriCB	16			79.0	0.211 (S)	0.99	1.167
2,2',4-TriCB	17			208	0.189 (S)	1.00	1.139
2,2',5-TriCB	18	18 + 30	C	263	0.158 (S)	1.05	1.114
2,2',6-TriCB	19			360	0.251 (S)	1.08	1.002
2,3,3'-TriCB	20	20 + 28	C	1110	0.942 (S)	1.00	0.847
2,3,4-TriCB	21	21 + 33	C	255	0.938 (S)	0.98	0.857
2,3,4'-TriCB	22			236	1.03 (S)	0.97	0.871
2,3,5-TriCB	23		U		1.03 (S)		
2,3,6-TriCB	24			3.91	0.145 (S)	1.16	1.161
2,3',4-TriCB	25			73.9	0.831 (S)	0.95	0.824
2,3',5-TriCB	26	26 + 29	C	158	0.967 (S)	0.99	1.302
2,3',6-TriCB	27			44.5	0.131 (S)	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			600	0.903 (S)	0.98	0.836
2,4',6-TriCB	32			140	0.918 (S)	0.99	1.199
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			5.41	0.999 (S)	1.00	1.274
3,3',4-TriCB	35		U		1.04 (S)		
3,3',5-TriCB	36		U		0.954 (S)		
3,4,4'-TriCB	37			61.6	0.847 (S)	0.99	1.001
3,4,5-TriCB	38		J	2.05	0.974 (S)	0.98	0.967
3,4',5-TriCB	39		K	10.5	0.960 (S)	0.85	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	743	0.193 (S)	0.78	1.336
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			487	0.204 (S)	0.79	1.312
2,2',3,5'-TeCB	43			62.7	0.217 (S)	0.69	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	2850	0.177 (S)	0.79	1.286
2,2',3,6'-TeCB	45	45 + 51	C	327	0.191 (S)	0.79	1.148
2,2',3,6'-TeCB	46			51.3	0.220 (S)	0.85	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			279	0.195 (S)	0.79	1.274
2,2',4,5'-TeCB	49	49 + 69	C	1950	0.164 (S)	0.79	1.259
2,2',4,6'-TeCB	50	50 + 53	C	322	0.185 (S)	0.79	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			2960	0.179 (S)	0.79	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			69.7	0.156 (S)	0.80	1.001
2,3,3',4'-TeCB	55		U		2.54 (S)		
2,3,3',4'-TeCB	56			568	2.50 (S)	0.75	0.904
2,3,3',5'-TeCB	57			11.0	2.32 (S)	0.76	0.842
2,3,3',5'-TeCB	58			12.6	2.42 (S)	0.78	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	204	0.143 (S)	0.79	1.302
2,3,4,4'-TeCB	60			676	2.57 (S)	0.74	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	3390	2.33 (S)	0.74	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			157	2.34 (S)	0.74	0.863
2,3,4',6'-TeCB	64			953	0.141 (S)	0.79	1.349
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			3040	2.28 (S)	0.75	0.884
2,3',4,5'-TeCB	67			50.7	2.02 (S)	0.76	0.855
2,3',4,5'-TeCB	68			46.5	2.29 (S)	0.72	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			57.0	2.25 (S)	0.69	0.822
2,3',5',6'-TeCB	73		U		0.152 (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			103	2.14 (S)	0.75	1.000
3,3',4,5'-TeCB	78		U		2.46 (S)		
3,3',4,5'-TeCB	79			41.0	2.02 (S)	0.72	0.968
3,3',5,5'-TeCB	80		U		2.27 (S)		
3,4,4',5'-TeCB	81			5.50	2.19 (S)	0.83	1.000
2,2',3,3',4'-PeCB	82			293	2.78 (S)	1.56	0.933
2,2',3,3',5'-PeCB	83	83 + 99	C	4550	2.48 (S)	1.60	0.885
2,2',3,3',6'-PeCB	84			498	2.68 (S)	1.57	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1280	2.08 (S)	1.60	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	2740	2.14 (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	673	2.47 (S)	1.57	1.155
2,2',3,4,6'-PeCB	89			18.7	2.62 (S)	1.71	1.184
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	5680	2.15 (S)	1.59	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			1170	2.50 (S)	1.56	0.852
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	3130	2.42 (S)	1.61	1.122
2,2',3,5,6'-PeCB	94			20.6	2.72 (S)	1.55	1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			22.7	0.136 (S)	1.37	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			117	2.20 (S)	1.60	1.094
2,2',4,6,6'-PeCB	104			7.18	0.170 (S)	1.51	1.001
2,3,3',4,4'-PeCB	105			2000	7.34 (S)	1.51	1.000
2,3,3',4,5-PeCB	106		U		8.90 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	180	9.14 (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			635	9.02 (S)	1.49	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	4550	1.85 (S)	1.60	0.925
2,3,3',5,5'-PeCB	111			13.2	1.86 (S)	1.59	0.945
2,3,3',5,6-PeCB	112		U		1.86 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			149	8.60 (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			5750	7.94 (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			54.3	1.77 (S)	1.46	0.958
2,3',4,5',6-PeCB	121			12.3	1.89 (S)	1.65	1.200
2',3,3',4,5-PeCB	122			37.8	9.96 (S)	1.52	1.010
2',3,4,4',5-PeCB	123			106	8.28 (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	15.8	6.94 (S)	1.67	1.000
3,3',4,5,5'-PeCB	127			19.8	9.26 (S)	1.44	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1860	11.1 (S)	1.27	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	14200	11.3 (S)	1.27	0.929
2,2',3,3',4,5'-HxCB	130			601	14.5 (S)	1.25	0.913
2,2',3,3',4,6-HxCB	131			51.0	13.6 (S)	1.37	1.161
2,2',3,3',4,6'-HxCB	132			1480	13.8 (S)	1.24	1.175
2,2',3,3',5,5'-HxCB	133			296	13.1 (S)	1.28	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	256	13.3 (S)	1.25	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	2900	0.358 (S)	1.27	1.105
2,2',3,3',6,6'-HxCB	136			503	0.270 (S)	1.26	1.025
2,2',3,4,4',5-HxCB	137			541	13.8 (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	218	12.2 (S)	1.33	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			1440	12.0 (S)	1.27	0.903
2,2',3,4,5,6-HxCB	142		U		13.2 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			293	0.368 (S)	1.22	1.122
2,2',3,4,6,6'-HxCB	145		K J	1.01	0.288 (S)	2.05	1.035
2,2',3,4',5,5'-HxCB	146			2700	11.2 (S)	1.27	0.884
2,2',3,4',5,6-HxCB	147	147 + 149	C	5990	11.8 (S)	1.25	1.134
2,2',3,4',5,6'-HxCB	148			47.6	0.369 (S)	1.26	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			22.2	0.269 (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			6.92	0.265 (S)	1.38	1.008
2,2',4,4',5,5'-HxCB	153	153 + 168	C	14400	9.96 (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	0.285 (S)	1.23	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	1070	12.0 (S)	1.28	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			998	8.58 (S)	1.25	0.938
2,3,3',4,5,5'-HxCB	159			62.3	9.33 (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		9.13 (S)		
2,3,3',4',5,5'-HxCB	162			39.9	8.64 (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			553	9.21 (S)	1.25	0.921
2,3,3',5,5',6-HxCB	165		U		10.6 (S)		
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			432	8.93 (S)	1.30	1.000
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U		13.8 (S)		
2,2',3,3',4,4',5-HpCB	170			2380	0.785 (S)	1.06	1.001
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	693	0.673 (S)	1.06	1.163
2,2',3,3',4,5,5'-HpCB	172			415	0.686 (S)	1.10	0.896
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174			1160	0.630 (S)	1.04	1.134
2,2',3,3',4,5',6-HpCB	175			89.3	0.621 (S)	1.06	1.103
2,2',3,3',4,6,6'-HpCB	176			133	0.458 (S)	1.04	1.034
2,2',3,3',4',5,6-HpCB	177			944	0.531 (S)	1.09	1.146
2,2',3,3',5,5',6-HpCB	178			649	0.628 (S)	1.05	1.085
2,2',3,3',5,6,6'-HpCB	179			541	0.445 (S)	1.08	1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	7660	0.730 (S)	1.05	1.000
2,2',3,4,4',5,6-HpCB	181			29.1	0.638 (S)	1.11	1.157
2,2',3,4,4',5,6'-HpCB	182			24.5	0.610 (S)	1.04	1.116
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	1850	0.608 (S)	1.05	1.128
2,2',3,4,4',6,6'-HpCB	184			13.9	0.440 (S)	1.00	1.025
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.485 (S)		
2,2',3,4',5,5',6-HpCB	187			4920	0.588 (S)	1.05	1.111
2,2',3,4',5,6,6'-HpCB	188			14.1	0.576 (S)	1.04	1.001
2,3,3',4,4',5,5'-HpCB	189			68.9	0.829 (S)	0.96	1.000
2,3,3',4,4',5,6-HpCB	190			486	0.518 (S)	1.05	0.947
2,3,3',4,4',5',6-HpCB	191			89.8	0.502 (S)	1.02	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.557 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			1100	0.563 (S)	0.89	0.991
2,2',3,3',4,4',5,6-OxCB	195			433	0.611 (S)	0.92	0.946
2,2',3,3',4,4',5,6'-OxCB	196			475	0.118 (S)	0.88	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C	111	0.0857 (S)	1.00	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	1150	0.122 (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			125	0.0851 (S)	0.90	1.023
2,2',3,3',5,5',6,6'-OxCB	202			421	0.123 (S)	0.93	1.000
2,2',3,4,4',5,5',6-OxCB	203			839	0.114 (S)	0.90	0.919
2,2',3,4,4',5,6,6'-OxCB	204		J	1.67	0.0856 (S)	0.93	1.039
2,3,3',4,4',5,5',6-OxCB	205			51.2	0.418 (S)	0.88	1.000
2,2',3,3',4,4',5,5',6-NoCB	206			462	0.191 (S)	0.78	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207			65.5	0.131 (S)	0.80	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			172	0.159 (S)	0.80	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			209	0.119 (S)	1.20	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB028
Sample Collection:
21-Aug-2018 07:26

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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 15-Oct-2018 Time: 00:28:32
 Extract Volume (uL): 100
 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.: L29935-10
 Sample Size: 9.90 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_350 S: 5
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_350 S: 1
 % Lipid: 4.86

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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	860	43.0	3.14	0.718
13C12-4-MoCB	3L			2000	890	44.5	3.18	0.858
13C12-2,2'-DiCB	4L			2000	876	43.8	1.62	0.873
13C12-4,4'-DiCB	15L			2000	1190	59.4	1.57	1.255
13C12-2,2',6-TriCB	19L			2000	946	47.3	1.05	1.071
13C12-3,4,4'-TriCB	37L			2000	1480	74.1	1.01	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1230	61.5	0.77	0.811
13C12-3,3',4,4'-TeCB	77L			2000	1870	93.6	0.75	1.398
13C12-3,4,4',5-TeCB	81L			2000	1850	92.6	0.76	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	1100	55.1	1.65	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1830	91.6	1.56	1.200
13C12-2,3,4,4',5-PeCB	114L			2000	1630	81.6	1.57	1.179
13C12-2,3',4,4',5-PeCB	118L			2000	1790	89.7	1.56	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1830	91.7	1.57	1.151
13C12-3,3',4,4',5-PeCB	126L			2000	2170	108	1.56	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	958	47.9	1.25	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	2860	71.4	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	1430	71.7	1.32	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1410	70.3	1.33	1.193
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1330	66.3	1.07	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1280	64.2	1.02	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1020	51.2	1.02	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1590	79.6	0.99	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	828	41.4	0.89	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1560	78.2	0.92	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1160	58.0	0.81	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1170	58.3	0.77	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	896	44.8	1.18	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1600	79.9	1.02	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1630	81.5	1.61	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1250	62.5	1.05	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB039
Sample Collection:
20-Aug-2018 10:17

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.:	L29935-11
Sample Receipt Date:	23-Aug-2018	Sample Size:	10.1 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	15-Oct-2018 Time: 01:32:17	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_350 S: 6
Dilution Factor:	N/A	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_350 S: 1
		% Lipid:	8.77

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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			7.47	0.150 (S)	2.95	1.001
3-MoCB	2		J	1.60	0.201 (S)	2.86	0.987
4-MoCB	3			2.99	0.203 (S)	2.67	1.001
2,2'-DiCB	4			219	1.03 (S)	1.46	1.000
2,3-DiCB	5		K J	1.78	0.961 (S)	1.26	1.197
2,3'-DiCB	6			32.1	0.866 (S)	1.50	1.176
2,4-DiCB	7			5.34	0.884 (S)	1.75	1.158
2,4'-DiCB	8			116	0.796 (S)	1.49	1.208
2,5-DiCB	9			8.94	0.858 (S)	1.55	1.146
2,6-DiCB	10			13.5	0.855 (S)	1.57	1.013
3,3'-DiCB	11			169	0.921 (S)	1.48	0.968
3,4-DiCB	12	12 + 13	C	5.73	0.925 (S)	1.60	0.983
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.909 (S)		
4,4'-DiCB	15			38.4	0.880 (S)	1.46	1.001
2,2',3-TriCB	16			118	0.147 (S)	1.06	1.167
2,2',4-TriCB	17			319	0.131 (S)	1.07	1.138
2,2',5-TriCB	18	18 + 30	C	376	0.110 (S)	1.04	1.114
2,2',6-TriCB	19			530	0.157 (S)	1.07	1.001
2,3,3'-TriCB	20	20 + 28	C	1350	2.48 (S)	0.99	0.847
2,3,4-TriCB	21	21 + 33	C	221	2.47 (S)	0.98	0.856
2,3,4'-TriCB	22			308	2.72 (S)	1.00	0.871
2,3,5-TriCB	23		U		2.71 (S)		
2,3,6-TriCB	24			6.18	0.101 (S)	1.14	1.159
2,3',4-TriCB	25			104	2.19 (S)	0.97	0.824
2,3',5-TriCB	26	26 + 29	C	205	2.55 (S)	1.02	1.302
2,3',6-TriCB	27			69.9	0.0916 (S)	1.05	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			753	2.38 (S)	1.00	0.836
2,4',6-TriCB	32			274	2.42 (S)	0.98	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			9.10	2.63 (S)	0.99	1.274
3,3',4-TriCB	35		U		2.74 (S)		
3,3',5-TriCB	36		U		2.51 (S)		
3,4,4'-TriCB	37			116	2.36 (S)	1.00	1.001
3,4,5-TriCB	38			3.57	2.57 (S)	1.08	0.967
3,4',5-TriCB	39			20.6	2.53 (S)	0.94	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	1580	0.208 (S)	0.79	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			1080	0.219 (S)	0.78	1.312
2,2',3,5'-TeCB	43			167	0.233 (S)	0.77	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	5860	0.191 (S)	0.79	1.286
2,2',3,6'-TeCB	45	45 + 51	C	684	0.205 (S)	0.78	1.148
2,2',3,6'-TeCB	46			106	0.237 (S)	0.82	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			568	0.210 (S)	0.78	1.274
2,2',4,5'-TeCB	49	49 + 69	C	4180	0.176 (S)	0.79	1.260
2,2',4,6'-TeCB	50	50 + 53	C	442	0.199 (S)	0.78	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			6330	0.193 (S)	0.79	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			102	0.158 (S)	0.78	1.001
2,3,3',4'-TeCB	55		U		15.6 (S)		
2,3,3',4'-TeCB	56			1380	15.3 (S)	0.75	0.904
2,3,3',5'-TeCB	57			21.9	14.3 (S)	0.84	0.843
2,3,3',5'-TeCB	58		K	17.4	14.9 (S)	0.63	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	377	0.154 (S)	0.80	1.302
2,3,4,4'-TeCB	60			1880	15.8 (S)	0.75	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	6370	14.3 (S)	0.75	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			357	14.4 (S)	0.76	0.864
2,3,4',6'-TeCB	64			2510	0.152 (S)	0.78	1.349
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			7170	14.0 (S)	0.76	0.884
2,3',4,5'-TeCB	67			77.7	12.4 (S)	0.70	0.855
2,3',4,5'-TeCB	68			59.7	14.1 (S)	0.71	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			80.0	13.8 (S)	0.72	0.822
2,3',5',6'-TeCB	73		U		0.163 (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			265	14.0 (S)	0.74	1.000
3,3',4,5'-TeCB	78		U		15.1 (S)		
3,3',4,5'-TeCB	79			76.5	12.4 (S)	0.75	0.969
3,3',5,5'-TeCB	80		U		13.9 (S)		
3,4,4',5'-TeCB	81		U		13.3 (S)		
2,2',3,3',4'-PeCB	82			464	3.98 (S)	1.65	0.933
2,2',3,3',5'-PeCB	83	83 + 99	C	7440	3.55 (S)	1.56	0.885
2,2',3,3',6'-PeCB	84			827	3.84 (S)	1.60	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	2220	2.97 (S)	1.61	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	4710	3.06 (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	1080	3.53 (S)	1.56	1.155
2,2',3,4,6'-PeCB	89			43.2	3.75 (S)	1.63	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	9140	3.08 (S)	1.59	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			1780	3.57 (S)	1.59	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	4540	3.47 (S)	1.57	1.121
2,2',3,5,6'-PeCB	94			39.5	3.89 (S)	1.77	1.102
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			44.1	0.205 (S)	1.51	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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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			161	3.15 (S)	1.59	1.093
2,2',4,6,6'-PeCB	104			14.8	0.241 (S)	1.45	1.001
2,3,3',4,4'-PeCB	105			3670	12.8 (S)	1.51	1.000
2,3,3',4,5-PeCB	106		U		15.1 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	244	15.5 (S)	1.40	0.991
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109			857	15.3 (S)	1.53	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	7280	2.64 (S)	1.61	0.925
2,3,3',5,5'-PeCB	111			15.9	2.66 (S)	1.75	0.945
2,3,3',5,6-PeCB	112		U		2.67 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			272	14.7 (S)	1.43	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			9210	13.0 (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			63.8	2.54 (S)	1.78	0.958
2,3',4,5',6-PeCB	121			14.7	2.70 (S)	1.41	1.199
2',3,3',4,5-PeCB	122			67.2	16.9 (S)	1.43	1.010
2',3,4,4',5-PeCB	123			165	14.8 (S)	1.44	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	28.3	13.2 (S)	1.45	1.000
3,3',4,5,5'-PeCB	127			21.9	15.7 (S)	1.35	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	2350	12.8 (S)	1.25	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	17700	13.0 (S)	1.27	0.929
2,2',3,3',4,5'-HxCB	130			723	16.7 (S)	1.25	0.913
2,2',3,3',4,6-HxCB	131			61.2	15.7 (S)	1.16	1.161
2,2',3,3',4,6'-HxCB	132			1900	15.9 (S)	1.24	1.176
2,2',3,3',5,5'-HxCB	133			344	15.1 (S)	1.28	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	319	15.3 (S)	1.29	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	3690	0.468 (S)	1.26	1.105
2,2',3,3',6,6'-HxCB	136			736	0.353 (S)	1.25	1.026
2,2',3,4,4',5-HxCB	137			742	15.9 (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	265	14.1 (S)	1.31	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			2110	13.8 (S)	1.26	0.903
2,2',3,4,5,6-HxCB	142		U		15.2 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			356	0.481 (S)	1.30	1.122
2,2',3,4,6,6'-HxCB	145		J	1.52	0.376 (S)	1.21	1.035
2,2',3,4',5,5'-HxCB	146			3300	12.9 (S)	1.26	0.884
2,2',3,4',5,6-HxCB	147	147 + 149	C	6820	13.6 (S)	1.26	1.134
2,2',3,4',5,6'-HxCB	148			49.7	0.483 (S)	1.25	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			31.0	0.352 (S)	1.31	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			14.1	0.347 (S)	1.19	1.008
2,2',4,4',5,5'-HxCB	153	153 + 168	C	20100	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			15.9	0.353 (S)	1.19	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	1480	13.8 (S)	1.25	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			1320	9.90 (S)	1.26	0.938
2,3,3',4,5,5'-HxCB	159			73.5	10.8 (S)	1.19	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		10.5 (S)		
2,3,3',4',5,5'-HxCB	162			43.1	9.96 (S)	1.42	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			611	10.6 (S)	1.27	0.921
2,3,3',5,5',6-HxCB	165			14.5	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			537	10.9 (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		15.6 (S)		
2,2',3,3',4,4',5-HpCB	170			3070	0.649 (S)	1.05	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	912	0.630 (S)	1.04	1.163
2,2',3,3',4,5,5'-HpCB	172			596	0.643 (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			1470	0.591 (S)	1.05	1.134
2,2',3,3',4,5',6-HpCB	175			119	0.582 (S)	1.06	1.103
2,2',3,3',4,6,6'-HpCB	176			174	0.429 (S)	1.07	1.034
2,2',3,3',4',5,6-HpCB	177			1160	0.497 (S)	1.04	1.146
2,2',3,3',5,5',6-HpCB	178			815	0.589 (S)	1.06	1.085
2,2',3,3',5,6,6'-HpCB	179			746	0.417 (S)	1.07	1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	10000	0.592 (S)	1.05	1.000
2,2',3,4,4',5,6-HpCB	181			50.7	0.597 (S)	1.02	1.157
2,2',3,4,4',5,6'-HpCB	182		K	26.4	0.571 (S)	1.35	1.116
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	2460	0.570 (S)	1.06	1.128
2,2',3,4,4',6,6'-HpCB	184			14.1	0.413 (S)	0.99	1.025
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.454 (S)		
2,2',3,4',5,5',6-HpCB	187			6140	0.551 (S)	1.04	1.111
2,2',3,4',5,6,6'-HpCB	188			15.4	0.484 (S)	1.13	1.001
2,3,3',4,4',5,5'-HpCB	189			93.0	0.886 (S)	0.96	1.000
2,3,3',4,4',5,6-HpCB	190			612	0.485 (S)	1.03	0.947
2,3,3',4,4',5',6-HpCB	191			136	0.471 (S)	1.07	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.522 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			1500	0.682 (S)	0.90	0.991
2,2',3,3',4,4',5,6-OxCB	195			549	0.740 (S)	0.90	0.946
2,2',3,3',4,4',5,6'-OxCB	196			650	0.134 (S)	0.88	0.916
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C	137	0.0967 (S)	0.88	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	1480	0.137 (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			153	0.0961 (S)	0.94	1.023
2,2',3,3',5,5',6,6'-OxCB	202			466	0.134 (S)	0.90	1.000
2,2',3,4,4',5,5',6-OxCB	203			1010	0.128 (S)	0.90	0.919
2,2',3,4,4',5,6,6'-OxCB	204		K J	2.02	0.0966 (S)	0.69	1.039
2,3,3',4,4',5,5',6-OxCB	205			61.0	0.520 (S)	0.87	1.000
2,2',3,3',4,4',5,5',6-NoCB	206			445	0.249 (S)	0.79	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207			64.6	0.173 (S)	0.80	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			164	0.213 (S)	0.80	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			191	0.135 (S)	1.12	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB039
Sample Collection:
20-Aug-2018 10:17

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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 15-Oct-2018 Time: 01:32:17
 Extract Volume (uL): 100
 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.: L29935-11
 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_350 S: 6
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_350 S: 1
 % Lipid: 8.77

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	923	46.2	3.17	0.719
13C12-4-MoCB	3L			2000	863	43.1	3.47	0.859
13C12-2,2'-DiCB	4L			2000	1000	50.2	1.57	0.874
13C12-4,4'-DiCB	15L			2000	1060	52.8	1.57	1.255
13C12-2,2',6-TriCB	19L			2000	985	49.3	1.08	1.072
13C12-3,4,4'-TriCB	37L			2000	1300	64.9	1.05	1.093
13C12-2,2',6,6'-TeCB	54L			2000	1190	59.6	0.82	0.811
13C12-3,3',4,4'-TeCB	77L			2000	1640	82.2	0.74	1.398
13C12-3,4,4',5-TeCB	81L			2000	1710	85.7	0.78	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	1100	55.2	1.58	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1720	86.1	1.56	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1500	75.2	1.60	1.179
13C12-2,3',4,4',5-PeCB	118L			2000	1710	85.6	1.55	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1620	81.2	1.52	1.151
13C12-3,3',4,4',5-PeCB	126L			2000	1860	93.1	1.58	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	1030	51.3	1.27	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	2920	73.0	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			2000	1460	72.8	1.25	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1430	71.6	1.30	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1360	68.0	1.09	0.898
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1380	68.9	1.03	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1040	52.1	1.02	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1320	65.8	1.06	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	799	39.9	0.90	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1470	73.3	0.86	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1230	61.5	0.81	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1190	59.7	0.79	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	846	42.3	1.07	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1480	74.0	1.08	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1540	76.9	1.62	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1260	62.8	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB040
Sample Collection:
20-Aug-2018 08:40

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.:	L29935-12
Sample Receipt Date:	23-Aug-2018	Sample Size:	9.82 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	15-Oct-2018 Time: 02:36:02	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_350 S: 7
Dilution Factor:	N/A	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_350 S: 1
		% Lipid:	6.53

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			5.53	0.153 (S)	2.97	1.001
3-MoCB	2		J	1.11	0.202 (S)	3.09	0.988
4-MoCB	3		J	2.10	0.201 (S)	3.07	1.001
2,2'-DiCB	4			279	0.947 (S)	1.44	1.001
2,3-DiCB	5		K J	1.14	0.923 (S)	1.29	1.197
2,3'-DiCB	6			20.6	0.831 (S)	1.40	1.174
2,4-DiCB	7			4.31	0.849 (S)	1.63	1.157
2,4'-DiCB	8			86.6	0.764 (S)	1.48	1.207
2,5-DiCB	9			5.98	0.823 (S)	1.46	1.145
2,6-DiCB	10			23.1	0.821 (S)	1.46	1.013
3,3'-DiCB	11			111	0.884 (S)	1.46	0.968
3,4-DiCB	12	12 + 13	C	4.68	0.888 (S)	1.70	0.984
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.872 (S)		
4,4'-DiCB	15			23.9	0.871 (S)	1.54	1.000
2,2',3-TriCB	16			75.2	0.312 (S)	1.04	1.166
2,2',4-TriCB	17			266	0.279 (S)	1.11	1.137
2,2',5-TriCB	18	18 + 30	C	252	0.234 (S)	1.05	1.113
2,2',6-TriCB	19			805	0.346 (S)	1.08	1.001
2,3,3'-TriCB	20	20 + 28	C	885	0.941 (S)	0.99	0.847
2,3,4-TriCB	21	21 + 33	C	166	0.938 (S)	1.00	0.856
2,3,4'-TriCB	22			181	1.03 (S)	0.98	0.871
2,3,5-TriCB	23		U		1.03 (S)		
2,3,6-TriCB	24			3.91	0.214 (S)	1.17	1.158
2,3',4-TriCB	25			81.6	0.830 (S)	1.00	0.824
2,3',5-TriCB	26	26 + 29	C	167	0.967 (S)	1.02	1.302
2,3',6-TriCB	27			71.5	0.194 (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			517	0.903 (S)	0.99	0.836
2,4',6-TriCB	32			134	0.918 (S)	0.99	1.197
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			5.89	0.999 (S)	0.93	1.274
3,3',4-TriCB	35		U		1.04 (S)		
3,3',5-TriCB	36		U		0.953 (S)		
3,4,4'-TriCB	37			61.4	0.883 (S)	0.95	1.001
3,4,5-TriCB	38		J	2.56	0.974 (S)	1.03	0.967
3,4',5-TriCB	39		K	8.62	0.959 (S)	0.85	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	599	0.282 (S)	0.79	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			377	0.297 (S)	0.79	1.311
2,2',3,5'-TeCB	43			68.7	0.316 (S)	0.82	1.247
2,2',3,5'-TeCB	44	44 + 47 + 65	C	3550	0.258 (S)	0.80	1.286
2,2',3,6'-TeCB	45	45 + 51	C	482	0.278 (S)	0.79	1.148
2,2',3,6'-TeCB	46			47.1	0.321 (S)	0.75	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			220	0.284 (S)	0.79	1.273
2,2',4,5'-TeCB	49	49 + 69	C	2260	0.239 (S)	0.80	1.259
2,2',4,6'-TeCB	50	50 + 53	C	346	0.270 (S)	0.78	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			4080	0.262 (S)	0.79	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			152	0.222 (S)	0.79	1.001
2,3,3',4'-TeCB	55		U		1.76 (S)		
2,3,3',4'-TeCB	56			433	1.73 (S)	0.75	0.904
2,3,3',5'-TeCB	57			13.3	1.61 (S)	0.72	0.843
2,3,3',5'-TeCB	58			22.3	1.67 (S)	0.85	0.852
2,3,3',6'-TeCB	59	59 + 62 + 75	C	195	0.209 (S)	0.80	1.302
2,3,4,4'-TeCB	60			497	1.78 (S)	0.75	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	3900	1.61 (S)	0.75	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			148	1.62 (S)	0.75	0.864
2,3,4',6'-TeCB	64			830	0.206 (S)	0.80	1.348
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			2750	1.58 (S)	0.75	0.884
2,3',4,5'-TeCB	67			63.5	1.40 (S)	0.76	0.855
2,3',4,5'-TeCB	68			63.3	1.59 (S)	0.73	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			75.1	1.56 (S)	0.73	0.822
2,3',5',6'-TeCB	73		U		0.221 (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			100	1.51 (S)	0.76	1.000
3,3',4,5'-TeCB	78		U		1.70 (S)		
3,3',4,5'-TeCB	79			81.1	1.39 (S)	0.73	0.969
3,3',5,5'-TeCB	80		U		1.57 (S)		
3,4,4',5'-TeCB	81		K	5.80	1.51 (S)	0.88	1.001
2,2',3,3',4'-PeCB	82			405	6.40 (S)	1.54	0.933
2,2',3,3',5'-PeCB	83	83 + 99	C	10700	5.72 (S)	1.61	0.885
2,2',3,3',6'-PeCB	84			811	6.18 (S)	1.60	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	2880	4.79 (S)	1.58	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	6390	4.93 (S)	1.62	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	1090	5.69 (S)	1.56	1.155
2,2',3,4,6'-PeCB	89			21.3	6.05 (S)	1.67	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	13100	4.96 (S)	1.58	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			2760	5.76 (S)	1.57	0.852
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	6440	5.59 (S)	1.58	1.121
2,2',3,5,6'-PeCB	94			32.0	6.27 (S)	1.62	1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			33.8	0.274 (S)	1.62	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			168	5.08 (S)	1.53	1.094
2,2',4,6,6'-PeCB	104			18.2	0.324 (S)	1.68	1.001
2,3,3',4,4'-PeCB	105			5490	16.7 (S)	1.52	1.000
2,3,3',4,5-PeCB	106		U		20.3 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	324	20.9 (S)	1.56	0.990
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109			1240	20.6 (S)	1.52	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	11700	4.26 (S)	1.56	0.925
2,3,3',5,5'-PeCB	111			16.1	4.29 (S)	1.34	0.945
2,3,3',5,6-PeCB	112		U		4.30 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			364	20.7 (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			15000	17.0 (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			68.0	4.08 (S)	1.51	0.958
2,3',4,5',6-PeCB	121			18.3	4.35 (S)	1.71	1.200
2',3,3',4,5-PeCB	122			57.3	22.8 (S)	1.56	1.010
2',3,4,4',5-PeCB	123			166	20.2 (S)	1.41	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	45.1	19.6 (S)	1.48	1.000
3,3',4,5,5'-PeCB	127			48.1	21.1 (S)	1.66	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	5070	9.46 (S)	1.26	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	34500	9.61 (S)	1.25	0.928
2,2',3,3',4,5'-HxCB	130			1150	12.3 (S)	1.24	0.913
2,2',3,3',4,6-HxCB	131			90.9	11.6 (S)	1.28	1.160
2,2',3,3',4,6'-HxCB	132			2590	11.8 (S)	1.28	1.176
2,2',3,3',5,5'-HxCB	133			543	11.1 (S)	1.26	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	479	11.3 (S)	1.26	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	6950	0.476 (S)	1.26	1.105
2,2',3,3',6,6'-HxCB	136			1070	0.360 (S)	1.28	1.025
2,2',3,4,4',5-HxCB	137			1510	11.8 (S)	1.25	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	546	10.4 (S)	1.26	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			3460	10.2 (S)	1.25	0.903
2,2',3,4,5,6-HxCB	142		U		11.3 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			515	0.490 (S)	1.27	1.122
2,2',3,4,6,6'-HxCB	145		J	1.99	0.383 (S)	1.32	1.035
2,2',3,4',5,5'-HxCB	146			5740	9.52 (S)	1.26	0.884
2,2',3,4',5,6-HxCB	147	147 + 149	C	10500	10.0 (S)	1.26	1.134
2,2',3,4',5,6'-HxCB	148			59.8	0.492 (S)	1.30	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			24.4	0.359 (S)	1.33	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			17.7	0.353 (S)	1.20	1.008
2,2',4,4',5,5'-HxCB	153	153 + 168	C	32200	8.48 (S)	1.27	0.899
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155			20.3	0.361 (S)	1.21	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	3260	10.1 (S)	1.25	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			2600	7.31 (S)	1.26	0.938
2,3,3',4,5,5'-HxCB	159			102	7.94 (S)	1.16	0.981
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		7.77 (S)		
2,3,3',4',5,5'-HxCB	162			86.0	7.35 (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			1340	7.84 (S)	1.25	0.921
2,3,3',5,5',6-HxCB	165			20.6	8.98 (S)	1.09	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			937	7.86 (S)	1.25	1.001
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U		22.9 (S)		
2,2',3,3',4,4',5-HpCB	170			5070	0.951 (S)	1.07	1.001
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	1450	0.881 (S)	1.05	1.163
2,2',3,3',4,5,5'-HpCB	172			897	0.899 (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			1950	0.826 (S)	1.04	1.134
2,2',3,3',4,5',6-HpCB	175			149	0.814 (S)	1.06	1.103
2,2',3,3',4,6,6'-HpCB	176			180	0.599 (S)	1.06	1.035
2,2',3,3',4',5,6-HpCB	177			1600	0.696 (S)	1.05	1.146
2,2',3,3',5,5',6-HpCB	178			1290	0.823 (S)	1.07	1.085
2,2',3,3',5,6,6'-HpCB	179			1050	0.583 (S)	1.07	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	14600	0.812 (S)	1.07	1.000
2,2',3,4,4',5,6-HpCB	181			71.8	0.835 (S)	1.04	1.157
2,2',3,4,4',5,6'-HpCB	182		U		0.799 (S)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	3580	0.797 (S)	1.04	1.127
2,2',3,4,4',6,6'-HpCB	184			16.2	0.577 (S)	1.18	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.635 (S)		
2,2',3,4',5,5',6-HpCB	187			15300	0.770 (S)	1.05	1.111
2,2',3,4',5,6,6'-HpCB	188			17.3	0.696 (S)	1.05	1.001
2,3,3',4,4',5,5'-HpCB	189			165	0.800 (S)	1.03	1.000
2,3,3',4,4',5,6-HpCB	190			1060	0.678 (S)	1.04	0.947
2,3,3',4,4',5',6-HpCB	191			200	0.658 (S)	1.04	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.730 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			2180	1.09 (S)	0.88	0.991
2,2',3,3',4,4',5,6-OxCB	195			834	1.18 (S)	0.89	0.945
2,2',3,3',4,4',5,6'-OxCB	196			851	0.222 (S)	0.91	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C	167	0.161 (S)	0.88	1.045
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	2250	0.228 (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			183	0.160 (S)	0.89	1.022
2,2',3,3',5,5',6,6'-OxCB	202			692	0.233 (S)	0.91	1.000
2,2',3,4,4',5,5',6-OxCB	203			1460	0.213 (S)	0.90	0.919
2,2',3,4,4',5,6,6'-OxCB	204		K J	1.97	0.161 (S)	0.73	1.038
2,3,3',4,4',5,5',6-OxCB	205			94.6	0.796 (S)	0.89	1.001
2,2',3,3',4,4',5,5',6-NoCB	206			752	0.450 (S)	0.79	1.001
2,2',3,3',4,4',5,6,6'-NoCB	207			90.3	0.295 (S)	0.78	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			265	0.343 (S)	0.78	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			320	0.108 (S)	1.16	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB040
Sample Collection:
20-Aug-2018 08:40

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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 15-Oct-2018 Time: 02:36:02
 Extract Volume (uL): 100
 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.: L29935-12
 Sample Size: 9.82 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_350 S: 7
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_350 S: 1
 % Lipid: 6.53

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	967	48.3	3.16	0.718
13C12-4-MoCB	3L			2000	909	45.5	3.26	0.858
13C12-2,2'-DiCB	4L			2000	1020	51.1	1.56	0.874
13C12-4,4'-DiCB	15L			2000	1040	52.0	1.63	1.255
13C12-2,2',6-TriCB	19L			2000	988	49.4	1.08	1.072
13C12-3,4,4'-TriCB	37L			2000	1460	73.2	1.03	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1300	65.1	0.82	0.811
13C12-3,3',4,4'-TeCB	77L			2000	1870	93.4	0.76	1.398
13C12-3,4,4',5-TeCB	81L			2000	1880	94.2	0.79	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	1130	56.6	1.62	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1870	93.6	1.60	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1550	77.4	1.52	1.179
13C12-2,3',4,4',5-PeCB	118L			2000	1850	92.4	1.60	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1690	84.3	1.52	1.151
13C12-3,3',4,4',5-PeCB	126L			2000	1890	94.3	1.53	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	1040	51.9	1.29	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	2960	74.0	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	1460	73.0	1.26	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1440	71.9	1.23	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1330	66.4	1.02	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1400	70.1	1.04	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1020	51.1	1.01	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1330	66.3	1.04	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	802	40.1	0.94	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1520	76.0	0.88	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1180	58.9	0.81	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1200	59.8	0.79	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	903	45.2	1.26	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1670	83.3	1.05	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1650	82.4	1.60	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1270	63.4	1.11	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB020
Sample Collection:
21-Aug-2018 09:52

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.:	L29935-13
Sample Receipt Date:	23-Aug-2018	Sample Size:	9.89 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	15-Oct-2018 Time: 03:39:51	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_350 S: 8
Dilution Factor:	N/A	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_350 S: 1
		% Lipid:	4.13

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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			4.52	0.154 (S)	2.84	1.001
3-MoCB	2		J	0.829	0.200 (S)	2.82	0.988
4-MoCB	3		J	1.73	0.195 (S)	3.43	1.001
2,2'-DiCB	4			134	0.985 (S)	1.45	1.001
2,3-DiCB	5		J	1.19	0.884 (S)	1.44	1.197
2,3'-DiCB	6			19.7	0.796 (S)	1.45	1.176
2,4-DiCB	7			4.20	0.813 (S)	1.55	1.158
2,4'-DiCB	8			96.6	0.732 (S)	1.49	1.207
2,5-DiCB	9			5.44	0.789 (S)	1.63	1.145
2,6-DiCB	10			9.09	0.786 (S)	1.47	1.013
3,3'-DiCB	11			41.1	0.846 (S)	1.54	0.968
3,4-DiCB	12	12 + 13	C J	2.77	0.850 (S)	1.78	0.984
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.835 (S)		
4,4'-DiCB	15			20.4	0.797 (S)	1.53	1.001
2,2',3-TriCB	16			88.2	0.304 (S)	1.10	1.166
2,2',4-TriCB	17			239	0.272 (S)	1.09	1.138
2,2',5-TriCB	18	18 + 30	C	265	0.228 (S)	1.06	1.113
2,2',6-TriCB	19			369	0.346 (S)	1.10	1.001
2,3,3'-TriCB	20	20 + 28	C	1090	1.83 (S)	0.98	0.847
2,3,4-TriCB	21	21 + 33	C	267	1.83 (S)	0.98	0.856
2,3,4'-TriCB	22			252	2.00 (S)	0.97	0.871
2,3,5-TriCB	23		U		2.00 (S)		
2,3,6-TriCB	24			3.97	0.209 (S)	1.18	1.159
2,3',4-TriCB	25			75.6	1.62 (S)	1.00	0.824
2,3',5-TriCB	26	26 + 29	C	156	1.88 (S)	1.01	1.302
2,3',6-TriCB	27			54.5	0.189 (S)	1.14	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			598	1.76 (S)	0.99	0.836
2,4',6-TriCB	32			140	1.79 (S)	0.97	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			5.74	1.94 (S)	0.93	1.274
3,3',4-TriCB	35		U		2.02 (S)		
3,3',5-TriCB	36		U		1.85 (S)		
3,4,4'-TriCB	37			79.6	1.69 (S)	0.97	1.001
3,4,5-TriCB	38		K J	2.57	1.89 (S)	0.64	0.967
3,4',5-TriCB	39			11.7	1.87 (S)	0.95	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	849	0.510 (S)	0.79	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			520	0.537 (S)	0.79	1.311
2,2',3,5'-TeCB	43			80.5	0.572 (S)	0.76	1.247
2,2',3,5'-TeCB	44	44 + 47 + 65	C	3370	0.467 (S)	0.78	1.287
2,2',3,6'-TeCB	45	45 + 51	C	404	0.504 (S)	0.79	1.147
2,2',3,6'-TeCB	46			55.5	0.581 (S)	0.78	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			333	0.515 (S)	0.80	1.274
2,2',4,5'-TeCB	49	49 + 69	C	2180	0.433 (S)	0.80	1.259
2,2',4,6'-TeCB	50	50 + 53	C	364	0.489 (S)	0.79	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			3380	0.474 (S)	0.79	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			87.1	0.374 (S)	0.80	1.001
2,3,3',4'-TeCB	55		U		1.56 (S)		
2,3,3',4'-TeCB	56			613	1.54 (S)	0.77	0.904
2,3,3',5'-TeCB	57			14.1	1.43 (S)	0.68	0.843
2,3,3',5'-TeCB	58			15.6	1.49 (S)	0.81	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	232	0.378 (S)	0.79	1.303
2,3,4,4'-TeCB	60			595	1.58 (S)	0.74	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	3750	1.44 (S)	0.75	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			164	1.44 (S)	0.75	0.864
2,3,4',6'-TeCB	64			1040	0.373 (S)	0.78	1.348
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			3290	1.40 (S)	0.75	0.884
2,3',4,5'-TeCB	67			59.3	1.24 (S)	0.73	0.855
2,3',4,5'-TeCB	68			62.8	1.41 (S)	0.71	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			72.2	1.38 (S)	0.79	0.822
2,3',5',6'-TeCB	73		U		0.401 (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			125	1.34 (S)	0.76	1.000
3,3',4,5'-TeCB	78		U		1.51 (S)		
3,3',4,5'-TeCB	79			65.4	1.24 (S)	0.75	0.969
3,3',5,5'-TeCB	80		U		1.40 (S)		
3,4,4',5'-TeCB	81			6.96	1.43 (S)	0.72	1.001
2,2',3,3',4'-PeCB	82			438	3.89 (S)	1.61	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	6500	3.47 (S)	1.54	0.885
2,2',3,3',6'-PeCB	84			726	3.75 (S)	1.62	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1730	2.91 (S)	1.63	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	4110	2.99 (S)	1.55	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	984	3.45 (S)	1.59	1.154
2,2',3,4,6'-PeCB	89			26.9	3.67 (S)	1.42	1.182
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	8660	3.01 (S)	1.60	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			1790	3.49 (S)	1.59	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	4660	3.39 (S)	1.58	1.121
2,2',3,5,6'-PeCB	94			41.3	3.80 (S)	1.60	1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			34.5	0.428 (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				

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			161	3.08 (S)	1.64	1.093
2,2',4,6,6'-PeCB	104			15.4	0.515 (S)	1.71	1.001
2,3,3',4,4'-PeCB	105			2810	12.2 (S)	1.52	1.000
2,3,3',4,5-PeCB	106		U		14.9 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	251	15.3 (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			857	15.1 (S)	1.53	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	6930	2.58 (S)	1.58	0.925
2,3,3',5,5'-PeCB	111			16.0	2.60 (S)	1.56	0.945
2,3,3',5,6-PeCB	112		U		2.61 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			193	14.7 (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			8270	12.8 (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			68.9	2.48 (S)	1.54	0.958
2,3',4,5',6-PeCB	121			17.8	2.64 (S)	1.71	1.199
2',3,3',4,5-PeCB	122			52.2	16.7 (S)	1.42	1.010
2',3,4,4',5-PeCB	123			139	14.7 (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	22.7	11.2 (S)	1.51	1.000
3,3',4,5,5'-PeCB	127			28.1	15.5 (S)	1.58	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	2880	19.0 (S)	1.26	0.958
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	20400	19.3 (S)	1.27	0.928
2,2',3,3',4,5'-HxCB	130			897	24.7 (S)	1.27	0.913
2,2',3,3',4,6-HxCB	131			75.4	23.3 (S)	1.26	1.161
2,2',3,3',4,6'-HxCB	132			2410	23.6 (S)	1.24	1.176
2,2',3,3',5,5'-HxCB	133			373	22.3 (S)	1.22	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	389	22.6 (S)	1.22	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	4380	0.599 (S)	1.26	1.105
2,2',3,3',6,6'-HxCB	136			770	0.452 (S)	1.32	1.025
2,2',3,4,4',5-HxCB	137			853	23.6 (S)	1.25	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	296	20.8 (S)	1.23	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			2250	20.5 (S)	1.26	0.903
2,2',3,4,5,6-HxCB	142		U		22.6 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			441	0.616 (S)	1.22	1.122
2,2',3,4,6,6'-HxCB	145		J	2.05	0.482 (S)	1.36	1.035
2,2',3,4',5,5'-HxCB	146			3760	19.1 (S)	1.26	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C	9020	20.2 (S)	1.26	1.134
2,2',3,4',5,6'-HxCB	148			57.5	0.618 (S)	1.18	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			37.2	0.451 (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			14.9	0.444 (S)	1.15	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C	21200	17.0 (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			23.2	0.463 (S)	1.41	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	1710	19.4 (S)	1.28	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			1490	14.7 (S)	1.27	0.938
2,3,3',4,5,5'-HxCB	159			95.0	15.9 (S)	1.15	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		15.6 (S)		
2,3,3',4',5,5'-HxCB	162			51.4	14.8 (S)	1.37	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			739	15.7 (S)	1.27	0.921
2,3,3',5,5',6-HxCB	165		U		18.0 (S)		
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			719	16.3 (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		18.9 (S)		
2,2',3,3',4,4',5-HpCB	170			3340	0.751 (S)	1.07	1.001
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	1130	0.704 (S)	1.05	1.163
2,2',3,3',4,5,5'-HpCB	172			633	0.718 (S)	1.07	0.897
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174			1970	0.660 (S)	1.05	1.134
2,2',3,3',4,5',6-HpCB	175			142	0.650 (S)	1.00	1.103
2,2',3,3',4,6,6'-HpCB	176			234	0.479 (S)	1.02	1.035
2,2',3,3',4',5,6-HpCB	177			1440	0.556 (S)	1.06	1.146
2,2',3,3',5,5',6-HpCB	178			945	0.657 (S)	1.06	1.085
2,2',3,3',5,6,6'-HpCB	179			945	0.466 (S)	1.06	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	10600	0.639 (S)	1.06	1.000
2,2',3,4,4',5,6-HpCB	181			39.2	0.667 (S)	1.12	1.157
2,2',3,4,4',5,6'-HpCB	182		K	38.0	0.638 (S)	1.36	1.116
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	2880	0.636 (S)	1.06	1.127
2,2',3,4,4',6,6'-HpCB	184			20.4	0.461 (S)	1.03	1.025
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.507 (S)		
2,2',3,4',5,5',6-HpCB	187			7270	0.615 (S)	1.03	1.111
2,2',3,4',5,6,6'-HpCB	188			16.9	0.520 (S)	0.97	1.001
2,3,3',4,4',5,5'-HpCB	189			100	0.951 (S)	1.02	1.000
2,3,3',4,4',5,6-HpCB	190			741	0.542 (S)	1.03	0.947
2,3,3',4,4',5',6-HpCB	191			144	0.526 (S)	1.09	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.583 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			1370	0.639 (S)	0.88	0.991
2,2',3,3',4,4',5,6-OxCB	195			568	0.693 (S)	0.90	0.945
2,2',3,3',4,4',5,6'-OxCB	196			712	0.157 (S)	0.90	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C	171	0.113 (S)	0.92	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	1610	0.161 (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			200	0.113 (S)	0.90	1.023
2,2',3,3',5,5',6,6'-OxCB	202			556	0.149 (S)	0.90	1.000
2,2',3,4,4',5,5',6-OxCB	203			1200	0.151 (S)	0.91	0.919
2,2',3,4,4',5,6,6'-OxCB	204		J	2.66	0.113 (S)	0.83	1.038
2,3,3',4,4',5,5',6-OxCB	205			62.7	0.503 (S)	0.89	1.001
2,2',3,3',4,4',5,5',6-NoCB	206			562	0.317 (S)	0.78	1.001
2,2',3,3',4,4',5,6,6'-NoCB	207			75.0	0.228 (S)	0.76	1.019
2,2',3,3',4,5,5',6,6'-NoCB	208			224	0.289 (S)	0.76	1.000
2,2',3,3',4,4',5,5',6,6'-DeCB	209			170	0.154 (S)	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; 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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB020
Sample Collection:
21-Aug-2018 09:52

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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 15-Oct-2018 Time: 03:39:51
 Extract Volume (uL): 100
 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.: L29935-13
 Sample Size: 9.89 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_350 S: 8
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_350 S: 1
 % Lipid: 4.13

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	823	41.1	3.21	0.718
13C12-4-MoCB	3L			2000	822	41.1	3.21	0.858
13C12-2,2'-DiCB	4L			2000	843	42.2	1.55	0.874
13C12-4,4'-DiCB	15L			2000	1000	50.2	1.55	1.255
13C12-2,2',6-TriCB	19L			2000	847	42.4	1.13	1.072
13C12-3,4,4'-TriCB	37L			2000	1260	62.8	0.99	1.093
13C12-2,2',6,6'-TeCB	54L			2000	1100	54.9	0.81	0.811
13C12-3,3',4,4'-TeCB	77L			2000	1550	77.5	0.76	1.398
13C12-3,4,4',5-TeCB	81L			2000	1490	74.7	0.76	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	918	45.9	1.60	0.809
13C12-2,3,3',4,4'-PeCB	105L			2000	1510	75.5	1.59	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1300	65.2	1.57	1.180
13C12-2,3',4,4',5-PeCB	118L			2000	1470	73.3	1.60	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1360	67.9	1.50	1.152
13C12-3,3',4,4',5-PeCB	126L			2000	1880	94.0	1.57	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	871	43.5	1.26	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	2670	66.7	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	1240	62.1	1.25	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1160	58.2	1.33	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1290	64.7	1.01	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1410	70.3	1.03	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1080	53.9	1.00	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1270	63.7	1.04	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	831	41.6	0.89	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1360	67.9	0.90	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1240	62.2	0.82	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1140	57.0	0.81	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	891	44.5	1.14	1.075
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1310	65.7	1.05	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1310	65.7	1.62	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1060	53.2	0.99	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB010
Sample Collection:
21-Aug-2018 13:13

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.:	L29935-14
Sample Receipt Date:	23-Aug-2018	Sample Size:	9.97 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	15-Oct-2018 Time: 04:43:37	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_350 S: 9
Dilution Factor:	N/A	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_350 S: 1
		% Lipid:	6.47

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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			4.49	0.159 (S)	3.14	1.001
3-MoCB	2			3.06	0.219 (S)	3.54	0.988
4-MoCB	3		J	1.91	0.229 (S)	3.16	1.001
2,2'-DiCB	4			142	0.917 (S)	1.49	1.000
2,3-DiCB	5		K J	1.25	0.994 (S)	1.30	1.197
2,3'-DiCB	6			20.8	0.896 (S)	1.53	1.174
2,4-DiCB	7			3.89	0.914 (S)	1.66	1.158
2,4'-DiCB	8			89.8	0.824 (S)	1.53	1.207
2,5-DiCB	9			6.12	0.887 (S)	1.62	1.145
2,6-DiCB	10			10.4	0.885 (S)	1.49	1.012
3,3'-DiCB	11			190	0.952 (S)	1.48	0.968
3,4-DiCB	12	12 + 13	C	4.03	0.957 (S)	1.50	0.984
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.940 (S)		
4,4'-DiCB	15			23.0	1.01 (S)	1.60	1.001
2,2',3-TriCB	16			73.3	0.374 (S)	1.04	1.166
2,2',4-TriCB	17			197	0.334 (S)	1.07	1.138
2,2',5-TriCB	18	18 + 30	C	253	0.280 (S)	1.04	1.113
2,2',6-TriCB	19			300	0.357 (S)	1.03	1.001
2,3,3'-TriCB	20	20 + 28	C	853	0.922 (S)	0.98	0.847
2,3,4-TriCB	21	21 + 33	C	207	0.919 (S)	0.99	0.856
2,3,4'-TriCB	22			187	1.01 (S)	0.96	0.871
2,3,5-TriCB	23		U		1.01 (S)		
2,3,6-TriCB	24			3.84	0.257 (S)	0.96	1.159
2,3',4-TriCB	25			59.8	0.814 (S)	0.99	0.824
2,3',5-TriCB	26	26 + 29	C	134	0.947 (S)	0.96	1.302
2,3',6-TriCB	27			43.3	0.233 (S)	1.06	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			504	0.885 (S)	0.96	0.836
2,4',6-TriCB	32			104	0.899 (S)	0.95	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			5.96	0.979 (S)	0.95	1.273
3,3',4-TriCB	35		U		1.02 (S)		
3,3',5-TriCB	36		U		0.934 (S)		
3,4,4'-TriCB	37			53.8	0.940 (S)	0.95	1.001
3,4,5-TriCB	38		K J	1.94	0.954 (S)	0.82	0.967
3,4',5-TriCB	39		K	6.91	0.940 (S)	0.84	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	496	0.383 (S)	0.79	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			317	0.403 (S)	0.78	1.311
2,2',3,5'-TeCB	43			55.3	0.429 (S)	0.75	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	1930	0.351 (S)	0.78	1.286
2,2',3,6'-TeCB	45	45 + 51	C	237	0.378 (S)	0.79	1.147
2,2',3,6'-TeCB	46			37.7	0.436 (S)	0.82	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			204	0.386 (S)	0.78	1.274
2,2',4,5'-TeCB	49	49 + 69	C	1330	0.325 (S)	0.79	1.259
2,2',4,6'-TeCB	50	50 + 53	C	211	0.367 (S)	0.79	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			2080	0.355 (S)	0.79	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			56.0	0.270 (S)	0.77	1.001
2,3,3',4'-TeCB	55		U		2.14 (S)		
2,3,3',4'-TeCB	56			374	2.10 (S)	0.76	0.904
2,3,3',5'-TeCB	57			8.36	1.95 (S)	0.85	0.843
2,3,3',5'-TeCB	58			10.7	2.04 (S)	0.83	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	139	0.283 (S)	0.82	1.303
2,3,4,4'-TeCB	60			385	2.16 (S)	0.75	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	2390	1.96 (S)	0.75	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			100	1.97 (S)	0.74	0.864
2,3,4',6'-TeCB	64			665	0.279 (S)	0.78	1.348
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			1860	1.92 (S)	0.76	0.884
2,3',4,5'-TeCB	67			34.9	1.70 (S)	0.78	0.855
2,3',4,5'-TeCB	68			37.6	1.93 (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			45.6	1.89 (S)	0.77	0.822
2,3',5',6'-TeCB	73		U		0.300 (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			80.3	1.93 (S)	0.74	1.000
3,3',4,5'-TeCB	78		U		2.07 (S)		
3,3',4,5'-TeCB	79			29.7	1.70 (S)	0.78	0.969
3,3',5,5'-TeCB	80		U		1.91 (S)		
3,4,4',5'-TeCB	81			3.58	1.91 (S)	0.82	1.001
2,2',3,3',4'-PeCB	82			184	2.71 (S)	1.52	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	3120	2.43 (S)	1.59	0.885
2,2',3,3',6'-PeCB	84			325	2.62 (S)	1.65	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	845	2.03 (S)	1.57	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	1870	2.09 (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	429	2.41 (S)	1.61	1.155
2,2',3,4,6'-PeCB	89			14.8	2.56 (S)	1.70	1.184
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	3990	2.10 (S)	1.58	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			852	2.44 (S)	1.62	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	2020	2.37 (S)	1.62	1.121
2,2',3,5,6'-PeCB	94			14.6	2.66 (S)	1.43	1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			16.9	0.347 (S)	1.67	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			72.5	2.15 (S)	1.61	1.094
2,2',4,6,6'-PeCB	104			6.14	0.422 (S)	1.72	1.001
2,3,3',4,4'-PeCB	105			1260	5.29 (S)	1.50	1.000
2,3,3',4,5-PeCB	106		U		7.02 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	128	7.21 (S)	1.42	0.990
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109			420	7.12 (S)	1.52	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	3120	1.81 (S)	1.58	0.925
2,3,3',5,5'-PeCB	111			8.81	1.82 (S)	1.49	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			91.5	7.12 (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			3650	6.41 (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			41.5	1.73 (S)	1.58	0.958
2,3',4,5',6-PeCB	121			7.14	1.85 (S)	1.72	1.200
2',3,3',4,5-PeCB	122			22.5	7.86 (S)	1.42	1.010
2',3,4,4',5-PeCB	123			68.4	6.86 (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	11.8	6.05 (S)	1.55	1.000
3,3',4,5,5'-PeCB	127			9.55	7.30 (S)	1.47	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1190	8.61 (S)	1.27	0.958
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	8830	8.75 (S)	1.26	0.928
2,2',3,3',4,5'-HxCB	130			405	11.2 (S)	1.26	0.912
2,2',3,3',4,6-HxCB	131			30.2	10.6 (S)	1.25	1.161
2,2',3,3',4,6'-HxCB	132			954	10.7 (S)	1.26	1.176
2,2',3,3',5,5'-HxCB	133			187	10.1 (S)	1.33	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	171	10.3 (S)	1.30	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	2010	0.705 (S)	1.26	1.105
2,2',3,3',6,6'-HxCB	136			368	0.533 (S)	1.33	1.025
2,2',3,4,4',5-HxCB	137			321	10.7 (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	132	9.46 (S)	1.24	1.154
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			954	9.29 (S)	1.27	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			189	0.726 (S)	1.27	1.122
2,2',3,4,6,6'-HxCB	145		U		0.568 (S)		
2,2',3,4',5,5'-HxCB	146			1830	8.66 (S)	1.27	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C	3730	9.14 (S)	1.26	1.134
2,2',3,4',5,6'-HxCB	148			28.9	0.728 (S)	1.23	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			14.0	0.531 (S)	1.17	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			5.55	0.523 (S)	1.19	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C	9590	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			10.8	0.500 (S)	1.17	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	649	9.44 (S)	1.28	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			628	6.65 (S)	1.25	0.938
2,3,3',4,5,5'-HxCB	159			35.1	7.23 (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		7.07 (S)		
2,3,3',4',5,5'-HxCB	162			20.7	6.70 (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			307	7.14 (S)	1.27	0.921
2,3,3',5,5',6-HxCB	165		U		8.18 (S)		
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			263	7.53 (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		7.67 (S)		
2,2',3,3',4,4',5-HpCB	170			1390	0.551 (S)	1.04	1.001
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	400	0.505 (S)	1.09	1.163
2,2',3,3',4,5,5'-HpCB	172			274	0.514 (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			691	0.473 (S)	1.05	1.134
2,2',3,3',4,5',6-HpCB	175			53.4	0.466 (S)	1.00	1.103
2,2',3,3',4,6,6'-HpCB	176			84.1	0.343 (S)	1.05	1.035
2,2',3,3',4',5,6-HpCB	177			595	0.398 (S)	1.06	1.146
2,2',3,3',5,5',6-HpCB	178			454	0.471 (S)	1.05	1.085
2,2',3,3',5,6,6'-HpCB	179			432	0.334 (S)	1.05	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	4630	0.484 (S)	1.05	1.000
2,2',3,4,4',5,6-HpCB	181			16.9	0.478 (S)	1.04	1.157
2,2',3,4,4',5,6'-HpCB	182			18.7	0.458 (S)	1.19	1.116
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	1150	0.456 (S)	1.05	1.127
2,2',3,4,4',6,6'-HpCB	184			9.09	0.330 (S)	0.96	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.364 (S)		
2,2',3,4',5,5',6-HpCB	187			3200	0.441 (S)	1.05	1.111
2,2',3,4',5,6,6'-HpCB	188			8.06	0.394 (S)	1.00	1.001
2,3,3',4,4',5,5'-HpCB	189			42.8	0.663 (S)	1.00	1.000
2,3,3',4,4',5,6-HpCB	190			322	0.388 (S)	1.08	0.947
2,3,3',4,4',5',6-HpCB	191			59.5	0.377 (S)	1.08	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.418 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			702	0.536 (S)	0.90	0.991
2,2',3,3',4,4',5,6-OxCB	195			268	0.582 (S)	0.89	0.945
2,2',3,3',4,4',5,6'-OxCB	196			299	0.147 (S)	0.90	0.915
2,2',3,3',4,4',6'-OxCB	197	197 + 200	C	69.6	0.106 (S)	0.93	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	709	0.151 (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			74.1	0.106 (S)	0.89	1.023
2,2',3,3',5,5',6,6'-OxCB	202			287	0.168 (S)	0.86	1.000
2,2',3,4,4',5,5',6-OxCB	203			523	0.141 (S)	0.94	0.919
2,2',3,4,4',5,6,6'-OxCB	204		K J	0.782	0.106 (S)	1.10	1.038
2,3,3',4,4',5,5',6-OxCB	205			31.6	0.374 (S)	0.86	1.001
2,2',3,3',4,4',5,5',6-NoCB	206			253	0.355 (S)	0.81	1.001
2,2',3,3',4,4',5,6,6'-NoCB	207			35.9	0.250 (S)	0.79	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			99.9	0.311 (S)	0.75	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			120	0.127 (S)	1.12	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB010
Sample Collection:
21-Aug-2018 13:13

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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 15-Oct-2018 Time: 04:43:37
 Extract Volume (uL): 100
 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.: L29935-14
 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_350 S: 9
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_350 S: 1
 % Lipid: 6.47

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	1160	57.8	3.26	0.719
13C12-4-MoCB	3L			2000	1040	52.1	3.36	0.859
13C12-2,2'-DiCB	4L			2000	1190	59.3	1.61	0.875
13C12-4,4'-DiCB	15L			2000	1000	50.0	1.55	1.256
13C12-2,2',6-TriCB	19L			2000	1120	56.2	1.11	1.073
13C12-3,4,4'-TriCB	37L			2000	1380	69.1	1.06	1.093
13C12-2,2',6,6'-TeCB	54L			2000	1390	69.4	0.78	0.811
13C12-3,3',4,4'-TeCB	77L			2000	1810	90.5	0.75	1.398
13C12-3,4,4',5'-TeCB	81L			2000	1820	91.0	0.76	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	1150	57.7	1.59	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1990	99.5	1.60	1.201
13C12-2,3,4,4',5'-PeCB	114L			2000	1550	77.6	1.54	1.180
13C12-2,3',4,4',5'-PeCB	118L			2000	1730	86.4	1.55	1.162
13C12-2',3,4,4',5'-PeCB	123L			2000	1670	83.6	1.56	1.152
13C12-3,3',4,4',5'-PeCB	126L			2000	2050	102	1.58	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	1090	54.4	1.25	0.785
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C	4000	2850	71.2	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	1410	70.5	1.30	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1490	74.6	1.30	1.192
13C12-2,2',3,3',4,4',5'-HpCB	170L			2000	1210	60.6	1.12	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1220	60.9	1.02	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	950	47.5	1.05	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1250	62.4	0.99	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	689	34.4	0.93	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1500	74.8	0.94	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1210	60.3	0.84	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1120	55.8	0.81	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	928	46.4	1.21	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1730	86.3	1.02	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1650	82.4	1.64	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1260	63.1	1.05	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB022
Sample Collection:
21-Aug-2018 09:19

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.:	L29935-15
Sample Receipt Date:	23-Aug-2018	Sample Size:	9.98 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	15-Oct-2018 Time: 05:47:26	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_350 S: 10
Dilution Factor:	N/A	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_350 S: 1
		% Lipid:	7.76

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			5.83	0.113 (S)	3.09	1.001
3-MoCB	2		J	1.52	0.152 (S)	2.92	0.988
4-MoCB	3		J	2.22	0.155 (S)	2.96	1.001
2,2'-DiCB	4			242	0.689 (S)	1.47	1.001
2,3-DiCB	5		K J	1.70	0.796 (S)	1.18	1.197
2,3'-DiCB	6			28.9	0.717 (S)	1.46	1.176
2,4-DiCB	7			6.67	0.732 (S)	1.41	1.158
2,4'-DiCB	8			126	0.659 (S)	1.54	1.207
2,5-DiCB	9			9.88	0.710 (S)	1.46	1.146
2,6-DiCB	10			19.1	0.708 (S)	1.48	1.013
3,3'-DiCB	11			184	0.762 (S)	1.46	0.968
3,4-DiCB	12	12 + 13	C	6.82	0.766 (S)	1.75	0.985
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.752 (S)		
4,4'-DiCB	15			39.7	0.848 (S)	1.58	1.000
2,2',3-TriCB	16			111	0.228 (S)	1.03	1.167
2,2',4-TriCB	17			322	0.204 (S)	1.07	1.138
2,2',5-TriCB	18	18 + 30	C	358	0.171 (S)	1.07	1.114
2,2',6-TriCB	19			605	0.237 (S)	1.07	1.001
2,3,3'-TriCB	20	20 + 28	C	1260	2.62 (S)	0.99	0.847
2,3,4-TriCB	21	21 + 33	C	207	2.61 (S)	1.01	0.856
2,3,4'-TriCB	22			293	2.87 (S)	0.97	0.871
2,3,5-TriCB	23		U		2.86 (S)		
2,3,6-TriCB	24			6.73	0.157 (S)	0.91	1.160
2,3',4-TriCB	25			105	2.31 (S)	0.98	0.824
2,3',5-TriCB	26	26 + 29	C	221	2.69 (S)	0.98	1.302
2,3',6-TriCB	27			66.3	0.142 (S)	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			811	2.51 (S)	0.99	0.836
2,4',6-TriCB	32			152	2.55 (S)	0.99	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			8.27	2.78 (S)	1.03	1.274
3,3',4-TriCB	35		U		2.89 (S)		
3,3',5-TriCB	36		U		2.65 (S)		
3,4,4'-TriCB	37			118	2.53 (S)	1.03	1.001
3,4,5-TriCB	38		K J	2.91	2.71 (S)	0.83	0.967
3,4',5-TriCB	39			8.83	2.67 (S)	1.01	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	540	0.654 (S)	0.79	1.336
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			478	0.689 (S)	0.80	1.311
2,2',3,5'-TeCB	43			70.5	0.733 (S)	0.81	1.245
2,2',3,5'-TeCB	44	44 + 47 + 65	C	3100	0.599 (S)	0.79	1.286
2,2',3,6'-TeCB	45	45 + 51	C	486	0.646 (S)	0.79	1.147
2,2',3,6'-TeCB	46			61.5	0.745 (S)	0.79	1.160
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			232	0.660 (S)	0.78	1.273
2,2',4,5'-TeCB	49	49 + 69	C	2050	0.555 (S)	0.79	1.259
2,2',4,6'-TeCB	50	50 + 53	C	287	0.627 (S)	0.79	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			2840	0.607 (S)	0.79	1.233
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			119	0.480 (S)	0.83	1.001
2,3,3',4'-TeCB	55		U		2.02 (S)		
2,3,3',4'-TeCB	56			600	1.99 (S)	0.76	0.904
2,3,3',5'-TeCB	57			10.5	1.85 (S)	0.74	0.843
2,3,3',5'-TeCB	58			13.8	1.93 (S)	0.82	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	205	0.485 (S)	0.77	1.301
2,3,4,4'-TeCB	60			446	2.04 (S)	0.75	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	3330	1.86 (S)	0.76	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			134	1.86 (S)	0.75	0.864
2,3,4',6'-TeCB	64			887	0.478 (S)	0.79	1.348
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			2320	1.81 (S)	0.75	0.884
2,3',4,5'-TeCB	67			61.0	1.60 (S)	0.79	0.856
2,3',4,5'-TeCB	68			61.5	1.82 (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			65.1	1.79 (S)	0.75	0.822
2,3',5',6'-TeCB	73		U		0.514 (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			145	1.78 (S)	0.77	1.000
3,3',4,5'-TeCB	78		U		1.96 (S)		
3,3',4,5'-TeCB	79			50.4	1.60 (S)	0.73	0.969
3,3',5,5'-TeCB	80		U		1.80 (S)		
3,4,4',5'-TeCB	81			6.61	1.79 (S)	0.77	1.000
2,2',3,3',4'-PeCB	82			300	1.72 (S)	1.60	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	4030	1.54 (S)	1.61	0.885
2,2',3,3',6'-PeCB	84			679	1.66 (S)	1.58	1.165
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1010	1.29 (S)	1.59	0.920
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	2960	1.33 (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	822	1.53 (S)	1.61	1.155
2,2',3,4,6'-PeCB	89		K	19.3	1.63 (S)	1.81	1.184
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	5860	1.33 (S)	1.60	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			1220	1.55 (S)	1.57	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	3420	1.50 (S)	1.60	1.122
2,2',3,5,6'-PeCB	94			36.4	1.69 (S)	1.48	1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			27.9	0.386 (S)	1.55	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			150	1.37 (S)	1.60	1.094
2,2',4,6,6'-PeCB	104			18.6	0.468 (S)	1.54	1.001
2,3,3',4,4'-PeCB	105			1650	4.87 (S)	1.52	1.000
2,3,3',4,5-PeCB	106		U		5.88 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	181	6.04 (S)	1.49	0.991
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109			550	5.97 (S)	1.51	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	4940	1.14 (S)	1.57	0.925
2,3,3',5,5'-PeCB	111			10.7	1.15 (S)	1.36	0.945
2,3,3',5,6-PeCB	112		U		1.15 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			119	5.71 (S)	1.46	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			4880	5.26 (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			50.7	1.10 (S)	1.61	0.958
2,3',4,5',6-PeCB	121			12.4	1.17 (S)	1.75	1.200
2',3,3',4,5-PeCB	122			47.7	6.59 (S)	1.64	1.010
2',3,4,4',5-PeCB	123			95.8	5.56 (S)	1.48	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	13.1	5.38 (S)	1.54	1.000
3,3',4,5,5'-PeCB	127			13.1	6.12 (S)	1.59	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1480	10.1 (S)	1.27	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	11700	10.2 (S)	1.26	0.928
2,2',3,3',4,5'-HxCB	130			593	13.1 (S)	1.26	0.913
2,2',3,3',4,6-HxCB	131			58.0	12.3 (S)	1.23	1.160
2,2',3,3',4,6'-HxCB	132			1810	12.5 (S)	1.26	1.175
2,2',3,3',5,5'-HxCB	133			243	11.8 (S)	1.31	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	295	12.0 (S)	1.28	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	3110	0.478 (S)	1.25	1.104
2,2',3,3',6,6'-HxCB	136			567	0.361 (S)	1.31	1.025
2,2',3,4,4',5-HxCB	137			397	12.5 (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	164	11.1 (S)	1.33	1.153
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			1480	10.9 (S)	1.27	0.903
2,2',3,4,5,6-HxCB	142		U		12.0 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			306	0.492 (S)	1.27	1.122
2,2',3,4,6,6'-HxCB	145		K J	2.16	0.385 (S)	1.51	1.034
2,2',3,4',5,5'-HxCB	146			2500	10.1 (S)	1.26	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C	6780	10.7 (S)	1.27	1.134
2,2',3,4',5,6'-HxCB	148			37.9	0.494 (S)	1.22	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			29.9	0.360 (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			9.44	0.355 (S)	1.19	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C	13200	9.03 (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			12.2	0.352 (S)	1.24	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	875	10.7 (S)	1.27	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			807	7.78 (S)	1.27	0.938
2,3,3',4,5,5'-HxCB	159			80.8	8.46 (S)	1.30	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		8.27 (S)		
2,3,3',4',5,5'-HxCB	162			27.4	7.83 (S)	1.34	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			510	8.35 (S)	1.29	0.921
2,3,3',5,5',6-HxCB	165			10.8	9.56 (S)	1.42	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			404	8.59 (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		13.7 (S)		
2,2',3,3',4,4',5-HpCB	170			2130	0.440 (S)	1.06	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	638	0.394 (S)	1.08	1.163
2,2',3,3',4,5,5'-HpCB	172			431	0.402 (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			1420	0.369 (S)	1.05	1.134
2,2',3,3',4,5',6-HpCB	175			91.0	0.364 (S)	1.09	1.103
2,2',3,3',4,6,6'-HpCB	176			174	0.268 (S)	1.08	1.034
2,2',3,3',4',5,6-HpCB	177			1030	0.311 (S)	1.07	1.146
2,2',3,3',5,5',6-HpCB	178			639	0.368 (S)	1.08	1.085
2,2',3,3',5,6,6'-HpCB	179			664	0.261 (S)	1.07	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	7240	0.391 (S)	1.06	1.000
2,2',3,4,4',5,6-HpCB	181			22.5	0.374 (S)	1.02	1.157
2,2',3,4,4',5,6'-HpCB	182		U		0.357 (S)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	1840	0.356 (S)	1.04	1.127
2,2',3,4,4',6,6'-HpCB	184			9.91	0.258 (S)	0.96	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.284 (S)		
2,2',3,4',5,5',6-HpCB	187			5270	0.344 (S)	1.06	1.110
2,2',3,4',5,6,6'-HpCB	188			14.0	0.316 (S)	1.07	1.000
2,3,3',4,4',5,5'-HpCB	189			62.2	0.737 (S)	0.98	1.000
2,3,3',4,4',5,6-HpCB	190			486	0.303 (S)	1.07	0.947
2,3,3',4,4',5',6-HpCB	191			90.0	0.294 (S)	1.09	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.326 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			1020	0.626 (S)	0.89	0.991
2,2',3,3',4,4',5,6-OxCB	195			399	0.679 (S)	0.91	0.945
2,2',3,3',4,4',5,6'-OxCB	196			427	0.152 (S)	0.94	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C	113	0.110 (S)	0.89	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	1100	0.156 (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			113	0.109 (S)	0.93	1.023
2,2',3,3',5,5',6,6'-OxCB	202			364	0.160 (S)	0.89	1.000
2,2',3,4,4',5,5',6-OxCB	203			736	0.146 (S)	0.92	0.919
2,2',3,4,4',5,6,6'-OxCB	204		K J	0.939	0.110 (S)	0.67	1.038
2,3,3',4,4',5,5',6-OxCB	205			45.3	0.462 (S)	0.85	1.000
2,2',3,3',4,4',5,5',6-NoCB	206			349	0.332 (S)	0.78	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207			46.6	0.230 (S)	0.82	1.019
2,2',3,3',4,5,5',6,6'-NoCB	208			153	0.283 (S)	0.77	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			128	0.121 (S)	1.24	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB022
Sample Collection:
21-Aug-2018 09:19

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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 15-Oct-2018 Time: 05:47:26
 Extract Volume (uL): 100
 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.: L29935-15
 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_350 S: 10
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_350 S: 1
 % Lipid: 7.76

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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	1140	57.2	3.17	0.719
13C12-4-MoCB	3L			2000	1010	50.7	3.43	0.859
13C12-2,2'-DiCB	4L			2000	1130	56.5	1.54	0.874
13C12-4,4'-DiCB	15L			2000	896	44.8	1.54	1.255
13C12-2,2',6-TriCB	19L			2000	1050	52.5	1.06	1.072
13C12-3,4,4'-TriCB	37L			2000	1400	70.0	1.02	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1360	68.1	0.78	0.811
13C12-3,3',4,4'-TeCB	77L			2000	1830	91.4	0.76	1.397
13C12-3,4,4',5-TeCB	81L			2000	1810	90.5	0.76	1.373
13C12-2,2',4,6,6'-PeCB	104L			2000	1120	56.2	1.60	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1860	92.9	1.50	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1610	80.3	1.59	1.179
13C12-2,3',4,4',5-PeCB	118L			2000	1760	87.8	1.57	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1770	88.7	1.54	1.151
13C12-3,3',4,4',5-PeCB	126L			2000	1900	95.2	1.55	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	1120	56.0	1.31	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	3140	78.4	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	1530	76.7	1.36	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1510	75.4	1.30	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1240	62.2	1.03	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1260	63.0	1.08	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	971	48.5	1.04	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1300	65.0	1.07	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	741	37.0	0.91	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1460	73.1	0.95	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1160	57.9	0.81	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1150	57.6	0.76	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	901	45.0	1.13	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1650	82.6	1.02	0.924
13C12-2,3,3',5,5'-PeCB	111L			2000	1670	83.3	1.64	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1350	67.3	1.08	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB024
Sample Collection:
21-Aug-2018 08:40

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.:	L29935-16
Sample Receipt Date:	23-Aug-2018	Sample Size:	10.0 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	15-Oct-2018 Time: 13:27:21	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_351 S: 6
Dilution Factor:	N/A	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_351 S: 1
		% Lipid:	6.54

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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			6.10	0.130 (S)	3.00	1.001
3-MoCB	2		K J	1.33	0.161 (S)	4.01	0.988
4-MoCB	3		J	2.61	0.155 (S)	3.20	1.001
2,2'-DiCB	4			212	0.695 (S)	1.45	1.001
2,3-DiCB	5		J	2.45	0.607 (S)	1.58	1.199
2,3'-DiCB	6			34.3	0.532 (S)	1.52	1.176
2,4-DiCB	7			6.99	0.538 (S)	1.52	1.159
2,4'-DiCB	8			138	0.472 (S)	1.51	1.208
2,5-DiCB	9			9.68	0.515 (S)	1.42	1.146
2,6-DiCB	10			12.2	0.512 (S)	1.57	1.013
3,3'-DiCB	11			55.0	0.552 (S)	1.62	0.968
3,4-DiCB	12	12 + 13	C	3.24	0.557 (S)	1.41	0.983
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.548 (S)		
4,4'-DiCB	15			27.6	0.525 (S)	1.61	1.000
2,2',3-TriCB	16			149	0.153 (S)	1.07	1.166
2,2',4-TriCB	17			331	0.128 (S)	1.06	1.138
2,2',5-TriCB	18	18 + 30	C	412	0.107 (S)	1.06	1.113
2,2',6-TriCB	19			513	0.164 (S)	1.08	1.001
2,3,3'-TriCB	20	20 + 28	C	1590	2.77 (S)	0.98	0.847
2,3,4-TriCB	21	21 + 33	C	371	2.72 (S)	0.98	0.856
2,3,4'-TriCB	22			367	3.04 (S)	1.01	0.872
2,3,5-TriCB	23		U		2.96 (S)		
2,3,6-TriCB	24			6.95	0.0923 (S)	1.18	1.159
2,3',4-TriCB	25			108	2.43 (S)	0.98	0.824
2,3',5-TriCB	26	26 + 29	C	245	2.87 (S)	0.98	1.302
2,3',6-TriCB	27			74.5	0.0920 (S)	1.15	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			940	2.67 (S)	0.98	0.836
2,4',6-TriCB	32			179	2.69 (S)	1.02	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			8.75	2.92 (S)	1.01	1.274
3,3',4-TriCB	35		K	3.40	2.75 (S)	1.33	0.988
3,3',5-TriCB	36		U		2.59 (S)		
3,4,4'-TriCB	37			101	2.55 (S)	1.00	1.001
3,4,5-TriCB	38		K	3.45	2.82 (S)	0.75	0.967
3,4',5-TriCB	39			11.9	2.79 (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	765	0.159 (S)	0.77	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			533	0.164 (S)	0.78	1.311
2,2',3,5'-TeCB	43			93.5	0.195 (S)	0.80	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	3310	0.145 (S)	0.78	1.286
2,2',3,6'-TeCB	45	45 + 51	C	411	0.158 (S)	0.80	1.147
2,2',3,6'-TeCB	46			62.3	0.179 (S)	0.81	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			316	0.158 (S)	0.80	1.273
2,2',4,5'-TeCB	49	49 + 69	C	2240	0.134 (S)	0.79	1.259
2,2',4,6'-TeCB	50	50 + 53	C	307	0.151 (S)	0.78	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			3410	0.149 (S)	0.79	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			90.3	0.123 (S)	0.80	1.001
2,3,3',4'-TeCB	55		U		8.28 (S)		
2,3,3',4'-TeCB	56			532	8.31 (S)	0.75	0.904
2,3,3',5'-TeCB	57			13.4	7.68 (S)	0.77	0.843
2,3,3',5'-TeCB	58			16.3	8.06 (S)	0.67	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	238	0.118 (S)	0.81	1.302
2,3,4,4'-TeCB	60			604	8.42 (S)	0.76	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	3740	7.73 (S)	0.75	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			166	7.77 (S)	0.75	0.864
2,3,4',6'-TeCB	64			1070	0.115 (S)	0.79	1.348
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			3010	7.74 (S)	0.76	0.884
2,3',4,5'-TeCB	67			56.1	6.76 (S)	0.73	0.855
2,3',4,5'-TeCB	68			55.6	7.58 (S)	0.68	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			65.8	7.57 (S)	0.67	0.822
2,3',5',6'-TeCB	73		U		0.115 (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			132	7.56 (S)	0.75	1.000
3,3',4,5'-TeCB	78		U		8.07 (S)		
3,3',4,5'-TeCB	79			52.3	6.71 (S)	0.72	0.969
3,3',5,5'-TeCB	80		U		7.55 (S)		
3,4,4',5'-TeCB	81		U		7.67 (S)		
2,2',3,3',4'-PeCB	82			333	3.68 (S)	1.61	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	5380	3.42 (S)	1.60	0.885
2,2',3,3',6'-PeCB	84			638	3.57 (S)	1.54	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1420	2.77 (S)	1.59	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	3270	2.84 (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	787	3.23 (S)	1.61	1.155
2,2',3,4,6'-PeCB	89			20.1	3.40 (S)	1.66	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	6630	2.86 (S)	1.60	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			1390	3.29 (S)	1.59	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	3500	3.13 (S)	1.60	1.122
2,2',3,5,6'-PeCB	94			27.4	3.46 (S)	1.63	1.102
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			26.1	0.0921 (S)	1.60	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			132	2.81 (S)	1.54	1.094
2,2',4,6,6'-PeCB	104		K	10.6	0.111 (S)	1.84	1.001
2,3,3',4,4'-PeCB	105			2430	11.8 (S)	1.51	1.000
2,3,3',4,5-PeCB	106		U		13.7 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	210	13.9 (S)	1.50	0.990
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109			725	13.5 (S)	1.51	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	5430	2.42 (S)	1.60	0.925
2,3,3',5,5'-PeCB	111			14.7	2.43 (S)	1.43	0.945
2,3,3',5,6-PeCB	112		U		2.31 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			169	13.3 (S)	1.57	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			6910	11.7 (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			58.5	2.33 (S)	1.56	0.958
2,3',4,5',6-PeCB	121		K	12.5	2.46 (S)	1.82	1.200
2',3,3',4,5-PeCB	122			41.8	15.1 (S)	1.42	1.010
2',3,4,4',5-PeCB	123			112	12.6 (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	23.3	13.1 (S)	1.41	1.000
3,3',4,5,5'-PeCB	127			19.4	14.1 (S)	1.64	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	2150	14.0 (S)	1.27	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	15700	14.1 (S)	1.26	0.928
2,2',3,3',4,5'-HxCB	130			730	17.8 (S)	1.27	0.913
2,2',3,3',4,6-HxCB	131			63.6	17.0 (S)	1.23	1.161
2,2',3,3',4,6'-HxCB	132			1860	17.3 (S)	1.26	1.176
2,2',3,3',5,5'-HxCB	133			325	16.6 (S)	1.28	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	331	16.8 (S)	1.27	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	3460	0.262 (S)	1.25	1.105
2,2',3,3',6,6'-HxCB	136			606	0.198 (S)	1.29	1.025
2,2',3,4,4',5-HxCB	137			658	17.0 (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	256	15.3 (S)	1.26	1.153
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			1700	15.0 (S)	1.27	0.903
2,2',3,4,5,6-HxCB	142		U		16.8 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			345	0.262 (S)	1.32	1.122
2,2',3,4,6,6'-HxCB	145		K J	1.52	0.212 (S)	2.25	1.034
2,2',3,4',5,5'-HxCB	146			2970	14.0 (S)	1.26	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C	7140	15.2 (S)	1.26	1.134
2,2',3,4',5,6'-HxCB	148			47.9	0.273 (S)	1.28	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			27.0	0.201 (S)	1.33	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			8.72	0.196 (S)	1.20	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C	16300	12.4 (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			16.4	0.196 (S)	1.33	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	1340	15.1 (S)	1.27	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			1180	10.9 (S)	1.27	0.938
2,3,3',4,5,5'-HxCB	159			67.7	12.1 (S)	1.20	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		11.5 (S)		
2,3,3',4',5,5'-HxCB	162			37.4	11.1 (S)	1.27	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			571	11.7 (S)	1.27	0.921
2,3,3',5,5',6-HxCB	165		U		13.2 (S)		
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			538	11.9 (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		13.8 (S)		
2,2',3,3',4,4',5-HpCB	170			2580	0.414 (S)	1.06	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	736	0.359 (S)	1.03	1.163
2,2',3,3',4,5,5'-HpCB	172			450	0.357 (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			1250	0.315 (S)	1.05	1.134
2,2',3,3',4,5',6-HpCB	175			99.3	0.326 (S)	1.02	1.103
2,2',3,3',4,6,6'-HpCB	176			165	0.240 (S)	1.06	1.034
2,2',3,3',4',5,6-HpCB	177			1100	0.292 (S)	1.06	1.146
2,2',3,3',5,5',6-HpCB	178			719	0.337 (S)	1.05	1.085
2,2',3,3',5,6,6'-HpCB	179			669	0.231 (S)	1.04	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	8250	0.358 (S)	1.07	1.000
2,2',3,4,4',5,6-HpCB	181			27.3	0.338 (S)	1.05	1.157
2,2',3,4,4',5,6'-HpCB	182			22.9	0.322 (S)	0.99	1.116
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	2090	0.331 (S)	1.05	1.127
2,2',3,4,4',6,6'-HpCB	184			13.9	0.234 (S)	1.05	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.254 (S)		
2,2',3,4',5,5',6-HpCB	187			5230	0.313 (S)	1.07	1.111
2,2',3,4',5,6,6'-HpCB	188			15.4	0.287 (S)	1.18	1.000
2,3,3',4,4',5,5'-HpCB	189			80.8	0.695 (S)	1.04	1.000
2,3,3',4,4',5,6-HpCB	190			534	0.266 (S)	1.06	0.947
2,3,3',4,4',5',6-HpCB	191			101	0.262 (S)	1.05	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.288 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			1140	0.626 (S)	0.89	0.991
2,2',3,3',4,4',5,6-OxCB	195			468	0.677 (S)	0.90	0.945
2,2',3,3',4,4',5,6'-OxCB	196			541	0.135 (S)	0.90	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C	130	0.0973 (S)	0.92	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	1350	0.140 (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			144	0.0985 (S)	0.91	1.023
2,2',3,3',5,5',6,6'-OxCB	202			450	0.130 (S)	0.90	1.000
2,2',3,4,4',5,5',6-OxCB	203			985	0.134 (S)	0.92	0.919
2,2',3,4,4',5,6,6'-OxCB	204		K J	1.77	0.0974 (S)	1.72	1.038
2,3,3',4,4',5,5',6-OxCB	205			52.5	0.493 (S)	0.89	1.001
2,2',3,3',4,4',5,5',6-NoCB	206			441	0.171 (S)	0.79	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207			58.7	0.121 (S)	0.81	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			184	0.154 (S)	0.80	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			183	0.113 (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; 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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB024
Sample Collection:
21-Aug-2018 08:40

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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 15-Oct-2018 Time: 13:27:21
 Extract Volume (uL): 100
 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.: L29935-16
 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_351 S: 6
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_351 S: 1
 % Lipid: 6.54

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	793	39.7	3.32	0.718
13C12-4-MoCB	3L			2000	859	42.9	3.25	0.858
13C12-2,2'-DiCB	4L			2000	901	45.0	1.56	0.873
13C12-4,4'-DiCB	15L			2000	1140	57.0	1.57	1.255
13C12-2,2',6-TriCB	19L			2000	918	45.9	1.09	1.072
13C12-3,4,4'-TriCB	37L			2000	1410	70.5	1.02	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1170	58.7	0.84	0.811
13C12-3,3',4,4'-TeCB	77L			2000	1690	84.7	0.75	1.398
13C12-3,4,4',5-TeCB	81L			2000	1680	84.0	0.75	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	1050	52.6	1.59	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1680	83.8	1.58	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1570	78.3	1.63	1.180
13C12-2,3',4,4',5-PeCB	118L			2000	1720	85.9	1.58	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1710	85.7	1.56	1.152
13C12-3,3',4,4',5-PeCB	126L			2000	1780	88.9	1.54	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	929	46.5	1.27	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	2660	66.5	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	1320	65.9	1.23	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1310	65.6	1.30	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1310	65.3	1.14	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1310	65.5	1.12	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	995	49.8	1.02	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1430	71.6	1.02	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	775	38.7	0.87	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1380	68.9	0.91	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1260	63.0	0.81	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1160	57.8	0.83	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	826	41.3	1.23	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1490	74.7	1.00	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1500	75.2	1.62	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1220	60.9	1.10	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB021
Sample Collection:
21-Aug-2018 09:22

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.:	L29935-17
Sample Receipt Date:	23-Aug-2018	Sample Size:	10.1 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	15-Oct-2018 Time: 14:31:09	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_351 S: 7
Dilution Factor:	N/A	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_351 S: 1
		% Lipid:	5.99

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			3.99	0.195 (S)	2.85	1.003
3-MoCB	2		J	1.56	0.226 (S)	2.81	0.988
4-MoCB	3		J	1.48	0.205 (S)	2.90	1.001
2,2'-DiCB	4			140	0.681 (S)	1.48	1.001
2,3-DiCB	5		J	1.14	0.580 (S)	1.57	1.197
2,3'-DiCB	6			19.5	0.508 (S)	1.44	1.177
2,4-DiCB	7			3.56	0.515 (S)	1.73	1.158
2,4'-DiCB	8			87.1	0.451 (S)	1.47	1.208
2,5-DiCB	9			5.43	0.493 (S)	1.57	1.147
2,6-DiCB	10			8.00	0.489 (S)	1.39	1.013
3,3'-DiCB	11			66.4	0.527 (S)	1.49	0.968
3,4-DiCB	12	12 + 13	C	3.25	0.533 (S)	1.60	0.983
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.523 (S)		
4,4'-DiCB	15			21.0	0.496 (S)	1.56	1.000
2,2',3-TriCB	16			109	0.202 (S)	1.05	1.167
2,2',4-TriCB	17			237	0.168 (S)	1.08	1.138
2,2',5-TriCB	18	18 + 30	C	325	0.140 (S)	1.06	1.114
2,2',6-TriCB	19			342	0.218 (S)	1.07	1.001
2,3,3'-TriCB	20	20 + 28	C	1490	1.27 (S)	1.00	0.847
2,3,4-TriCB	21	21 + 33	C	378	1.25 (S)	0.96	0.857
2,3,4'-TriCB	22			328	1.40 (S)	1.00	0.871
2,3,5-TriCB	23		U		1.36 (S)		
2,3,6-TriCB	24			4.62	0.122 (S)	1.15	1.159
2,3',4-TriCB	25			82.8	1.11 (S)	1.00	0.824
2,3',5-TriCB	26	26 + 29	C	207	1.32 (S)	0.98	1.302
2,3',6-TriCB	27			53.5	0.121 (S)	1.06	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			733	1.23 (S)	0.98	0.836
2,4',6-TriCB	32			161	1.24 (S)	1.00	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			7.65	1.34 (S)	0.98	1.274
3,3',4-TriCB	35			4.83	1.26 (S)	1.12	0.988
3,3',5-TriCB	36		U		1.19 (S)		
3,4,4'-TriCB	37			76.3	1.17 (S)	0.99	1.001
3,4,5-TriCB	38		K	3.51	1.29 (S)	1.34	0.967
3,4',5-TriCB	39			15.4	1.28 (S)	1.10	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	879	0.210 (S)	0.79	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			560	0.218 (S)	0.80	1.312
2,2',3,5'-TeCB	43			106	0.258 (S)	0.80	1.247
2,2',3,5'-TeCB	44	44 + 47 + 65	C	3520	0.192 (S)	0.79	1.287
2,2',3,6'-TeCB	45	45 + 51	C	346	0.209 (S)	0.80	1.148
2,2',3,6'-TeCB	46			53.3	0.238 (S)	0.83	1.162
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			393	0.209 (S)	0.79	1.274
2,2',4,5'-TeCB	49	49 + 69	C	2390	0.178 (S)	0.79	1.260
2,2',4,6'-TeCB	50	50 + 53	C	285	0.201 (S)	0.77	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			3520	0.198 (S)	0.79	1.235
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			65.8	0.171 (S)	0.78	1.001
2,3,3',4'-TeCB	55		U		3.25 (S)		
2,3,3',4'-TeCB	56			588	3.26 (S)	0.76	0.904
2,3,3',5'-TeCB	57			13.3	3.02 (S)	0.73	0.842
2,3,3',5'-TeCB	58			18.4	3.16 (S)	0.68	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	252	0.157 (S)	0.79	1.303
2,3,4,4'-TeCB	60			733	3.31 (S)	0.77	0.910
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	3980	3.04 (S)	0.76	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			200	3.05 (S)	0.77	0.863
2,3,4',6'-TeCB	64			1140	0.152 (S)	0.80	1.349
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			3690	3.04 (S)	0.77	0.883
2,3',4,5'-TeCB	67			55.2	2.66 (S)	0.82	0.856
2,3',4,5'-TeCB	68			62.5	2.98 (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			76.1	2.97 (S)	0.81	0.822
2,3',5',6'-TeCB	73		U		0.152 (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			126	3.03 (S)	0.76	1.000
3,3',4,5'-TeCB	78		U		3.17 (S)		
3,3',4,5'-TeCB	79			116	2.64 (S)	0.76	0.971
3,3',5,5'-TeCB	80		U		2.96 (S)		
3,4,4',5'-TeCB	81			7.41	2.85 (S)	0.78	1.000
2,2',3,3',4'-PeCB	82			348	1.47 (S)	1.56	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	7740	1.37 (S)	1.62	0.885
2,2',3,3',6'-PeCB	84			567	1.43 (S)	1.65	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	2040	1.11 (S)	1.61	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	3910	1.14 (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	800	1.29 (S)	1.60	1.155
2,2',3,4,6'-PeCB	89			23.3	1.36 (S)	1.41	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	8470	1.14 (S)	1.60	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			1780	1.32 (S)	1.57	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	3730	1.25 (S)	1.60	1.121
2,2',3,5,6'-PeCB	94			25.3	1.39 (S)	1.46	1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			33.7	0.242 (S)	1.60	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			125	1.12 (S)	1.59	1.093
2,2',4,6,6'-PeCB	104			8.38	0.285 (S)	1.54	1.001
2,3,3',4,4'-PeCB	105			3050	13.4 (S)	1.52	1.000
2,3,3',4,5-PeCB	106		U		15.6 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	229	15.8 (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			925	15.4 (S)	1.50	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	6560	0.970 (S)	1.58	0.925
2,3,3',5,5'-PeCB	111			14.8	0.972 (S)	1.56	0.945
2,3,3',5,6-PeCB	112		U		0.925 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			213	14.9 (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			9220	13.3 (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			73.4	0.933 (S)	1.59	0.958
2,3',4,5',6-PeCB	121			13.1	0.986 (S)	1.63	1.199
2',3,3',4,5-PeCB	122			49.0	17.2 (S)	1.65	1.010
2',3,4,4',5-PeCB	123			144	15.0 (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	22.0	13.5 (S)	1.40	1.000
3,3',4,5,5'-PeCB	127			17.2	16.1 (S)	1.47	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	3350	15.6 (S)	1.27	0.958
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	24300	15.7 (S)	1.27	0.928
2,2',3,3',4,5'-HxCB	130			888	19.8 (S)	1.26	0.913
2,2',3,3',4,6-HxCB	131			59.4	18.9 (S)	1.20	1.160
2,2',3,3',4,6'-HxCB	132			1830	19.2 (S)	1.27	1.175
2,2',3,3',5,5'-HxCB	133			444	18.5 (S)	1.28	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	338	18.7 (S)	1.25	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	4330	0.328 (S)	1.26	1.105
2,2',3,3',6,6'-HxCB	136			760	0.249 (S)	1.26	1.025
2,2',3,4,4',5-HxCB	137			917	18.9 (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	353	17.0 (S)	1.24	1.153
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			2250	16.7 (S)	1.27	0.903
2,2',3,4,5,6-HxCB	142		U		18.7 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			362	0.329 (S)	1.27	1.122
2,2',3,4,6,6'-HxCB	145		J	2.13	0.265 (S)	1.36	1.035
2,2',3,4',5,5'-HxCB	146			4090	15.6 (S)	1.26	0.884
2,2',3,4',5,6-HxCB	147	147 + 149	C	6610	16.9 (S)	1.27	1.134
2,2',3,4',5,6'-HxCB	148			47.9	0.343 (S)	1.25	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			23.0	0.252 (S)	1.36	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			14.2	0.246 (S)	1.30	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C	25900	13.8 (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			22.8	0.324 (S)	1.18	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	1830	16.0 (S)	1.26	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			1760	12.1 (S)	1.26	0.938
2,3,3',4,5,5'-HxCB	159			66.2	13.5 (S)	1.35	0.981
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		12.8 (S)		
2,3,3',4',5,5'-HxCB	162			68.0	12.3 (S)	1.41	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			752	13.0 (S)	1.28	0.921
2,3,3',5,5',6-HxCB	165			19.6	14.7 (S)	1.28	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			682	12.2 (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		22.8 (S)		
2,2',3,3',4,4',5-HpCB	170			3920	0.428 (S)	1.05	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	1300	0.451 (S)	1.04	1.163
2,2',3,3',4,5,5'-HpCB	172			747	0.449 (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			1290	0.396 (S)	1.03	1.134
2,2',3,3',4,5',6-HpCB	175			133	0.410 (S)	1.08	1.103
2,2',3,3',4,6,6'-HpCB	176			159	0.302 (S)	1.04	1.034
2,2',3,3',4',5,6-HpCB	177			1370	0.367 (S)	1.05	1.146
2,2',3,3',5,5',6-HpCB	178			1130	0.424 (S)	1.02	1.085
2,2',3,3',5,6,6'-HpCB	179			890	0.290 (S)	1.06	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	12800	0.385 (S)	1.06	1.001
2,2',3,4,4',5,6-HpCB	181			50.0	0.425 (S)	0.99	1.157
2,2',3,4,4',5,6'-HpCB	182			34.7	0.404 (S)	1.05	1.116
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	3380	0.416 (S)	1.07	1.127
2,2',3,4,4',6,6'-HpCB	184			20.3	0.294 (S)	0.98	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.319 (S)		
2,2',3,4',5,5',6-HpCB	187			8620	0.394 (S)	1.05	1.110
2,2',3,4',5,6,6'-HpCB	188			15.6	0.358 (S)	1.14	1.000
2,3,3',4,4',5,5'-HpCB	189			123	0.916 (S)	1.02	1.000
2,3,3',4,4',5,6-HpCB	190			891	0.334 (S)	1.07	0.947
2,3,3',4,4',5',6-HpCB	191			174	0.330 (S)	1.07	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.361 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			2090	0.762 (S)	0.89	0.991
2,2',3,3',4,4',5,6-OxCB	195			781	0.823 (S)	0.90	0.945
2,2',3,3',4,4',5,6'-OxCB	196			910	0.143 (S)	0.91	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C	153	0.103 (S)	0.90	1.045
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	2400	0.149 (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			202	0.105 (S)	0.92	1.022
2,2',3,3',5,5',6,6'-OxCB	202			846	0.146 (S)	0.91	1.000
2,2',3,4,4',5,5',6-OxCB	203			1830	0.142 (S)	0.92	0.919
2,2',3,4,4',5,6,6'-OxCB	204		J	1.46	0.103 (S)	0.97	1.039
2,3,3',4,4',5,5',6-OxCB	205			83.3	0.578 (S)	0.87	1.000
2,2',3,3',4,4',5,5',6-NoCB	206			1110	0.261 (S)	0.79	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207			110	0.187 (S)	0.80	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			359	0.242 (S)	0.80	1.000
2,2',3,3',4,4',5,5',6,6'-DeCB	209			270	0.163 (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; 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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB021
Sample Collection:
21-Aug-2018 09:22

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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 15-Oct-2018 Time: 14:31:09
 Extract Volume (uL): 100
 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.: L29935-17
 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_351 S: 7
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_351 S: 1
 % Lipid: 5.99

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	557	27.8	3.26	0.718
13C12-4-MoCB	3L			2000	663	33.1	3.39	0.859
13C12-2,2'-DiCB	4L			2000	751	37.5	1.55	0.874
13C12-4,4'-DiCB	15L			2000	1000	50.1	1.55	1.256
13C12-2,2',6-TriCB	19L			2000	839	41.9	1.10	1.072
13C12-3,4,4'-TriCB	37L			2000	1330	66.4	0.99	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1140	57.1	0.81	0.810
13C12-3,3',4,4'-TeCB	77L			2000	1730	86.7	0.76	1.397
13C12-3,4,4',5-TeCB	81L			2000	1780	89.2	0.76	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	1040	51.8	1.66	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1680	83.9	1.62	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1550	77.3	1.63	1.179
13C12-2,3',4,4',5-PeCB	118L			2000	1700	85.0	1.54	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1610	80.5	1.56	1.151
13C12-3,3',4,4',5-PeCB	126L			2000	1950	97.3	1.59	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	704	35.2	1.24	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	2770	69.2	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	1390	69.4	1.26	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1340	66.8	1.24	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1360	68.1	1.10	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1380	68.8	1.08	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	942	47.1	1.03	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1250	62.6	1.06	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	732	36.6	0.91	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1420	71.0	0.94	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1140	57.2	0.79	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	999	49.9	0.76	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	605	30.3	1.33	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1460	73.0	1.04	0.924
13C12-2,3,3',5,5'-PeCB	111L			2000	1300	64.9	1.63	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1170	58.5	1.12	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB023
Sample Collection:
21-Aug-2018 08:38

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.:	L29935-18
Sample Receipt Date:	23-Aug-2018	Sample Size:	10.1 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	15-Oct-2018 Time: 15:34:53	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_351 S: 8
Dilution Factor:	N/A	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_351 S: 1
		% Lipid:	6.83

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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			4.84	0.161 (S)	3.05	1.001
3-MoCB	2		J	1.52	0.201 (S)	2.87	0.988
4-MoCB	3		J	2.18	0.195 (S)	2.97	1.001
2,2'-DiCB	4			184	0.717 (S)	1.48	1.000
2,3-DiCB	5		J	1.70	0.706 (S)	1.54	1.197
2,3'-DiCB	6			23.4	0.619 (S)	1.54	1.174
2,4-DiCB	7			4.70	0.627 (S)	1.35	1.158
2,4'-DiCB	8			102	0.549 (S)	1.50	1.207
2,5-DiCB	9			7.01	0.600 (S)	1.44	1.145
2,6-DiCB	10			11.2	0.596 (S)	1.41	1.012
3,3'-DiCB	11			88.5	0.642 (S)	1.50	0.968
3,4-DiCB	12	12 + 13	C	3.68	0.649 (S)	1.56	0.984
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.637 (S)		
4,4'-DiCB	15			29.1	0.652 (S)	1.43	1.001
2,2',3-TriCB	16			129	0.168 (S)	1.10	1.166
2,2',4-TriCB	17			298	0.140 (S)	1.06	1.138
2,2',5-TriCB	18	18 + 30	C	388	0.117 (S)	1.05	1.113
2,2',6-TriCB	19			481	0.171 (S)	1.09	1.001
2,3,3'-TriCB	20	20 + 28	C	1550	1.62 (S)	0.99	0.847
2,3,4-TriCB	21	21 + 33	C	336	1.59 (S)	1.02	0.856
2,3,4'-TriCB	22			322	1.77 (S)	1.03	0.872
2,3,5-TriCB	23		U		1.73 (S)		
2,3,6-TriCB	24		K	5.29	0.101 (S)	1.26	1.159
2,3',4-TriCB	25			89.5	1.42 (S)	1.03	0.824
2,3',5-TriCB	26	26 + 29	C	226	1.68 (S)	0.99	1.302
2,3',6-TriCB	27			67.1	0.101 (S)	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			849	1.56 (S)	1.01	0.836
2,4',6-TriCB	32			182	1.57 (S)	0.97	1.197
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			8.13	1.70 (S)	1.00	1.274
3,3',4-TriCB	35			4.22	1.60 (S)	0.92	0.988
3,3',5-TriCB	36		U		1.51 (S)		
3,4,4'-TriCB	37			101	1.52 (S)	1.01	1.001
3,4,5-TriCB	38		K	2.96	1.64 (S)	1.42	0.967
3,4',5-TriCB	39			11.3	1.62 (S)	0.94	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	782	0.441 (S)	0.79	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			541	0.457 (S)	0.78	1.311
2,2',3,5'-TeCB	43			94.2	0.543 (S)	0.78	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	3430	0.404 (S)	0.79	1.286
2,2',3,6'-TeCB	45	45 + 51	C	403	0.439 (S)	0.78	1.147
2,2',3,6'-TeCB	46			53.3	0.499 (S)	0.80	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			321	0.440 (S)	0.76	1.273
2,2',4,5'-TeCB	49	49 + 69	C	2410	0.374 (S)	0.80	1.259
2,2',4,6'-TeCB	50	50 + 53	C	301	0.422 (S)	0.79	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			3390	0.416 (S)	0.80	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			86.2	0.317 (S)	0.80	1.001
2,3,3',4'-TeCB	55		U		9.91 (S)		
2,3,3',4'-TeCB	56			575	9.95 (S)	0.74	0.904
2,3,3',5'-TeCB	57			15.0	9.19 (S)	0.84	0.843
2,3,3',5'-TeCB	58			15.3	9.65 (S)	0.71	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	257	0.330 (S)	0.79	1.302
2,3,4,4'-TeCB	60			962	10.1 (S)	0.76	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	4340	9.25 (S)	0.76	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			200	9.30 (S)	0.77	0.864
2,3,4',6'-TeCB	64			1160	0.320 (S)	0.79	1.348
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			3970	9.27 (S)	0.75	0.884
2,3',4,5'-TeCB	67			59.1	8.09 (S)	0.79	0.855
2,3',4,5'-TeCB	68			49.2	9.08 (S)	0.71	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			67.0	9.07 (S)	0.72	0.822
2,3',5',6'-TeCB	73		U		0.320 (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			136	9.45 (S)	0.70	1.000
3,3',4,5'-TeCB	78		U		9.66 (S)		
3,3',4,5'-TeCB	79			45.3	8.04 (S)	0.67	0.969
3,3',5,5'-TeCB	80		U		9.04 (S)		
3,4,4',5'-TeCB	81		U		9.36 (S)		
2,2',3,3',4'-PeCB	82			277	4.02 (S)	1.62	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	5520	3.74 (S)	1.61	0.885
2,2',3,3',6'-PeCB	84			540	3.90 (S)	1.58	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1500	3.03 (S)	1.60	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	3080	3.11 (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	734	3.53 (S)	1.60	1.155
2,2',3,4,6'-PeCB	89			18.8	3.73 (S)	1.45	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	6230	3.13 (S)	1.56	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			1350	3.60 (S)	1.55	0.852
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	3130	3.42 (S)	1.58	1.122
2,2',3,5,6'-PeCB	94			26.4	3.79 (S)	1.63	1.102
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			27.7	0.314 (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			127	3.07 (S)	1.60	1.094
2,2',4,6,6'-PeCB	104			9.53	0.352 (S)	1.63	1.001
2,3,3',4,4'-PeCB	105			2310	11.0 (S)	1.51	1.000
2,3,3',4,5-PeCB	106		U		12.8 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	182	13.0 (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			652	12.6 (S)	1.53	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	4980	2.65 (S)	1.55	0.925
2,3,3',5,5'-PeCB	111			13.3	2.66 (S)	1.54	0.945
2,3,3',5,6-PeCB	112		U		2.53 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			163	12.4 (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			6490	11.3 (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			58.4	2.55 (S)	1.60	0.958
2,3',4,5',6-PeCB	121			11.9	2.70 (S)	1.47	1.200
2',3,3',4,5-PeCB	122			37.8	14.1 (S)	1.46	1.010
2',3,4,4',5-PeCB	123			104	12.1 (S)	1.48	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	31.5	12.2 (S)	1.45	1.001
3,3',4,5,5'-PeCB	127			15.1	13.2 (S)	1.40	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	2020	5.57 (S)	1.26	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	14900	5.60 (S)	1.26	0.928
2,2',3,3',4,5'-HxCB	130			608	7.07 (S)	1.25	0.913
2,2',3,3',4,6-HxCB	131			50.8	6.77 (S)	1.25	1.160
2,2',3,3',4,6'-HxCB	132			1540	6.87 (S)	1.26	1.176
2,2',3,3',5,5'-HxCB	133			314	6.59 (S)	1.26	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	259	6.68 (S)	1.16	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	3300	0.353 (S)	1.26	1.105
2,2',3,3',6,6'-HxCB	136			568	0.267 (S)	1.27	1.025
2,2',3,4,4',5-HxCB	137			573	6.74 (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	226	6.07 (S)	1.27	1.153
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			1530	5.97 (S)	1.26	0.903
2,2',3,4,5,6-HxCB	142		U		6.67 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			296	0.353 (S)	1.33	1.122
2,2',3,4,6,6'-HxCB	145		U		0.285 (S)		
2,2',3,4',5,5'-HxCB	146			2840	5.57 (S)	1.25	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C	5780	6.04 (S)	1.26	1.134
2,2',3,4',5,6'-HxCB	148			45.8	0.369 (S)	1.32	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			25.2	0.270 (S)	1.34	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			9.14	0.265 (S)	1.23	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C	15900	4.93 (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			18.0	0.253 (S)	1.26	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	1150	6.20 (S)	1.27	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			1090	4.32 (S)	1.25	0.938
2,3,3',4,5,5'-HxCB	159			65.0	4.81 (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		4.58 (S)		
2,3,3',4',5,5'-HxCB	162			42.8	4.40 (S)	1.10	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			498	4.66 (S)	1.27	0.921
2,3,3',5,5',6-HxCB	165			14.5	5.24 (S)	1.20	0.878
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			456	4.79 (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		13.3 (S)		
2,2',3,3',4,4',5-HpCB	170			2560	0.645 (S)	1.06	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	801	0.604 (S)	1.05	1.163
2,2',3,3',4,5,5'-HpCB	172			486	0.602 (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			1120	0.531 (S)	1.06	1.134
2,2',3,3',4,5',6-HpCB	175			93.3	0.549 (S)	1.03	1.103
2,2',3,3',4,6,6'-HpCB	176			153	0.405 (S)	1.07	1.034
2,2',3,3',4',5,6-HpCB	177			1020	0.492 (S)	1.04	1.146
2,2',3,3',5,5',6-HpCB	178			765	0.568 (S)	1.07	1.085
2,2',3,3',5,6,6'-HpCB	179			677	0.389 (S)	1.04	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	7880	0.550 (S)	1.04	1.001
2,2',3,4,4',5,6-HpCB	181			31.5	0.570 (S)	1.00	1.157
2,2',3,4,4',5,6'-HpCB	182			31.3	0.542 (S)	1.11	1.116
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	2200	0.557 (S)	1.05	1.127
2,2',3,4,4',6,6'-HpCB	184			17.3	0.394 (S)	1.10	1.025
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.427 (S)		
2,2',3,4',5,5',6-HpCB	187			5750	0.528 (S)	1.07	1.111
2,2',3,4',5,6,6'-HpCB	188			16.0	0.459 (S)	0.97	1.000
2,3,3',4,4',5,5'-HpCB	189			74.1	0.888 (S)	0.99	1.001
2,3,3',4,4',5,6-HpCB	190			558	0.447 (S)	1.05	0.947
2,3,3',4,4',5',6-HpCB	191			106	0.442 (S)	1.05	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.484 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			1190	0.597 (S)	0.89	0.991
2,2',3,3',4,4',5,6-OxCB	195			480	0.645 (S)	0.92	0.945
2,2',3,3',4,4',5,6'-OxCB	196			521	0.173 (S)	0.90	0.915
2,2',3,3',4,4',6-OxCB	197	197 + 200	C	120	0.125 (S)	0.87	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	1260	0.180 (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			131	0.127 (S)	0.91	1.022
2,2',3,3',5,5',6,6'-OxCB	202			462	0.169 (S)	0.89	1.000
2,2',3,4,4',5,5',6-OxCB	203			1020	0.172 (S)	0.90	0.919
2,2',3,4,4',5,6,6'-OxCB	204		J	1.85	0.125 (S)	0.96	1.038
2,3,3',4,4',5,5',6-OxCB	205			56.9	0.466 (S)	1.00	1.001
2,2',3,3',4,4',5,5',6-NoCB	206			479	0.362 (S)	0.78	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207			61.5	0.252 (S)	0.80	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			166	0.320 (S)	0.77	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			208	0.151 (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; 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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB023
Sample Collection:
21-Aug-2018 08:38

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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 15-Oct-2018 Time: 15:34:53
 Extract Volume (uL): 100
 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.: L29935-18
 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_351 S: 8
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_351 S: 1
 % Lipid: 6.83

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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	894	44.7	3.21	0.718
13C12-4-MoCB	3L			2000	949	47.4	3.25	0.858
13C12-2,2'-DiCB	4L			2000	1000	50.1	1.57	0.874
13C12-4,4'-DiCB	15L			2000	1050	52.5	1.57	1.254
13C12-2,2',6-TriCB	19L			2000	909	45.5	1.08	1.072
13C12-3,4,4'-TriCB	37L			2000	1330	66.3	1.00	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1150	57.7	0.79	0.811
13C12-3,3',4,4'-TeCB	77L			2000	1520	75.8	0.75	1.398
13C12-3,4,4',5-TeCB	81L			2000	1530	76.7	0.78	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	972	48.6	1.69	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1500	75.0	1.56	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1380	69.2	1.57	1.180
13C12-2,3',4,4',5-PeCB	118L			2000	1470	73.7	1.54	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1450	72.6	1.58	1.152
13C12-3,3',4,4',5-PeCB	126L			2000	1630	81.4	1.57	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	876	43.8	1.27	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	2420	60.5	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	1210	60.6	1.24	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1150	57.7	1.23	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1120	56.0	1.09	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1180	59.2	1.07	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	862	43.1	1.05	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1090	54.6	1.07	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	673	33.6	0.90	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1220	61.0	0.91	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1020	51.0	0.79	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1010	50.3	0.82	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	734	36.7	1.12	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1440	71.9	1.04	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1390	69.3	1.64	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1050	52.3	1.05	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB015
Sample Collection:
21-Aug-2018 11:54

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.:	L29935-19
Sample Receipt Date:	23-Aug-2018	Sample Size:	10.3 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	15-Oct-2018 Time: 16:38:38	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_351 S: 9
Dilution Factor:	N/A	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_351 S: 1
		% Lipid:	6.84

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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			170	0.243 (S)	3.08	1.001
3-MoCB	2			7.85	0.299 (S)	3.12	0.988
4-MoCB	3			42.7	0.288 (S)	3.06	1.001
2,2'-DiCB	4			1680	1.98 (S)	1.48	1.001
2,3-DiCB	5			41.8	1.83 (S)	1.57	1.197
2,3'-DiCB	6			537	1.60 (S)	1.51	1.177
2,4-DiCB	7			112	1.62 (S)	1.47	1.159
2,4'-DiCB	8			2520	1.42 (S)	1.49	1.209
2,5-DiCB	9			170	1.55 (S)	1.48	1.147
2,6-DiCB	10			108	1.54 (S)	1.53	1.013
3,3'-DiCB	11			103	1.66 (S)	1.49	0.968
3,4-DiCB	12	12 + 13	C	59.3	1.68 (S)	1.58	0.983
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		1.65 (S)		
4,4'-DiCB	15			706	1.62 (S)	1.44	1.001
2,2',3-TriCB	16			1510	0.307 (S)	1.07	1.166
2,2',4-TriCB	17			2080	0.255 (S)	1.05	1.137
2,2',5-TriCB	18	18 + 30	C	3600	0.213 (S)	1.08	1.113
2,2',6-TriCB	19			1380	0.304 (S)	1.05	1.001
2,3,3'-TriCB	20	20 + 28	C	8170	14.6 (S)	0.98	0.847
2,3,4-TriCB	21	21 + 33	C	2480	14.4 (S)	0.98	0.856
2,3,4'-TriCB	22			2370	16.0 (S)	0.99	0.871
2,3,5-TriCB	23		U		15.6 (S)		
2,3,6-TriCB	24			84.1	0.185 (S)	1.07	1.159
2,3',4-TriCB	25			501	12.8 (S)	0.98	0.824
2,3',5-TriCB	26	26 + 29	C	1170	15.1 (S)	1.00	1.301
2,3',6-TriCB	27			502	0.184 (S)	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			5110	14.1 (S)	0.97	0.835
2,4',6-TriCB	32			1640	14.2 (S)	0.99	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			29.2	15.4 (S)	0.99	1.274
3,3',4-TriCB	35			18.8	14.5 (S)	1.06	0.988
3,3',5-TriCB	36		U		13.7 (S)		
3,4,4'-TriCB	37			698	13.8 (S)	0.99	1.001
3,4,5-TriCB	38		U		14.8 (S)		
3,4',5-TriCB	39			46.0	14.7 (S)	1.00	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	2980	0.655 (S)	0.79	1.336
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			1660	0.679 (S)	0.80	1.312
2,2',3,5'-TeCB	43			340	0.806 (S)	0.80	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	7790	0.600 (S)	0.79	1.286
2,2',3,6'-TeCB	45	45 + 51	C	1330	0.652 (S)	0.78	1.147
2,2',3,6'-TeCB	46			308	0.741 (S)	0.78	1.161
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			1350	0.653 (S)	0.80	1.274
2,2',4,5'-TeCB	49	49 + 69	C	4980	0.555 (S)	0.80	1.260
2,2',4,6'-TeCB	50	50 + 53	C	1050	0.626 (S)	0.80	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			8060	0.618 (S)	0.79	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			119	0.468 (S)	0.77	1.001
2,3,3',4'-TeCB	55		U		9.17 (S)		
2,3,3',4'-TeCB	56			1190	9.21 (S)	0.76	0.904
2,3,3',5'-TeCB	57			35.8	8.51 (S)	0.73	0.842
2,3,3',5'-TeCB	58			19.5	8.93 (S)	0.73	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	713	0.490 (S)	0.79	1.302
2,3,4,4'-TeCB	60			1060	9.33 (S)	0.76	0.910
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	7040	8.56 (S)	0.75	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			297	8.61 (S)	0.77	0.863
2,3,4',6'-TeCB	64			3060	0.475 (S)	0.79	1.349
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			4880	8.57 (S)	0.75	0.883
2,3',4,5'-TeCB	67			161	7.49 (S)	0.75	0.855
2,3',4,5'-TeCB	68			87.1	8.40 (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			102	8.39 (S)	0.75	0.821
2,3',5',6'-TeCB	73		U		0.475 (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			217	8.59 (S)	0.75	1.001
3,3',4,5'-TeCB	78		U		8.94 (S)		
3,3',4,5'-TeCB	79			92.9	7.44 (S)	0.76	0.968
3,3',5,5'-TeCB	80		U		8.36 (S)		
3,4,4',5'-TeCB	81		K	11.5	8.88 (S)	0.80	1.000
2,2',3,3',4'-PeCB	82			691	4.37 (S)	1.60	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	8070	4.06 (S)	1.60	0.885
2,2',3,3',6'-PeCB	84			1270	4.24 (S)	1.59	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	2240	3.29 (S)	1.60	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	5820	3.37 (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	1400	3.84 (S)	1.55	1.155
2,2',3,4,6'-PeCB	89			46.4	4.05 (S)	1.62	1.184
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	11900	3.40 (S)	1.60	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			2330	3.91 (S)	1.58	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	6980	3.72 (S)	1.61	1.121
2,2',3,5,6'-PeCB	94			61.4	4.12 (S)	1.69	1.103
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96			58.5	0.316 (S)	1.58	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			177	3.33 (S)	1.53	1.094
2,2',4,6,6'-PeCB	104			12.4	0.368 (S)	1.49	1.001
2,3,3',4,4'-PeCB	105			3380	21.1 (S)	1.52	1.000
2,3,3',4,5-PeCB	106		U		24.6 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	348	25.0 (S)	1.46	0.991
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109			957	24.3 (S)	1.51	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	10100	2.88 (S)	1.57	0.924
2,3,3',5,5'-PeCB	111			10.7	2.89 (S)	1.45	0.945
2,3,3',5,6-PeCB	112		U		2.75 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			223	23.6 (S)	1.49	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			9680	20.9 (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			65.5	2.77 (S)	1.47	0.958
2,3',4,5',6-PeCB	121			14.7	2.93 (S)	1.73	1.200
2',3,3',4,5-PeCB	122			84.2	27.2 (S)	1.38	1.010
2',3,4,4',5-PeCB	123			155	23.9 (S)	1.47	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	24.7	23.9 (S)	1.54	1.000
3,3',4,5,5'-PeCB	127			28.5	25.4 (S)	1.43	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	3310	18.9 (S)	1.27	0.958
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	24800	19.0 (S)	1.27	0.928
2,2',3,3',4,5'-HxCB	130			1140	24.0 (S)	1.24	0.912
2,2',3,3',4,6-HxCB	131			115	22.9 (S)	1.29	1.161
2,2',3,3',4,6'-HxCB	132			3640	23.3 (S)	1.27	1.176
2,2',3,3',5,5'-HxCB	133			425	22.4 (S)	1.28	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	594	22.6 (S)	1.25	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	6040	0.751 (S)	1.27	1.105
2,2',3,3',6,6'-HxCB	136			1160	0.569 (S)	1.28	1.025
2,2',3,4,4',5-HxCB	137			995	22.8 (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	325	20.6 (S)	1.28	1.153
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			3320	20.2 (S)	1.26	0.903
2,2',3,4,5,6-HxCB	142		U		22.6 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			694	0.752 (S)	1.26	1.123
2,2',3,4,6,6'-HxCB	145		U		0.607 (S)		
2,2',3,4',5,5'-HxCB	146			4260	18.9 (S)	1.26	0.883
2,2',3,4',5,6-HxCB	147	147 + 149	C	13500	20.5 (S)	1.27	1.134
2,2',3,4',5,6'-HxCB	148			56.8	0.784 (S)	1.27	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			34.3	0.575 (S)	1.18	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152			15.1	0.563 (S)	1.19	1.008
2,2',4,4',5,5'-HxCB	153	153 + 168	C	25400	16.7 (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			12.6	0.568 (S)	1.19	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	1860	20.2 (S)	1.29	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			1850	14.7 (S)	1.27	0.938
2,3,3',4,5,5'-HxCB	159			148	16.3 (S)	1.25	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		15.5 (S)		
2,3,3',4',5,5'-HxCB	162			59.8	14.9 (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			971	15.8 (S)	1.25	0.921
2,3,3',5,5',6-HxCB	165		U		17.8 (S)		
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			848	16.7 (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		24.4 (S)		
2,2',3,3',4,4',5-HpCB	170			4200	0.714 (S)	1.04	1.000
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	1390	0.717 (S)	1.04	1.163
2,2',3,3',4,5,5'-HpCB	172			877	0.714 (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			2980	0.630 (S)	1.06	1.134
2,2',3,3',4,5',6-HpCB	175			195	0.652 (S)	1.05	1.103
2,2',3,3',4,6,6'-HpCB	176			379	0.480 (S)	1.05	1.035
2,2',3,3',4',5,6-HpCB	177			2340	0.583 (S)	1.06	1.146
2,2',3,3',5,5',6-HpCB	178			1340	0.674 (S)	1.05	1.085
2,2',3,3',5,6,6'-HpCB	179			1450	0.462 (S)	1.06	1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	13900	0.617 (S)	1.06	1.000
2,2',3,4,4',5,6-HpCB	181			39.5	0.676 (S)	1.05	1.157
2,2',3,4,4',5,6'-HpCB	182		U		0.643 (S)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	4110	0.661 (S)	1.06	1.127
2,2',3,4,4',6,6'-HpCB	184			11.0	0.468 (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		0.507 (S)		
2,2',3,4',5,5',6-HpCB	187			10200	0.626 (S)	1.06	1.111
2,2',3,4',5,6,6'-HpCB	188			16.2	0.527 (S)	1.02	1.001
2,3,3',4,4',5,5'-HpCB	189			119	1.56 (S)	1.01	1.001
2,3,3',4,4',5,6-HpCB	190			985	0.531 (S)	1.05	0.947
2,3,3',4,4',5',6-HpCB	191			187	0.524 (S)	1.02	0.918
2,3,3',4,5,5',6-HpCB	192		U		0.575 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			1940	1.02 (S)	0.89	0.991
2,2',3,3',4,4',5,6-OxCB	195			784	1.10 (S)	0.89	0.945
2,2',3,3',4,4',5,6'-OxCB	196			953	0.231 (S)	0.90	0.916
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C	239	0.167 (S)	0.92	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	2430	0.240 (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			253	0.169 (S)	0.89	1.023
2,2',3,3',5,5',6,6'-OxCB	202			720	0.225 (S)	0.90	1.000
2,2',3,4,4',5,5',6-OxCB	203			1650	0.230 (S)	0.91	0.919
2,2',3,4,4',5,6,6'-OxCB	204		J	1.84	0.167 (S)	0.96	1.039
2,3,3',4,4',5,5',6-OxCB	205			91.3	0.798 (S)	0.91	1.000
2,2',3,3',4,4',5,5',6-NoCB	206			570	0.596 (S)	0.81	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207			76.9	0.414 (S)	0.78	1.019
2,2',3,3',4,5,5',6,6'-NoCB	208			216	0.521 (S)	0.76	1.000
2,2',3,3',4,4',5,5',6,6'-DeCB	209			158	0.176 (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; 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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB015
Sample Collection:
21-Aug-2018 11:54

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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 15-Oct-2018 Time: 16:38:38
 Extract Volume (uL): 100
 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.: L29935-19
 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_351 S: 9
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_351 S: 1
 % Lipid: 6.84

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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	803	40.2	3.34	0.718
13C12-4-MoCB	3L			2000	853	42.6	3.33	0.858
13C12-2,2'-DiCB	4L			2000	854	42.7	1.52	0.873
13C12-4,4'-DiCB	15L			2000	970	48.5	1.55	1.255
13C12-2,2',6-TriCB	19L			2000	861	43.1	1.06	1.072
13C12-3,4,4'-TriCB	37L			2000	1150	57.5	0.97	1.093
13C12-2,2',6,6'-TeCB	54L			2000	1040	51.9	0.81	0.811
13C12-3,3',4,4'-TeCB	77L			2000	1350	67.3	0.75	1.398
13C12-3,4,4',5-TeCB	81L			2000	1350	67.3	0.79	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	851	42.5	1.72	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1350	67.4	1.53	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1250	62.6	1.63	1.179
13C12-2,3',4,4',5-PeCB	118L			2000	1360	68.1	1.54	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1300	65.1	1.59	1.151
13C12-3,3',4,4',5-PeCB	126L			2000	1420	70.9	1.57	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	758	37.9	1.31	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	2230	55.8	1.23	1.108
13C12-2,3,3',4,4',5-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			2000	1100	54.8	1.33	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1100	54.9	1.25	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1150	57.7	1.02	0.898
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1170	58.4	1.15	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	833	41.6	1.05	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	994	49.7	1.02	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	637	31.9	0.89	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1150	57.5	0.90	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1040	52.1	0.84	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	968	48.4	0.81	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	752	37.6	1.22	1.075
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1270	63.4	1.00	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1180	59.2	1.70	1.087
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	896	44.8	1.13	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 1A
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB025
Sample Collection:
21-Aug-2018 08:05

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.:	L29935-20
Sample Receipt Date:	23-Aug-2018	Sample Size:	10.4 g (wet)
Extraction Date:	18-Sep-2018	Initial Calibration Date:	07-Jul-2018
Analysis Date:	15-Oct-2018 Time: 17:42:26	Instrument ID:	HR GC/MS
Extract Volume (uL):	100	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB8C_351 S: 10
Dilution Factor:	N/A	Blank Data Filename:	PB8C_348 S: 4
Concentration Units:	pg/g (wet weight basis)	Cal. Ver. Data Filename:	PB8C_351 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			3.93	0.103 (S)	3.19	1.001
3-MoCB	2		J	0.876	0.135 (S)	3.48	0.987
4-MoCB	3		J	1.55	0.137 (S)	3.23	1.000
2,2'-DiCB	4			141	0.752 (S)	1.49	1.001
2,3-DiCB	5		J	1.56	0.791 (S)	1.72	1.197
2,3'-DiCB	6			20.6	0.694 (S)	1.43	1.177
2,4-DiCB	7			4.54	0.702 (S)	1.37	1.158
2,4'-DiCB	8			90.6	0.615 (S)	1.48	1.208
2,5-DiCB	9			6.15	0.672 (S)	1.42	1.146
2,6-DiCB	10			10.1	0.668 (S)	1.57	1.013
3,3'-DiCB	11			30.2	0.720 (S)	1.54	0.968
3,4-DiCB	12	12 + 13	C J	2.21	0.727 (S)	1.58	0.983
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.714 (S)		
4,4'-DiCB	15			19.1	0.765 (S)	1.38	1.000
2,2',3-TriCB	16			94.3	0.283 (S)	1.09	1.167
2,2',4-TriCB	17			215	0.235 (S)	1.07	1.138
2,2',5-TriCB	18	18 + 30	C	268	0.196 (S)	1.07	1.114
2,2',6-TriCB	19			388	0.285 (S)	1.05	1.001
2,3,3'-TriCB	20	20 + 28	C	1120	1.68 (S)	0.98	0.847
2,3,4-TriCB	21	21 + 33	C	272	1.65 (S)	1.02	0.857
2,3,4'-TriCB	22			246	1.84 (S)	1.00	0.871
2,3,5-TriCB	23		U		1.79 (S)		
2,3,6-TriCB	24			4.43	0.170 (S)	1.05	1.160
2,3',4-TriCB	25			68.0	1.47 (S)	0.97	0.824
2,3',5-TriCB	26	26 + 29	C	156	1.74 (S)	1.00	1.302
2,3',6-TriCB	27			51.9	0.170 (S)	1.04	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			576	1.62 (S)	1.00	0.836
2,4',6-TriCB	32			120	1.63 (S)	0.98	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34			5.77	1.77 (S)	0.89	1.274
3,3',4-TriCB	35		J	2.38	1.66 (S)	1.07	0.988
3,3',5-TriCB	36		U		1.57 (S)		
3,4,4'-TriCB	37			82.2	1.58 (S)	0.98	1.001
3,4,5-TriCB	38		J	2.34	1.70 (S)	1.03	0.967
3,4',5-TriCB	39			8.33	1.68 (S)	1.13	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	530	0.427 (S)	0.80	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			360	0.443 (S)	0.80	1.313
2,2',3,5'-TeCB	43			70.1	0.526 (S)	0.79	1.247
2,2',3,5'-TeCB	44	44 + 47 + 65	C	2560	0.392 (S)	0.80	1.287
2,2',3,6'-TeCB	45	45 + 51	C	308	0.425 (S)	0.78	1.149
2,2',3,6'-TeCB	46			41.8	0.483 (S)	0.82	1.162
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			237	0.426 (S)	0.80	1.274
2,2',4,5'-TeCB	49	49 + 69	C	1680	0.362 (S)	0.80	1.260
2,2',4,6'-TeCB	50	50 + 53	C	262	0.408 (S)	0.78	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			2530	0.403 (S)	0.79	1.235
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54			77.7	0.320 (S)	0.80	1.001
2,3,3',4'-TeCB	55		U		2.71 (S)		
2,3,3',4'-TeCB	56			351	2.72 (S)	0.75	0.904
2,3,3',5'-TeCB	57			10.3	2.52 (S)	0.74	0.842
2,3,3',5'-TeCB	58			12.0	2.64 (S)	0.70	0.851
2,3,3',6'-TeCB	59	59 + 62 + 75	C	182	0.319 (S)	0.78	1.303
2,3,4,4'-TeCB	60			479	2.76 (S)	0.75	0.910
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	2740	2.53 (S)	0.76	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			144	2.55 (S)	0.77	0.863
2,3,4',6'-TeCB	64			783	0.310 (S)	0.80	1.350
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			2510	2.54 (S)	0.75	0.884
2,3',4,5'-TeCB	67			45.8	2.22 (S)	0.74	0.855
2,3',4,5'-TeCB	68			56.8	2.49 (S)	0.73	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			68.3	2.48 (S)	0.76	0.822
2,3',5',6'-TeCB	73		U		0.310 (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			90.2	2.55 (S)	0.75	1.001
3,3',4,5'-TeCB	78		U		2.65 (S)		
3,3',4,5'-TeCB	79			42.7	2.20 (S)	0.71	0.968
3,3',5,5'-TeCB	80		U		2.47 (S)		
3,4,4',5'-TeCB	81		K	5.37	2.51 (S)	0.77	1.000
2,2',3,3',4'-PeCB	82			273	5.94 (S)	1.63	0.933
2,2',3,3',5'-PeCB	83	83 + 99	C	5750	5.52 (S)	1.61	0.885
2,2',3,3',6'-PeCB	84			529	5.76 (S)	1.59	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1270	4.47 (S)	1.61	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C G	3120	4.58 (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	688	5.22 (S)	1.57	1.155
2,2',3,4,6'-PeCB	89			15.7	5.50 (S)	1.55	1.184
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	9150	4.61 (S)	1.56	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			1710	5.31 (S)	1.54	0.852
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	4500	5.05 (S)	1.57	1.121
2,2',3,5,6'-PeCB	94			22.2	5.59 (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			23.6	0.277 (S)	1.53	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			151	4.53 (S)	1.61	1.093
2,2',4,6,6'-PeCB	104			9.58	0.312 (S)	1.56	1.001
2,3,3',4,4'-PeCB	105			2410	8.37 (S)	1.51	1.000
2,3,3',4,5-PeCB	106		U		10.5 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C	175	10.6 (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			700	10.3 (S)	1.53	0.997
2,3,3',4',6-PeCB	110	110 + 115	C	5550	3.91 (S)	1.58	0.924
2,3,3',5,5'-PeCB	111			19.2	3.92 (S)	1.67	0.945
2,3,3',5,6-PeCB	112		U		3.73 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114			183	10.4 (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			7030	9.24 (S)	1.52	1.001
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120			85.6	3.76 (S)	1.65	0.958
2,3',4,5',6-PeCB	121			16.2	3.98 (S)	1.42	1.200
2',3,3',4,5-PeCB	122			37.6	11.5 (S)	1.52	1.010
2',3,4,4',5-PeCB	123			123	10.5 (S)	1.54	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	55.9	9.80 (S)	1.42	1.001
3,3',4,5,5'-PeCB	127			22.7	10.8 (S)	1.69	1.041
2,2',3,3',4,4'-HxCB	128	128 + 166	C	4710	28.7 (S)	1.25	0.960
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	44600	28.8 (S)	1.26	0.928
2,2',3,3',4,5'-HxCB	130			1370	36.4 (S)	1.26	0.913
2,2',3,3',4,6-HxCB	131			102	34.9 (S)	1.28	1.161
2,2',3,3',4,6'-HxCB	132			4910	35.4 (S)	1.26	1.175
2,2',3,3',5,5'-HxCB	133			704	34.0 (S)	1.27	1.192
2,2',3,3',5,6-HxCB	134	134 + 143	C	762	34.4 (S)	1.25	1.141
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	13900	0.472 (S)	1.26	1.104
2,2',3,3',6,6'-HxCB	136			1820	0.358 (S)	1.25	1.025
2,2',3,4,4',5-HxCB	137			726	34.7 (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	302	31.3 (S)	1.23	1.153
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			7460	30.7 (S)	1.25	0.903
2,2',3,4,5,6-HxCB	142		U		34.4 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144			1500	0.473 (S)	1.23	1.122
2,2',3,4,6,6'-HxCB	145		U		0.381 (S)		
2,2',3,4',5,5'-HxCB	146			8670	28.7 (S)	1.26	0.884
2,2',3,4',5,6-HxCB	147	147 + 149	C	25400	31.1 (S)	1.26	1.134
2,2',3,4',5,6'-HxCB	148			73.1	0.493 (S)	1.28	1.084
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150			36.7	0.361 (S)	1.23	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		K	10.4	0.354 (S)	0.93	1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C	58400	25.4 (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			18.7	0.340 (S)	1.16	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	2290	31.9 (S)	1.26	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			3040	22.3 (S)	1.26	0.938
2,3,3',4,5,5'-HxCB	159			528	24.8 (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		23.6 (S)		
2,3,3',4',5,5'-HxCB	162		K	66.3	22.6 (S)	1.48	0.989
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			1600	24.0 (S)	1.24	0.921
2,3,3',5,5',6-HxCB	165		U		27.0 (S)		
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			1110	24.3 (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		86.9 (S)		
2,2',3,3',4,4',5-HpCB	170			13100	0.714 (S)	1.05	1.001
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	4210	0.691 (S)	1.06	1.163
2,2',3,3',4,5,5'-HpCB	172			2680	0.688 (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			8980	0.607 (S)	1.06	1.134
2,2',3,3',4,5',6-HpCB	175			643	0.628 (S)	1.05	1.103
2,2',3,3',4,6,6'-HpCB	176			1120	0.463 (S)	1.06	1.034
2,2',3,3',4',5,6-HpCB	177			7250	0.562 (S)	1.05	1.146
2,2',3,3',5,5',6-HpCB	178			4090	0.650 (S)	1.06	1.085
2,2',3,3',5,6,6'-HpCB	179			4070	0.445 (S)	1.06	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	48500	0.591 (S)	1.06	1.000
2,2',3,4,4',5,6-HpCB	181			62.9	0.651 (S)	0.95	1.157
2,2',3,4,4',5,6'-HpCB	182		U		0.620 (S)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	14000	0.637 (S)	1.05	1.127
2,2',3,4,4',6,6'-HpCB	184			18.9	0.451 (S)	1.04	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.489 (S)		
2,2',3,4',5,5',6-HpCB	187			36900	0.603 (S)	1.05	1.111
2,2',3,4',5,6,6'-HpCB	188			26.5	0.514 (S)	0.92	1.000
2,3,3',4,4',5,5'-HpCB	189			360	2.17 (S)	1.01	1.000
2,3,3',4,4',5,6-HpCB	190			3240	0.511 (S)	1.04	0.947
2,3,3',4,4',5',6-HpCB	191			611	0.505 (S)	1.08	0.917
2,3,3',4,5,5',6-HpCB	192		U		0.554 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			7450	1.39 (S)	0.89	0.991
2,2',3,3',4,4',5,6-OxCB	195			3140	1.50 (S)	0.89	0.945
2,2',3,3',4,4',5,6'-OxCB	196			3480	0.162 (S)	0.91	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C	856	0.117 (S)	0.87	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	7420	0.168 (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			873	0.118 (S)	0.90	1.023
2,2',3,3',5,5',6,6'-OxCB	202			1990	0.171 (S)	0.90	1.000
2,2',3,4,4',5,5',6-OxCB	203			5160	0.161 (S)	0.89	0.919
2,2',3,4,4',5,6,6'-OxCB	204		J	2.48	0.117 (S)	0.92	1.039
2,3,3',4,4',5,5',6-OxCB	205			347	1.02 (S)	0.89	1.000
2,2',3,3',4,4',5,5',6-NoCB	206			1370	0.453 (S)	0.79	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207			200	0.315 (S)	0.80	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208			394	0.396 (S)	0.82	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209			251	0.121 (S)	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: _____ Jason MacKenzie _____

SGS AXYS METHOD MLA-010 Rev 12

Form 2
PCB CONGENER ANALYSIS REPORTCLIENT SAMPLE NO.
PDI-TF-SMB025
Sample Collection:
21-Aug-2018 08:05

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: 23-Aug-2018
 Extraction Date: 18-Sep-2018
 Analysis Date: 15-Oct-2018 Time: 17:42:26
 Extract Volume (uL): 100
 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.: L29935-20
 Sample Size: 10.4 g (wet)
 Initial Calibration Date: 07-Jul-2018
 Instrument ID: HR GC/MS
 GC Column ID: SPB OCTYL
 Sample Data Filename: PB8C_351 S: 10
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_351 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	1190	59.4	3.12	0.719
13C12-4-MoCB	3L			2000	1160	58.2	3.14	0.859
13C12-2,2'-DiCB	4L			2000	1190	59.6	1.59	0.874
13C12-4,4'-DiCB	15L			2000	1200	59.8	1.57	1.256
13C12-2,2',6-TriCB	19L			2000	1090	54.4	1.06	1.072
13C12-3,4,4'-TriCB	37L			2000	1520	75.9	0.96	1.092
13C12-2,2',6,6'-TeCB	54L			2000	1360	67.9	0.81	0.810
13C12-3,3',4,4'-TeCB	77L			2000	1910	95.3	0.79	1.397
13C12-3,4,4',5-TeCB	81L			2000	1820	90.8	0.75	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	1160	57.8	1.60	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1910	95.3	1.52	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1590	79.6	1.52	1.179
13C12-2,3',4,4',5-PeCB	118L			2000	1810	90.6	1.64	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1700	84.9	1.52	1.152
13C12-3,3',4,4',5-PeCB	126L			2000	1880	94.2	1.59	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	1010	50.4	1.33	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	2710	67.8	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	1350	67.6	1.25	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1380	68.8	1.28	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1430	71.7	1.03	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1460	72.8	1.08	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1020	51.2	1.01	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1270	63.4	1.01	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	770	38.5	0.83	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1510	75.4	0.90	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1280	63.8	0.83	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1170	58.7	0.79	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	957	47.9	1.18	1.074
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1680	83.9	1.06	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1650	82.4	1.59	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1270	63.4	1.10	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: _____ Jason MacKenzie _____

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.:

WG65145-101

Matrix: CANOLA OIL

Sample Size:

10.0 g

Sample Receipt Date: N/A

Initial Calibration Date:

07-Jul-2018

Extraction Date: 18-Sep-2018

Instrument ID:

HR GC/MS

Analysis Date: 13-Oct-2018 Time: 23:26:11

GC Column ID:

SPB OCTYL

Extract Volume (uL): 100

Sample Data Filename:

PB8C_348 S: 4

Injection Volume (uL): 1.0

Blank Data Filename:

PB8C_348 S: 4

Dilution Factor: N/A

Cal. Ver. Data Filename:

PB8C_348 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		K J	0.246	0.114 (S)	2.59	1.001
3-MoCB	2		J	0.182	0.135 (S)	3.09	0.987
4-MoCB	3		K J	0.381	0.162 (S)	5.20	1.000
2,2'-DiCB	4		K J	0.535	0.328 (S)	1.29	1.001
2,3-DiCB	5		U		0.352 (S)		
2,3'-DiCB	6		U		0.315 (S)		
2,4-DiCB	7		U		0.324 (S)		
2,4'-DiCB	8		K J	1.44	0.289 (S)	1.25	1.208
2,5-DiCB	9		U		0.315 (S)		
2,6-DiCB	10		U		0.316 (S)		
3,3'-DiCB	11			3.89	0.323 (S)	1.46	0.968
3,4-DiCB	12	12 + 13	C U		0.327 (S)		
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.319 (S)		
4,4'-DiCB	15		K J	0.527	0.363 (S)	2.16	1.001
2,2',3-TriCB	16		K J	0.393	0.0735 (Q)	1.35	1.167
2,2',4-TriCB	17		K J	0.706	0.0735 (Q)	2.04	1.136
2,2',5-TriCB	18	18 + 30	C K J	0.908	0.0735 (Q)	1.33	1.114
2,2',6-TriCB	19		J	0.395	0.0735 (Q)	1.05	1.001
2,3,3'-TriCB	20	20 + 28	C J	1.89	0.105 (S)	1.04	0.847
2,3,4-TriCB	21	21 + 33	C J	0.986	0.105 (S)	0.89	0.856
2,3,4'-TriCB	22		J	0.607	0.116 (S)	1.04	0.871
2,3,5-TriCB	23		U		0.115 (S)		
2,3,6-TriCB	24		K J	0.081	0.0735 (Q)	1.88	1.161
2,3',4-TriCB	25		K J	0.145	0.0957 (S)	2.33	0.824
2,3',5-TriCB	26	26 + 29	C K J	0.437	0.108 (S)	1.36	1.301
2,3',6-TriCB	27		K J	0.110	0.0735 (Q)	0.51	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		J	1.27	0.101 (S)	1.05	0.836
2,4',6-TriCB	32		K J	0.310	0.104 (S)	1.62	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34		U		0.110 (S)		
3,3',4-TriCB	35		U		0.115 (S)		
3,3',5-TriCB	36		U		0.107 (S)		
3,4,4'-TriCB	37		K J	0.319	0.104 (S)	1.32	1.001
3,4,5-TriCB	38		U		0.109 (S)		
3,4',5-TriCB	39		U		0.106 (S)		

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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 K J	0.898	0.0735 (Q)	1.56	1.336
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		K J	0.365	0.0735 (Q)	1.03	1.313
2,2',3,5'-TeCB	43		U		0.0735 (Q)		
2,2',3,5'-TeCB	44	44 + 47 + 65	C J	2.42	0.0735 (Q)	0.88	1.287
2,2',3,6'-TeCB	45	45 + 51	C J	0.338	0.0735 (Q)	0.84	1.149
2,2',3,6'-TeCB	46		K J	0.083	0.0736 (S)	0.65	1.160
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		J	0.277	0.0735 (Q)	0.79	1.274
2,2',4,5'-TeCB	49	49 + 69	C K J	1.29	0.0735 (Q)	0.94	1.260
2,2',4,6'-TeCB	50	50 + 53	C J	0.427	0.0735 (Q)	0.88	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52		J	2.10	0.0735 (Q)	0.70	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		K J	0.120	0.0735 (Q)	0.47	1.001
2,3,3',4'-TeCB	55		U		0.221 (S)		
2,3,3',4'-TeCB	56		K J	0.372	0.218 (S)	1.19	0.904
2,3,3',5'-TeCB	57		U		0.206 (S)		
2,3,3',5'-TeCB	58		U		0.211 (S)		
2,3,3',6'-TeCB	59	59 + 62 + 75	C K J	0.207	0.0735 (Q)	0.26	1.303
2,3,4,4'-TeCB	60		J	0.449	0.219 (S)	0.88	0.910
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C J	2.15	0.204 (S)	0.69	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		U		0.201 (S)		
2,3,4',6'-TeCB	64		J	0.598	0.0735 (Q)	0.85	1.350
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		J	1.55	0.203 (S)	0.88	0.884
2,3',4,5'-TeCB	67		U		0.183 (S)		
2,3',4,5'-TeCB	68		U		0.197 (S)		
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		0.194 (S)		
2,3',5',6'-TeCB	73		U		0.0735 (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		0.200 (S)		
3,3',4,5'-TeCB	78		U		0.211 (S)		
3,3',4,5'-TeCB	79		U		0.175 (S)		
3,3',5,5'-TeCB	80		U		0.193 (S)		
3,4,4',5'-TeCB	81		U		0.197 (S)		
2,2',3,3',4'-PeCB	82		U		0.346 (S)		
2,2',3,3',5'-PeCB	83	83 + 99	C K	3.27	0.317 (S)	2.32	0.885
2,2',3,3',6'-PeCB	84		J	0.440	0.360 (S)	1.44	1.164
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C K J	0.915	0.262 (S)	1.87	0.919
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C J G	2.27	0.270 (S)	1.39	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 K J	0.428	0.316 (S)	1.27	1.155
2,2',3,4,6'-PeCB	89		U		0.336 (S)		
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	4.71	0.275 (S)	1.60	0.869
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		K J	0.875	0.319 (S)	2.62	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C J	2.78	0.308 (S)	1.76	1.122
2,2',3,5,6'-PeCB	94		U		0.343 (S)		
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		U		0.0735 (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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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		U		0.282 (S)		
2,2',4,6,6'-PeCB	104		U		0.0799 (S)		
2,3,3',4,4'-PeCB	105		K J	1.41	0.236 (S)	2.75	1.001
2,3,3',4,5-PeCB	106		U		0.253 (S)		
2,3,3',4',5-PeCB	107	107 + 124	C U		0.277 (S)		
2,3,3',4,5'-PeCB	108	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3,3',4,6-PeCB	109		K J	0.491	0.258 (S)	1.21	0.997
2,3,3',4',6-PeCB	110	110 + 115	C J	2.81	0.230 (S)	1.61	0.925
2,3,3',5,5'-PeCB	111		U		0.233 (S)		
2,3,3',5,6-PeCB	112		U		0.229 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		U		0.248 (S)		
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			3.39	0.243 (S)	1.34	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 108 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		U		0.220 (S)		
2,3',4,5',6-PeCB	121		U		0.241 (S)		
2',3,3',4,5-PeCB	122		U		0.292 (S)		
2',3,4,4',5-PeCB	123		U		0.253 (S)		
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		0.281 (S)		
3,3',4,5,5'-PeCB	127		U		0.272 (S)		
2,2',3,3',4,4'-HxCB	128	128 + 166	C K J	1.22	0.480 (S)	3.56	0.959
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C K	13.9	0.493 (S)	1.60	0.928
2,2',3,3',4,5'-HxCB	130		U		0.611 (S)		
2,2',3,3',4,6-HxCB	131		U		0.577 (S)		
2,2',3,3',4,6'-HxCB	132		J	2.07	0.606 (S)	1.32	1.176
2,2',3,3',5,5'-HxCB	133		U		0.569 (S)		
2,2',3,3',5,6-HxCB	134	134 + 143	C U		0.578 (S)		
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	5.21	0.237 (S)	1.05	1.105
2,2',3,3',6,6'-HxCB	136		K J	0.667	0.186 (S)	0.98	1.025
2,2',3,4,4',5-HxCB	137		K J	0.692	0.554 (S)	0.71	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 U		0.526 (S)		
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		K J	2.68	0.529 (S)	1.66	0.903
2,2',3,4,5,6-HxCB	142		U		0.589 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		K J	0.689	0.242 (S)	0.70	1.123
2,2',3,4,6,6'-HxCB	145		U		0.198 (S)		
2,2',3,4',5,5'-HxCB	146		J	2.67	0.481 (S)	1.10	0.884
2,2',3,4',5,6-HxCB	147	147 + 149	C	7.42	0.529 (S)	1.14	1.134
2,2',3,4',5,6'-HxCB	148		U		0.247 (S)		
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		U		0.187 (S)		
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		U		0.182 (S)		
2,2',4,4',5,5'-HxCB	153	153 + 168	C	16.0	0.435 (S)	1.34	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		U		0.171 (S)		
2,3,3',4,4',5-HxCB	156	156 + 157	C J	0.878	0.552 (S)	1.40	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		J	1.05	0.371 (S)	1.13	0.938
2,3,3',4,5,5'-HxCB	159		U		0.402 (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		0.417 (S)		
2,3,3',4',5,5'-HxCB	162		U		0.398 (S)		
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		K J	0.484	0.411 (S)	1.01	0.921
2,3,3',5,5',6-HxCB	165		U		0.461 (S)		
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		K J	0.451	0.414 (S)	2.46	1.000
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U		0.436 (S)		
2,2',3,3',4,4',5-HpCB	170			4.85	0.204 (S)	0.95	1.001
2,2',3,3',4,4',6-HpCB	171	171 + 173	C K J	1.30	0.213 (S)	1.23	1.163
2,2',3,3',4,5,5'-HpCB	172		K J	1.19	0.215 (S)	1.53	0.897
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174			3.59	0.194 (S)	1.05	1.134
2,2',3,3',4,5',6-HpCB	175		U		0.197 (S)		
2,2',3,3',4,6,6'-HpCB	176		J	0.414	0.152 (S)	0.90	1.034
2,2',3,3',4',5,6-HpCB	177		J	2.53	0.187 (S)	0.89	1.146
2,2',3,3',5,5',6-HpCB	178		K J	1.54	0.203 (S)	0.65	1.085
2,2',3,3',5,6,6'-HpCB	179		J	1.55	0.149 (S)	0.97	1.010
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	14.5	0.197 (S)	0.98	1.000
2,2',3,4,4',5,6-HpCB	181		U		0.204 (S)		
2,2',3,4,4',5,6'-HpCB	182		U		0.192 (S)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	4.42	0.196 (S)	1.21	1.127
2,2',3,4,4',6,6'-HpCB	184		U		0.149 (S)		
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.161 (S)		
2,2',3,4',5,5',6-HpCB	187			10.7	0.188 (S)	1.06	1.111
2,2',3,4',5,6,6'-HpCB	188		U		0.154 (S)		
2,3,3',4,4',5,5'-HpCB	189		U		0.112 (S)		
2,3,3',4,4',5,6-HpCB	190		K J	1.23	0.161 (S)	0.77	0.947
2,3,3',4,4',5',6-HpCB	191		J	0.301	0.158 (S)	1.02	0.918
2,3,3',4,5,5',6-HpCB	192		U		0.174 (S)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		J	2.30	0.0735 (Q)	0.92	0.991
2,2',3,3',4,4',5,6-OxCB	195		K J	1.21	0.0735 (Q)	1.68	0.945
2,2',3,3',4,4',5,6'-OxCB	196		K J	1.12	0.124 (S)	0.48	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C K J	0.376	0.0924 (S)	0.72	1.045
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C J	2.89	0.128 (S)	0.78	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		K J	0.269	0.0911 (S)	0.70	1.023
2,2',3,3',5,5',6,6'-OxCB	202		K J	0.896	0.115 (S)	1.30	1.001
2,2',3,4,4',5,5',6-OxCB	203		J	1.94	0.120 (S)	0.92	0.919
2,2',3,4,4',5,6,6'-OxCB	204		U		0.0912 (S)		
2,3,3',4,4',5,5',6-OxCB	205		K J	0.207	0.0735 (Q)	1.79	1.000
2,2',3,3',4,4',5,5',6-NoCB	206		J	0.682	0.127 (S)	0.78	1.001
2,2',3,3',4,4',5,6,6'-NoCB	207		U		0.0858 (S)		
2,2',3,3',4,5,5',6,6'-NoCB	208		K J	0.146	0.105 (S)	0.52	1.001
2,2',3,3',4,4',5,5',6,6'-DeCB	209		K J	0.335	0.0951 (S)	5.82	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: _____ Jason MacKenzie _____

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: 18-Sep-2018
 Analysis Date: 13-Oct-2018 Time: 23:26:11
 Extract Volume (uL): 100
 Injection Volume (uL): 1.0
 Dilution Factor: N/A
 Concentration Units: pg absolute

Project No. N/A
 Lab Sample I.D.: WG65145-101
 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_348 S: 4
 Blank Data Filename: PB8C_348 S: 4
 Cal. Ver. Data Filename: PB8C_348 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	972	48.6	3.18	0.719
13C12-4-MoCB	3L			2000	871	43.6	3.32	0.859
13C12-2,2'-DiCB	4L			2000	1170	58.3	1.59	0.874
13C12-4,4'-DiCB	15L			2000	1020	51.1	1.52	1.255
13C12-2,2',6-TriCB	19L			2000	948	47.4	1.01	1.072
13C12-3,4,4'-TriCB	37L			2000	1370	68.7	0.99	1.093
13C12-2,2',6,6'-TeCB	54L			2000	1260	63.0	0.81	0.811
13C12-3,3',4,4'-TeCB	77L			2000	1900	95.2	0.74	1.398
13C12-3,4,4',5-TeCB	81L			2000	1920	95.9	0.77	1.374
13C12-2,2',4,6,6'-PeCB	104L			2000	975	48.7	1.67	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1790	89.4	1.62	1.201
13C12-2,3,4,4',5-PeCB	114L			2000	1670	83.5	1.52	1.179
13C12-2,3',4,4',5-PeCB	118L			2000	1750	87.4	1.55	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1740	87.2	1.55	1.151
13C12-3,3',4,4',5-PeCB	126L			2000	1750	87.5	1.60	1.302
13C12-2,2',4,4',6,6'-HxCB	155L			2000	997	49.9	1.28	0.785
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	3050	76.2	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	1570	78.4	1.26	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1530	76.4	1.26	1.192
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1720	86.1	1.02	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1710	85.7	1.04	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1190	59.7	1.02	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1310	65.7	1.04	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	848	42.4	0.90	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1520	76.1	0.88	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1310	65.7	0.78	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1300	65.2	0.80	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	992	49.6	1.19	1.075
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1650	82.5	1.05	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1570	78.4	1.64	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1250	62.6	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: _____ Jason MacKenzie _____

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.:	WG65145-102
Matrix:	CANOLA OIL	Initial Calibration Date:	07-Jul-2018
Extraction Date:	18-Sep-2018	Instrument ID:	HR GC/MS
Analysis Date:	13-Oct-2018 Time: 21:18:32	GC Column ID:	SPB OCTYL
Extract Volume (uL):	100	OPR Data Filename:	PB8C_348 S: 2
Injection Volume (uL):	1.0	Blank Data Filename:	PB8C_348 S: 4
Dilution Factor:	N/A	Cal. Ver. Data Filename:	PB8C_348 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			3.11	50.0	52.3	25.0 - 75.0	105
4-MoCB	3			3.09	50.0	50.5	25.0 - 75.0	101
2,2'-DiCB	4			1.49	50.0	44.3	25.0 - 75.0	88.6
4,4'-DiCB	15			1.50	50.0	41.7	25.0 - 75.0	83.4
2,2',6-TriCB	19			1.08	50.0	60.3	25.0 - 75.0	121
3,4,4'-TriCB	37			0.97	50.0	41.9	25.0 - 75.0	83.8
2,2',6,6'-TeCB	54			0.79	50.0	55.3	25.0 - 75.0	111
3,3',4,4'-TeCB	77			0.78	50.0	42.1	25.0 - 75.0	84.1
3,4,4',5-TeCB	81			0.77	50.0	42.8	25.0 - 75.0	85.6
2,2',4,6,6'-PeCB	104			1.55	50.0	57.3	25.0 - 75.0	115
2,3,3',4,4'-PeCB	105			1.60	50.0	42.8	25.0 - 75.0	85.7
2,3,4,4',5-PeCB	114			1.52	50.0	44.3	25.0 - 75.0	88.6
2,3',4,4',5-PeCB	118			1.49	50.0	45.2	25.0 - 75.0	90.4
2',3,4,4',5-PeCB	123			1.52	50.0	41.5	25.0 - 75.0	83.0
3,3',4,4',5-PeCB	126			1.59	50.0	42.5	25.0 - 75.0	84.9
2,2',4,4',6,6'-HxCB	155			1.33	50.0	57.1	25.0 - 75.0	114
2,3,3',4,4',5-HxCB	156	156 + 157	C	1.26	100	107	50.0 - 150	107
2,3,3',4,4',5'-HxCB	157	156 + 157	C156					
2,3',4,4',5,5'-HxCB	167			1.27	50.0	52.9	25.0 - 75.0	106
3,3',4,4',5,5'-HxCB	169			1.29	50.0	53.8	25.0 - 75.0	108
2,2',3,4',5,6,6'-HpCB	188			1.10	50.0	55.2	25.0 - 75.0	110
2,3,3',4,4',5,5'-HpCB	189			0.97	50.0	39.5	25.0 - 75.0	79.0
2,2',3,3',5,5',6,6'-OxCB	202			0.92	50.0	56.4	25.0 - 75.0	113
2,3,3',4,4',5,5',6-OxCB	205			0.92	50.0	50.9	25.0 - 75.0	102
2,2',3,3',4,4',5,5',6-NoCB	206			0.78	50.0	51.8	25.0 - 75.0	104
2,2',3,3',4,5,5',6,6'-NoCB	208			0.77	50.0	55.5	25.0 - 75.0	111
2,2',3,3',4,4',5,5',6,6'-DeCB	209			1.17	50.0	54.8	25.0 - 75.0	110

(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: _____ Jason MacKenzie _____

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.:	WG65145-102
Matrix:	CANOLA OIL	Initial Calibration Date:	07-Jul-2018
Extraction Date:	18-Sep-2018	Instrument ID:	HR GC/MS
Analysis Date:	13-Oct-2018 Time: 21:18:32	GC Column ID:	SPB OCTYL
Extract Volume (uL):	100	OPR Data Filename:	PB8C_348 S: 2
Injection Volume (uL):	1.0	Blank Data Filename:	PB8C_348 S: 4
Dilution Factor:	N/A	Cal. Ver. Data Filename:	PB8C_348 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			3.33	100	47.4	15.0 - 140	47.4
13C12-4-MoCB	3L			3.22	100	40.5	15.0 - 140	40.5
13C12-2,2'-DiCB	4L			1.66	100	56.4	30.0 - 140	56.4
13C12-4,4'-DiCB	15L			1.57	100	44.0	30.0 - 140	44.0
13C12-2,2',6-TriCB	19L			1.08	100	46.2	30.0 - 140	46.2
13C12-3,4,4'-TriCB	37L			1.01	100	62.5	30.0 - 140	62.5
13C12-2,2',6,6'-TeCB	54L			0.85	100	61.1	30.0 - 140	61.1
13C12-3,3',4,4'-TeCB	77L			0.76	100	92.3	30.0 - 140	92.3
13C12-3,4,4',5-TeCB	81L			0.78	100	94.7	30.0 - 140	94.7
13C12-2,2',4,6,6'-PeCB	104L			1.71	100	49.0	30.0 - 140	49.0
13C12-2,3,3',4,4'-PeCB	105L			1.52	100	89.2	30.0 - 140	89.2
13C12-2,3,4,4',5-PeCB	114L			1.53	100	81.5	30.0 - 140	81.5
13C12-2,3',4,4',5-PeCB	118L			1.52	100	86.2	30.0 - 140	86.2
13C12-2',3,4,4',5-PeCB	123L			1.58	100	88.0	30.0 - 140	88.0
13C12-3,3',4,4',5-PeCB	126L			1.54	100	86.5	30.0 - 140	86.5
13C12-2,2',4,4',6,6'-HxCB	155L			1.22	100	46.2	30.0 - 140	46.2
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	1.26	200	151	60.0 - 280	75.4
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			1.31	100	75.2	30.0 - 140	75.2
13C12-3,3',4,4',5,5'-HxCB	169L			1.28	100	72.1	30.0 - 140	72.1
13C12-2,2',3,4',5,6,6'-HpCB	188L			1.07	100	55.1	30.0 - 140	55.1
13C12-2,3,3',4,4',5,5'-HpCB	189L			1.02	100	65.0	30.0 - 140	65.0
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			0.91	100	40.8	30.0 - 140	40.8
13C12-2,3,3',4,4',5,5',6-OxCB	205L			0.86	100	73.8	30.0 - 140	73.8
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			0.79	100	64.2	30.0 - 140	64.2
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			0.75	100	63.8	30.0 - 140	63.8
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			1.19	100	48.8	30.0 - 140	48.8

CLEANUP STANDARD

13C12-2,4,4'-TriCB	28L	1.03	100	77.1	40.0 - 125	77.1
13C12-2,3,3',5,5'-PeCB	111L	1.60	100	76.6	40.0 - 125	76.6
13C12-2,2',3,3',5,5',6-HpCB	178L	1.07	100	58.7	40.0 - 125	58.7

(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: _____ Jason MacKenzie _____

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)							CV ² (%RSD)	
				CS0	CS1	CS2	CS3	CS4	CS5	CS6		MEAN RR
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 _____

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Report Filename: 1668_PCB1668_07-Jul-2018_PB8C_Form3A_GS78182.html; Workgroup: WG65145; 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 _____

For Axy Internal Use Only [XSL Template: Form16683C.xsl; Created: 31-Oct-2018 10:40:05; Application: XMLTransformer-1.16.51;
Report Filename: 1668_PCB1668_07-Jul-2018_PB8C__Form3C_GS78182.html; Workgroup: WG65145; 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 _____

For Axs Internal Use Only [XSL Template: Form16683D.xsl; Created: 31-Oct-2018 10:40:05; Application: XMLTransformer-1.16.51;
Report Filename: 1668_PCB1668_07-Jul-2018_PB8C__Form3D_GS78182.html; Workgroup: WG65145; 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_348 S: 1

Instrument ID: HR GC/MS

Analysis Date: 13-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:14:42

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	25.3	17.5 - 32.5
4-MoCB	3			M/M+2	3.03	2.66-3.60	25.5	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.47	1.33-1.79	21.9	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.46	1.33-1.79	23.6	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.06	0.88-1.20	29.9	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	0.98	0.88-1.20	20.1	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.81	0.65-0.89	57.3	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.74	0.65-0.89	41.6	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.75	0.65-0.89	45.2	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.55	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	45.6	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.51	1.32-1.78	45.3	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.48	1.32-1.78	42.7	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.51	1.32-1.78	43.6	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.50	1.32-1.78	45.1	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.24	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	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	1.24	1.05-1.43	58.4	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.30	1.05-1.43	56.5	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.06	0.89-1.21	53.9	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.01	0.89-1.21	39.9	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.89	0.76-1.02	88.1	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.91	0.76-1.02	76.1	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	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	90.8	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	78.4	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_348S1__Form4A_SJ2448355.html; Workgroup: WG65145; Design ID: 3360]

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_348 S: 1

Instrument ID: HR GC/MS Analysis Date: 13-Oct-2018

GC Column ID: SPB OCTYL Analysis Time: 20:14:42

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	83.5	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.23	2.66-3.60	86.1	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.58	1.33-1.79	91.0	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.56	1.33-1.79	96.1	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.07	0.88-1.20	72.4	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.03	0.88-1.20	104	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.81	0.65-0.89	84.6	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.76	0.65-0.89	119	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.77	0.65-0.89	120	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.58	1.32-1.78	63.2	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.55	1.32-1.78	101	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.57	1.32-1.78	101	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.55	1.32-1.78	104	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.56	1.32-1.78	103	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.56	1.32-1.78	107	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.28	1.05-1.43	61.9	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	189	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	94.9	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.27	1.05-1.43	96.1	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.09	0.89-1.21	67.5	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.02	0.89-1.21	79.2	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.92	0.76-1.02	52.0	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.91	0.76-1.02	90.5	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	75.4	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	76.2	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	58.1	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.01	0.88-1.20	108	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.60	1.32-1.78	92.3	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.08	0.89-1.21	74.7	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.

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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_348 S: 1

Instrument ID: HR GC/MS

Analysis Date: 13-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:14:42

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	1.001	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	1.000	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	1.001	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	1.000	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	1.000	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_348S1__Form6A_SJ2448355.html; Workgroup: WG65145; 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_348 S: 1

Instrument ID: HR GC/MS

Analysis Date: 13-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:14:42

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	0.812	0.798-0.825
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	1.374	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	0.777-0.794
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C	13C12-2,2',3,4,4',5'-HxCB	138L	1.108	1.099-1.116
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'-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	1.034-1.053
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	0.911-0.938
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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_348S1__Form6B_SJ2448355.html; Workgroup: WG65145; 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_348 S: 1

Instrument ID: HR GC/MS

Analysis Date: 13-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:14:42

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			1.09	M/M+2	3.07	2.66-3.60	0.988	0.984 - 0.992
2,3-DiCB	5			0.93	M/M+2	1.47	1.33-1.79	1.198	1.195 - 1.202
2,3'-DiCB	6			1.04	M/M+2	1.47	1.33-1.79	1.175	1.172 - 1.179
2,4-DiCB	7			1.01	M/M+2	1.49	1.33-1.79	1.159	1.155 - 1.162
2,4'-DiCB	8			1.14	M/M+2	1.50	1.33-1.79	1.208	1.204 - 1.211
2,5-DiCB	9			1.04	M/M+2	1.49	1.33-1.79	1.146	1.142 - 1.149
2,6-DiCB	10			1.04	M/M+2	1.49	1.33-1.79	1.014	1.011 - 1.018
3,3'-DiCB	11			1.02	M/M+2	1.48	1.33-1.79	0.969	0.967 - 0.972
3,4-DiCB	12	12 + 13	C	1.00	M/M+2	1.46	1.33-1.79	0.985	0.983 - 0.988
3,4'-DiCB	13	12 + 13	C12						
3,5-DiCB	14			1.03	M/M+2	1.50	1.33-1.79	0.925	0.923 - 0.928
2,2',3-TriCB	16			0.78	M/M+2	0.96	0.88-1.20	1.166	1.163 - 1.169
2,2',4-TriCB	17			0.93	M/M+2	1.08	0.88-1.20	1.138	1.135 - 1.141
2,2',5-TriCB	18	18 + 30	C	1.09	M/M+2	1.06	0.88-1.20	1.112	1.109 - 1.115
2,3,3'-TriCB	20	20 + 28	C	1.16	M/M+2	0.98	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 - 0.859
2,3,4'-TriCB	22			1.06	M/M+2	0.97	0.88-1.20	0.872	0.870 - 0.874
2,3,5-TriCB	23			1.06	M/M+2	0.99	0.88-1.20	1.283	1.280 - 1.286
2,3,6-TriCB	24			1.23	M/M+2	1.17	0.88-1.20	1.160	1.157 - 1.162
2,3',4-TriCB	25			1.28	M/M+2	0.97	0.88-1.20	0.825	0.823 - 0.827
2,3',5-TriCB	26	26 + 29	C	1.14	M/M+2	0.98	0.88-1.20	1.303	1.298 - 1.307
2,3',6-TriCB	27			1.30	M/M+2	1.05	0.88-1.20	1.152	1.149 - 1.155
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	0.97	0.88-1.20	0.837	0.835 - 0.838
2,4',6-TriCB	32			1.18	M/M+2	0.97	0.88-1.20	1.197	1.195 - 1.200
2',3,4-TriCB	33	21 + 33	C21						
2',3,5-TriCB	34			1.11	M/M+2	0.99	0.88-1.20	1.273	1.270 - 1.276
3,3',4-TriCB	35			1.07	M/M+2	0.99	0.88-1.20	0.985	0.984 - 0.987
3,3',5-TriCB	36			1.15	M/M+2	1.00	0.88-1.20	0.932	0.930 - 0.934
3,4,5-TriCB	38			1.13	M/M+2	0.99	0.88-1.20	0.967	0.965 - 0.969
3,4',5-TriCB	39			1.16	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	0.83	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			0.80	M/M+2	0.79	0.65-0.89	1.311	1.308 - 1.313
2,2',3,5-TeCB	43			0.73	M/M+2	0.76	0.65-0.89	1.245	1.243 - 1.248
2,2',3,5'-TeCB	44	44 + 47 + 65	C	0.90	M/M+2	0.81	0.65-0.89	1.285	1.281 - 1.290
2,2',3,6-TeCB	45	45 + 51	C	0.81	M/M+2	0.80	0.65-0.89	1.146	1.142 - 1.150
2,2',3,6'-TeCB	46			0.71	M/M+2	0.81	0.65-0.89	1.160	1.158 - 1.162
2,2',4,4'-TeCB	47	44 + 47 + 65	C44						
2,2',4,5-TeCB	48			0.82	M/M+2	0.79	0.65-0.89	1.272	1.270 - 1.275
2,2',4,5'-TeCB	49	49 + 69	C	0.97	M/M+2	0.80	0.65-0.89	1.256	1.252 - 1.260
2,2',4,6-TeCB	50	50 + 53	C	0.84	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			0.87	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			0.93	M/M+2	0.75	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			0.98	M/M+2	0.75	0.65-0.89	0.843	0.842 - 0.845
2,3,3',5'-TeCB	58			0.96	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	1.10	M/M+2	0.80	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	0.99	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			1.01	M/M+2	0.75	0.65-0.89	0.864	0.862 - 0.865
2,3,4',6'-TeCB	64			1.14	M/M+2	0.79	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			1.00	M/M+2	0.74	0.65-0.89	0.884	0.882 - 0.885
2,3',4,5'-TeCB	67			1.10	M/M+2	0.74	0.65-0.89	0.856	0.855 - 0.857
2,3',4,5'-TeCB	68			1.03	M/M+2	0.74	0.65-0.89	0.830	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			1.04	M/M+2	0.74	0.65-0.89	0.822	0.821 - 0.824
2,3',5,6'-TeCB	73			1.03	M/M+2	0.82	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			0.96	M/M+2	0.74	0.65-0.89	0.987	0.985 - 0.988
3,3',4,5'-TeCB	79			1.16	M/M+2	0.75	0.65-0.89	0.970	0.968 - 0.971
3,3',5,5'-TeCB	80			1.05	M/M+2	0.77	0.65-0.89	0.923	0.922 - 0.925
2,2',3,3',4'-PeCB	82			0.76	M+2/M+4	1.62	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	1.61	1.32-1.78	0.884	0.881 - 0.887
2,2',3,3',6'-PeCB	84			0.73	M+2/M+4	1.60	1.32-1.78	1.164	1.162 - 1.166
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	0.916 - 0.922
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C	0.97	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	0.83	M+2/M+4	1.60	1.32-1.78	1.153	1.149 - 1.157
2,2',3,4,6'-PeCB	89			0.78	M+2/M+4	1.61	1.32-1.78	1.183	1.181 - 1.185
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	0.95	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			0.82	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	0.85	M+2/M+4	1.60	1.32-1.78	1.130	1.119 - 1.141
2,2',3,5,6'-PeCB	94			0.76	M+2/M+4	1.58	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			0.85	M+2/M+4	1.59	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			0.93	M+2/M+4	1.56	1.32-1.78	1.094	1.092 - 1.096
2,3,3',4,5'-PeCB	106			1.05	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	0.96	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			1.03	M+2/M+4	1.50	1.32-1.78	0.997	0.996 - 0.999
2,3,3',4',6'-PeCB	110	110 + 115	C	1.14	M+2/M+4	1.61	1.32-1.78	0.926	0.923 - 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			1.14	M+2/M+4	1.58	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			1.19	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	1.59	1.32-1.78	1.200	1.198 - 1.202
2',3,3',4,5'-PeCB	122			0.91	M+2/M+4	1.48	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			0.98	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	1.05	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	1.03	M+2/M+4	1.28	1.05-1.43	0.930	0.927 - 0.932
2,2',3,3',4,5'-HxCB	130			0.83	M+2/M+4	1.25	1.05-1.43	0.913	0.912 - 0.914
2,2',3,3',4,6'-HxCB	131			0.88	M+2/M+4	1.26	1.05-1.43	1.160	1.158 - 1.161
2,2',3,3',4,6'-HxCB	132			0.83	M+2/M+4	1.24	1.05-1.43	1.175	1.172 - 1.178
2,2',3,3',5,5'-HxCB	133			0.89	M+2/M+4	1.26	1.05-1.43	1.192	1.190 - 1.193
2,2',3,3',5,6'-HxCB	134	134 + 143	C	0.87	M+2/M+4	1.26	1.05-1.43	1.142	1.139 - 1.145
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	0.72	M+2/M+4	1.26	1.05-1.43	1.107	1.101 - 1.113
2,2',3,3',6,6'-HxCB	136			0.92	M+2/M+4	1.26	1.05-1.43	1.025	1.023 - 1.026
2,2',3,4,4',5'-HxCB	137			0.91	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	0.96	M+2/M+4	1.27	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	1.25	1.05-1.43	0.903	0.902 - 0.904
2,2',3,4,5,6'-HxCB	142			0.86	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			0.70	M+2/M+4	1.27	1.05-1.43	1.122	1.120 - 1.123
2,2',3,4,6,6'-HxCB	145			0.86	M+2/M+4	1.28	1.05-1.43	1.034	1.033 - 1.036
2,2',3,4',5,5'-HxCB	146			1.05	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	0.96	M+2/M+4	1.27	1.05-1.43	1.134	1.131 - 1.136
2,2',3,4',5,6'-HxCB	148			0.69	M+2/M+4	1.27	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			0.91	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			0.94	M+2/M+4	1.26	1.05-1.43	1.007	1.005 - 1.008
2,2',4,4',5,5'-HxCB	153	153 + 168	C	1.16	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			1.36	M+2/M+4	1.26	1.05-1.43	0.938	0.937 - 0.939
2,3,3',4,5,5'-HxCB	159			1.26	M+2/M+4	1.25	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			1.21	M+2/M+4	1.31	1.05-1.43	0.887	0.886 - 0.888
2,3,3',4',5,5'-HxCB	162			1.27	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			1.23	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	1.26	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			1.19	M+2/M+4	1.05	0.89-1.21	1.001	1.000 - 1.002
2,2',3,3',4,4',6'-HpCB	171	171 + 173	C	0.76	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			0.76	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			0.84	M+2/M+4	1.05	0.89-1.21	1.134	1.132 - 1.135
2,2',3,3',4,5',6'-HpCB	175			0.83	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			1.07	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			0.87	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			0.80	M+2/M+4	1.06	0.89-1.21	1.085	1.084 - 1.086
2,2',3,3',5,6,6'-HpCB	179			1.09	M+2/M+4	1.07	0.89-1.21	1.011	1.009 - 1.012
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	1.07	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			0.80	M+2/M+4	1.04	0.89-1.21	1.157	1.155 - 1.158
2,2',3,4,4',5,6'-HpCB	182			0.85	M+2/M+4	1.05	0.89-1.21	1.115	1.114 - 1.117
2,2',3,4,4',5',6'-HpCB	183	183 + 185	C	0.83	M+2/M+4	1.06	0.89-1.21	1.129	1.127 - 1.130
2,2',3,4,4',6,6'-HpCB	184			1.09	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			1.01	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	1.07	0.89-1.21	1.110	1.109 - 1.111
2,3,3',4,4',5,6'-HpCB	190			1.01	M+2/M+4	1.08	0.89-1.21	0.947	0.946 - 0.948
2,3,3',4,4',5',6'-HpCB	191			1.03	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			0.93	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			1.01	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			0.95	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			0.65	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	0.87	M+2/M+4	0.93	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	0.92	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			0.88	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	0.91	0.76-1.02	0.919	0.918 - 0.920
2,2',3,4,4',5,6,6'-OcCB	204			0.88	M+2/M+4	0.92	0.76-1.02	1.039	1.038 - 1.040
2,2',3,3',4,4',5,6,6'-NoCB	207			1.30	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_348 S: 1

Instrument ID: HR GC/MS

Analysis Date: 13-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:14:42

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			0.94	M/M+2	3.25	2.66-3.60	0.719	0.704 - 0.735
13C12-4-MoCB	3L			0.92	M/M+2	3.23	2.66-3.60	0.859	0.844 - 0.875
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			1.02	M/M+2	1.56	1.33-1.79	1.254	1.239 - 1.270
13C12-2,2',6'-TriCB	19L			0.41	M/M+2	1.07	0.88-1.20	1.072	1.056 - 1.088
13C12-3,4,4'-TriCB	37L			1.76	M/M+2	1.03	0.88-1.20	1.092	1.082 - 1.102
13C12-2,2',6,6'-TeCB	54L			1.25	M/M+2	0.81	0.65-0.89	0.812	0.805 - 0.818
13C12-3,3',4,4'-TeCB	77L			1.57	M/M+2	0.76	0.65-0.89	1.397	1.390 - 1.403
13C12-3,4,4',5'-TeCB	81L			1.55	M/M+2	0.77	0.65-0.89	1.374	1.367 - 1.380
13C12-2,2',4,6,6'-PeCB	104L			0.93	M+2/M+4	1.58	1.32-1.78	0.808	0.803 - 0.813
13C12-2,3,3',4,4'-PeCB	105L			1.42	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	1.57	1.32-1.78	1.179	1.174 - 1.184
13C12-2,3',4,4',5'-PeCB	118L			1.42	M+2/M+4	1.55	1.32-1.78	1.162	1.156 - 1.167
13C12-2',3,4,4',5'-PeCB	123L			1.44	M+2/M+4	1.56	1.32-1.78	1.151	1.146 - 1.156
13C12-3,3',4,4',5'-PeCB	126L			1.34	M+2/M+4	1.56	1.32-1.78	1.302	1.296 - 1.307
13C12-2,2',4,4',6,6'-HxCB	155L			1.03	M+2/M+4	1.28	1.05-1.43	0.785	0.781 - 0.789
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C	1.27	M+2/M+4	1.29	1.05-1.43	1.108	1.103 - 1.112
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L						
13C12-2,3',4,4',5,5'-HxCB	167L			1.22	M+2/M+4	1.28	1.05-1.43	1.078	1.073 - 1.082
13C12-3,3',4,4',5,5'-HxCB	169L			1.28	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			0.78	M+2/M+4	1.07	0.89-1.21	0.897	0.894 - 0.900
13C12-2,2',3,4,4',5,5'-HpCB	180L			0.94	M+2/M+4	1.06	0.89-1.21	0.872	0.869 - 0.875
13C12-2,2',3,4,5,6,6'-HpCB	188L			1.27	M+2/M+4	1.09	0.89-1.21	0.712	0.709 - 0.715
13C12-2,3,3',4,4',5,5'-HpCB	189L			1.20	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	0.92	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	0.91	0.76-1.02	1.009	1.005 - 1.014
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			0.83	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			1.03	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: _____ Angela Schlak _____

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Report Filename: 1668_PCB1668_PB8C_348S1__Form346B_SJ2447997_GS78182.html; Workgroup: WG65145; 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_348 S: 11

Instrument ID: HR GC/MS

Analysis Date: 14-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 06:52:53

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	25.5	17.5 - 32.5
4-MoCB	3			M/M+2	3.04	2.66-3.60	25.7	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.47	1.33-1.79	22.0	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	1.06	0.88-1.20	29.7	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	0.97	0.88-1.20	20.2	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.82	0.65-0.89	57.8	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.76	0.65-0.89	42.0	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.77	0.65-0.89	45.3	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	1.49	1.32-1.78	44.2	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.53	1.32-1.78	44.8	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.53	1.32-1.78	42.8	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.50	1.32-1.78	43.2	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.53	1.32-1.78	46.0	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.26	1.05-1.43	54.6	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	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	1.28	1.05-1.43	59.0	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.32	1.05-1.43	58.7	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.05	0.89-1.21	53.4	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.00	0.89-1.21	40.1	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.91	0.76-1.02	89.6	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.88	0.76-1.02	74.8	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	78.2	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	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	76.7	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: _____ Rhonda Stoddard _____

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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_348 S: 11

Instrument ID: HR GC/MS Analysis Date: 14-Oct-2018

GC Column ID: SPB OCTYL Analysis Time: 06:52:53

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	83.6	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.21	2.66-3.60	85.9	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.56	1.33-1.79	90.9	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.55	1.33-1.79	95.0	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.08	0.88-1.20	71.5	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.03	0.88-1.20	104	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.82	0.65-0.89	83.8	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.77	0.65-0.89	119	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.76	0.65-0.89	119	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.58	1.32-1.78	62.2	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.54	1.32-1.78	103	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.59	1.32-1.78	104	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.56	1.32-1.78	108	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.56	1.32-1.78	108	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.55	1.32-1.78	107	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.26	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	1.29	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	1.27	1.05-1.43	93.0	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.26	1.05-1.43	94.4	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.06	0.89-1.21	66.9	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.05	0.89-1.21	85.6	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.90	0.76-1.02	51.8	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.90	0.76-1.02	92.1	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.80	0.65-0.89	75.2	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	77.4	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	58.5	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.03	0.88-1.20	108	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.62	1.32-1.78	92.8	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.05	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_348S11__Form4B_SJ2448369.html; Workgroup: WG65145; 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_348 S: 11

Instrument ID: HR GC/MS

Analysis Date: 14-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 06:52:53

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	1.000	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_348S11_Form6A_SJ2448369.html; Workgroup: WG65145; 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_348 S: 11

Instrument ID: HR GC/MS

Analysis Date: 14-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 06:52:53

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	1.254	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	0.797-0.824
13C12-3,3',4,4'-TeCB	77L			13C12-2,2',5,5'-TeCB	52L	1.397	1.384-1.410
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	0.797-0.818
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	1.152-1.173
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	1.100-1.116
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	0.953-0.966
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',4,5,5',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.

Signed: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_348S11__Form6B_SJ2448369.html; Workgroup: WG65145; 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_349 S: 1

Instrument ID: HR GC/MS

Analysis Date: 14-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 08:07:45

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	3.02	2.66-3.60	25.2	17.5 - 32.5
4-MoCB	3			M/M+2	3.05	2.66-3.60	25.4	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.49	1.33-1.79	22.0	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.44	1.33-1.79	24.1	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.10	0.88-1.20	29.9	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	0.97	0.88-1.20	20.2	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.80	0.65-0.89	56.1	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.75	0.65-0.89	43.6	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.76	0.65-0.89	45.8	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.59	1.32-1.78	55.8	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.50	1.32-1.78	46.5	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.51	1.32-1.78	45.4	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.53	1.32-1.78	43.3	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	1.62	1.32-1.78	45.5	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.26	1.05-1.43	55.2	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	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	1.25	1.05-1.43	59.3	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.33	1.05-1.43	59.5	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.05	0.89-1.21	54.3	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.02	0.89-1.21	38.6	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.89	0.76-1.02	88.5	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.90	0.76-1.02	75.9	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	79.9	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	89.3	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	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: _____ Rhonda Stoddard _____

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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_349 S: 1

Instrument ID: HR GC/MS Analysis Date: 14-Oct-2018

GC Column ID: SPB OCTYL Analysis Time: 08:07:45

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	3.22	2.66-3.60	84.6	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.21	2.66-3.60	86.9	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.58	1.33-1.79	91.4	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.56	1.33-1.79	95.1	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.06	0.88-1.20	71.5	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.02	0.88-1.20	101	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.79	0.65-0.89	86.0	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.76	0.65-0.89	115	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.77	0.65-0.89	116	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.64	1.32-1.78	64.1	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.55	1.32-1.78	99.4	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	1.55	1.32-1.78	102	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.55	1.32-1.78	101	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.55	1.32-1.78	104	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.27	1.05-1.43	61.3	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	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	1.28	1.05-1.43	91.4	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.31	1.05-1.43	91.0	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.07	0.89-1.21	66.8	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.04	0.89-1.21	81.2	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.92	0.76-1.02	52.9	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.90	0.76-1.02	89.2	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	72.5	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	78.1	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	55.8	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.03	0.88-1.20	106	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.59	1.32-1.78	90.4	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.05	0.89-1.21	72.5	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_349S1__Form4B_SJ2448447.html; Workgroup: WG65145; 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_349 S: 1

Instrument ID: HR GC/MS

Analysis Date: 14-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 08:07:45

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	1.002	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	1.000	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	1.000	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_349S1__Form6A_SJ2448447.html; Workgroup: WG65145; 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_349 S: 1

Instrument ID: HR GC/MS

Analysis Date: 14-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 08:07:45

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	1.254	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	1.374	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	0.785	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	1.099-1.116
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	0.706-0.718
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	1.074	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_349S1__Form6B_SJ2448447.html; Workgroup: WG65145; 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_349 S: 1

Instrument ID: HR GC/MS

Analysis Date: 14-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 08:07:45

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			1.09	M/M+2	3.08	2.66-3.60	0.988	0.984 - 0.992
2,3-DiCB	5			0.94	M/M+2	1.49	1.33-1.79	1.198	1.195 - 1.202
2,3'-DiCB	6			1.05	M/M+2	1.49	1.33-1.79	1.175	1.172 - 1.179
2,4-DiCB	7			1.03	M/M+2	1.47	1.33-1.79	1.159	1.155 - 1.162
2,4'-DiCB	8			1.12	M/M+2	1.50	1.33-1.79	1.208	1.204 - 1.211
2,5-DiCB	9			1.04	M/M+2	1.48	1.33-1.79	1.147	1.143 - 1.150
2,6-DiCB	10			1.06	M/M+2	1.46	1.33-1.79	1.014	1.011 - 1.018
3,3'-DiCB	11			1.03	M/M+2	1.47	1.33-1.79	0.968	0.966 - 0.971
3,4-DiCB	12	12 + 13	C	1.02	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			1.03	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	1.08	0.88-1.20	1.165	1.162 - 1.168
2,2',4-TriCB	17			0.94	M/M+2	1.08	0.88-1.20	1.138	1.135 - 1.141
2,2',5-TriCB	18	18 + 30	C	1.10	M/M+2	1.06	0.88-1.20	1.112	1.109 - 1.115
2,3,3'-TriCB	20	20 + 28	C	1.16	M/M+2	0.99	0.88-1.20	0.848	0.845 - 0.851
2,3,4-TriCB	21	21 + 33	C	1.14	M/M+2	1.00	0.88-1.20	0.855	0.852 - 0.859
2,3,4'-TriCB	22			1.05	M/M+2	0.97	0.88-1.20	0.872	0.870 - 0.874
2,3,5-TriCB	23			1.06	M/M+2	0.98	0.88-1.20	1.282	1.279 - 1.285
2,3,6-TriCB	24			1.22	M/M+2	1.06	0.88-1.20	1.160	1.157 - 1.162
2,3',4-TriCB	25			1.28	M/M+2	0.98	0.88-1.20	0.824	0.823 - 0.826
2,3',5-TriCB	26	26 + 29	C	1.12	M/M+2	0.98	0.88-1.20	1.303	1.298 - 1.307
2,3',6-TriCB	27			1.34	M/M+2	1.08	0.88-1.20	1.152	1.149 - 1.155
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			1.19	M/M+2	0.97	0.88-1.20	0.837	0.835 - 0.838
2,4',6-TriCB	32			1.19	M/M+2	0.98	0.88-1.20	1.197	1.195 - 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	1.273	1.270 - 1.276
3,3',4-TriCB	35			1.16	M/M+2	0.96	0.88-1.20	0.985	0.984 - 0.987
3,3',5-TriCB	36			1.23	M/M+2	0.97	0.88-1.20	0.932	0.930 - 0.934
3,4,5-TriCB	38			1.12	M/M+2	0.98	0.88-1.20	0.967	0.965 - 0.969
3,4',5-TriCB	39			1.16	M/M+2	0.97	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	1.335	1.331 - 1.339
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	1.311	1.309 - 1.314
2,2',3,5-TeCB	43			0.71	M/M+2	0.79	0.65-0.89	1.246	1.244 - 1.249
2,2',3,5'-TeCB	44	44 + 47 + 65	C	0.91	M/M+2	0.80	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	1.147	1.143 - 1.151
2,2',3,6'-TeCB	46			0.72	M/M+2	0.80	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	0.80	0.65-0.89	1.273	1.270 - 1.275
2,2',4,5'-TeCB	49	49 + 69	C	0.98	M/M+2	0.80	0.65-0.89	1.258	1.254 - 1.262
2,2',4,6-TeCB	50	50 + 53	C	0.84	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			0.90	M/M+2	0.81	0.65-0.89	1.235	1.232 - 1.237
2,2',5,6'-TeCB	53	50 + 53	C50						
2,3,3',4-TeCB	55			0.93	M/M+2	0.75	0.65-0.89	0.889	0.887 - 0.890
2,3,3',4'-TeCB	56			0.92	M/M+2	0.77	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			1.00	M/M+2	0.75	0.65-0.89	0.843	0.841 - 0.844
2,3,3',5'-TeCB	58			0.96	M/M+2	0.75	0.65-0.89	0.850	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	1.302	1.298 - 1.306
2,3,4,4'-TeCB	60			0.93	M/M+2	0.76	0.65-0.89	0.910	0.909 - 0.912
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	0.99	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			1.01	M/M+2	0.74	0.65-0.89	0.864	0.862 - 0.865
2,3,4',6'-TeCB	64			1.17	M/M+2	0.79	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			1.03	M/M+2	0.76	0.65-0.89	0.884	0.882 - 0.885
2,3',4,5'-TeCB	67			1.14	M/M+2	0.77	0.65-0.89	0.856	0.854 - 0.857
2,3',4,5'-TeCB	68			1.05	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			1.06	M/M+2	0.75	0.65-0.89	0.822	0.820 - 0.823
2,3',5,6'-TeCB	73			1.07	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			0.97	M/M+2	0.74	0.65-0.89	0.987	0.985 - 0.988
3,3',4,5'-TeCB	79			1.18	M/M+2	0.76	0.65-0.89	0.970	0.968 - 0.971
3,3',5,5'-TeCB	80			1.07	M/M+2	0.74	0.65-0.89	0.923	0.922 - 0.925
2,2',3,3',4'-PeCB	82			0.76	M+2/M+4	1.59	1.32-1.78	0.934	0.933 - 0.936
2,2',3,3',5'-PeCB	83	83 + 99	C	0.85	M+2/M+4	1.59	1.32-1.78	0.884	0.882 - 0.887
2,2',3,3',6'-PeCB	84			0.74	M+2/M+4	1.56	1.32-1.78	1.164	1.162 - 1.166
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1.00	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	0.97	M+2/M+4	1.61	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	0.83	M+2/M+4	1.61	1.32-1.78	1.153	1.149 - 1.157
2,2',3,4,6'-PeCB	89			0.79	M+2/M+4	1.63	1.32-1.78	1.183	1.182 - 1.185
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	0.96	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			0.82	M+2/M+4	1.60	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	1.60	1.32-1.78	1.130	1.119 - 1.141
2,2',3,5,6'-PeCB	94			0.77	M+2/M+4	1.61	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			0.87	M+2/M+4	1.58	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			0.95	M+2/M+4	1.58	1.32-1.78	1.094	1.092 - 1.096
2,3,3',4,5'-PeCB	106			1.00	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	0.97	M+2/M+4	1.50	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			1.08	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	1.11	M+2/M+4	1.60	1.32-1.78	0.926	0.923 - 0.928
2,3,3',5,5'-PeCB	111			1.12	M+2/M+4	1.57	1.32-1.78	0.945	0.944 - 0.946
2,3,3',5,6'-PeCB	112			1.11	M+2/M+4	1.60	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			1.19	M+2/M+4	1.57	1.32-1.78	0.958	0.957 - 0.959
2,3',4,5',6'-PeCB	121			1.09	M+2/M+4	1.59	1.32-1.78	1.199	1.198 - 1.201
2',3,3',4,5'-PeCB	122			0.90	M+2/M+4	1.49	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			0.99	M+2/M+4	1.54	1.32-1.78	1.041	1.040 - 1.042
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1.06	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	1.05	M+2/M+4	1.27	1.05-1.43	0.930	0.927 - 0.933
2,2',3,3',4,5'-HxCB	130			0.84	M+2/M+4	1.23	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			0.85	M+2/M+4	1.27	1.05-1.43	1.175	1.173 - 1.178
2,2',3,3',5,5'-HxCB	133			0.90	M+2/M+4	1.26	1.05-1.43	1.192	1.190 - 1.193
2,2',3,3',5,6'-HxCB	134	134 + 143	C	0.89	M+2/M+4	1.26	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	1.25	1.05-1.43	1.107	1.101 - 1.113
2,2',3,3',6,6'-HxCB	136			0.94	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	1.27	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	0.96	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			0.99	M+2/M+4	1.28	1.05-1.43	0.903	0.902 - 0.904
2,2',3,4,5,6'-HxCB	142			0.88	M+2/M+4	1.28	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			0.72	M+2/M+4	1.24	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	1.035	1.033 - 1.036
2,2',3,4',5,5'-HxCB	146			1.04	M+2/M+4	1.26	1.05-1.43	0.883	0.882 - 0.885
2,2',3,4',5,6'-HxCB	147	147 + 149	C	0.98	M+2/M+4	1.27	1.05-1.43	1.134	1.131 - 1.136
2,2',3,4',5,6'-HxCB	148			0.71	M+2/M+4	1.27	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			0.93	M+2/M+4	1.27	1.05-1.43	1.013	1.012 - 1.015
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	1.28	1.05-1.43	1.007	1.006 - 1.009
2,2',4,4',5,5'-HxCB	153	153 + 168	C	1.16	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			1.36	M+2/M+4	1.25	1.05-1.43	0.938	0.936 - 0.939
2,3,3',4,5,5'-HxCB	159			1.27	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			1.27	M+2/M+4	1.25	1.05-1.43	0.887	0.886 - 0.888
2,3,3',4',5,5'-HxCB	162			1.29	M+2/M+4	1.27	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			1.29	M+2/M+4	1.26	1.05-1.43	0.921	0.920 - 0.922
2,3,3',5,5',6'-HxCB	165			1.10	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			1.19	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	0.76	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			0.73	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			0.81	M+2/M+4	1.05	0.89-1.21	1.133	1.132 - 1.135
2,2',3,3',4,5',6'-HpCB	175			0.82	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			1.08	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			0.87	M+2/M+4	1.06	0.89-1.21	1.146	1.144 - 1.147
2,2',3,3',5,5',6'-HpCB	178			0.80	M+2/M+4	1.05	0.89-1.21	1.085	1.084 - 1.086
2,2',3,3',5,6,6'-HpCB	179			1.10	M+2/M+4	1.04	0.89-1.21	1.010	1.008 - 1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	1.08	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			0.79	M+2/M+4	1.04	0.89-1.21	1.156	1.155 - 1.158
2,2',3,4,4',5,6'-HpCB	182			0.85	M+2/M+4	1.05	0.89-1.21	1.115	1.114 - 1.117
2,2',3,4,4',5',6'-HpCB	183	183 + 185	C	0.84	M+2/M+4	1.07	0.89-1.21	1.128	1.127 - 1.129
2,2',3,4,4',6,6'-HpCB	184			1.10	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			1.01	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			0.88	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			1.03	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			1.04	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			0.93	M+2/M+4	1.08	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			1.01	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			0.93	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			0.64	M+2/M+4	0.92	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	0.91	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			0.89	M+2/M+4	0.91	0.76-1.02	1.022	1.020 - 1.024
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			0.88	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			1.29	M+2/M+4	0.78	0.65-0.89	1.019	1.018 - 1.020

(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_349 S: 1

Instrument ID: HR GC/MS

Analysis Date: 14-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 08:07:45

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			0.95	M/M+2	3.22	2.66-3.60	0.719	0.704 - 0.735
13C12-4-MoCB	3L			0.93	M/M+2	3.21	2.66-3.60	0.859	0.844 - 0.875
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	1.56	1.33-1.79	1.254	1.239 - 1.270
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			1.72	M/M+2	1.02	0.88-1.20	1.092	1.082 - 1.102
13C12-2,2',6,6'-TeCB	54L			1.27	M/M+2	0.79	0.65-0.89	0.811	0.804 - 0.818
13C12-3,3',4,4'-TeCB	77L			1.51	M/M+2	0.76	0.65-0.89	1.397	1.390 - 1.403
13C12-3,4,4',5'-TeCB	81L			1.50	M/M+2	0.77	0.65-0.89	1.374	1.367 - 1.380
13C12-2,2',4,6,6'-PeCB	104L			0.94	M+2/M+4	1.64	1.32-1.78	0.808	0.803 - 0.813
13C12-2,3,3',4,4'-PeCB	105L			1.39	M+2/M+4	1.55	1.32-1.78	1.201	1.195 - 1.206
13C12-2,3,4,4',5'-PeCB	114L			1.36	M+2/M+4	1.58	1.32-1.78	1.179	1.174 - 1.185
13C12-2,3',4,4',5'-PeCB	118L			1.39	M+2/M+4	1.55	1.32-1.78	1.162	1.157 - 1.167
13C12-2',3,4,4',5'-PeCB	123L			1.41	M+2/M+4	1.55	1.32-1.78	1.151	1.146 - 1.157
13C12-3,3',4,4',5'-PeCB	126L			1.30	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			1.02	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	1.28	1.05-1.43	1.108	1.103 - 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	1.28	1.05-1.43	1.078	1.074 - 1.082
13C12-3,3',4,4',5,5'-HxCB	169L			1.21	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			0.79	M+2/M+4	1.07	0.89-1.21	0.898	0.894 - 0.901
13C12-2,2',3,4,4',5,5'-HpCB	180L			0.94	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			1.26	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			1.23	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			0.94	M+2/M+4	0.92	0.76-1.02	0.818	0.814 - 0.821
13C12-2,3,3',4,4',5,5',6-OxCB	205L			1.34	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			0.80	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			1.05	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: _____ Rhonda Stoddard _____

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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_349 S: 11

Instrument ID: HR GC/MS

Analysis Date: 14-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 18:45:20

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	3.04	2.66-3.60	25.6	17.5 - 32.5
4-MoCB	3			M/M+2	3.05	2.66-3.60	25.6	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.47	1.33-1.79	21.8	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.49	1.33-1.79	24.9	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.06	0.88-1.20	30.1	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	0.97	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	56.9	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.76	0.65-0.89	39.6	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.75	0.65-0.89	41.1	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.60	1.32-1.78	55.3	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.50	1.32-1.78	46.3	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.52	1.32-1.78	44.3	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	1.51	1.32-1.78	43.6	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.57	1.32-1.78	46.1	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.27	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	1.29	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	1.24	1.05-1.43	58.9	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.36	1.05-1.43	60.3	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.06	0.89-1.21	53.8	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	0.90	0.76-1.02	89.1	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	0.79	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	0.80	0.65-0.89	89.3	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	77.0	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: _____ Rhonda Stoddard _____

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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_349 S: 11

Instrument ID: HR GC/MS Analysis Date: 14-Oct-2018

GC Column ID: SPB OCTYL Analysis Time: 18:45:20

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	3.27	2.66-3.60	83.0	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.23	2.66-3.60	85.3	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.57	1.33-1.79	90.6	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.58	1.33-1.79	93.4	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.07	0.88-1.20	70.0	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.02	0.88-1.20	102	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.80	0.65-0.89	85.6	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.78	0.65-0.89	117	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.78	0.65-0.89	117	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.61	1.32-1.78	64.0	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.54	1.32-1.78	103	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	1.56	1.32-1.78	106	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.58	1.32-1.78	108	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.55	1.32-1.78	106	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.29	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	1.29	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	1.29	1.05-1.43	92.0	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.26	1.05-1.43	90.9	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.05	0.89-1.21	65.7	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.01	0.89-1.21	83.4	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.90	0.76-1.02	50.8	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.88	0.76-1.02	91.9	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.80	0.65-0.89	74.9	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	77.2	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	57.7	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.02	0.88-1.20	107	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.61	1.32-1.78	91.4	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_349S11__Form4B_SJ2448467.html; Workgroup: WG65145; 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_349 S: 11

Instrument ID: HR GC/MS

Analysis Date: 14-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 18:45:20

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	1.001	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	0.999-1.002
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	1.002	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	1.001	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	1.000	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_349S11_Form6A_SJ2448467.html; Workgroup: WG65145; 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_349 S: 11

Instrument ID: HR GC/MS

Analysis Date: 14-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 18:45:20

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	0.719	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	1.255	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	1.093	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	1.397	1.384-1.410
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	1.151-1.172
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'-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',4,5,5',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	1.087	1.077-1.097
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: _____ Rhonda Stoddard _____

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_350 S: 1

Instrument ID: HR GC/MS

Analysis Date: 14-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:13:23

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	22.0	17.5 - 32.5
4-MoCB	3			M/M+2	3.03	2.66-3.60	23.1	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.48	1.33-1.79	20.8	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.46	1.33-1.79	23.7	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	0.98	0.88-1.20	21.0	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.80	0.65-0.89	54.3	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.75	0.65-0.89	43.7	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.74	0.65-0.89	46.9	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.54	1.32-1.78	55.4	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.51	1.32-1.78	46.7	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.52	1.32-1.78	46.6	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.53	1.32-1.78	44.4	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.54	1.32-1.78	50.3	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.49	1.32-1.78	46.6	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.25	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	1.26	1.05-1.43	106	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	57.3	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.36	1.05-1.43	58.6	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	0.99	0.89-1.21	41.5	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.90	0.76-1.02	86.9	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.89	0.76-1.02	75.9	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	78.9	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	87.1	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	76.1	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_350S1__Form4A_SJ2448522.html; Workgroup: WG65145; Design ID: 3360]

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_350 S: 1

Instrument ID: HR GC/MS

Analysis Date: 14-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:13:23

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	3.17	2.66-3.60	103	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.15	2.66-3.60	99.0	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.57	1.33-1.79	93.2	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.56	1.33-1.79	90.7	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.07	0.88-1.20	81.7	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.01	0.88-1.20	91.4	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.82	0.65-0.89	92.2	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.78	0.65-0.89	102	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.78	0.65-0.89	102	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.57	1.32-1.78	71.4	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.56	1.32-1.78	88.5	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.58	1.32-1.78	87.3	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.54	1.32-1.78	89.7	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.54	1.32-1.78	90.0	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.53	1.32-1.78	88.5	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.26	1.05-1.43	73.9	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	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	94.1	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.28	1.05-1.43	91.6	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.09	0.89-1.21	86.1	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.05	0.89-1.21	87.2	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.93	0.76-1.02	69.9	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.89	0.76-1.02	91.5	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	76.4	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	85.5	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	64.8	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.01	0.88-1.20	97.8	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.60	1.32-1.78	89.8	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.03	0.89-1.21	79.9	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: _____ Rhonda Stoddard _____

For Axy Internal Use Only [XSL Template: Form16684B.xsl; Created: 31-Oct-2018 10:40:05; Application: XMLTransformer-1.16.51;
Report Filename: 1668_PCB1668_PB8C_350S1__Form4B_SJ2448522.html; Workgroup: WG65145; 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_350 S: 1

Instrument ID: HR GC/MS

Analysis Date: 14-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:13:23

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	1.000	0.999-1.004
2,2'-DiCB	4			13C12-2,2'-DiCB	4L	1.000	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	1.000	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	1.000	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	1.000	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	1.000	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_350S1__Form6A_SJ2448522.html; Workgroup: WG65145; 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_350 S: 1
Instrument ID: HR GC/MS Analysis Date: 14-Oct-2018
GC Column ID: SPB OCTYL Analysis Time: 20:13:23

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	0.874	0.843-0.905
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	1.396	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	1.200	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	1.140-1.161
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'-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	0.953-0.965
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	1.074	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_350S1__Form6B_SJ2448522.html; Workgroup: WG65145; 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_350 S: 1

Instrument ID: HR GC/MS

Analysis Date: 14-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:13:23

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			0.94	M/M+2	3.04	2.66-3.60	0.987	0.983 - 0.990
2,3-DiCB	5			0.92	M/M+2	1.47	1.33-1.79	1.197	1.193 - 1.200
2,3'-DiCB	6			1.02	M/M+2	1.48	1.33-1.79	1.175	1.172 - 1.179
2,4-DiCB	7			1.00	M/M+2	1.49	1.33-1.79	1.157	1.154 - 1.161
2,4'-DiCB	8			1.11	M/M+2	1.47	1.33-1.79	1.206	1.203 - 1.210
2,5-DiCB	9			1.03	M/M+2	1.51	1.33-1.79	1.145	1.142 - 1.149
2,6-DiCB	10			1.03	M/M+2	1.49	1.33-1.79	1.013	1.010 - 1.017
3,3'-DiCB	11			0.96	M/M+2	1.50	1.33-1.79	0.968	0.966 - 0.971
3,4-DiCB	12	12 + 13	C	0.96	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			0.97	M/M+2	1.46	1.33-1.79	0.924	0.922 - 0.927
2,2',3-TriCB	16			0.91	M/M+2	1.07	0.88-1.20	1.166	1.163 - 1.169
2,2',4-TriCB	17			1.01	M/M+2	1.06	0.88-1.20	1.139	1.136 - 1.142
2,2',5-TriCB	18	18 + 30	C	1.21	M/M+2	1.08	0.88-1.20	1.113	1.110 - 1.116
2,3,3'-TriCB	20	20 + 28	C	1.10	M/M+2	0.99	0.88-1.20	0.848	0.845 - 0.851
2,3,4-TriCB	21	21 + 33	C	1.11	M/M+2	0.98	0.88-1.20	0.855	0.852 - 0.858
2,3,4'-TriCB	22			1.01	M/M+2	0.97	0.88-1.20	0.871	0.870 - 0.873
2,3,5-TriCB	23			1.01	M/M+2	0.98	0.88-1.20	1.283	1.280 - 1.286
2,3,6-TriCB	24			1.32	M/M+2	1.07	0.88-1.20	1.159	1.156 - 1.161
2,3',4-TriCB	25			1.25	M/M+2	0.98	0.88-1.20	0.824	0.823 - 0.826
2,3',5-TriCB	26	26 + 29	C	1.08	M/M+2	0.99	0.88-1.20	1.303	1.298 - 1.307
2,3',6-TriCB	27			1.45	M/M+2	1.09	0.88-1.20	1.152	1.149 - 1.155
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			1.15	M/M+2	0.97	0.88-1.20	0.836	0.834 - 0.838
2,4',6-TriCB	32			1.13	M/M+2	0.97	0.88-1.20	1.198	1.196 - 1.201
2',3,4-TriCB	33	21 + 33	C21						
2',3,5-TriCB	34			1.04	M/M+2	0.99	0.88-1.20	1.273	1.270 - 1.276
3,3',4-TriCB	35			1.00	M/M+2	0.98	0.88-1.20	0.985	0.983 - 0.987
3,3',5-TriCB	36			1.09	M/M+2	0.99	0.88-1.20	0.931	0.929 - 0.933
3,4,5-TriCB	38			1.07	M/M+2	0.99	0.88-1.20	0.966	0.965 - 0.968
3,4',5-TriCB	39			1.08	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	0.84	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			0.80	M/M+2	0.77	0.65-0.89	1.311	1.308 - 1.313
2,2',3,5-TeCB	43			0.75	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	0.92	M/M+2	0.79	0.65-0.89	1.285	1.281 - 1.290
2,2',3,6-TeCB	45	45 + 51	C	0.85	M/M+2	0.79	0.65-0.89	1.146	1.142 - 1.150
2,2',3,6'-TeCB	46			0.74	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			0.83	M/M+2	0.80	0.65-0.89	1.272	1.270 - 1.275
2,2',4,5'-TeCB	49	49 + 69	C	0.99	M/M+2	0.79	0.65-0.89	1.257	1.253 - 1.261
2,2',4,6-TeCB	50	50 + 53	C	0.88	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	0.79	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			0.88	M/M+2	0.75	0.65-0.89	0.889	0.888 - 0.890
2,3,3',4'-TeCB	56			0.90	M/M+2	0.74	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			0.96	M/M+2	0.75	0.65-0.89	0.843	0.842 - 0.845
2,3,3',5'-TeCB	58			0.92	M/M+2	0.79	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			0.87	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	0.96	M/M+2	0.76	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			0.95	M/M+2	0.76	0.65-0.89	0.864	0.862 - 0.865
2,3,4',6'-TeCB	64			1.15	M/M+2	0.79	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			0.98	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	0.73	0.65-0.89	0.856	0.855 - 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	0.76	0.65-0.89	0.822	0.820 - 0.823
2,3',5,6'-TeCB	73			1.07	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			0.91	M/M+2	0.75	0.65-0.89	0.987	0.985 - 0.988
3,3',4,5'-TeCB	79			1.11	M/M+2	0.75	0.65-0.89	0.970	0.968 - 0.971
3,3',5,5'-TeCB	80			0.99	M/M+2	0.74	0.65-0.89	0.923	0.922 - 0.925
2,2',3,3',4'-PeCB	82			0.78	M+2/M+4	1.58	1.32-1.78	0.934	0.932 - 0.935
2,2',3,3',5'-PeCB	83	83 + 99	C	0.87	M+2/M+4	1.62	1.32-1.78	0.885	0.882 - 0.887
2,2',3,3',6'-PeCB	84			0.81	M+2/M+4	1.62	1.32-1.78	1.163	1.162 - 1.165
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1.04	M+2/M+4	1.56	1.32-1.78	0.919	0.917 - 0.922
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C	1.01	M+2/M+4	1.58	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	0.88	M+2/M+4	1.60	1.32-1.78	1.153	1.149 - 1.156
2,2',3,4,6'-PeCB	89			0.82	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	1.00	M+2/M+4	1.58	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			0.86	M+2/M+4	1.60	1.32-1.78	0.853	0.852 - 0.855
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	0.89	M+2/M+4	1.58	1.32-1.78	1.129	1.119 - 1.140
2,2',3,5,6'-PeCB	94			0.79	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			1.07	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			0.98	M+2/M+4	1.56	1.32-1.78	1.094	1.092 - 1.096
2,3,3',4,5'-PeCB	106			0.97	M+2/M+4	1.52	1.32-1.78	1.004	1.003 - 1.005
2,3,3',4',5'-PeCB	107	107 + 124	C	0.94	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			0.95	M+2/M+4	1.50	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	1.61	1.32-1.78	0.926	0.924 - 0.928
2,3,3',5,5'-PeCB	111			1.16	M+2/M+4	1.54	1.32-1.78	0.946	0.944 - 0.947
2,3,3',5,6'-PeCB	112			1.16	M+2/M+4	1.62	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			1.22	M+2/M+4	1.56	1.32-1.78	0.958	0.957 - 0.959
2,3',4,5',6'-PeCB	121			1.14	M+2/M+4	1.58	1.32-1.78	1.199	1.197 - 1.201
2',3,3',4,5'-PeCB	122			0.86	M+2/M+4	1.48	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			0.93	M+2/M+4	1.50	1.32-1.78	1.041	1.039 - 1.042
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1.00	M+2/M+4	1.26	1.05-1.43	0.958	0.957 - 0.960
2,2',3,3',4,5'-HxCB	129	129 + 138 + 160 + 163	C	0.98	M+2/M+4	1.26	1.05-1.43	0.930	0.927 - 0.933
2,2',3,3',4,5'-HxCB	130			0.77	M+2/M+4	1.25	1.05-1.43	0.913	0.912 - 0.914
2,2',3,3',4,6'-HxCB	131			0.81	M+2/M+4	1.28	1.05-1.43	1.160	1.158 - 1.162
2,2',3,3',4,6'-HxCB	132			0.80	M+2/M+4	1.26	1.05-1.43	1.176	1.173 - 1.178
2,2',3,3',5,5'-HxCB	133			0.85	M+2/M+4	1.26	1.05-1.43	1.192	1.190 - 1.193
2,2',3,3',5,6'-HxCB	134	134 + 143	C	0.84	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	0.81	M+2/M+4	1.25	1.05-1.43	1.107	1.101 - 1.113
2,2',3,3',6,6'-HxCB	136			1.08	M+2/M+4	1.25	1.05-1.43	1.026	1.024 - 1.027
2,2',3,4,4',5'-HxCB	137			0.80	M+2/M+4	1.23	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	0.91	M+2/M+4	1.24	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			0.93	M+2/M+4	1.26	1.05-1.43	0.903	0.902 - 0.904
2,2',3,4,5,6'-HxCB	142			0.84	M+2/M+4	1.27	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			0.79	M+2/M+4	1.25	1.05-1.43	1.122	1.121 - 1.124
2,2',3,4,6,6'-HxCB	145			1.01	M+2/M+4	1.25	1.05-1.43	1.035	1.033 - 1.036
2,2',3,4',5,5'-HxCB	146			0.99	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	0.94	M+2/M+4	1.25	1.05-1.43	1.134	1.131 - 1.136
2,2',3,4',5,6'-HxCB	148			0.79	M+2/M+4	1.25	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			1.08	M+2/M+4	1.25	1.05-1.43	1.013	1.012 - 1.015
2,2',3,5,5',6'-HxCB	151	135 + 151 + 154	C135						
2,2',3,5,6,6'-HxCB	152			1.10	M+2/M+4	1.24	1.05-1.43	1.008	1.006 - 1.009
2,2',4,4',5,5'-HxCB	153	153 + 168	C	1.11	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			1.29	M+2/M+4	1.25	1.05-1.43	0.938	0.936 - 0.939
2,3,3',4,5,5'-HxCB	159			1.19	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			1.22	M+2/M+4	1.25	1.05-1.43	0.887	0.886 - 0.888
2,3,3',4',5,5'-HxCB	162			1.28	M+2/M+4	1.25	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			1.20	M+2/M+4	1.25	1.05-1.43	0.921	0.920 - 0.922
2,3,3',5,5',6'-HxCB	165			1.05	M+2/M+4	1.24	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			1.16	M+2/M+4	1.04	0.89-1.21	1.000	0.999 - 1.001
2,2',3,3',4,4',6'-HpCB	171	171 + 173	C	0.76	M+2/M+4	1.06	0.89-1.21	1.162	1.160 - 1.165
2,2',3,3',4,5,5'-HpCB	172			0.75	M+2/M+4	1.08	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			0.81	M+2/M+4	1.08	0.89-1.21	1.134	1.132 - 1.135
2,2',3,3',4,5',6'-HpCB	175			0.82	M+2/M+4	1.06	0.89-1.21	1.103	1.101 - 1.104
2,2',3,3',4,6,6'-HpCB	176			1.12	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			0.96	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	1.05	0.89-1.21	1.085	1.084 - 1.087
2,2',3,3',5,6,6'-HpCB	179			1.15	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	1.06	0.89-1.21	1.000	0.999 - 1.001
2,2',3,4,4',5,6'-HpCB	181			0.80	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			0.84	M+2/M+4	1.06	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	1.05	0.89-1.21	1.128	1.127 - 1.129
2,2',3,4,4',6,6'-HpCB	184			1.16	M+2/M+4	1.06	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			1.05	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			0.87	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			0.99	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			1.02	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			0.92	M+2/M+4	1.05	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			0.89	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	0.89	0.76-1.02	0.946	0.945 - 0.947
2,2',3,3',4,4',5,6'-OcCB	196			0.71	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	0.98	M+2/M+4	0.89	0.76-1.02	1.046	1.043 - 1.049
2,2',3,3',4,5,5',6-OcCB	198	198 + 199	C	0.69	M+2/M+4	0.90	0.76-1.02	1.115	1.113 - 1.117
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			0.98	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			0.74	M+2/M+4	0.91	0.76-1.02	0.919	0.918 - 0.920
2,2',3,4,4',5,6,6'-OcCB	204			0.98	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			1.29	M+2/M+4	0.80	0.65-0.89	1.019	1.018 - 1.020

(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_350 S: 1

Instrument ID: HR GC/MS

Analysis Date: 14-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:13:23

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			1.16	M/M+2	3.17	2.66-3.60	0.719	0.703 - 0.734
13C12-4-MoCB	3L			1.06	M/M+2	3.15	2.66-3.60	0.858	0.843 - 0.874
13C12-2,2'-DiCB	4L			0.64	M/M+2	1.57	1.33-1.79	0.874	0.858 - 0.890
13C12-4,4'-DiCB	15L			0.97	M/M+2	1.56	1.33-1.79	1.253	1.238 - 1.269
13C12-2,2',6'-TriCB	19L			0.46	M/M+2	1.07	0.88-1.20	1.071	1.055 - 1.086
13C12-3,4,4'-TriCB	37L			1.55	M/M+2	1.01	0.88-1.20	1.092	1.082 - 1.102
13C12-2,2',6,6'-TeCB	54L			1.37	M/M+2	0.82	0.65-0.89	0.811	0.804 - 0.818
13C12-3,3',4,4'-TeCB	77L			1.33	M/M+2	0.78	0.65-0.89	1.396	1.389 - 1.403
13C12-3,4,4',5'-TeCB	81L			1.32	M/M+2	0.78	0.65-0.89	1.373	1.366 - 1.379
13C12-2,2',4,6,6'-PeCB	104L			1.05	M+2/M+4	1.57	1.32-1.78	0.808	0.803 - 0.813
13C12-2,3,3',4,4'-PeCB	105L			1.24	M+2/M+4	1.56	1.32-1.78	1.200	1.195 - 1.205
13C12-2,3,4,4',5'-PeCB	114L			1.18	M+2/M+4	1.58	1.32-1.78	1.179	1.174 - 1.184
13C12-2,3',4,4',5'-PeCB	118L			1.23	M+2/M+4	1.54	1.32-1.78	1.162	1.156 - 1.167
13C12-2',3,4,4',5'-PeCB	123L			1.25	M+2/M+4	1.54	1.32-1.78	1.151	1.146 - 1.156
13C12-3,3',4,4',5'-PeCB	126L			1.11	M+2/M+4	1.53	1.32-1.78	1.302	1.296 - 1.307
13C12-2,2',4,4',6,6'-HxCB	155L			1.23	M+2/M+4	1.26	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			1.21	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			1.22	M+2/M+4	1.28	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	1.08	0.89-1.21	0.898	0.894 - 0.901
13C12-2,2',3,4,4',5,5'-HpCB	180L			1.12	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			1.62	M+2/M+4	1.09	0.89-1.21	0.712	0.709 - 0.715
13C12-2,3,3',4,4',5,5'-HpCB	189L			1.32	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			1.25	M+2/M+4	0.93	0.76-1.02	0.817	0.814 - 0.820
13C12-2,3,3',4,4',5,5',6-OxCB	205L			1.38	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			0.84	M+2/M+4	0.81	0.65-0.89	1.043	1.039 - 1.048
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			1.15	M+2/M+4	0.80	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.

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Report Filename: 1668_PCB1668_PB8C_350S1__Form346B_SJ2448512_GS78184.html; Workgroup: WG65145; 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_350 S: 11

Instrument ID: HR GC/MS

Analysis Date: 15-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 06:51:15

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	3.04	2.66-3.60	22.4	17.5 - 32.5
4-MoCB	3			M/M+2	3.03	2.66-3.60	23.5	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.49	1.33-1.79	21.1	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.48	1.33-1.79	24.9	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.04	0.88-1.20	28.8	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	0.99	0.88-1.20	21.0	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.79	0.65-0.89	53.2	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.75	0.65-0.89	43.0	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.74	0.65-0.89	46.7	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.60	1.32-1.78	54.7	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.54	1.32-1.78	46.0	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	1.52	1.32-1.78	44.2	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.51	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	46.8	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.26	1.05-1.43	54.8	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	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	1.25	1.05-1.43	58.2	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.34	1.05-1.43	56.9	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.05	0.89-1.21	51.3	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.00	0.89-1.21	41.0	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.91	0.76-1.02	87.2	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.89	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	78.3	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	88.0	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	75.4	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: _____ Rhonda Stoddard _____

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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_350 S: 11

Instrument ID: HR GC/MS Analysis Date: 15-Oct-2018

GC Column ID: SPB OCTYL Analysis Time: 06:51:15

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	3.18	2.66-3.60	102	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.19	2.66-3.60	99.1	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.56	1.33-1.79	92.7	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	1.08	0.88-1.20	79.3	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.03	0.88-1.20	92.1	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.81	0.65-0.89	91.0	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.78	0.65-0.89	105	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.78	0.65-0.89	102	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.57	1.32-1.78	71.5	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.57	1.32-1.78	95.6	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.59	1.32-1.78	94.8	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.56	1.32-1.78	96.0	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.56	1.32-1.78	98.9	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.56	1.32-1.78	95.2	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.25	1.05-1.43	67.7	50.0 - 150
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	M+2/M+4	1.31	1.05-1.43	189	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	93.9	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.27	1.05-1.43	91.4	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.05	0.89-1.21	79.6	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.01	0.89-1.21	90.6	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.92	0.76-1.02	62.1	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.92	0.76-1.02	92.2	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	79.0	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	81.7	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6	1.17	0.99-1.33	65.1	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.02	0.88-1.20	99.1	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.63	1.32-1.78	90.7	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.07	0.89-1.21	76.3	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.

Signed: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_350S11__Form4B_SJ2448538.html; Workgroup: WG65145; 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_350 S: 11

Instrument ID: HR GC/MS

Analysis Date: 15-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 06:51:15

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	1.000	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	1.002	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	1.002	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	1.001	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	1.001	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	1.001	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	1.000	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_350S11_Form6A_SJ2448538.html; Workgroup: WG65145; 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_350 S: 11

Instrument ID: HR GC/MS

Analysis Date: 15-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 06:51:15

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	0.841-0.904
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	1.071	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	1.397	1.384-1.411
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	0.798-0.818
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	1.179	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	1.184-1.200
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	0.953-0.966
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',4,5,5',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	0.925	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: _____ Rhonda Stoddard _____

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_351 S: 1

Instrument ID: HR GC/MS

Analysis Date: 15-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 08:03:45

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	3.02	2.66-3.60	22.5	17.5 - 32.5
4-MoCB	3			M/M+2	3.02	2.66-3.60	23.5	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.47	1.33-1.79	20.8	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.45	1.33-1.79	24.3	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.06	0.88-1.20	28.5	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	0.99	0.88-1.20	20.7	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.81	0.65-0.89	54.1	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.77	0.65-0.89	43.6	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.75	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	55.7	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.52	1.32-1.78	46.4	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.52	1.32-1.78	45.6	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.50	1.32-1.78	44.1	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.49	1.32-1.78	49.9	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	1.27	1.05-1.43	53.7	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	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	58.1	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.34	1.05-1.43	58.2	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.04	0.89-1.21	53.1	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.00	0.89-1.21	40.8	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.91	0.76-1.02	87.5	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.89	0.76-1.02	73.9	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	76.9	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	87.2	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	77.7	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: _____ Rhonda Stoddard _____

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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_351 S: 1

Instrument ID: HR GC/MS Analysis Date: 15-Oct-2018

GC Column ID: SPB OCTYL Analysis Time: 08:03:45

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	3.20	2.66-3.60	103	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.16	2.66-3.60	99.2	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.55	1.33-1.79	92.5	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.55	1.33-1.79	89.9	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.08	0.88-1.20	80.0	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.04	0.88-1.20	91.6	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.83	0.65-0.89	89.2	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.75	0.65-0.89	101	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.77	0.65-0.89	101	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.57	1.32-1.78	72.9	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.55	1.32-1.78	93.1	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.57	1.32-1.78	91.7	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.56	1.32-1.78	93.7	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.55	1.32-1.78	93.8	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.55	1.32-1.78	94.4	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.29	1.05-1.43	70.9	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	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	1.31	1.05-1.43	91.5	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.29	1.05-1.43	90.3	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.05	0.89-1.21	78.5	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.03	0.89-1.21	83.8	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.89	0.76-1.02	61.2	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.93	0.76-1.02	92.6	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	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	80.3	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	63.8	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.02	0.88-1.20	98.4	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.64	1.32-1.78	91.4	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.07	0.89-1.21	77.6	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: _____ Rhonda Stoddard _____

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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_351 S: 1

Instrument ID: HR GC/MS

Analysis Date: 15-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 08:03:45

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	1.000	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	1.001	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	1.000	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	1.001	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: _____ Rhonda Stoddard _____

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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_351 S: 1

Instrument ID: HR GC/MS

Analysis Date: 15-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 08:03:45

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	0.858	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	1.151-1.172
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	0.777-0.794
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	13C12-2,2',3,4,4',5'-HxCB	138L	1.108	1.099-1.116
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',4,4',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.

Signed: _____ Rhonda Stoddard _____

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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_351 S: 1

Instrument ID: HR GC/MS

Analysis Date: 15-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 08:03:45

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			0.96	M/M+2	3.03	2.66-3.60	0.988	0.984 - 0.991
2,3-DiCB	5			0.90	M/M+2	1.48	1.33-1.79	1.198	1.195 - 1.202
2,3'-DiCB	6			1.03	M/M+2	1.49	1.33-1.79	1.175	1.172 - 1.179
2,4-DiCB	7			1.02	M/M+2	1.47	1.33-1.79	1.158	1.154 - 1.161
2,4'-DiCB	8			1.16	M/M+2	1.49	1.33-1.79	1.206	1.203 - 1.210
2,5-DiCB	9			1.06	M/M+2	1.48	1.33-1.79	1.146	1.142 - 1.149
2,6-DiCB	10			1.07	M/M+2	1.49	1.33-1.79	1.013	1.010 - 1.017
3,3'-DiCB	11			0.99	M/M+2	1.49	1.33-1.79	0.969	0.967 - 0.972
3,4-DiCB	12	12 + 13	C	0.98	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			1.00	M/M+2	1.48	1.33-1.79	0.925	0.923 - 0.928
2,2',3-TriCB	16			0.85	M/M+2	1.08	0.88-1.20	1.165	1.162 - 1.168
2,2',4-TriCB	17			1.02	M/M+2	1.05	0.88-1.20	1.138	1.135 - 1.141
2,2',5-TriCB	18	18 + 30	C	1.22	M/M+2	1.09	0.88-1.20	1.112	1.109 - 1.115
2,3,3'-TriCB	20	20 + 28	C	1.10	M/M+2	1.01	0.88-1.20	0.849	0.846 - 0.852
2,3,4-TriCB	21	21 + 33	C	1.11	M/M+2	0.99	0.88-1.20	0.855	0.852 - 0.858
2,3,4'-TriCB	22			1.00	M/M+2	1.01	0.88-1.20	0.872	0.871 - 0.874
2,3,5-TriCB	23			1.02	M/M+2	0.97	0.88-1.20	1.282	1.279 - 1.285
2,3,6-TriCB	24			1.41	M/M+2	1.08	0.88-1.20	1.159	1.156 - 1.161
2,3',4-TriCB	25			1.25	M/M+2	1.01	0.88-1.20	0.825	0.823 - 0.827
2,3',5-TriCB	26	26 + 29	C	1.06	M/M+2	0.98	0.88-1.20	1.302	1.297 - 1.306
2,3',6-TriCB	27			1.41	M/M+2	1.06	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			1.14	M/M+2	0.99	0.88-1.20	0.837	0.835 - 0.839
2,4',6-TriCB	32			1.13	M/M+2	0.98	0.88-1.20	1.196	1.194 - 1.199
2',3,4-TriCB	33	21 + 33	C21						
2',3,5-TriCB	34			1.04	M/M+2	1.01	0.88-1.20	1.273	1.270 - 1.276
3,3',4-TriCB	35			1.10	M/M+2	1.00	0.88-1.20	0.986	0.984 - 0.988
3,3',5-TriCB	36			1.17	M/M+2	0.98	0.88-1.20	0.932	0.930 - 0.934
3,4,5-TriCB	38			1.08	M/M+2	0.99	0.88-1.20	0.967	0.965 - 0.969
3,4',5-TriCB	39			1.09	M/M+2	1.00	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			0.82	M/M+2	0.79	0.65-0.89	1.311	1.309 - 1.314
2,2',3,5-TeCB	43			0.69	M/M+2	0.79	0.65-0.89	1.245	1.243 - 1.248
2,2',3,5'-TeCB	44	44 + 47 + 65	C	0.93	M/M+2	0.79	0.65-0.89	1.286	1.282 - 1.290
2,2',3,6-TeCB	45	45 + 51	C	0.85	M/M+2	0.79	0.65-0.89	1.146	1.142 - 1.150
2,2',3,6'-TeCB	46			0.75	M/M+2	0.78	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			0.85	M/M+2	0.79	0.65-0.89	1.273	1.270 - 1.275
2,2',4,5'-TeCB	49	49 + 69	C	1.00	M/M+2	0.79	0.65-0.89	1.257	1.253 - 1.261
2,2',4,6-TeCB	50	50 + 53	C	0.89	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	0.80	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			0.93	M/M+2	0.76	0.65-0.89	0.889	0.887 - 0.890
2,3,3',4'-TeCB	56			0.93	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			1.01	M/M+2	0.76	0.65-0.89	0.843	0.842 - 0.845
2,3,3',5'-TeCB	58			0.96	M/M+2	0.77	0.65-0.89	0.851	0.849 - 0.852
2,3,3',6'-TeCB	59	59 + 62 + 75	C	1.14	M/M+2	0.79	0.65-0.89	1.300	1.296 - 1.305
2,3,4,4'-TeCB	60			0.92	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	0.74	0.65-0.89	0.864	0.862 - 0.865
2,3,4',6'-TeCB	64			1.17	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			1.00	M/M+2	0.75	0.65-0.89	0.884	0.883 - 0.886
2,3',4,5'-TeCB	67			1.14	M/M+2	0.75	0.65-0.89	0.856	0.855 - 0.857
2,3',4,5'-TeCB	68			1.02	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			1.02	M/M+2	0.76	0.65-0.89	0.822	0.821 - 0.823
2,3',5,6'-TeCB	73			1.17	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			0.96	M/M+2	0.75	0.65-0.89	0.987	0.985 - 0.988
3,3',4,5'-TeCB	79			1.15	M/M+2	0.75	0.65-0.89	0.970	0.968 - 0.971
3,3',5,5'-TeCB	80			1.02	M/M+2	0.76	0.65-0.89	0.923	0.922 - 0.925
2,2',3,3',4'-PeCB	82			0.76	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	0.81	M+2/M+4	1.59	1.32-1.78	0.884	0.881 - 0.887
2,2',3,3',6'-PeCB	84			0.78	M+2/M+4	1.60	1.32-1.78	1.164	1.162 - 1.166
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1.01	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	0.98	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	0.86	M+2/M+4	1.58	1.32-1.78	1.153	1.149 - 1.157
2,2',3,4,6'-PeCB	89			0.82	M+2/M+4	1.59	1.32-1.78	1.182	1.180 - 1.184
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	0.97	M+2/M+4	1.61	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			0.85	M+2/M+4	1.60	1.32-1.78	0.852	0.851 - 0.854
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	0.89	M+2/M+4	1.59	1.32-1.78	1.130	1.119 - 1.140
2,2',3,5,6'-PeCB	94			0.80	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			1.03	M+2/M+4	1.55	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	1.57	1.32-1.78	1.093	1.091 - 1.095
2,3,3',4,5'-PeCB	106			0.97	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	0.95	M+2/M+4	1.54	1.32-1.78	0.990	0.988 - 0.992
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	1.51	1.32-1.78	0.997	0.995 - 0.998
2,3,3',4',6'-PeCB	110	110 + 115	C	1.15	M+2/M+4	1.63	1.32-1.78	0.926	0.923 - 0.928
2,3,3',5,5'-PeCB	111			1.15	M+2/M+4	1.57	1.32-1.78	0.945	0.944 - 0.946
2,3,3',5,6'-PeCB	112			1.21	M+2/M+4	1.61	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			1.19	M+2/M+4	1.57	1.32-1.78	0.958	0.957 - 0.959
2,3',4,5',6'-PeCB	121			1.13	M+2/M+4	1.60	1.32-1.78	1.199	1.198 - 1.201
2',3,3',4,5'-PeCB	122			0.88	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			0.94	M+2/M+4	1.50	1.32-1.78	1.041	1.039 - 1.042
2,2',3,3',4,4'-HxCB	128	128 + 166	C	1.01	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	1.01	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	1.26	1.05-1.43	0.913	0.912 - 0.914
2,2',3,3',4,6'-HxCB	131			0.83	M+2/M+4	1.27	1.05-1.43	1.159	1.158 - 1.161
2,2',3,3',4,6'-HxCB	132			0.82	M+2/M+4	1.23	1.05-1.43	1.175	1.173 - 1.178
2,2',3,3',5,5'-HxCB	133			0.85	M+2/M+4	1.25	1.05-1.43	1.192	1.190 - 1.193
2,2',3,3',5,6'-HxCB	134	134 + 143	C	0.84	M+2/M+4	1.26	1.05-1.43	1.142	1.140 - 1.145
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	0.80	M+2/M+4	1.26	1.05-1.43	1.107	1.101 - 1.113
2,2',3,3',6,6'-HxCB	136			1.05	M+2/M+4	1.28	1.05-1.43	1.025	1.023 - 1.026
2,2',3,4,4',5'-HxCB	137			0.84	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	0.93	M+2/M+4	1.27	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			0.84	M+2/M+4	1.22	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			0.80	M+2/M+4	1.25	1.05-1.43	1.122	1.120 - 1.123
2,2',3,4,6,6'-HxCB	145			0.99	M+2/M+4	1.28	1.05-1.43	1.034	1.032 - 1.036
2,2',3,4',5,5'-HxCB	146			1.01	M+2/M+4	1.27	1.05-1.43	0.883	0.882 - 0.885
2,2',3,4',5,6'-HxCB	147	147 + 149	C	0.93	M+2/M+4	1.24	1.05-1.43	1.134	1.131 - 1.136
2,2',3,4',5,6'-HxCB	148			0.76	M+2/M+4	1.26	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			1.04	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	1.28	1.05-1.43	1.007	1.006 - 1.009
2,2',4,4',5,5'-HxCB	153	153 + 168	C	1.14	M+2/M+4	1.24	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			1.30	M+2/M+4	1.24	1.05-1.43	0.938	0.936 - 0.939
2,3,3',4,5,5'-HxCB	159			1.17	M+2/M+4	1.23	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	1.27	1.05-1.43	0.887	0.885 - 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			1.21	M+2/M+4	1.27	1.05-1.43	0.921	0.920 - 0.922
2,3,3',5,5',6'-HxCB	165			1.07	M+2/M+4	1.26	1.05-1.43	0.877	0.876 - 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			1.16	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	0.75	M+2/M+4	1.06	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	1.05	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			0.86	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			0.83	M+2/M+4	1.07	0.89-1.21	1.103	1.102 - 1.104
2,2',3,3',4,6,6'-HpCB	176			1.13	M+2/M+4	1.06	0.89-1.21	1.035	1.033 - 1.036
2,2',3,3',4',5,6'-HpCB	177			0.93	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			0.80	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			1.17	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	1.04	0.89-1.21	1.000	0.999 - 1.001
2,2',3,4,4',5,6'-HpCB	181			0.80	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	1.05	0.89-1.21	1.115	1.114 - 1.117
2,2',3,4,4',5',6'-HpCB	183	183 + 185	C	0.82	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			1.16	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			1.07	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			0.86	M+2/M+4	1.06	0.89-1.21	1.111	1.109 - 1.112
2,3,3',4,4',5,6'-HpCB	190			1.02	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			1.03	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			0.94	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			0.92	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			0.85	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			0.69	M+2/M+4	0.92	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	0.95	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	0.66	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			0.94	M+2/M+4	0.90	0.76-1.02	1.022	1.020 - 1.024
2,2',3,4,4',5,5',6-OcCB	203			0.69	M+2/M+4	0.91	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	0.91	0.76-1.02	1.038	1.037 - 1.039
2,2',3,3',4,4',5,6,6'-NoCB	207			1.31	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: _____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_351 S: 1

Instrument ID: HR GC/MS

Analysis Date: 15-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 08:03:45

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			1.16	M/M+2	3.20	2.66-3.60	0.719	0.704 - 0.735
13C12-4-MoCB	3L			1.07	M/M+2	3.16	2.66-3.60	0.858	0.843 - 0.874
13C12-2,2'-DiCB	4L			0.63	M/M+2	1.55	1.33-1.79	0.874	0.858 - 0.889
13C12-4,4'-DiCB	15L			0.96	M/M+2	1.55	1.33-1.79	1.253	1.238 - 1.269
13C12-2,2',6'-TriCB	19L			0.45	M/M+2	1.08	0.88-1.20	1.072	1.056 - 1.088
13C12-3,4,4'-TriCB	37L			1.55	M/M+2	1.04	0.88-1.20	1.091	1.081 - 1.101
13C12-2,2',6,6'-TeCB	54L			1.32	M/M+2	0.83	0.65-0.89	0.811	0.804 - 0.818
13C12-3,3',4,4'-TeCB	77L			1.33	M/M+2	0.75	0.65-0.89	1.397	1.390 - 1.403
13C12-3,4,4',5'-TeCB	81L			1.30	M/M+2	0.77	0.65-0.89	1.373	1.366 - 1.379
13C12-2,2',4,6,6'-PeCB	104L			1.08	M+2/M+4	1.57	1.32-1.78	0.808	0.803 - 0.813
13C12-2,3,3',4,4'-PeCB	105L			1.31	M+2/M+4	1.55	1.32-1.78	1.201	1.195 - 1.206
13C12-2,3,4,4',5'-PeCB	114L			1.24	M+2/M+4	1.57	1.32-1.78	1.179	1.174 - 1.185
13C12-2,3',4,4',5'-PeCB	118L			1.28	M+2/M+4	1.56	1.32-1.78	1.162	1.157 - 1.167
13C12-2',3,4,4',5'-PeCB	123L			1.31	M+2/M+4	1.55	1.32-1.78	1.151	1.146 - 1.157
13C12-3,3',4,4',5'-PeCB	126L			1.18	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			1.18	M+2/M+4	1.29	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	1.30	1.05-1.43	1.108	1.103 - 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	1.31	1.05-1.43	1.078	1.074 - 1.082
13C12-3,3',4,4',5,5'-HxCB	169L			1.20	M+2/M+4	1.29	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	1.03	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	1.07	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	1.05	0.89-1.21	0.712	0.709 - 0.715
13C12-2,3,3',4,4',5,5'-HpCB	189L			1.27	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			1.09	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			1.39	M+2/M+4	0.93	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	0.79	0.65-0.89	1.043	1.039 - 1.048
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			1.08	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_351S1__Form346B_SJ2448606_GS78185.html; Workgroup: WG65145; 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_351 S: 11

Instrument ID: HR GC/MS

Analysis Date: 15-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 18:46:08

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	3.01	2.66-3.60	22.8	17.5 - 32.5
4-MoCB	3			M/M+2	3.03	2.66-3.60	23.8	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.50	1.33-1.79	21.2	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.45	1.33-1.79	24.3	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.06	0.88-1.20	29.1	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	1.01	0.88-1.20	21.0	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.79	0.65-0.89	54.9	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.75	0.65-0.89	43.6	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.76	0.65-0.89	46.9	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.55	1.32-1.78	55.4	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.50	1.32-1.78	46.4	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.53	1.32-1.78	45.9	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.51	1.32-1.78	44.5	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.48	1.32-1.78	44.6	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.53	1.32-1.78	47.5	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.26	1.05-1.43	55.6	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	1.25	1.05-1.43	58.0	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.31	1.05-1.43	57.0	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.07	0.89-1.21	53.3	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.01	0.89-1.21	41.0	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	0.90	0.76-1.02	75.6	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	77.9	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	87.6	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	76.1	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_351S11__Form4A_SJ2448629.html; Workgroup: WG65145; Design ID: 3360]

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_351 S: 11

Instrument ID: HR GC/MS Analysis Date: 15-Oct-2018

GC Column ID: SPB OCTYL Analysis Time: 18:46:08

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	3.17	2.66-3.60	101	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.12	2.66-3.60	98.4	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	93.7	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.07	0.88-1.20	81.4	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.04	0.88-1.20	91.8	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.81	0.65-0.89	89.9	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.76	0.65-0.89	104	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.77	0.65-0.89	104	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.63	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	97.1	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.58	1.32-1.78	95.5	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.56	1.32-1.78	98.7	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.56	1.32-1.78	101	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.55	1.32-1.78	96.7	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.28	1.05-1.43	66.1	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	186	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	92.4	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.28	1.05-1.43	94.0	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.09	0.89-1.21	71.7	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.03	0.89-1.21	86.3	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.92	0.76-1.02	54.0	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.90	0.76-1.02	91.2	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	77.0	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	78.2	50.0 - 150
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6	1.17	0.99-1.33	62.6	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.02	0.88-1.20	97.3	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.61	1.32-1.78	90.9	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.07	0.89-1.21	76.5	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: _____ Rhonda Stoddard _____

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_351 S: 11

Instrument ID: HR GC/MS

Analysis Date: 15-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 18:46:08

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	1.002	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	0.999-1.002
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	1.002	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	1.001	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	1.001	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_351S11_Form6A_SJ2448629.html; Workgroup: WG65145; 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_351 S: 11

Instrument ID: HR GC/MS

Analysis Date: 15-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 18:46:08

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	0.688-0.751
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	1.255	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	1.093	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	1.397	1.384-1.410
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'-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',4,5,5',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	1.011	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: _____ Rhonda Stoddard _____

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_364 S: 1

Instrument ID: HR GC/MS

Analysis Date: 23-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:19:09

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	3.02	2.66-3.60	21.4	17.5 - 32.5
4-MoCB	3			M/M+2	3.02	2.66-3.60	22.7	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.47	1.33-1.79	20.8	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.48	1.33-1.79	25.2	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.09	0.88-1.20	26.9	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	1.01	0.88-1.20	21.7	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.79	0.65-0.89	52.0	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.75	0.65-0.89	44.6	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.76	0.65-0.89	48.0	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.55	1.32-1.78	55.1	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.56	1.32-1.78	46.3	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.52	1.32-1.78	47.3	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.48	1.32-1.78	45.2	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.51	1.32-1.78	45.2	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.60	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	54.0	35.0 - 65.0
2,3,3',4,4',5-HxCB	156	156 + 157	C	M+2/M+4	1.30	1.05-1.43	106	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	57.6	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.29	1.05-1.43	56.4	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.04	0.89-1.21	51.8	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.01	0.89-1.21	41.9	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.92	0.76-1.02	88.2	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.88	0.76-1.02	74.6	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	76.9	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	85.1	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	76.3	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_364S1__Form4A_SJ2454468.html; Workgroup: WG65145; Design ID: 3360]

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_364 S: 1

Instrument ID: HR GC/MS Analysis Date: 23-Oct-2018

GC Column ID: SPB OCTYL Analysis Time: 20:19:09

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	3.13	2.66-3.60	92.4	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.14	2.66-3.60	93.1	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.52	1.33-1.79	90.8	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.54	1.33-1.79	92.0	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.10	0.88-1.20	97.5	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.02	0.88-1.20	80.7	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	0.74	0.65-0.89	91.8	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.76	0.65-0.89	89.9	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.60	1.32-1.78	74.3	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.59	1.32-1.78	82.0	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.57	1.32-1.78	81.1	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.56	1.32-1.78	81.9	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.54	1.32-1.78	82.1	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.56	1.32-1.78	81.1	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.26	1.05-1.43	76.0	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	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	1.27	1.05-1.43	90.4	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.27	1.05-1.43	88.1	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.05	0.89-1.21	90.2	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.02	0.89-1.21	84.7	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.90	0.76-1.02	72.0	50.0 - 150
13C12-2,3,3',4,4',5,5',6-OoCB	205L			M+2/M+4	0.88	0.76-1.02	91.1	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	85.8	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	90.4	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	71.3	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.05	0.88-1.20	90.4	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.60	1.32-1.78	89.0	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.06	0.89-1.21	87.3	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.

Signed: _____ Rhonda Stoddard _____

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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_364 S: 1

Instrument ID: HR GC/MS

Analysis Date: 23-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:19:09

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	1.002	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	1.001	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	1.001	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_364S1__Form6A_SJ2454468.html; Workgroup: WG65145; 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_364 S: 1

Instrument ID: HR GC/MS

Analysis Date: 23-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:19:09

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	0.841-0.904
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	0.797-0.824
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'-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	0.811-0.823
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	1.034-1.053
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	1.011	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_364S1__Form6B_SJ2454468.html; Workgroup: WG65145; 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_364 S: 1

Instrument ID: HR GC/MS

Analysis Date: 23-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:19:09

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	3.06	2.66-3.60	0.989	0.985 - 0.993
2,3-DiCB	5			0.95	M/M+2	1.48	1.33-1.79	1.200	1.196 - 1.203
2,3'-DiCB	6			1.06	M/M+2	1.49	1.33-1.79	1.177	1.173 - 1.181
2,4-DiCB	7			1.03	M/M+2	1.50	1.33-1.79	1.159	1.156 - 1.163
2,4'-DiCB	8			1.16	M/M+2	1.49	1.33-1.79	1.209	1.206 - 1.213
2,5-DiCB	9			1.07	M/M+2	1.49	1.33-1.79	1.147	1.144 - 1.151
2,6-DiCB	10			1.04	M/M+2	1.49	1.33-1.79	1.016	1.012 - 1.019
3,3'-DiCB	11			1.02	M/M+2	1.49	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	0.984	0.982 - 0.987
3,4'-DiCB	13	12 + 13	C12						
3,5-DiCB	14			1.05	M/M+2	1.51	1.33-1.79	0.925	0.923 - 0.928
2,2',3-TriCB	16			0.86	M/M+2	1.01	0.88-1.20	1.166	1.163 - 1.168
2,2',4-TriCB	17			1.03	M/M+2	1.03	0.88-1.20	1.137	1.134 - 1.140
2,2',5-TriCB	18	18 + 30	C	1.23	M/M+2	1.05	0.88-1.20	1.112	1.109 - 1.115
2,3,3'-TriCB	20	20 + 28	C	1.13	M/M+2	1.01	0.88-1.20	0.848	0.845 - 0.851
2,3,4-TriCB	21	21 + 33	C	1.13	M/M+2	1.01	0.88-1.20	0.855	0.852 - 0.858
2,3,4'-TriCB	22			0.99	M/M+2	1.01	0.88-1.20	0.872	0.870 - 0.874
2,3,5-TriCB	23			1.04	M/M+2	1.00	0.88-1.20	1.282	1.279 - 1.285
2,3,6-TriCB	24			1.42	M/M+2	1.04	0.88-1.20	1.159	1.156 - 1.162
2,3',4-TriCB	25			1.28	M/M+2	1.01	0.88-1.20	0.825	0.823 - 0.827
2,3',5-TriCB	26	26 + 29	C	1.10	M/M+2	1.00	0.88-1.20	1.301	1.296 - 1.306
2,3',6-TriCB	27			1.43	M/M+2	1.06	0.88-1.20	1.150	1.147 - 1.153
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			1.18	M/M+2	1.01	0.88-1.20	0.836	0.835 - 0.838
2,4',6-TriCB	32			1.13	M/M+2	0.99	0.88-1.20	1.197	1.194 - 1.200
2',3,4-TriCB	33	21 + 33	C21						
2',3,5-TriCB	34			1.07	M/M+2	1.01	0.88-1.20	1.273	1.270 - 1.276
3,3',4-TriCB	35			1.07	M/M+2	0.99	0.88-1.20	0.985	0.984 - 0.987
3,3',5-TriCB	36			1.15	M/M+2	1.00	0.88-1.20	0.932	0.930 - 0.933
3,4,5-TriCB	38			1.09	M/M+2	1.01	0.88-1.20	0.967	0.965 - 0.969
3,4',5-TriCB	39			1.11	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	0.88	M/M+2	0.78	0.65-0.89	1.336	1.331 - 1.340
2,2',3,4-TeCB	41	40 + 41 + 71	C40						
2,2',3,4'-TeCB	42			0.86	M/M+2	0.75	0.65-0.89	1.312	1.309 - 1.314
2,2',3,5-TeCB	43			0.78	M/M+2	0.78	0.65-0.89	1.247	1.244 - 1.249
2,2',3,5'-TeCB	44	44 + 47 + 65	C	0.97	M/M+2	0.78	0.65-0.89	1.286	1.282 - 1.290
2,2',3,6-TeCB	45	45 + 51	C	0.90	M/M+2	0.79	0.65-0.89	1.147	1.143 - 1.151
2,2',3,6'-TeCB	46			0.78	M/M+2	0.80	0.65-0.89	1.161	1.159 - 1.164
2,2',4,4'-TeCB	47	44 + 47 + 65	C44						
2,2',4,5-TeCB	48			0.88	M/M+2	0.79	0.65-0.89	1.273	1.271 - 1.275
2,2',4,5'-TeCB	49	49 + 69	C	1.04	M/M+2	0.78	0.65-0.89	1.257	1.253 - 1.262
2,2',4,6-TeCB	50	50 + 53	C	0.93	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			0.97	M/M+2	0.78	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			0.89	M/M+2	0.78	0.65-0.89	0.889	0.887 - 0.890
2,3,3',4'-TeCB	56			0.89	M/M+2	0.77	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			0.93	M/M+2	0.78	0.65-0.89	0.844	0.842 - 0.845
2,3,3',5'-TeCB	58			0.91	M/M+2	0.77	0.65-0.89	0.850	0.849 - 0.852
2,3,3',6'-TeCB	59	59 + 62 + 75	C	1.19	M/M+2	0.79	0.65-0.89	1.302	1.298 - 1.306
2,3,4,4'-TeCB	60			0.88	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	0.97	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			0.98	M/M+2	0.78	0.65-0.89	0.864	0.863 - 0.866
2,3,4',6'-TeCB	64			1.22	M/M+2	0.78	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			0.97	M/M+2	0.74	0.65-0.89	0.884	0.883 - 0.885
2,3',4,5'-TeCB	67			1.11	M/M+2	0.76	0.65-0.89	0.855	0.854 - 0.857
2,3',4,5'-TeCB	68			0.99	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			1.00	M/M+2	0.76	0.65-0.89	0.822	0.821 - 0.824
2,3',5,6'-TeCB	73			1.13	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			0.90	M/M+2	0.77	0.65-0.89	0.987	0.985 - 0.988
3,3',4,5'-TeCB	79			1.12	M/M+2	0.77	0.65-0.89	0.970	0.969 - 0.972
3,3',5,5'-TeCB	80			1.02	M/M+2	0.78	0.65-0.89	0.923	0.922 - 0.925
2,2',3,3',4'-PeCB	82			0.81	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	0.87	M+2/M+4	1.59	1.32-1.78	0.884	0.881 - 0.887
2,2',3,3',6'-PeCB	84			0.81	M+2/M+4	1.56	1.32-1.78	1.164	1.162 - 1.166
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	1.07	M+2/M+4	1.58	1.32-1.78	0.919	0.917 - 0.922
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 108 + 119 + 125	C	1.03	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	0.90	M+2/M+4	1.54	1.32-1.78	1.153	1.149 - 1.157
2,2',3,4,6'-PeCB	89			0.87	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	1.03	M+2/M+4	1.59	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			0.90	M+2/M+4	1.58	1.32-1.78	0.853	0.851 - 0.854
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	0.95	M+2/M+4	1.61	1.32-1.78	1.130	1.119 - 1.141
2,2',3,5,6'-PeCB	94			0.83	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			1.14	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			1.02	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	1.53	1.32-1.78	1.004	1.003 - 1.005
2,3,3',4',5'-PeCB	107	107 + 124	C	0.95	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			1.02	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	1.19	M+2/M+4	1.55	1.32-1.78	0.926	0.924 - 0.928
2,3,3',5,5'-PeCB	111			1.19	M+2/M+4	1.57	1.32-1.78	0.945	0.944 - 0.946
2,3,3',5,6'-PeCB	112			1.21	M+2/M+4	1.54	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			1.26	M+2/M+4	1.57	1.32-1.78	0.958	0.957 - 0.959
2,3',4,5',6'-PeCB	121			1.18	M+2/M+4	1.60	1.32-1.78	1.200	1.198 - 1.202
2',3,3',4,5'-PeCB	122			0.85	M+2/M+4	1.53	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			0.91	M+2/M+4	1.51	1.32-1.78	1.041	1.039 - 1.042
2,2',3,3',4,4'-HxCB	128	128 + 166	C	0.99	M+2/M+4	1.26	1.05-1.43	0.958	0.957 - 0.960
2,2',3,3',4,5'-HxCB	129	129 + 138 + 160 + 163	C	0.95	M+2/M+4	1.25	1.05-1.43	0.930	0.927 - 0.933
2,2',3,3',4,5'-HxCB	130			0.77	M+2/M+4	1.24	1.05-1.43	0.913	0.912 - 0.914
2,2',3,3',4,6'-HxCB	131			0.86	M+2/M+4	1.25	1.05-1.43	1.160	1.159 - 1.162
2,2',3,3',4,6'-HxCB	132			0.80	M+2/M+4	1.26	1.05-1.43	1.176	1.173 - 1.178
2,2',3,3',5,5'-HxCB	133			0.84	M+2/M+4	1.24	1.05-1.43	1.192	1.190 - 1.194
2,2',3,3',5,6'-HxCB	134	134 + 143	C	0.85	M+2/M+4	1.24	1.05-1.43	1.142	1.140 - 1.145
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	0.85	M+2/M+4	1.29	1.05-1.43	1.107	1.101 - 1.113
2,2',3,3',6,6'-HxCB	136			1.11	M+2/M+4	1.25	1.05-1.43	1.025	1.024 - 1.027
2,2',3,4,4',5'-HxCB	137			0.87	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	0.92	M+2/M+4	1.24	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			0.88	M+2/M+4	1.27	1.05-1.43	0.904	0.902 - 0.905
2,2',3,4,5,6'-HxCB	142			0.82	M+2/M+4	1.25	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			0.83	M+2/M+4	1.27	1.05-1.43	1.122	1.120 - 1.123
2,2',3,4,6,6'-HxCB	145			1.06	M+2/M+4	1.31	1.05-1.43	1.034	1.032 - 1.036
2,2',3,4',5,5'-HxCB	146			0.95	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	0.94	M+2/M+4	1.25	1.05-1.43	1.134	1.131 - 1.137
2,2',3,4',5,6'-HxCB	148			0.82	M+2/M+4	1.30	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			1.08	M+2/M+4	1.28	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			1.19	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	1.10	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			1.29	M+2/M+4	1.28	1.05-1.43	0.938	0.937 - 0.939
2,3,3',4,5,5'-HxCB	159			1.14	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			1.23	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			1.12	M+2/M+4	1.26	1.05-1.43	0.921	0.920 - 0.922
2,3,3',5,5',6'-HxCB	165			1.03	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	0.77	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			0.75	M+2/M+4	1.07	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	1.132 - 1.135
2,2',3,3',4,5',6'-HpCB	175			0.85	M+2/M+4	1.06	0.89-1.21	1.103	1.101 - 1.104
2,2',3,3',4,6,6'-HpCB	176			1.12	M+2/M+4	1.04	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	1.06	0.89-1.21	1.146	1.145 - 1.148
2,2',3,3',5,5',6'-HpCB	178			0.82	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			1.15	M+2/M+4	1.08	0.89-1.21	1.010	1.009 - 1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	1.01	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			0.79	M+2/M+4	1.00	0.89-1.21	1.157	1.156 - 1.159
2,2',3,4,4',5,6'-HpCB	182			0.87	M+2/M+4	1.05	0.89-1.21	1.116	1.115 - 1.117
2,2',3,4,4',5',6'-HpCB	183	183 + 185	C	0.83	M+2/M+4	1.06	0.89-1.21	1.129	1.127 - 1.130
2,2',3,4,4',6,6'-HpCB	184			1.15	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			1.06	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			0.89	M+2/M+4	1.02	0.89-1.21	1.110	1.109 - 1.112
2,3,3',4,4',5,6'-HpCB	190			0.99	M+2/M+4	1.03	0.89-1.21	0.947	0.946 - 0.948
2,3,3',4,4',5',6'-HpCB	191			0.99	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			0.91	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			0.86	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			0.80	M+2/M+4	0.90	0.76-1.02	0.945	0.944 - 0.946
2,2',3,3',4,4',5,6'-OcCB	196			0.74	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	1.01	M+2/M+4	0.89	0.76-1.02	1.046	1.043 - 1.048
2,2',3,3',4,5,5',6-OcCB	198	198 + 199	C	0.71	M+2/M+4	0.88	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			1.01	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			0.75	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			1.00	M+2/M+4	0.93	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: _____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_364 S: 1

Instrument ID: HR GC/MS

Analysis Date: 23-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 20:19:09

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			1.04	M/M+2	3.13	2.66-3.60	0.719	0.704 - 0.735
13C12-4-MoCB	3L			1.00	M/M+2	3.14	2.66-3.60	0.858	0.842 - 0.874
13C12-2,2'-DiCB	4L			0.62	M/M+2	1.52	1.33-1.79	0.873	0.857 - 0.888
13C12-4,4'-DiCB	15L			0.98	M/M+2	1.54	1.33-1.79	1.254	1.238 - 1.269
13C12-2,2',6'-TriCB	19L			0.55	M/M+2	1.10	0.88-1.20	1.072	1.056 - 1.088
13C12-3,4,4'-TriCB	37L			1.37	M/M+2	1.02	0.88-1.20	1.092	1.082 - 1.102
13C12-2,2',6,6'-TeCB	54L			1.37	M/M+2	0.79	0.65-0.89	0.811	0.804 - 0.817
13C12-3,3',4,4'-TeCB	77L			1.21	M/M+2	0.74	0.65-0.89	1.397	1.391 - 1.404
13C12-3,4,4',5'-TeCB	81L			1.16	M/M+2	0.76	0.65-0.89	1.373	1.367 - 1.380
13C12-2,2',4,6,6'-PeCB	104L			1.10	M+2/M+4	1.60	1.32-1.78	0.808	0.803 - 0.813
13C12-2,3,3',4,4'-PeCB	105L			1.15	M+2/M+4	1.59	1.32-1.78	1.201	1.196 - 1.206
13C12-2,3,4,4',5'-PeCB	114L			1.10	M+2/M+4	1.57	1.32-1.78	1.180	1.174 - 1.185
13C12-2,3',4,4',5'-PeCB	118L			1.12	M+2/M+4	1.56	1.32-1.78	1.162	1.157 - 1.168
13C12-2',3,4,4',5'-PeCB	123L			1.14	M+2/M+4	1.54	1.32-1.78	1.152	1.146 - 1.157
13C12-3,3',4,4',5'-PeCB	126L			1.02	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			1.26	M+2/M+4	1.26	1.05-1.43	0.785	0.781 - 0.789
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C	1.19	M+2/M+4	1.26	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	1.27	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	1.27	1.05-1.43	1.192	1.188 - 1.196
13C12-2,2',3,3',4,4',5'-HpCB	170L			0.95	M+2/M+4	1.07	0.89-1.21	0.897	0.894 - 0.900
13C12-2,2',3,4,4',5,5'-HpCB	180L			1.14	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			1.70	M+2/M+4	1.05	0.89-1.21	0.712	0.708 - 0.715
13C12-2,3,3',4,4',5,5'-HpCB	189L			1.28	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			1.28	M+2/M+4	0.90	0.76-1.02	0.817	0.814 - 0.820
13C12-2,3,3',4,4',5,5',6-OxCB	205L			1.37	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			0.94	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			1.22	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_364S1__Form346B_SJ2454462_GS78379.html; Workgroup: WG65145; 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_364 S: 11

Instrument ID: HR GC/MS

Analysis Date: 24-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 06:57:06

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	21.4	17.5 - 32.5
4-MoCB	3			M/M+2	3.00	2.66-3.60	22.8	17.5 - 32.5
2,2'-DiCB	4			M/M+2	1.51	1.33-1.79	21.0	17.5 - 32.5
4,4'-DiCB	15			M/M+2	1.38	1.33-1.79	24.2	19.6 - 36.4
2,2',6-TriCB	19			M/M+2	1.08	0.88-1.20	27.5	17.5 - 32.5
3,4,4'-TriCB	37			M/M+2	1.02	0.88-1.20	21.8	17.5 - 32.5
2,2',6,6'-TeCB	54			M/M+2	0.78	0.65-0.89	52.0	35.0 - 65.0
3,3',4,4'-TeCB	77			M/M+2	0.76	0.65-0.89	43.6	35.0 - 65.0
3,4,4',5-TeCB	81			M/M+2	0.75	0.65-0.89	48.1	35.0 - 65.0
2,2',4,6,6'-PeCB	104			M+2/M+4	1.53	1.32-1.78	54.8	35.0 - 65.0
2,3,3',4,4'-PeCB	105			M+2/M+4	1.51	1.32-1.78	46.4	35.0 - 65.0
2,3,4,4',5-PeCB	114			M+2/M+4	1.49	1.32-1.78	47.3	35.0 - 65.0
2,3',4,4',5-PeCB	118			M+2/M+4	1.50	1.32-1.78	45.9	35.0 - 65.0
2',3,4,4',5-PeCB	123			M+2/M+4	1.33	1.32-1.78	46.9	35.0 - 65.0
3,3',4,4',5-PeCB	126			M+2/M+4	1.53	1.32-1.78	47.0	39.0 - 72.4
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.26	1.05-1.43	52.9	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	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	1.25	1.05-1.43	55.5	35.0 - 65.0
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.29	1.05-1.43	55.2	35.0 - 65.0
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.04	0.89-1.21	51.2	35.0 - 65.0
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.03	0.89-1.21	41.6	35.0 - 65.0
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.91	0.76-1.02	88.2	58.9 - 110
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.89	0.76-1.02	74.5	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	76.4	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	86.2	58.7 - 109
2,2',3,3',4,4',5,5',6,6'-DeCB	209			M+4/M+6	1.21	0.99-1.33	77.8	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_364S11__Form4A_SJ2454476.html; Workgroup: WG65145; Design ID: 3360]

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_364 S: 11

Instrument ID: HR GC/MS Analysis Date: 24-Oct-2018

GC Column ID: SPB OCTYL Analysis Time: 06:57:06

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	93.1	50.0 - 150
13C12-4-MoCB	3L			M/M+2	3.13	2.66-3.60	94.5	50.0 - 150
13C12-2,2'-DiCB	4L			M/M+2	1.55	1.33-1.79	91.2	50.0 - 150
13C12-4,4'-DiCB	15L			M/M+2	1.56	1.33-1.79	94.8	50.0 - 150
13C12-2,2',6-TriCB	19L			M/M+2	1.07	0.88-1.20	97.2	50.0 - 150
13C12-3,4,4'-TriCB	37L			M/M+2	1.02	0.88-1.20	83.5	50.0 - 150
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.80	0.65-0.89	92.4	50.0 - 150
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.76	0.65-0.89	95.5	50.0 - 150
13C12-3,4,4',5-TeCB	81L			M/M+2	0.75	0.65-0.89	94.5	50.0 - 150
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.61	1.32-1.78	73.5	50.0 - 150
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.56	1.32-1.78	83.2	50.0 - 150
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.60	1.32-1.78	83.6	50.0 - 150
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.53	1.32-1.78	84.9	50.0 - 150
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.56	1.32-1.78	83.9	50.0 - 150
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.56	1.32-1.78	83.0	50.0 - 150
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.27	1.05-1.43	75.3	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	180	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	1.22	1.05-1.43	92.5	50.0 - 150
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.23	1.05-1.43	90.8	50.0 - 150
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.03	0.89-1.21	84.7	50.0 - 150
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.02	0.89-1.21	84.4	50.0 - 150
13C12-2,2',3,3',5,5',6,6'-OoCB	202L			M+2/M+4	0.93	0.76-1.02	66.6	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	0.76	0.65-0.89	84.3	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	84.2	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	68.6	50.0 - 150

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.03	0.88-1.20	90.4	60.0 - 130
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.60	1.32-1.78	88.6	60.0 - 130
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.08	0.89-1.21	87.2	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: _____ Rhonda Stoddard _____

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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_364 S: 11

Instrument ID: HR GC/MS

Analysis Date: 24-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 06:57:06

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	1.002	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	1.001	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	1.001	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	1.000	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	1.001	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: _____ Rhonda Stoddard _____

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Report Filename: 1668_PCB1668_PB8C_364S11_Form6A_SJ2454476.html; Workgroup: WG65145; 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_364 S: 11

Instrument ID: HR GC/MS

Analysis Date: 24-Oct-2018

GC Column ID: SPB OCTYL

Analysis Time: 06:57:06

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	0.841-0.904
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	1.071	1.040-1.102
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	1.384-1.411
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	1.200	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	1.162	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	0.953-0.966
13C12-2,2',3,3',5,5',6,6'-OcCB	202L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.817	0.811-0.823
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: _____ Rhonda Stoddard _____

For Axy Internal Use Only [XSL Template: Form16686B.xsl; Created: 31-Oct-2018 10:40:05; Application: XMLTransformer-1.16.51;
Report Filename: 1668_PCB1668_PB8C_364S11__Form6B_SJ2454476.html; Workgroup: WG65145; Design ID: 3360]

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SGS AXYS Analytical Services Ltd.
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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 **
	Endosulphan sulphate	EPA 8081	MLA-007				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				Y			Y	
		SGS AXYS MLA-007	MLA-007	Y	Y	Y									Y		Y						Y	Y	Y	Y							Y	
		EPA 608	MLA-007																						Y		Y	Y		Y		Y		
		EPA 8081	MLA-007				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			Y	
	SGS AXYS MLA-007	MLA-007	Y	Y	Y										Y		Y					Y	Y	Y	Y							Y		
	Endrin	EPA 608	MLA-007																						Y			Y	Y		Y		Y	
		EPA 8081	MLA-007				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			Y	
	SGS AXYS MLA-007	MLA-007	Y	Y	Y										Y		Y						Y	Y	Y	Y							Y	
	Endrin aldehyde	EPA 608	MLA-007																						Y			Y	Y		Y		Y	
		EPA 8081	MLA-007				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			Y	
	SGS AXYS MLA-007	MLA-007	Y	Y	Y										Y		Y						Y	Y	Y	Y							Y	
	Endrin ketone	EPA 8081	MLA-007				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				Y			Y	
		SGS AXYS MLA-007	MLA-007	Y	Y	Y										Y		Y					Y	Y	Y	Y								Y
	Gamma-HCH (Lindane)	EPA 625	MLA-007																						Y			Y	Y		Y		Y	
		EPA 8270	MLA-007				Y				Y	Y	Y	Y	Y																			
		EPA 1699	MLA-028				Y								Y										Y									
		SGS AXYS MLA-028	MLA-028	Y	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							Y	
	Heptachlor	EPA 625	MLA-007																						Y			Y	Y		Y		Y	
		EPA 8270	MLA-007				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			Y	
	SGS AXYS MLA-007	MLA-007	Y	Y	Y										Y		Y						Y	Y	Y	Y							Y	
	Heptachlor epoxide	EPA 608	MLA-007																						Y			Y	Y		Y		Y	
		EPA 8081	MLA-007				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			Y	
	SGS AXYS MLA-007	MLA-007	Y	Y	Y										Y		Y						Y	Y	Y	Y							Y	
	Hexachlorobenzene	EPA 1625	MLA-007																						Y			Y						Y
		EPA 8270	MLA-007				Y				Y	Y	Y	Y	Y																			
		EPA 1699	MLA-028				Y								Y										Y									
		SGS AXYS MLA-028	MLA-028	Y	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							Y	
	Methoxychlor	EPA 608	MLA-007																						Y			Y	Y				Y	
		EPA 8081	MLA-007				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			Y	
	SGS AXYS MLA-007	MLA-007	Y	Y	Y										Y		Y						Y	Y	Y	Y							Y	
Mirex	EPA 8270	MLA-007				Y				Y	Y	Y	Y	Y										Y			Y	Y		Y		Y		
	EPA 1699	MLA-028				Y								Y											Y								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 **	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			
		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				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												Y	Y						
		SGS AXYS MLA-021	MLA-021		Y	Y									Y		Y					Y		Y									Y		
	Acenaphthylene	EPA 1625	MLA-021																									Y	Y					Y	
		EPA 8270	MLA-021				Y				Y	Y			Y	Y												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-021	MLA-021		Y	Y								Y		Y							Y		Y			Y	Y			Y														
	Anthracene	EPA 1625	MLA-021																						Y		Y		Y			Y														
		EPA 8270	MLA-021			Y				Y	Y			Y	Y													Y					Y													
		SGS AXYS MLA-021	MLA-021		Y	Y									Y		Y							Y		Y						Y														
	Benz[a]anthracene	EPA 1625	MLA-021																							Y		Y	Y			Y														
		EPA 8270	MLA-021			Y				Y	Y			Y	Y																		Y													
		SGS AXYS MLA-021	MLA-021		Y	Y									Y		Y							Y		Y						Y														
	Benzo[a]pyrene	EPA 1625	MLA-021																							Y		Y	Y			Y														
		EPA 8270	MLA-021			Y				Y	Y			Y	Y																		Y													
		SGS AXYS MLA-021	MLA-021		Y	Y									Y		Y							Y		Y						Y														
	Benzo[b]fluoranthene	EPA 1625	MLA-021																							Y		Y		Y	Y		Y													
		EPA 8270	MLA-021			Y				Y	Y			Y	Y																		Y													
		SGS AXYS MLA-021	MLA-021		Y	Y									Y		Y							Y		Y							Y													
	Benzo[e]pyrene	SGS AXYS MLA-021	MLA-021		Y																			Y		Y							Y													
	Benzo[ghi]perylene	EPA 1625	MLA-021																							Y		Y	Y			Y														
		EPA 8270	MLA-021			Y				Y	Y			Y	Y																		Y													
		SGS AXYS MLA-021	MLA-021		Y	Y									Y		Y							Y		Y							Y													
	Benzo[j/k]fluoranthenes	SGS AXYS MLA-021	MLA-021		Y																			Y		Y							Y													
	Benzo[k]fluoranthene	EPA 1625	MLA-021																							Y		Y	Y		Y		Y													
		EPA 8270	MLA-021			Y				Y				Y	Y																		Y													
		SGS AXYS MLA-021	MLA-021			Y									Y										Y		Y						Y													
	Biphenyl	SGS AXYS MLA-021	MLA-021		Y																				Y																					
	C1-Acenaphthenes	SGS AXYS MLA-021	MLA-021		Y																				Y																					
	C1-Benz(a)anthracenes/chrysenes	SGS AXYS MLA-021	MLA-021		Y																				Y																					
	C1-Benzofluoranthenes/ Benzopyrenes	SGS AXYS MLA-021	MLA-021		Y																				Y																					
	C1-Biphenyls	SGS AXYS MLA-021	MLA-021		Y																				Y																					
	C1-Dibenzothiophene	SGS AXYS MLA-021	MLA-021		Y																				Y																					
	C1-Fluoranthenes/Pyrenes	SGS AXYS MLA-021	MLA-021		Y																				Y																					
	C1-Fluorenes	SGS AXYS MLA-021	MLA-021		Y																				Y																					
	C1-Naphthalenes	SGS AXYS MLA-021	MLA-021		Y																				Y																					
	C1-Phenanthrenes/Anthracenes	SGS AXYS MLA-021	MLA-021		Y																				Y																					
	C2-Benz(a)anthracenes/Chrysenes	SGS AXYS MLA-021	MLA-021		Y																				Y																					
	C2-Benzofluoranthenes/ Benzopyrenes	SGS AXYS MLA-021	MLA-021		Y																				Y																					
	C2-Biphenyls	SGS AXYS MLA-021	MLA-021		Y																				Y																					
	C2-Dibenzothiophene	SGS AXYS MLA-021	MLA-021		Y																				Y																					
	C2-Fluoranthenes/Pyrenes	SGS AXYS MLA-021	MLA-021		Y																				Y																					
	C2-Fluorenes	SGS AXYS MLA-021	MLA-021		Y																				Y																					
	C2-Naphthalenes	SGS AXYS MLA-021	MLA-021		Y																				Y																					
	C2-Phenanthrenes/Anthracenes	SGS AXYS MLA-021	MLA-021		Y																				Y																					
	C3-Benz(a)anthracenes/Chrysenes	SGS AXYS MLA-021	MLA-021		Y																				Y																					
C3-Dibenzothiophene	SGS AXYS MLA-021	MLA-021		Y																				Y																						
C3-Fluoranthenes/Pyrenes	SGS AXYS MLA-021	MLA-021		Y																				Y																						
C3-Fluorenes	SGS AXYS MLA-021	MLA-021		Y																				Y																						
C3-Naphthalenes	SGS AXYS MLA-021	MLA-021		Y																				Y																						
C3-Phenanthrenes/Anthracenes	SGS AXYS MLA-021	MLA-021		Y																				Y																						
C4-Benz(a)anthracenes/Chrysenes	SGS AXYS MLA-021	MLA-021		Y																				Y																						
C4-Dibenzothiophene	SGS AXYS MLA-021	MLA-021		Y																				Y																						
C4-Fluoranthenes/Pyrenes	SGS AXYS MLA-021	MLA-021		Y																				Y																						
C4-Naphthalenes	SGS AXYS MLA-021	MLA-021		Y																				Y																						
C4-Phenanthrenes/Anthracenes	SGS AXYS MLA-021	MLA-021		Y																				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 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		
		SGS AXYS MLA-010	MLA-010	Y	Y	Y								Y		Y		Y			Y		Y		Y		Y					Y			
	PCB 101/90/89	EPA 8270	MLA-007									Y													Y		Y								
		SGS AXYS MLA-007	MLA-007		Y												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	
		SGS AXYS MLA-010	MLA-010	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	
		EPA 8270	MLA-007									Y																							
		SGS AXYS MLA-010	MLA-010	Y	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	
		EPA 8270	MLA-007									Y																							
		SGS AXYS MLA-010	MLA-010	Y	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	
		SGS AXYS MLA-010	MLA-010	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		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	
		SGS AXYS MLA-010	MLA-010	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	
		SGS AXYS MLA-010	MLA-010	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		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	
		SGS AXYS MLA-010	MLA-010	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	
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y				Y		Y		Y		Y						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	
		EPA 8270	MLA-007									Y																							
	PCB 110 2,3,3',4',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	
		PCB 110 2,3,3',4',6-Pentachlorobiphenyl	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								
			EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y							Y				Y		Y		Y	Y	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	
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y				Y		Y		Y		Y						Y		
PCB 111/117	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		
PCB 112 2,3,3',5,6-Pentachlorobiphenyl	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			
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		
	EPA 8270	MLA-007									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 **			
	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	Y				
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		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	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				
	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	Y			
		SGS AXYS MLA-010	MLA-010	Y	Y	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	Y			
		SGS AXYS MLA-010	MLA-010	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	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 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	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 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	Y			
		SGS AXYS MLA-010	MLA-010	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	Y			
		SGS AXYS MLA-010	MLA-010	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	Y			
		EPA 8270	MLA-007									Y																									
		SGS AXYS MLA-010	MLA-010	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	Y			
		EPA 8270	MLA-007										Y																								
		SGS AXYS MLA-010	MLA-010	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	Y			
		EPA 8270	MLA-007										Y																								
		SGS AXYS MLA-010	MLA-010	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	Y			
		SGS AXYS MLA-010	MLA-010	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	Y			
		SGS AXYS MLA-010	MLA-010	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	Y			
		SGS AXYS MLA-010	MLA-010	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	Y			
		EPA 8270	MLA-007										Y																								
		SGS AXYS MLA-010	MLA-010	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	Y			

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Accreditation Scope

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 **
		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	Y									
	PCB 21 2,3,4-Trichlorobiphenyl	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 22 2,3,4'-Trichlorobiphenyl	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													Y		Y	Y	Y	Y		Y	Y
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y		Y			Y	Y		Y								Y	
	PCB 23 2,3,5-Trichlorobiphenyl	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	
		SGS AXYS MLA-007	MLA-007		Y												Y							Y	Y									
	PCB 23/34	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	Y	Y		Y	Y	
		SGS AXYS MLA-007	MLA-007		Y												Y							Y	Y									
	PCB 24 2,3,6-Trichlorobiphenyl	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	Y	
		SGS AXYS MLA-007	MLA-007		Y												Y								Y		Y	Y	Y	Y	Y		Y	Y
	PCB 24/27	EPA 8270	MLA-007										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 25 2,3',4-Trichlorobiphenyl	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	
		SGS AXYS MLA-007	MLA-007		Y												Y								Y		Y							
	PCB 26 2,3',5-Trichlorobiphenyl	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						Y	
	PCB 27 2,3',6-Trichlorobiphenyl	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	
		SGS AXYS MLA-007	MLA-007		Y												Y								Y		Y							
	PCB 28 2,4,4'-Trichlorobiphenyl	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						Y	
	PCB 29 2,4,5-Trichlorobiphenyl	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	
		SGS AXYS MLA-007	MLA-007		Y												Y								Y		Y							
	PCB 3 4-Chlorobiphenyl	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						Y	
	PCB 30 2,4,6-Trichlorobiphenyl	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	
		SGS AXYS MLA-007	MLA-007		Y												Y								Y		Y							
	PCB 31 2,4',5-Trichlorobiphenyl	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						Y	
	PCB 32 2,4',6-Trichlorobiphenyl	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	
		SGS AXYS MLA-007	MLA-007		Y												Y								Y		Y							
	PCB 33 2,3',4'-Trichlorobiphenyl	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 33/20/21	EPA 8270	MLA-007										Y																						
	SGS AXYS MLA-007	MLA-007		Y												Y								Y		Y								
PCB 34 2,3',5'-Trichlorobiphenyl	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		
	SGS AXYS MLA-007	MLA-007		Y												Y								Y		Y								

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																		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	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	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								Y															
	PCB 36 3,3',5-Trichlorobiphenyl	EPA 1668	MLA-010					Y		Y	Y	Y	Y	Y	Y							Y				Y								Y														
		EPA 8270	MLA-007										Y																					Y														
		SGS AXYS MLA-010	MLA-010	Y	Y	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														
		EPA 8270	MLA-007										Y																					Y														
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y				Y		Y		Y								Y															
	PCB 38 3,4,5-Trichlorobiphenyl	EPA 1668	MLA-010					Y		Y	Y	Y	Y	Y	Y							Y				Y								Y														
		EPA 8270	MLA-007										Y																					Y														
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y				Y		Y		Y								Y															
	PCB 39 3,4',5-Trichlorobiphenyl	EPA 1668	MLA-010					Y		Y	Y	Y	Y	Y	Y							Y				Y								Y														
		EPA 8270	MLA-007										Y																					Y														
		SGS AXYS MLA-010	MLA-010	Y	Y	Y									Y		Y				Y		Y		Y								Y															
	PCB 4 2,2'-Dichlorobiphenyl	EPA 1668	MLA-010					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 4/10	EPA 8270	MLA-007										Y									Y				Y								Y														
	PCB 40 2,2',3,3'-Tetrachlorobiphenyl	EPA 1668	MLA-010					Y		Y	Y	Y	Y	Y	Y							Y				Y								Y														
		EPA 8270	MLA-007										Y																					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 41 2,2',3,4-Tetrachlorobiphenyl	EPA 1668	MLA-010					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									Y												Y														
	PCB 41/71/64/68	EPA 8270	MLA-007																			Y				Y								Y														
		SGS AXYS MLA-007	MLA-007			Y																Y		Y										Y														
	PCB 42 2,2',3,4'-Tetrachlorobiphenyl	EPA 1668	MLA-010					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																																													
	PCB 42/59	EPA 8270	MLA-007										Y																																			
		SGS AXYS MLA-007	MLA-007			Y																Y		Y																								
	PCB 43 2,2',3,5-Tetrachlorobiphenyl	EPA 1668	MLA-010					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 44 2,2',3,5'-Tetrachlorobiphenyl	EPA 1668	MLA-010					Y		Y	Y	Y	Y	Y	Y							Y				Y								Y														
		EPA 8270	MLA-007										Y																					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														
	PCB 45 2,2',3,6-Tetrachlorobiphenyl	EPA 1668	MLA-010					Y		Y	Y	Y	Y	Y	Y							Y				Y								Y														
		EPA 8270	MLA-007										Y																					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														
	PCB 46 2,2',3,6'-Tetrachlorobiphenyl	EPA 1668	MLA-010					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 47 2,2',4,4'-Tetrachlorobiphenyl	EPA 1668	MLA-010					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 47/48/75	EPA 8270	MLA-007										Y																																				
	SGS AXYS MLA-007	MLA-007			Y																Y		Y																									
PCB 48 2,2',4,5-Tetrachlorobiphenyl	EPA 1668	MLA-010					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																

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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		
	PCB 49/43	EPA 8270	MLA-007									Y													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	
		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								
	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		
		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		
		SGS AXYS MLA-010	MLA-010	Y	Y		Y								Y		Y					Y		Y		Y							Y	
		PCB 52/73	EPA 8270	MLA-007								Y																						
	PCB 53 2,2',5,6'-Tetrachlorobiphenyl	SGS AXYS MLA-007	MLA-007		Y													Y						Y										
		EPA 1668	MLA-010				Y		Y	Y	Y	Y	Y	Y								Y			Y	Y	Y	Y	Y		Y	Y		
		EPA 8270	MLA-007									Y																						
	PCB 54 2,2',6,6'-Tetrachlorobiphenyl	SGS AXYS MLA-010	MLA-010	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		
		EPA 8270	MLA-007									Y																						
	PCB 55 2,3,3',4-Tetrachlorobiphenyl	SGS AXYS MLA-010	MLA-010	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		
		EPA 8270	MLA-007									Y																						
	PCB 56 2,3,3',4'-Tetrachlorobiphenyl	SGS AXYS MLA-010	MLA-010	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		
		SGS AXYS MLA-010	MLA-010	Y	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			
	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			
	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			
	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		
PCB 60 2,3,4,4'-Tetrachlorobiphenyl	EPA 8270	MLA-007									Y																							
	SGS AXYS MLA-010	MLA-010	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			
	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			
	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			
	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			
PCB 63 2,3,4',5-Tetrachlorobiphenyl	EPA 8270	MLA-007									Y																							

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Accreditation Scope				SGS AXYS Analytical Services Ltd. file ref.: ACC-101 Rev. 40																			
Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	Serum										Tissue									
				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
	Sum - Pentachlorobiphenyls (BZ-83 + BZ-99)	SGS AXYS MLA-010	MLA-010											Y							Y		
		EPA 1668	MLA-010											Y							Y		
	Sum - Pentachlorobiphenyls (BZ-85 + BZ-116 + BZ-117)	SGS AXYS MLA-010	MLA-010											Y							Y		
		EPA 1668	MLA-010											Y							Y		
	Sum - Pentachlorobiphenyls (BZ-86 + BZ-87 + BZ 97 + BZ-109 + BZ-119 + BZ-125)	SGS AXYS MLA-010	MLA-010											Y							Y		
		EPA 1668	MLA-010											Y							Y		
	Sum - Pentachlorobiphenyls (BZ-86 + BZ-87 + BZ-97 + BZ-108 + BZ-119 +BZ-125)	SGS AXYS MLA-010	MLA-010											Y							Y		
		EPA 1668	MLA-010											Y							Y		
	Sum - Pentachlorobiphenyls (BZ-88 + BZ-91)	SGS AXYS MLA-010	MLA-010											Y							Y		
		EPA 1668	MLA-010											Y							Y		
	Sum - Pentachlorobiphenyls (BZ-90 + BZ-101 + BZ-113)	SGS AXYS MLA-010	MLA-010											Y							Y		
		EPA 1668	MLA-010											Y							Y		
	Sum - Pentachlorobiphenyls (BZ-93 + BZ-95 + BZ-98 + BZ-100 + BZ-102)	SGS AXYS MLA-010	MLA-010											Y							Y		
		EPA 1668	MLA-010											Y							Y		
	Sum - Tetrachlorobiphenyls (BZ-40 + BZ-41 + BZ-71)	SGS AXYS MLA-010	MLA-010											Y							Y		
		EPA 1668	MLA-010											Y							Y		
	Sum - Tetrachlorobiphenyls (BZ-44 + BZ-47 + BZ-65)	SGS AXYS MLA-010	MLA-010											Y							Y		
		EPA 1668	MLA-010											Y							Y		
	Sum - Tetrachlorobiphenyls (BZ-45 + BZ-51)	SGS AXYS MLA-010	MLA-010											Y							Y		
		EPA 1668	MLA-010											Y							Y		
	Sum - Tetrachlorobiphenyls (BZ-49 + BZ-69)	SGS AXYS MLA-010	MLA-010											Y							Y		
		EPA 1668	MLA-010											Y							Y		
	Sum - Tetrachlorobiphenyls (BZ-50 + BZ-53)	SGS AXYS MLA-010	MLA-010											Y							Y		
		EPA 1668	MLA-010											Y							Y		
	Sum - Tetrachlorobiphenyls (BZ-59 + BZ-62 + BZ-75)	SGS AXYS MLA-010	MLA-010											Y							Y		
		EPA 1668	MLA-010											Y							Y		
	Sum - Tetrachlorobiphenyls (BZ-61 + BZ-70 + BZ-74 + BZ-76)	SGS AXYS MLA-010	MLA-010											Y							Y		
		EPA 1668	MLA-010											Y							Y		
	Sum - Trichlorobiphenyls (BZ-18 + BZ-30)	SGS AXYS MLA-010	MLA-010											Y							Y		
		EPA 1668	MLA-010											Y							Y		
	Sum - Trichlorobiphenyls (BZ-20 + BZ-28)	SGS AXYS MLA-010	MLA-010											Y							Y		
		EPA 1668	MLA-010											Y							Y		
	Sum - Trichlorobiphenyls (BZ-21 + BZ-33)	SGS AXYS MLA-010	MLA-010											Y							Y		
		EPA 1668	MLA-010											Y							Y		
	Sum - Trichlorobiphenyls (BZ-26 + BZ-29)	SGS AXYS MLA-010	MLA-010											Y							Y		
		EPA 1668	MLA-010											Y							Y		
	Total Dichlorobiphenyls	SGS AXYS MLA-010	MLA-010											Y							Y		
		EPA 8270	MLA-007										Y										
	Total Heptachlorobiphenyls	SGS AXYS MLA-010	MLA-010	Y	Y									Y		Y		Y				Y	
		SGS AXYS MLA-007	MLA-007		Y									Y				Y					
		EPA 1668	MLA-010											Y				Y					Y
		EPA 8270	MLA-007										Y										
	Total Hexachlorobiphenyls	SGS AXYS MLA-010	MLA-010	Y	Y									Y		Y		Y				Y	
		SGS AXYS MLA-007	MLA-007		Y									Y				Y					
	Total Monochlorobiphenyls	EPA 1668	MLA-010											Y				Y					Y
		SGS AXYS MLA-010	MLA-010											Y				Y					Y

SGS AXYS Analytical Services Ltd.
file ref.: ACC-101 Rev. 40

ACC-103 Rev. 43, 13-Jun-2018

Accreditation Scope																																		
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 **
	Total PeCDF	SGS AXYS MLA-017	MLA-017			Y								Y		Y			Y	Y	Y				Y						Y	Y		
		EPA 1613	MLA-017												Y				Y						Y					Y	Y			
		EPA 8290	MLA-017				Y		Y		Y	Y	Y	Y	Y		Y		Y	Y	Y	Y			Y			Y				Y		
	Total TCDD	SGS AXYS MLA-017	MLA-017			Y									Y		Y			Y	Y	Y			Y							Y		
		EPA 1613	MLA-017												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		
	Total TCDF	SGS AXYS MLA-017	MLA-017			Y									Y		Y			Y	Y	Y			Y							Y		
		EPA 1613	MLA-017												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		
	PFAS	4:2 Fluorotelomersulfonate (4:2 FTS)	SGS AXYS MLA-017	MLA-017			Y								Y		Y			Y	Y	Y				Y							Y	
			SGS AXYS MLA-081	MLA-081																														Y
			SGS AXYS MLA-089	MLA-089												Y																		
6:2 Fluorotelomersulfonate (6:2 FTS)		SGS AXYS MLA-110	MLA-110		Y	Y						Y	Y	Y									Y	Y			Y			Y	Y			
		SGS AXYS MLA-081	MLA-081																														Y	
		SGS AXYS MLA-089	MLA-089												Y																			
8:2 Fluorotelomersulfonate (8:2 FTS)		SGS AXYS MLA-110	MLA-110		Y	Y						Y	Y	Y									Y	Y			Y			Y	Y			
		SGS AXYS MLA-081	MLA-081																														Y	
		SGS AXYS MLA-089	MLA-089												Y																			
N-Ethylperfluorooctanesulfonamide (N-EtFOSA)		SGS AXYS MLA-110	MLA-110		Y	Y						Y	Y	Y									Y	Y			Y			Y	Y			
		SGS AXYS MLA-110	MLA-110		Y	Y						Y												Y				Y						
		SGS AXYS MLA-110	MLA-110		Y	Y						Y	Y	Y										Y	Y			Y			Y	Y		
N-Ethylperfluorooctanesulfonamidoacetic acid (N-EtFOSAA)		SGS AXYS MLA-110	MLA-110		Y	Y						Y	Y	Y										Y	Y			Y			Y	Y		
		SGS AXYS MLA-110	MLA-110		Y	Y						Y												Y				Y						
		SGS AXYS MLA-110	MLA-110		Y	Y						Y	Y	Y										Y	Y			Y			Y	Y		
N-Ethylperfluorooctanesulfonamidoethanol (N-EtFOSE)		SGS AXYS MLA-110	MLA-110		Y	Y						Y												Y				Y						
		SGS AXYS MLA-110	MLA-110		Y	Y						Y												Y				Y						
		SGS AXYS MLA-110	MLA-110		Y	Y						Y	Y	Y										Y	Y			Y			Y	Y		
N-Methylperfluorooctanesulfonamide (N-MeFOSA)		SGS AXYS MLA-110	MLA-110		Y	Y						Y												Y				Y						
		SGS AXYS MLA-110	MLA-110		Y	Y						Y	Y	Y										Y				Y						
		SGS AXYS MLA-110	MLA-110		Y	Y						Y	Y	Y										Y	Y			Y			Y	Y		
N-Methylperfluorooctanesulfonamidoacetic acid (N-MeFOSAA)		SGS AXYS MLA-110	MLA-110		Y	Y						Y	Y	Y										Y	Y			Y			Y	Y		
		SGS AXYS MLA-110	MLA-110		Y	Y						Y												Y				Y						
		SGS AXYS MLA-110	MLA-110		Y	Y						Y	Y	Y										Y	Y			Y			Y	Y		
N-Methylperfluorooctanesulfonamidoethanol (N-MeFOSE)		SGS AXYS MLA-110	MLA-110		Y	Y						Y												Y				Y						
		SGS AXYS MLA-110	MLA-110		Y	Y						Y												Y				Y						
		SGS AXYS MLA-110	MLA-110		Y	Y						Y	Y	Y										Y	Y			Y			Y	Y		
Perfluorobutanesulfonate (PFBS)		SGS AXYS MLA-060	MLA-060																					Y	Y	Y	Y						Y	
		SGS AXYS MLA-041	MLA-041			Y	Y	Y	Y						Y																			
		SGS AXYS MLA-043	MLA-043															Y	Y	Y	Y	Y	Y											
Perfluorobutanoate (PFBA)		SGS AXYS MLA-042	MLA-042	Y																														
		SGS AXYS MLA-110	MLA-110		Y	Y	Y					Y	Y	Y									Y	Y	Y	Y		Y			Y	Y		
		SGS AXYS MLA-060	MLA-060																					Y	Y	Y	Y					Y		
Perfluorodecanesulfonate (PFDS)		SGS AXYS MLA-041	MLA-041		Y	Y	Y	Y							Y																			
		SGS AXYS MLA-043	MLA-043															Y	Y	Y	Y	Y	Y											
		SGS AXYS MLA-042	MLA-042	Y																														
Perfluorodecanoate (PFDA)		SGS AXYS MLA-110	MLA-110		Y	Y	Y					Y	Y	Y										Y	Y	Y		Y			Y	Y		
		SGS AXYS MLA-110	MLA-110		Y	Y	Y					Y												Y	Y	Y		Y						
		SGS AXYS MLA-110	MLA-110		Y	Y	Y					Y	Y	Y										Y	Y	Y		Y			Y	Y		
Perfluorododecanesulfonate (PFDoS)		SGS AXYS MLA-110	MLA-110		Y	Y	Y					Y	Y	Y										Y	Y	Y		Y			Y	Y		
		SGS AXYS MLA-110	MLA-110		Y	Y	Y					Y												Y	Y	Y		Y						
		SGS AXYS MLA-110	MLA-110		Y	Y	Y					Y	Y	Y										Y	Y	Y		Y			Y	Y		
Perfluorododecanoate (PFDoA)		SGS AXYS MLA-060	MLA-060																					Y	Y	Y	Y					Y		
		SGS AXYS MLA-041	MLA-041			Y	Y	Y	Y						Y																			
		SGS AXYS MLA-043	MLA-043															Y	Y	Y	Y	Y	Y											
Perfluoroheptanesulfonate (PFHpS)		SGS AXYS MLA-042	MLA-042	Y																														
		SGS AXYS MLA-110	MLA-110		Y	Y	Y					Y	Y	Y										Y	Y	Y		Y			Y	Y		
	SGS AXYS MLA-110	MLA-110		Y	Y						Y												Y				Y							
Perfluoroheptanoate (PFHpA)	SGS AXYS MLA-060	MLA-060																					Y	Y	Y	Y					Y			
	SGS AXYS MLA-041	MLA-041			Y	Y	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 **										
	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																				
	Cinafloxacin	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											
	Minocycline	EPA 1694	MLA-075									Y																		Y				
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Naproxen	EPA 1694	MLA-075									Y																		Y				
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Norfloxacin	EPA 1694	MLA-075									Y																		Y				
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Norfluoxetine	SGS AXYS MLA-075	MLA-075		Y																		Y											
	Norgestimate	EPA 1694	MLA-075									Y																		Y				
		SGS AXYS MLA-075	MLA-075		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											
	Ormetoprim	EPA 1694	MLA-075									Y																		Y				
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Oxacillin	EPA 1694	MLA-075									Y																		Y				
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Oxolinic acid	EPA 1694	MLA-075									Y																		Y				
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Oxycodone	EPA 1694	MLA-075									Y																		Y				
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Oxytetracycline (OTC)	EPA 1694	MLA-075									Y																		Y				
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Paroxetine	EPA 1694	MLA-075									Y																		Y				
		SGS AXYS MLA-075	MLA-075		Y																		Y											
	Penicillin G	EPA 1694	MLA-075									Y																		Y				
		SGS AXYS MLA-075	MLA-075		Y																		Y											
Penicillin V	EPA 1694	MLA-075									Y																		Y					
	SGS AXYS MLA-075	MLA-075		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												
Roxithromycin	EPA 1694	MLA-075									Y																		Y					
	SGS AXYS MLA-075	MLA-075		Y																		Y												
Sarafloxacin	EPA 1694	MLA-075									Y																		Y					
	SGS AXYS MLA-075	MLA-075		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												
Sulfadiazine	EPA 1694	MLA-075									Y																		Y					
	SGS AXYS MLA-075	MLA-075		Y																		Y												
Sulfadimethoxine	EPA 1694	MLA-075									Y																		Y					
	SGS AXYS MLA-075	MLA-075		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			
		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			
		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			
	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																		

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
	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											

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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)

