



2045 Mills Road West

TEL: (250) 655-5800

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SGS AXYS Client No.: 4826

Client Address: Wastewater Department
710 E. Mullan Avenue
Coeur d'Alene, ID, US, 83814

The SGS AXYS contact for these data is Sean Campbell.

BATCH SUMMARY

Batch ID: WG58704	Date: 03-Apr-2017
Analysis Type: PCB Congener	Matrix Type: Influent
BATCH MAKEUP	
Contract: 4826 Samples: L26951-1 CDA INFLUENT	Blank: WG58704-101 WG58704-102 WG58704-103 Reference or Spike: WG58704-104 Duplicate:
Comments: <ol style="list-style-type: none"> 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 levels of PCB 11 in the three procedural blanks WG58704-101, -102, & -103 exceed the blank acceptance limits. 	

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February 2017

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

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: 27-Nov-2016

Instrument ID: HR GC/MS

GC Column ID: SPB OCTYL

CS0 Data Filename: PB6C_435B S: 1

CS1 Data Filename: PB6C_435B S: 3

CS2 Data Filename: PB6C_435B S: 8

CS3 Data Filename: PB6C_435B S: 7

CS4 Data Filename: PB6C_435B S: 6

CS5 Data Filename: PB6C_435B S: 5

CS6 Data Filename: PB6C_435B S: 10

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RELATIVE RESPONSE (RR)						MEAN RR	CV ² (%RSD)
				CS0	CS1	CS2	CS3	CS4	CS5		
2-MoCB	1			1.07	1.06	1.09	1.11	1.12	1.07	1.09	2.16
4-MoCB	3			0.99	1.04	1.08	1.11	1.11	1.13	1.08	4.91
2,2'-DiCB	4			0.93	0.95	1.01	1.03	1.05	1.08	1.01	5.83
4,4'-DiCB	15			0.85	0.87	0.89	0.94	0.96	0.98	0.92	5.85
2,2',6-TriCB	19			1.02	0.91	0.95	1.00	1.01	1.04	1.01	4.50
3,4,4'-TriCB	37			0.94	0.95	0.98	1.02	1.05	1.06	1.00	4.49
2,2',6,6'-TeCB	54			1.07	0.99	1.02	1.04	1.06	1.09	1.04	3.12
3,3',4,4'-TeCB	77			0.96	0.92	0.96	0.98	1.06	1.08	1.04	5.85
3,4,4',5-TeCB	81			0.94	0.97	0.98	1.02	1.06	1.08	1.03	5.14
2,2',4,6,6'-PeCB	104			0.94	0.98	1.02	1.06	1.06	1.11	1.06	5.60
2,3,3',4,4'-PeCB	105			0.99	0.91	0.99	1.02	1.05	1.08	1.06	5.73
2,3,4,4',5-PeCB	114			1.05	0.97	1.02	1.06	1.10	1.13	1.10	5.30
2,3',4,4',5-PeCB	118			1.06	0.93	0.98	1.03	1.05	1.08	1.07	5.20
2',3,4,4',5-PeCB	123			0.96	0.90	0.93	0.96	1.00	1.03	1.01	4.78
3,3',4,4',5-PeCB	126			0.97	0.94	0.98	1.04	1.06	1.09	1.07	5.57
2,2',4,4',6,6'-HxCB	155			0.95	0.97	0.96	0.99	1.03	1.07	1.02	4.14
2,3,3',4,4',5-HxCB	156	156 + 157	C	1.06	1.01	1.04	1.08	1.11	1.13	1.10	3.99
2,3,3',4,4',5'-HxCB	157	156 + 157	C156								
2,3',4,4',5,5'-HxCB	167			0.94	1.02	1.07	1.10	1.13	1.17	1.14	7.38
3,3',4,4',5,5'-HxCB	169			0.94	0.92	0.99	1.01	1.06	1.08	1.06	6.31
2,2',3,4',5,6,6'-HpCB	188			0.86	0.88	0.92	0.95	0.97	1.01	0.97	5.60
2,3,3',4,4',5,5'-HpCB	189			0.81	0.96	0.96	1.00	1.03	1.04	1.04	8.18
2,2',3,3',5,5',6,6'-OcCB	202			0.75	0.79	0.82	0.86	0.88	0.90	0.88	6.59
2,3,3',4,4',5,5',6-OcCB	205			0.86	0.89	0.93	0.94	0.97	1.00	0.98	5.10
2,2',3,3',4,4',5,5',6-NoCB	206			0.93	0.81	0.91	0.93	0.97	1.00	0.97	6.62
2,2',3,3',4,5,5',6,6'-NoCB	208			0.95	0.85	0.87	0.90	0.94	0.95	0.94	4.35
2,2',3,3',4,4',5,5',6,6'-DeCB	209			1.57	0.97	0.96	1.01	1.05	1.06	1.05	19.3

(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 _____

AXYS METHOD MLA-010 Rev 11

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: 27-Nov-2016

Instrument ID: HR GC/MS

GC Column ID: SPB OCTYL

CS0 Data Filename: PB6C_435B S: 1

CS1 Data Filename: PB6C_435B S: 3

CS2 Data Filename: PB6C_435B S: 8

CS3 Data Filename: PB6C_435B S: 7

CS4 Data Filename: PB6C_435B S: 6

CS5 Data Filename: PB6C_435B S: 5

CS6 Data Filename: PB6C_435B S: 10

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			1.03	1.00	1.01	1.02	1.05	1.08	1.08	1.04	3.27
13C12-4-MoCB	3L			0.98	0.95	0.95	0.99	1.04	1.05	1.10	1.01	5.58
13C12-2,2'-DiCB	4L			0.65	0.65	0.65	0.66	0.68	0.67	0.69	0.67	2.45
13C12-4,4'-DiCB	15L			1.03	1.02	1.02	1.07	1.12	1.14	1.19	1.08	6.16
13C12-2,2',6-TriCB	19L			0.58	0.58	0.58	0.59	0.60	0.61	0.62	0.59	2.73
13C12-3,4,4'-TriCB	37L			1.58	1.58	1.60	1.62	1.74	1.80	1.94	1.70	8.15
13C12-2,2',6,6'-TeCB	54L			1.38	1.37	1.40	1.37	1.36	1.42	1.49	1.40	3.35
13C12-3,3',4,4'-TeCB	77L			1.27	1.34	1.36	1.40	1.45	1.46	1.58	1.41	7.23
13C12-3,4,4',5-TeCB	81L			1.25	1.27	1.31	1.32	1.41	1.45	1.56	1.37	8.20
13C12-2,2',4,6,6'-PeCB	104L			1.46	1.40	1.44	1.41	1.46	1.47	1.65	1.47	5.60
13C12-2,3,3',4,4'-PeCB	105L			1.31	1.20	1.21	1.25	1.34	1.32	1.45	1.30	6.63
13C12-2,3,4,4',5-PeCB	114L			1.14	1.15	1.16	1.19	1.29	1.32	1.46	1.24	9.64
13C12-2,3',4,4',5-PeCB	118L			1.20	1.20	1.22	1.24	1.33	1.36	1.46	1.29	7.53
13C12-2',3,4,4',5-PeCB	123L			1.22	1.22	1.23	1.28	1.34	1.37	1.48	1.30	7.45
13C12-3,3',4,4',5-PeCB	126L			1.09	1.08	1.08	1.13	1.23	1.22	1.37	1.17	9.36
13C12-2,2',4,4',6,6'-HxCB	155L			1.61	1.64	1.65	1.67	1.64	1.81	2.04	1.72	8.91
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	1.12	1.19	1.18	1.21	1.29	1.39	1.64	1.29	13.7
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L									
13C12-2,3,3',4,4',5,5'-HxCB	167L			1.12	1.17	1.17	1.19	1.24	1.30	1.51	1.24	10.4
13C12-3,3',4,4',5,5'-HxCB	169L			1.06	1.15	1.13	1.16	1.24	1.29	1.57	1.23	13.6
13C12-2,2',3,4',5,6,6'-HpCB	188L			2.38	2.28	2.42	2.33	2.35	2.62	3.01	2.48	10.3
13C12-2,3,3',4,4',5,5'-HpCB	189L			1.43	1.44	1.49	1.50	1.57	1.70	2.07	1.60	14.2
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2.28	2.21	2.28	2.22	2.19	2.36	2.65	2.31	6.92
13C12-2,3,3',4,4',5,5',6-OxCB	205L			1.38	1.38	1.38	1.37	1.47	1.60	1.94	1.50	13.9
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			1.02	1.01	1.01	1.01	1.06	1.15	1.39	1.09	12.9
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			1.35	1.35	1.37	1.35	1.40	1.53	1.76	1.45	10.6
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			1.32	1.31	1.27	1.26	1.32	1.46	1.71	1.38	11.7
CLEAN-UP STANDARD												
13C12-2,4,4'-TriCB	28L			1.70	1.68	1.71	1.69	1.71	1.68	1.68	1.69	0.67
13C12-2,3,3',5,5'-PeCB	111L			1.24	1.25	1.25	1.29	1.34	1.34	1.39	1.30	4.54
13C12-2,2',3,3',5,5',6-HpCB	178L			1.01	0.99	0.99	0.98	0.97	1.01	0.98	0.99	1.47

(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 _____

AXYS METHOD MLA-010 Rev 11

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: 27-Nov-2016

Instrument ID: HR GC/MS

GC Column ID: SPB OCTYL

CS0 Data Filename: PB6C_435B S: 1

CS1 Data Filename: PB6C_435B S: 3

CS2 Data Filename: PB6C_435B S: 8

CS3 Data Filename: PB6C_435B S: 7

CS4 Data Filename: PB6C_435B S: 6

CS5 Data Filename: PB6C_435B S: 5

CS6 Data Filename: PB6C_435B S: 10

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	3.00	3.22	3.21	3.17	3.15	2.91		2.66-3.60
4-MoCB	3			M/M+2	3.13	3.26	3.22	3.16	3.15	3.11		2.66-3.60
2,2'-DiCB	4			M/M+2	1.74	1.50	1.60	1.55	1.53	1.55		1.33-1.79
4,4'-DiCB	15			M/M+2	1.39	1.62	1.60	1.54	1.57	1.57		1.33-1.79
2,2',6-TriCB	19			M/M+2	0.94	1.03	1.12	1.06	1.05	1.05	1.05	0.88-1.20
3,4,4'-TriCB	37			M/M+2	1.19	1.08	1.03	1.04	1.04	1.04	1.03	0.88-1.20
2,2',6,6'-TeCB	54			M/M+2	0.85	0.79	0.81	0.79	0.80	0.79	0.81	0.65-0.89
3,3',4,4'-TeCB	77			M/M+2	0.76	0.84	0.78	0.78	0.79	0.79	0.79	0.65-0.89
3,4,4',5-TeCB	81			M/M+2	0.75	0.77	0.78	0.78	0.79	0.78	0.78	0.65-0.89
2,2',4,6,6'-PeCB	104			M+2/M+4	1.34	1.65	1.56	1.58	1.54	1.58	1.55	1.32-1.78
2,3,3',4,4'-PeCB	105			M+2/M+4	1.61	1.47	1.54	1.56	1.55	1.56	1.55	1.32-1.78
2,3,4,4',5-PeCB	114			M+2/M+4	1.48	1.51	1.66	1.57	1.55	1.55	1.56	1.32-1.78
2,3',4,4',5-PeCB	118			M+2/M+4	1.79	1.61	1.56	1.56	1.55	1.56	1.56	1.32-1.78
2',3,4,4',5-PeCB	123			M+2/M+4	1.31	1.56	1.59	1.55	1.55	1.56	1.57	1.32-1.78
3,3',4,4',5-PeCB	126			M+2/M+4	1.51	1.49	1.58	1.57	1.56	1.55	1.56	1.32-1.78
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.32	1.21	1.23	1.25	1.24	1.26	1.25	1.05-1.43
2,3,3',4,4',5-HxCB	156	156 + 157	C	M+2/M+4	1.33	1.31	1.26	1.25	1.25	1.26	1.24	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	1.28	1.36	1.31	1.25	1.25	1.26	1.26	1.05-1.43
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.15	1.25	1.27	1.26	1.25	1.25	1.26	1.05-1.43
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	0.78	1.11	1.02	1.04	1.03	1.03	1.03	0.89-1.21
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.16	0.93	0.99	1.03	1.03	1.04	1.04	0.89-1.21
2,2',3,3',5,5',6,6'-OcCB	202			M+2/M+4	0.89	0.87	0.89	0.89	0.89	0.89	0.89	0.76-1.02
2,3,3',4,4',5,5',6-OcCB	205			M+2/M+4	0.96	0.90	0.89	0.90	0.90	0.90	0.90	0.76-1.02
2,2',3,3',4,4',5,5',6-NoCB	206			M+2/M+4	0.80	0.77	0.80	0.78	0.79	0.78	0.78	0.65-0.89
2,2',3,3',4,5,5',6,6'-NoCB	208			M+2/M+4	0.65	0.75	0.79	0.78	0.78	0.78	0.79	0.65-0.89
2,2',3,3',4,4',5,5',6,6'-DeCB	209			M+4/M+6	1.07	1.22	1.19	1.17	1.17	1.17	1.17	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 Axys Internal Use Only [XSL Template: Form16683C.xsl; Created: 03-Apr-2017 12:48:43; Application: XMLTransformer-1.16.2; Report Filename: 1668_PCB1668_27-Nov-2016_PB6C_Form3C_GS69490.html; Workgroup: WG58704; Design ID: 2500]

AXYS METHOD MLA-010 Rev 11

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: 27-Nov-2016

Instrument ID: HR GC/MS

GC Column ID: SPB OCTYL

CS0 Data Filename: PB6C_435B S: 1

CS1 Data Filename: PB6C_435B S: 3

CS2 Data Filename: PB6C_435B S: 8

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CS4 Data Filename: PB6C_435B S: 6

CS5 Data Filename: PB6C_435B S: 5

CS6 Data Filename: PB6C_435B S: 10

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	3.17	3.19	3.19	3.20	3.19	3.15	3.14	2.66-3.60
13C12-4-MoCB	3L			M/M+2	3.15	3.15	3.15	3.17	3.14	3.10	3.10	2.66-3.60
13C12-2,2'-DiCB	4L			M/M+2	1.61	1.60	1.59	1.59	1.59	1.57	1.61	1.33-1.79
13C12-4,4'-DiCB	15L			M/M+2	1.58	1.60	1.58	1.59	1.56	1.56	1.57	1.33-1.79
13C12-2,2',6-TriCB	19L			M/M+2	1.03	1.03	1.04	1.04	1.04	1.04	1.04	0.88-1.20
13C12-3,4,4'-TriCB	37L			M/M+2	1.04	1.04	1.04	1.05	1.06	1.05	1.07	0.88-1.20
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.79	0.80	0.79	0.79	0.80	0.79	0.81	0.65-0.89
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.78	0.78	0.79	0.77	0.77	0.77	0.79	0.65-0.89
13C12-3,4,4',5-TeCB	81L			M/M+2	0.79	0.77	0.78	0.78	0.77	0.78	0.79	0.65-0.89
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.57	1.55	1.57	1.56	1.57	1.53	1.61	1.32-1.78
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.57	1.63	1.57	1.58	1.58	1.58	1.58	1.32-1.78
13C12-2,3,4,4',5-PeCB	114L			M+2/M+4	1.58	1.60	1.58	1.59	1.61	1.58	1.58	1.32-1.78
13C12-2,3',4,4',5-PeCB	118L			M+2/M+4	1.58	1.58	1.58	1.55	1.58	1.57	1.57	1.32-1.78
13C12-2',3,4,4',5-PeCB	123L			M+2/M+4	1.57	1.59	1.57	1.59	1.58	1.57	1.56	1.32-1.78
13C12-3,3',4,4',5-PeCB	126L			M+2/M+4	1.59	1.57	1.58	1.57	1.58	1.58	1.56	1.32-1.78
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.24	1.25	1.24	1.25	1.25	1.24	1.25	1.05-1.43
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	M+2/M+4	1.26	1.26	1.28	1.26	1.28	1.28	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	1.28	1.25	1.29	1.28	1.26	1.26	1.27	1.05-1.43
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.28	1.26	1.27	1.29	1.27	1.28	1.27	1.05-1.43
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.05	1.06	1.06	1.03	1.05	1.04	1.06	0.89-1.21
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.05	1.06	1.05	1.06	1.07	1.07	1.06	0.89-1.21
13C12-2,2',3,3',5,5',6,6'-OcCB	202L			M+2/M+4	0.89	0.92	0.90	0.91	0.90	0.90	0.90	0.76-1.02
13C12-2,3,3',4,4',5,5',6-OcCB	205L			M+2/M+4	0.91	0.92	0.93	0.92	0.92	0.92	0.91	0.76-1.02
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.78	0.79	0.81	0.78	0.80	0.79	0.81	0.65-0.89
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			M+2/M+4	0.78	0.80	0.80	0.79	0.79	0.79	0.80	0.65-0.89
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6	1.19	1.19	1.18	1.20	1.16	1.16	1.16	0.99-1.33
CLEAN-UP STANDARD												
13C12-2,4,4'-TriCB	28L			M/M+2	1.05	1.05	1.05	1.07	1.05	1.04	1.05	0.88-1.20
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.56	1.58	1.61	1.58	1.59	1.58	1.59	1.32-1.78
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.04	1.05	1.05	1.05	1.04	1.04	1.05	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 _____

AXYS METHOD MLA-010 Rev 11

Form 1A
PCB AROCLOR EQUIVALENT ANALYSIS REPORT

CLIENT SAMPLE NO.
CDA INFLUENT
Sample Collection:
07-Mar-2017 06:30

SGS AXYS ANALYTICAL SERVICES

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

Contract No.: 4826

Matrix: INFLUENT

Sample Receipt Date: 14-Mar-2017

Extraction Date: 23-Mar-2017

Analysis Date: 29-Mar-2017 Time: 17:44:24

Extract Volume (uL): 20

Injection Volume (uL): 1.0

Dilution Factor: N/A

Concentration Units: pg/L

Project No.

CDA PCB - INFLUENT BI-MONTHLY 2

Lab Sample I.D.:

L26951-1

Sample Size:

0.985 L

Initial Calibration Date:

27-Nov-2016

Instrument ID:

HR GC/MS

GC Column ID:

SPB OCTYL

Sample Data Filename:

PB7C_111 S: 9

Blank Data Filename:

PB7C_110 S: 4

Cal. Ver. Data Filename:

PB7C_111 S: 1

COMPOUND	CAS NO.	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL)
Aroclor 1016	12674-11-2	U		1.37
Aroclor 1221	11104-28-2	U		0.711
Aroclor 1232	11141-16-5	U		1.73
Aroclor 1242	53469-21-9		1440	1.52
Aroclor 1248	12672-29-6	U		4.42
Aroclor 1254	11097-69-1		2770	13.7
Aroclor 1260	11096-82-5		1250	2.54

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL.

(2) PCB Aroclor equivalents were calculated from individual PCB congener concentrations using empirically determined conversion factors. Where the PCB pattern was not identifiable as a unique Aroclor formation, the Aroclor has been reported as a 1242/1254/1260 mixture.

(3) All header information pertains to the initial instrumental analysis of the sample extract. Additional sample datafiles listed refer to secondary analysis of the sample extract.

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

Signed: _____ Brian Watson _____

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: 1668Aroclor.xsl; Created: 03-Apr-2017 12:51:08; Application: XMLTransformer-1.16.2; Report Filename: 1668_PCB1668_AroclorsC_L26951-1_Aroclor_SJ2191394.html; Workgroup: WG58704; Design ID: 2500]

AXYS METHOD MLA-010 Rev 11

Form 1A
PCB AROCLOR EQUIVALENT ANALYSIS REPORT

CLIENT 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.: 4826

Project No. N/A

Lab Sample I.D.: WG58704-101

Matrix: AQUEOUS

Sample Size: 1.00 L

Sample Receipt Date: N/A

Initial Calibration Date: 27-Nov-2016

Extraction Date: 23-Mar-2017

Instrument ID: HR GC/MS

Analysis Date: 29-Mar-2017 **Time:** 02:16:31

GC Column ID: SPB OCTYL

Extract Volume (uL): 20

Sample Data Filename: PB7C_110 S: 4

Injection Volume (uL): 1.0

Blank Data Filename: PB7C_110 S: 4

Dilution Factor: N/A

Cal. Ver. Data Filename: PB7C_110 S: 1

Concentration Units: pg/L

COMPOUND	CAS NO.	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL)
Aroclor 1016	12674-11-2	U		1.35
Aroclor 1221	11104-28-2	U		0.700
Aroclor 1232	11141-16-5	U		1.70
Aroclor 1242	53469-21-9		59.6	1.50
Aroclor 1248	12672-29-6	U		3.05
Aroclor 1254	11097-69-1		24.9	4.00
Aroclor 1260	11096-82-5	U		2.50

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL.

(2) PCB Aroclor equivalents were calculated from individual PCB congener concentrations using empirically determined conversion factors. Where the PCB pattern was not identifiable as a unique Aroclor formation, the Aroclor has been reported as a 1242/1254/1260 mixture.

(3) All header information pertains to the initial instrumental analysis of the sample extract. Additional sample datafiles listed refer to secondary analysis of the sample extract.

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

Signed: _____ Brian Watson _____

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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AXYS METHOD MLA-010 Rev 11

Form 1A
PCB AROCLOR EQUIVALENT ANALYSIS REPORT

CLIENT 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.: 4826

Project No. N/A

Lab Sample I.D.: WG58704-102

Matrix: AQUEOUS

Sample Size: 1.00 L

Sample Receipt Date: N/A

Initial Calibration Date: 27-Nov-2016

Extraction Date: 23-Mar-2017

Instrument ID: HR GC/MS

Analysis Date: 29-Mar-2017 **Time:** 03:20:44

GC Column ID: SPB OCTYL

Extract Volume (uL): 20

Sample Data Filename: PB7C_110 S: 5

Injection Volume (uL): 1.0

Blank Data Filename: PB7C_110 S: 4

Dilution Factor: N/A

Cal. Ver. Data Filename: PB7C_110 S: 1

Concentration Units: pg/L

COMPOUND	CAS NO.	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL)
Aroclor 1016	12674-11-2	U		1.35
Aroclor 1221	11104-28-2	U		0.700
Aroclor 1232	11141-16-5	U		1.70
Aroclor 1242	53469-21-9	U		1.50
Aroclor 1248	12672-29-6	U		3.05
Aroclor 1254	11097-69-1	U		4.00
Aroclor 1260	11096-82-5	U		2.50

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL.

(2) PCB Aroclor equivalents were calculated from individual PCB congener concentrations using empirically determined conversion factors. Where the PCB pattern was not identifiable as a unique Aroclor formation, the Aroclor has been reported as a 1242/1254/1260 mixture.

(3) All header information pertains to the initial instrumental analysis of the sample extract. Additional sample datafiles listed refer to secondary analysis of the sample extract.

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

Signed: _____ Brian Watson _____

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AXYS METHOD MLA-010 Rev 11

Form 1A
PCB AROCLOR EQUIVALENT ANALYSIS REPORT

CLIENT 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.: 4826

Project No.

N/A

Lab Sample I.D.:

WG58704-103

Matrix: AQUEOUS**Sample Size:**

1.00 L

Sample Receipt Date: N/A**Initial Calibration Date:**

27-Nov-2016

Extraction Date: 23-Mar-2017**Instrument ID:**

HR GC/MS

Analysis Date: 29-Mar-2017 **Time:** 04:24:57**GC Column ID:**

SPB OCTYL

Extract Volume (uL): 20**Sample Data Filename:**

PB7C_110 S: 6

Injection Volume (uL): 1.0**Blank Data Filename:**

PB7C_110 S: 4

Dilution Factor: N/A**Cal. Ver. Data Filename:**

PB7C_110 S: 1

Concentration Units: pg/L

COMPOUND	CAS NO.	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL)
Aroclor 1016	12674-11-2	U		1.35
Aroclor 1221	11104-28-2	U		0.700
Aroclor 1232	11141-16-5	U		1.70
Aroclor 1242	53469-21-9		52.3	1.50
Aroclor 1248	12672-29-6	U		3.05
Aroclor 1254	11097-69-1		21.0	4.00
Aroclor 1260	11096-82-5	U		2.50

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL.

(2) PCB Aroclor equivalents were calculated from individual PCB congener concentrations using empirically determined conversion factors. Where the PCB pattern was not identifiable as a unique Aroclor formation, the Aroclor has been reported as a 1242/1254/1260 mixture.

(3) All header information pertains to the initial instrumental analysis of the sample extract. Additional sample datafiles listed refer to secondary analysis of the sample extract.

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

Signed: _____ Brian Watson _____

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: 1668Aroclor.xsl; Created: 03-Apr-2017 12:51:08; Application: XMLTransformer-1.16.2; Report Filename: 1668_PCB1668_AroclorsC_WG58704-103_Aroclor_SJ2190897.html; Workgroup: WG58704; Design ID: 2500]

AXYS METHOD MLA-010 Rev 11

Form 1A
HOMOLOGUE TOTAL PCB ANALYSIS REPORT

CLIENT SAMPLE NO.
CDA INFLUENT
Sample Collection:
07-Mar-2017 06:30

SGS AXYS ANALYTICAL SERVICES

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

Contract No.:	4826	Project No.	CDA PCB - INFLUENT BI-MONTHLY 2
Matrix:	INFLUENT	Lab Sample I.D.:	L26951-1
Sample Receipt Date:	14-Mar-2017	Sample Size:	0.985 L
Extraction Date:	23-Mar-2017	Initial Calibration Date:	27-Nov-2016
Analysis Date:	29-Mar-2017 Time: 17:44:24	Instrument ID:	HR GC/MS
Extract Volume (uL):	20	GC Column ID:	SPB OCTYL
Injection Volume (uL):	1.0	Sample Data Filename:	PB7C_111 S: 9
Dilution Factor:	N/A	Blank Data Filename:	PB7C_110 S: 4
Concentration Units:	pg/L	Cal. Ver. Data Filename:	PB7C_111 S: 1

PCB HOMOLOGUE GROUP	LAB FLAG ¹	CONC. FOUND
Total Monochloro Biphenyls		41.8
Total Dichloro Biphenyls		585
Total Trichloro Biphenyls		822
Total Tetrachloro Biphenyls		1410
Total Pentachloro Biphenyls		1740
Total Hexachloro Biphenyls		1150
Total Heptachloro Biphenyls		584
Total Octachloro Biphenyls		195
Total Nonachloro Biphenyls		35.3
Decachloro Biphenyl		11.0
TOTAL PCBs		6570

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

(2) All header information pertains to the initial instrumental analysis of the sample extract. Additional sample datafiles listed refer to secondary analysis of the sample extract.

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

Signed: _____ Brian Watson _____

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.

AXYS METHOD MLA-010 Rev 11

Form 1C
PCB CONGENER TEQ ANALYSIS REPORT

CLIENT SAMPLE NO.
CDA INFLUENT

SGS AXYS ANALYTICAL SERVICES

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

Contract No.: 4826

Sample Collection:

07-Mar-2017 06:30

Project No.

CDA PCB - INFLUENT BI-MONTHLY
2

Matrix: INFLUENT

Lab Sample I.D.:

L26951-1

Sample Size: 0.985 L

GC Column ID(s):

SPB OCTYL

Concentration Units: pg/L

Sample Data Filename(s):

PB7C_111 S: 9

COMPOUND	IUPAC NO.	COELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL)	WHO 1998 TEF	TEQ		
							U=0	U=1/2 RL	U=RL
3,3',4,4'-TeCB	77			10.6	0.804	0.0001	1.06e-03	1.06e-03	
3,4,4',5-TeCB	81		U		0.797	0.0001	0.00e+00	3.99e-05	
2,3,3',4,4'-PeCB	105			85.9	1.50	0.0001	8.59e-03	8.59e-03	
2,3,4,4',5-PeCB	114		U		1.42	0.0005	0.00e+00	3.55e-04	
2,3',4,4',5-PeCB	118			222	1.44	0.0001	2.22e-02	2.22e-02	
2',3,4,4',5-PeCB	123		U		1.51	0.0001	0.00e+00	7.55e-05	
3,3',4,4',5-PeCB	126		U		1.53	0.1	0.00e+00	7.65e-02	
2,3,3',4,4',5-HxCB	156	156 + 157	C	34.9	1.08	0.0005	1.75e-02	1.75e-02	
2,3,3',4,4',5'-HxCB	157	156 + 157	C156						
2,3',4,4',5,5'-HxCB	167			9.71	0.809	0.00001	9.71e-05	9.71e-05	
3,3',4,4',5,5'-HxCB	169		U		1.03	0.01	0.00e+00	5.15e-03	
2,3,3',4,4',5,5'-HpCB	189		U		0.508	0.0001	0.00e+00	2.54e-05	
TOTAL TEQ								0.0494	0.132

COMPOUND	IUPAC NO.	COELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL)	WHO 2005 TEF	TEQ		
							U=0	U=1/2 RL	U=RL
3,3',4,4'-TeCB	77			10.6	0.804	0.0001	1.06e-03	1.06e-03	
3,4,4',5-TeCB	81		U		0.797	0.0003	0.00e+00	1.20e-04	
2,3,3',4,4'-PeCB	105			85.9	1.50	0.00003	2.58e-03	2.58e-03	
2,3,4,4',5-PeCB	114		U		1.42	0.00003	0.00e+00	2.13e-05	
2,3',4,4',5-PeCB	118			222	1.44	0.00003	6.66e-03	6.66e-03	
2',3,4,4',5-PeCB	123		U		1.51	0.00003	0.00e+00	2.27e-05	
3,3',4,4',5-PeCB	126		U		1.53	0.1	0.00e+00	7.65e-02	
2,3,3',4,4',5-HxCB	156	156 + 157	C	34.9	1.08	0.00003	1.05e-03	1.05e-03	
2,3,3',4,4',5'-HxCB	157	156 + 157	C156						
2,3',4,4',5,5'-HxCB	167			9.71	0.809	0.00003	2.91e-04	2.91e-04	
3,3',4,4',5,5'-HxCB	169		U		1.03	0.03	0.00e+00	1.55e-02	
2,3,3',4,4',5,5'-HpCB	189		U		0.508	0.00003	0.00e+00	7.62e-06	
TOTAL TEQ								0.0116	0.104

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; C = co-eluting congener.

(2) Concentrations that do not meet quantification criteria are not included in the TEQ calculations.

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

Signed: _____ Brian Watson _____

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

For Axys Internal Use Only [XSL Template: 1668TEQ.xsl; Created: 03-Apr-2017 12:50:41; Application: XMLTransformer-1.16.2; Report Filename: 1668_PCB1668_HomTotals-TEQsC_L26951-1_TEQ_SJ2191394.html; Workgroup: WG58704; Design ID: 2500]

AXYS METHOD MLA-010 Rev 11

Form 1A
HOMOLOGUE TOTAL PCB ANALYSIS REPORT

CLIENT 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.: 4826

Project No. N/A
Lab Sample I.D.: WG58704-101
Sample Size: 1.00 L
Initial Calibration Date: 27-Nov-2016
Instrument ID: HR GC/MS
GC Column ID: SPB OCTYL
Sample Data Filename: PB7C_110 S: 4
Blank Data Filename: PB7C_110 S: 4
Cal. Ver. Data Filename: PB7C_110 S: 1

Matrix: AQUEOUS

Sample Receipt Date: N/A

Extraction Date: 23-Mar-2017

Analysis Date: 29-Mar-2017 Time: 02:16:31

Extract Volume (uL): 20

Injection Volume (uL): 1.0

Dilution Factor: N/A

Concentration Units: pg/L

PCB HOMOLOGUE GROUP	LAB FLAG ¹	CONC. FOUND
Total Monochloro Biphenyls		8.45
Total Dichloro Biphenyls		97.3
Total Trichloro Biphenyls		27.2
Total Tetrachloro Biphenyls		32.7
Total Pentachloro Biphenyls		11.2
Total Hexachloro Biphenyls		3.53
Total Heptachloro Biphenyls	U	
Total Octachloro Biphenyls	U	
Total Nonachloro Biphenyls	U	
Decachloro Biphenyl	U	
TOTAL PCBs		180

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL.

(2) All header information pertains to the initial instrumental analysis of the sample extract. Additional sample datafiles listed refer to secondary analysis of the sample extract.

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

Signed: _____ Brian Watson _____

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.

AXYS METHOD MLA-010 Rev 11

Form 1C
PCB CONGENER TEQ ANALYSIS REPORT

CLIENT SAMPLE NO.
Lab Blank

SGS AXYS ANALYTICAL SERVICES

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

Contract No.: 4826

Sample Collection: N/A

Project No. N/A

Matrix: AQUEOUS

Lab Sample I.D.: WG58704-101

Sample Size: 1.00 L

GC Column ID(s): SPB OCTYL

Concentration Units: pg/L

Sample Data Filename(s): PB7C_110 S: 4

COMPOUND	IUPAC NO.	COELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL)	WHO 1998 TEF	TEQ			
							U=0	U=1/2 RL	U=RL	
3,3',4,4'-TeCB	77		U		0.500	0.0001	0.00e+00	2.50e-05		
3,4,4',5-TeCB	81		U		0.500	0.0001	0.00e+00	2.50e-05		
2,3,3',4,4'-PeCB	105			0.542	0.500	0.0001	5.42e-05	5.42e-05		
2,3,4,4',5-PeCB	114		U		0.500	0.0005	0.00e+00	1.25e-04		
2,3',4,4',5-PeCB	118		U		0.500	0.0001	0.00e+00	2.50e-05		
2',3,4,4',5-PeCB	123		U		0.500	0.0001	0.00e+00	2.50e-05		
3,3',4,4',5-PeCB	126		U		0.500	0.1	0.00e+00	2.50e-02		
2,3,3',4,4',5-HxCB	156	156 + 157	C U		0.531	0.0005	0.00e+00	1.33e-04		
2,3,3',4,4',5'-HxCB	157	156 + 157	C156							
2,3',4,4',5,5'-HxCB	167		U		0.500	0.00001	0.00e+00	2.50e-06		
3,3',4,4',5,5'-HxCB	169		U		0.510	0.01	0.00e+00	2.55e-03		
2,3,3',4,4',5,5'-HpCB	189		U		0.500	0.0001	0.00e+00	2.50e-05		
TOTAL TEQ								0.0000542	0.0280	

COMPOUND	IUPAC NO.	COELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL)	WHO 2005 TEF	TEQ		
							U=0	U=1/2 RL	U=RL
3,3',4,4'-TeCB	77		U		0.500	0.0001	0.00e+00	2.50e-05	
3,4,4',5-TeCB	81		U		0.500	0.0003	0.00e+00	7.50e-05	
2,3,3',4,4'-PeCB	105			0.542	0.500	0.00003	1.63e-05	1.63e-05	
2,3,4,4',5-PeCB	114		U		0.500	0.00003	0.00e+00	7.50e-06	
2,3',4,4',5-PeCB	118		U		0.500	0.00003	0.00e+00	7.50e-06	
2',3,4,4',5-PeCB	123		U		0.500	0.00003	0.00e+00	7.50e-06	
3,3',4,4',5-PeCB	126		U		0.500	0.1	0.00e+00	2.50e-02	
2,3,3',4,4',5-HxCB	156	156 + 157	C U		0.531	0.00003	0.00e+00	7.97e-06	
2,3,3',4,4',5'-HxCB	157	156 + 157	C156						
2,3',4,4',5,5'-HxCB	167		U		0.500	0.00003	0.00e+00	7.50e-06	
3,3',4,4',5,5'-HxCB	169		U		0.510	0.03	0.00e+00	7.65e-03	
2,3,3',4,4',5,5'-HpCB	189		U		0.500	0.00003	0.00e+00	7.50e-06	
TOTAL TEQ								0.0000163	0.0328

- (1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; C = co-eluting congener.
(2) Concentrations that do not meet quantification criteria are not included in the TEQ calculations.

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

Signed: _____ Brian Watson _____

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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Report Filename: 1668_PCB1668_HomTotals-TEQsC_WG58704-101_TEQ_SJ2190891.html; Workgroup: WG58704; Design ID: 2500]

AXYS METHOD MLA-010 Rev 11

Form 1A
HOMOLOGUE TOTAL PCB ANALYSIS REPORT

CLIENT 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.: 4826

Project No. N/A

Lab Sample I.D.: WG58704-102

Matrix: AQUEOUS

Sample Size: 1.00 L

Sample Receipt Date: N/A

Initial Calibration Date: 27-Nov-2016

Extraction Date: 23-Mar-2017

Instrument ID: HR GC/MS

Analysis Date: 29-Mar-2017 Time: 03:20:44

GC Column ID: SPB OCTYL

Extract Volume (uL): 20

Sample Data Filename: PB7C_110 S: 5

Injection Volume (uL): 1.0

Blank Data Filename: PB7C_110 S: 4

Dilution Factor: N/A

Cal. Ver. Data Filename: PB7C_110 S: 1

Concentration Units: pg/L

PCB HOMOLOGUE GROUP	LAB FLAG ¹	CONC. FOUND
Total Monochloro Biphenyls		8.86
Total Dichloro Biphenyls		101
Total Trichloro Biphenyls		27.7
Total Tetrachloro Biphenyls		30.4
Total Pentachloro Biphenyls		13.5
Total Hexachloro Biphenyls		6.01
Total Heptachloro Biphenyls		1.08
Total Octachloro Biphenyls		1.09
Total Nonachloro Biphenyls	U	
Decachloro Biphenyl	U	
TOTAL PCBs		189

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL.

(2) All header information pertains to the initial instrumental analysis of the sample extract. Additional sample datafiles listed refer to secondary analysis of the sample extract.

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

Signed: _____ Brian Watson _____

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.

AXYS METHOD MLA-010 Rev 11

CLIENT SAMPLE NO.
Lab BlankForm 1C
PCB CONGENER TEQ ANALYSIS REPORT

SGS AXYS ANALYTICAL SERVICES

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

Contract No.: 4826

Sample Collection: N/A

Project No. N/A

Matrix: AQUEOUS

Lab Sample I.D.: WG58704-102

Sample Size: 1.00 L

GC Column ID(s): SPB OCTYL

Concentration Units: pg/L

Sample Data Filename(s): PB7C_110 S: 5

COMPOUND	IUPAC NO.	COELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL)	WHO 1998 TEF	TEQ			
							U=0	U=1/2 RL	U=RL	
3,3',4,4'-TeCB	77		U		0.500	0.0001	0.00e+00	2.50e-05		
3,4,4',5-TeCB	81		U		0.500	0.0001	0.00e+00	2.50e-05		
2,3,3',4,4'-PeCB	105			0.621	0.500	0.0001	6.21e-05	6.21e-05		
2,3,4,4',5-PeCB	114		U		0.500	0.0005	0.00e+00	1.25e-04		
2,3',4,4',5-PeCB	118			1.51	0.500	0.0001	1.51e-04	1.51e-04		
2',3,4,4',5-PeCB	123		U		0.500	0.0001	0.00e+00	2.50e-05		
3,3',4,4',5-PeCB	126		U		0.500	0.1	0.00e+00	2.50e-02		
2,3,3',4,4',5-HxCB	156	156 + 157	C U		0.500	0.0005	0.00e+00	1.25e-04		
2,3,3',4,4',5'-HxCB	157	156 + 157	C156							
2,3',4,4',5,5'-HxCB	167		U		0.500	0.00001	0.00e+00	2.50e-06		
3,3',4,4',5,5'-HxCB	169		U		0.500	0.01	0.00e+00	2.50e-03		
2,3,3',4,4',5,5'-HpCB	189		U		0.500	0.0001	0.00e+00	2.50e-05		
TOTAL TEQ								0.000213	0.0281	

COMPOUND	IUPAC NO.	COELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL)	WHO 2005 TEF	TEQ			
							U=0	U=1/2 RL	U=RL	
3,3',4,4'-TeCB	77		U		0.500	0.0001	0.00e+00	2.50e-05		
3,4,4',5-TeCB	81		U		0.500	0.0003	0.00e+00	7.50e-05		
2,3,3',4,4'-PeCB	105			0.621	0.500	0.00003	1.86e-05	1.86e-05		
2,3,4,4',5-PeCB	114		U		0.500	0.00003	0.00e+00	7.50e-06		
2,3',4,4',5-PeCB	118			1.51	0.500	0.00003	4.53e-05	4.53e-05		
2',3,4,4',5-PeCB	123		U		0.500	0.00003	0.00e+00	7.50e-06		
3,3',4,4',5-PeCB	126		U		0.500	0.1	0.00e+00	2.50e-02		
2,3,3',4,4',5-HxCB	156	156 + 157	C U		0.500	0.00003	0.00e+00	7.50e-06		
2,3,3',4,4',5'-HxCB	157	156 + 157	C156							
2,3',4,4',5,5'-HxCB	167		U		0.500	0.00003	0.00e+00	7.50e-06		
3,3',4,4',5,5'-HxCB	169		U		0.500	0.03	0.00e+00	7.50e-03		
2,3,3',4,4',5,5'-HpCB	189		U		0.500	0.00003	0.00e+00	7.50e-06		
TOTAL TEQ								0.0000639	0.0327	

- (1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; C = co-eluting congener.
(2) Concentrations that do not meet quantification criteria are not included in the TEQ calculations.

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

Signed: _____ Brian Watson _____

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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Report Filename: 1668_PCB1668_HomTotals-TEQsC_WG58704-102_TEQ_SJ2190894.html; Workgroup: WG58704; Design ID: 2500]

AXYS METHOD MLA-010 Rev 11

Form 1A
HOMOLOGUE TOTAL PCB ANALYSIS REPORT

CLIENT 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.: 4826

Project No. N/A

Lab Sample I.D.: WG58704-103

Matrix: AQUEOUS

Sample Size: 1.00 L

Sample Receipt Date: N/A

Initial Calibration Date: 27-Nov-2016

Extraction Date: 23-Mar-2017

Instrument ID: HR GC/MS

Analysis Date: 29-Mar-2017 Time: 04:24:57

GC Column ID: SPB OCTYL

Extract Volume (uL): 20

Sample Data Filename: PB7C_110 S: 6

Injection Volume (uL): 1.0

Blank Data Filename: PB7C_110 S: 4

Dilution Factor: N/A

Cal. Ver. Data Filename: PB7C_110 S: 1

Concentration Units: pg/L

PCB HOMOLOGUE GROUP	LAB FLAG ¹	CONC. FOUND
Total Monochloro Biphenyls		7.78
Total Dichloro Biphenyls		66.3
Total Trichloro Biphenyls		22.3
Total Tetrachloro Biphenyls		27.5
Total Pentachloro Biphenyls		11.1
Total Hexachloro Biphenyls		0.826
Total Heptachloro Biphenyls	U	
Total Octachloro Biphenyls	U	
Total Nonachloro Biphenyls	U	
Decachloro Biphenyl	U	
TOTAL PCBs		136

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL.

(2) All header information pertains to the initial instrumental analysis of the sample extract. Additional sample datafiles listed refer to secondary analysis of the sample extract.

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

Signed: _____ Brian Watson _____

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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Report Filename: 1668_PCB1668_HomTotals-TEQsC_WG58704-103_Form1AHT_SJ2190897.html; Workgroup: WG58704; Design ID: 2500]

AXYS METHOD MLA-010 Rev 11

CLIENT SAMPLE NO.
Lab BlankForm 1C
PCB CONGENER TEQ ANALYSIS REPORT

SGS AXYS ANALYTICAL SERVICES

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

Contract No.: 4826

Sample Collection: N/A

Project No. N/A

Matrix: AQUEOUS

Lab Sample I.D.: WG58704-103

Sample Size: 1.00 L

GC Column ID(s): SPB OCTYL

Concentration Units: pg/L

Sample Data Filename(s): PB7C_110 S: 6

COMPOUND	IUPAC NO.	COELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL)	WHO 1998 TEF	TEQ			
							U=0	U=1/2 RL	U=RL	
3,3',4,4'-TeCB	77		U		0.500	0.0001	0.00e+00	2.50e-05		
3,4,4',5-TeCB	81		U		0.500	0.0001	0.00e+00	2.50e-05		
2,3,3',4,4'-PeCB	105		U		0.500	0.0001	0.00e+00	2.50e-05		
2,3,4,4',5-PeCB	114		U		0.500	0.0005	0.00e+00	1.25e-04		
2,3',4,4',5-PeCB	118			1.26	0.500	0.0001	1.26e-04	1.26e-04		
2',3,4,4',5-PeCB	123		U		0.500	0.0001	0.00e+00	2.50e-05		
3,3',4,4',5-PeCB	126		U		0.500	0.1	0.00e+00	2.50e-02		
2,3,3',4,4',5-HxCB	156	156 + 157	C U		0.500	0.0005	0.00e+00	1.25e-04		
2,3,3',4,4',5'-HxCB	157	156 + 157	C156							
2,3',4,4',5,5'-HxCB	167		U		0.500	0.00001	0.00e+00	2.50e-06		
3,3',4,4',5,5'-HxCB	169		U		0.500	0.01	0.00e+00	2.50e-03		
2,3,3',4,4',5,5'-HpCB	189		U		0.500	0.0001	0.00e+00	2.50e-05		
TOTAL TEQ								0.000126	0.0280	

COMPOUND	IUPAC NO.	COELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL)	WHO 2005 TEF	TEQ			
							U=0	U=1/2 RL	U=RL	
3,3',4,4'-TeCB	77		U		0.500	0.0001	0.00e+00	2.50e-05		
3,4,4',5-TeCB	81		U		0.500	0.0003	0.00e+00	7.50e-05		
2,3,3',4,4'-PeCB	105		U		0.500	0.00003	0.00e+00	7.50e-06		
2,3,4,4',5-PeCB	114		U		0.500	0.00003	0.00e+00	7.50e-06		
2,3',4,4',5-PeCB	118			1.26	0.500	0.00003	3.78e-05	3.78e-05		
2',3,4,4',5-PeCB	123		U		0.500	0.00003	0.00e+00	7.50e-06		
3,3',4,4',5-PeCB	126		U		0.500	0.1	0.00e+00	2.50e-02		
2,3,3',4,4',5-HxCB	156	156 + 157	C U		0.500	0.00003	0.00e+00	7.50e-06		
2,3,3',4,4',5'-HxCB	157	156 + 157	C156							
2,3',4,4',5,5'-HxCB	167		U		0.500	0.00003	0.00e+00	7.50e-06		
3,3',4,4',5,5'-HxCB	169		U		0.500	0.03	0.00e+00	7.50e-03		
2,3,3',4,4',5,5'-HpCB	189		U		0.500	0.00003	0.00e+00	7.50e-06		
TOTAL TEQ								0.0000378	0.0327	

(1) Where applicable, custom lab flags have been used on this report; U = not detected at RL; C = co-eluting congener.
 (2) Concentrations that do not meet quantification criteria are not included in the TEQ calculations.

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

Signed: _____ Brian Watson _____

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

For Axys Internal Use Only [XSL Template: 1668TEQ.xsl; Created: 03-Apr-2017 12:50:41; Application: XMLTransformer-1.16.2; Report Filename: 1668_PCB1668_HomTotals-TEQsC_WG58704-103_TEQ_SJ2190897.html; Workgroup: WG58704; Design ID: 2500]

AXYS METHOD MLA-010 Rev 11

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: 27-Nov-2016 VER Data Filename: PB7C_110 S: 1
 Instrument ID: HR GC/MS Analysis Date: 28-Mar-2017
 GC Column ID: SPB OCTYL Analysis Time: 23:03:50

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	MZ's FORMING RATIO ²	ION ABUND. RATIO	QC LIMITS ³	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
2-MoCB	1			M/M+2	3.17	2.66-3.60	24.4	18.8 - 31.3
4-MoCB	3			M/M+2	3.16	2.66-3.60	24.8	18.8 - 31.3
2,2'-DiCB	4			M/M+2	1.53	1.33-1.79	25.2	18.8 - 31.3
4,4'-DiCB	15			M/M+2	1.57	1.33-1.79	28.5	21.0 - 35.0
2,2',6-TriCB	19			M/M+2	1.05	0.88-1.20	27.4	18.8 - 31.3
3,4,4'-TriCB	37			M/M+2	1.03	0.88-1.20	24.5	18.8 - 31.3
2,2',6,6'-TeCB	54			M/M+2	0.79	0.65-0.89	51.5	37.5 - 62.5
3,3',4,4'-TeCB	77			M/M+2	0.77	0.65-0.89	50.1	37.5 - 62.5
3,4,4',5-TeCB	81			M/M+2	0.77	0.65-0.89	52.2	37.5 - 62.5
2,2',4,6,6'-PeCB	104			M+2/M+4	1.56	1.32-1.78	52.3	37.5 - 62.5
2,3,3',4,4'-PeCB	105			M+2/M+4	1.55	1.32-1.78	53.2	37.5 - 62.5
2,3,4,4',5-PeCB	114			M+2/M+4	1.56	1.32-1.78	52.2	37.5 - 62.5
2,3',4,4',5-PeCB	118			M+2/M+4	1.55	1.32-1.78	50.6	37.5 - 62.5
2',3,4,4',5-PeCB	123			M+2/M+4	1.55	1.32-1.78	50.7	37.5 - 62.5
3,3',4,4',5-PeCB	126			M+2/M+4	1.52	1.32-1.78	53.3	41.8 - 69.6
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.25	1.05-1.43	51.5	37.5 - 62.5
2,3,3',4,4',5-HxCB	156	156 + 157	C	M+2/M+4	1.25	1.05-1.43	106	75.0 - 125
2,3,3',4,4',5'-HxCB	157	156 + 157	C156					
2,3',4,4',5,5'-HxCB	167			M+2/M+4	1.26	1.05-1.43	58.2	37.5 - 62.5
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.33	1.05-1.43	59.8	37.5 - 62.5
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.05	0.89-1.21	52.0	37.5 - 62.5
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.03	0.89-1.21	51.7	37.5 - 62.5
2,2',3,3',5,5',6,6'-OxCB	202			M+2/M+4	0.89	0.76-1.02	79.6	63.2 - 105
2,3,3',4,4',5,5',6-OxCB	205			M+2/M+4	0.90	0.76-1.02	81.9	56.3 - 93.8
2,2',3,3',4,4',5,5',6-NoCB	206			M+2/M+4	0.79	0.65-0.89	80.2	56.3 - 93.8
2,2',3,3',4,5,5',6,6'-NoCB	208			M+2/M+4	0.78	0.65-0.89	86.4	62.9 - 105
2,2',3,3',4,4',5,5',6,6'-DeCB	209			M+4/M+6	1.16	0.99-1.33	71.0	56.3 - 93.8

(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: _____ Brian Watson _____

For Axy Internal Use Only [XSL Template: Form16684A.xsl; Created: 03-Apr-2017 12:48:43; Application: XMLTransformer-1.16.2; Report Filename: 1668_PCB1668_PB7C_110S1_Form4A_SJ2190884.html; Workgroup: WG58704; Design ID: 2500]

AXYS METHOD MLA-010 Rev 11

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: 27-Nov-2016 VER Data Filename: PB7C_110 S: 1
Instrument ID: HR GC/MS Analysis Date: 28-Mar-2017
GC Column ID: SPB OCTYL Analysis Time: 23:03:50

LABELLED COMPOUND	IUPAC NO. 1	CO-ELUTIONS	LAB FLAG 2	MZ's FORMING RATIO 3	ION ABUND. RATIO	QC LIMITS 4	CONC. FOUND (ng/mL)	CONC. RANGE (ng/mL)
13C12-2-MoCB	1L			M/M+2	3.26	2.66-3.60	97.1	50.0 - 145
13C12-4-MoCB	3L			M/M+2	3.10	2.66-3.60	97.0	50.0 - 145
13C12-2,2'-DiCB	4L			M/M+2	1.59	1.33-1.79	95.5	50.0 - 145
13C12-4,4'-DiCB	15L			M/M+2	1.57	1.33-1.79	96.3	50.0 - 145
13C12-2,2',6-TriCB	19L			M/M+2	1.04	0.88-1.20	92.0	50.0 - 145
13C12-3,4,4'-TriCB	37L			M/M+2	1.05	0.88-1.20	95.1	50.0 - 145
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.79	0.65-0.89	91.1	50.0 - 145
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.78	0.65-0.89	101	50.0 - 145
13C12-3,4,4',5'-TeCB	81L			M/M+2	0.76	0.65-0.89	103	50.0 - 145
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.56	1.32-1.78	87.0	50.0 - 145
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.59	1.32-1.78	94.1	50.0 - 145
13C12-2,3,4,4',5'-PeCB	114L			M+2/M+4	1.60	1.32-1.78	96.6	50.0 - 145
13C12-2,3',4,4',5'-PeCB	118L			M+2/M+4	1.57	1.32-1.78	96.6	50.0 - 145
13C12-2',3,4,4',5'-PeCB	123L			M+2/M+4	1.58	1.32-1.78	97.5	50.0 - 145
13C12-3,3',4,4',5'-PeCB	126L			M+2/M+4	1.56	1.32-1.78	81.9	50.0 - 145
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.24	1.05-1.43	109	50.0 - 145
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C	M+2/M+4	1.24	1.05-1.43	162	100 - 290
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			M+2/M+4	1.26	1.05-1.43	84.0	50.0 - 145
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.28	1.05-1.43	78.2	50.0 - 145
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.05	0.89-1.21	115	50.0 - 145
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	1.04	0.89-1.21	107	50.0 - 145
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			M+2/M+4	0.91	0.76-1.02	109	50.0 - 145
13C12-2,3,3',4,4',5,5',6-OxCB	205L			M+2/M+4	0.90	0.76-1.02	94.6	50.0 - 145
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.80	0.65-0.89	86.7	50.0 - 145
13C12-2,2',3,3',4,5,5',6,NoCB	208L			M+2/M+4	0.78	0.65-0.89	93.2	50.0 - 145
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6	1.19	0.99-1.33	80.9	50.0 - 145

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.06	0.88-1.20	94.5	65.0 - 135
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.59	1.32-1.78	95.3	75.0 - 125
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.02	0.89-1.21	86.7	75.0 - 125

(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: _____ Brian Watson _____

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: 27-Nov-2016

VER Data Filename: PB7C_110 S: 1

Instrument ID: HR GC/MS

Analysis Date: 28-Mar-2017

GC Column ID: SPB OCTYL

Analysis Time: 23:03:50

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

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AXYS METHOD MLA-010 Rev 11

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: 27-Nov-2016

VER Data Filename: PB7C_110 S: 1

Instrument ID: HR GC/MS

Analysis Date: 28-Mar-2017

GC Column ID: SPB OCTYL

Analysis Time: 23:03:50

LABELLED COMPOUND	IUPAC NO. ¹	CO- ELUTIONS	LAB FLAG ²	RETENTION TIME REFERENCE	IUPAC NO. ¹	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			13C12-2,5-DiCB	9L	0.720	0.689-0.751
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	1.072	1.041-1.103
13C12-3,4,4'-TriCB	37L			13C12-2,2',5,5'-TeCB	52L	1.090	1.070-1.110
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	1.395	1.382-1.408
13C12-3,4,4',5-TeCB	81L			13C12-2,2',5,5'-TeCB	52L	1.372	1.358-1.385
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	1.189-1.210
13C12-2,3,4,4',5-PeCB	114L			13C12-2,2',4,5,5'-PeCB	101L	1.179	1.168-1.189
13C12-2,3',4,4',5-PeCB	118L			13C12-2,2',4,5,5'-PeCB	101L	1.161	1.151-1.172
13C12-2',3,4,4',5-PeCB	123L			13C12-2,2',4,5,5'-PeCB	101L	1.151	1.141-1.161
13C12-3,3',4,4',5-PeCB	126L			13C12-2,2',4,5,5'-PeCB	101L	1.300	1.290-1.311
13C12-2,2',4,4',6,6'-HxCB	155L			13C12-2,2',3,4,4',5'-HxCB	138L	0.786	0.778-0.795
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	13C12-2,2',3,4,4',5'-HxCB	138L	1.107	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	1.191	1.183-1.199
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	0.952-0.965
13C12-2,2',3,3',5,5',6,6'-OcCB	202L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.818	0.811-0.824
13C12-2,3,3',4,4',5,5',6-OcCB	205L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.009	1.000-1.019
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.043	1.034-1.053
13C12-2,2',3,3',4,4',5,5',6,6'-NoCB	208L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.949	0.943-0.955
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.075	1.065-1.084

CLEANUP STANDARD

13C12-2,4,4'-TriCB	28L			13C12-2,2',5,5'-TeCB	52L	0.924	0.911-0.938
13C12-2,3,3',5,5'-PeCB	111L			13C12-2,2',4,5,5'-PeCB	101L	1.087	1.077-1.098
13C12-2,2',3,3',5,5',6-HpCB	178L			13C12-2,2',3,4,4',5'-HxCB	138L	1.012	1.004-1.020

(1) Suffix "L" indicates labeled compound

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

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

Signed: _____ Brian Watson _____

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: 27-Nov-2016

CAL Data Filename: PB7C_110 S: 1

Instrument ID: HR GC/MS

Analysis Date: 28-Mar-2017

GC Column ID: SPB OCTYL

Analysis Time: 23:03:50

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			1.07	M/M+2	3.20	2.66-3.60	0.988	0.984 - 0.992
2,3-DiCB	5			1.09	M/M+2	1.54	1.33-1.79	1.198	1.194 - 1.201
2,3'-DiCB	6			1.21	M/M+2	1.55	1.33-1.79	1.175	1.172 - 1.179
2,4-DiCB	7			1.17	M/M+2	1.55	1.33-1.79	1.159	1.155 - 1.162
2,4'-DiCB	8			1.32	M/M+2	1.54	1.33-1.79	1.206	1.203 - 1.210
2,5-DiCB	9			1.22	M/M+2	1.55	1.33-1.79	1.145	1.142 - 1.149
2,6-DiCB	10			1.16	M/M+2	1.54	1.33-1.79	1.013	1.010 - 1.017
3,3'-DiCB	11			1.19	M/M+2	1.54	1.33-1.79	0.969	0.967 - 0.972
3,4-DiCB	12	12 + 13	C	1.19	M/M+2	1.54	1.33-1.79	0.985	0.983 - 0.988
3,4'-DiCB	13	12 + 13	C12						
3,5-DiCB	14			1.18	M/M+2	1.52	1.33-1.79	0.926	0.924 - 0.929
2,2',3-TriCB	16			0.73	M/M+2	1.04	0.88-1.20	1.165	1.162 - 1.168
2,2',4-TriCB	17			0.90	M/M+2	1.07	0.88-1.20	1.138	1.135 - 1.141
2,2',5-TriCB	18	18 + 30	C	1.05	M/M+2	1.05	0.88-1.20	1.113	1.110 - 1.116
2,3,3'-TriCB	20	20 + 28	C	1.28	M/M+2	1.03	0.88-1.20	0.849	0.846 - 0.852
2,3,4-TriCB	21	21 + 33	C	1.28	M/M+2	1.03	0.88-1.20	0.856	0.853 - 0.859
2,3,4'-TriCB	22			1.17	M/M+2	1.04	0.88-1.20	0.873	0.871 - 0.874
2,3,5-TriCB	23			1.16	M/M+2	1.02	0.88-1.20	1.284	1.281 - 1.287
2,3,6-TriCB	24			1.24	M/M+2	1.04	0.88-1.20	1.159	1.156 - 1.162
2,3',4-TriCB	25			1.42	M/M+2	1.03	0.88-1.20	0.826	0.824 - 0.827
2,3',5-TriCB	26	26 + 29	C	1.24	M/M+2	1.04	0.88-1.20	1.302	1.297 - 1.307
2,3',6-TriCB	27			1.26	M/M+2	1.04	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			1.34	M/M+2	1.04	0.88-1.20	0.837	0.835 - 0.839
2,4',6-TriCB	32			1.26	M/M+2	1.04	0.88-1.20	1.197	1.194 - 1.200
2',3,4-TriCB	33	21 + 33	C21						
2',3,5-TriCB	34			1.23	M/M+2	1.03	0.88-1.20	1.274	1.271 - 1.277
3,3',4-TriCB	35			1.25	M/M+2	1.04	0.88-1.20	0.985	0.984 - 0.987
3,3',5-TriCB	36			1.28	M/M+2	1.02	0.88-1.20	0.932	0.930 - 0.934
3,4,5-TriCB	38			1.28	M/M+2	1.02	0.88-1.20	0.967	0.965 - 0.969
3,4',5-TriCB	39			1.31	M/M+2	1.03	0.88-1.20	0.946	0.944 - 0.948
2,2',3,3'-TeCB	40	40 + 41 + 71	C	0.81	M/M+2	0.78	0.65-0.89	1.334	1.330 - 1.339
2,2',3,4-TeCB	41	40 + 41 + 71	C40						
2,2',3,4'-TeCB	42			0.76	M/M+2	0.78	0.65-0.89	1.311	1.308 - 1.313
2,2',3,5-TeCB	43			0.60	M/M+2	0.79	0.65-0.89	1.246	1.243 - 1.248
2,2',3,5'-TeCB	44	44 + 47 + 65	C	0.87	M/M+2	0.78	0.65-0.89	1.285	1.281 - 1.289
2,2',3,6-TeCB	45	45 + 51	C	0.77	M/M+2	0.78	0.65-0.89	1.147	1.143 - 1.151
2,2',3,6'-TeCB	46			0.68	M/M+2	0.78	0.65-0.89	1.160	1.157 - 1.162
2,2',4,4'-TeCB	47	44 + 47 + 65	C44						
2,2',4,5-TeCB	48			0.78	M/M+2	0.79	0.65-0.89	1.273	1.270 - 1.275
2,2',4,5'-TeCB	49	49 + 69	C	0.92	M/M+2	0.78	0.65-0.89	1.257	1.252 - 1.261
2,2',4,6-TeCB	50	50 + 53	C	0.80	M/M+2	0.78	0.65-0.89	1.111	1.107 - 1.116
2,2',4,6'-TeCB	51	45 + 51	C45						
2,2',5,5'-TeCB	52			0.86	M/M+2	0.78	0.65-0.89	1.233	1.230 - 1.235
2,2',5,6'-TeCB	53	50 + 53	C50						
2,3,3',4-TeCB	55			0.98	M/M+2	0.78	0.65-0.89	0.889	0.888 - 0.890
2,3,3',4'-TeCB	56			0.96	M/M+2	0.78	0.65-0.89	0.905	0.903 - 0.906

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
2,3,3',5'-TeCB	57			1.08	M/M+2	0.78	0.65-0.89	0.844	0.842 - 0.845
2,3,3',5'-TeCB	58			1.01	M/M+2	0.77	0.65-0.89	0.851	0.850 - 0.853
2,3,3',6'-TeCB	59	59 + 62 + 75	C	1.07	M/M+2	0.78	0.65-0.89	1.301	1.297 - 1.305
2,3,4,4'-TeCB	60			1.01	M/M+2	0.78	0.65-0.89	0.911	0.909 - 0.912
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76		1.05	M/M+2	0.78	0.65-0.89	0.874	0.872 - 0.877
2,3,4,6'-TeCB	62	59 + 62 + 75	C59						
2,3,4',5'-TeCB	63			1.07	M/M+2	0.76	0.65-0.89	0.864	0.863 - 0.866
2,3,4',6'-TeCB	64			1.10	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			1.08	M/M+2	0.78	0.65-0.89	0.884	0.883 - 0.886
2,3',4,5'-TeCB	67			1.21	M/M+2	0.78	0.65-0.89	0.857	0.855 - 0.858
2,3',4,5'-TeCB	68			1.10	M/M+2	0.78	0.65-0.89	0.832	0.830 - 0.833
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			1.10	M/M+2	0.78	0.65-0.89	0.823	0.821 - 0.824
2,3',5,6'-TeCB	73			1.08	M/M+2	0.78	0.65-0.89	1.240	1.238 - 1.243
2,4,4',5'-TeCB	74	61 + 70 + 74 + 76	C61						
2,4,4',6'-TeCB	75	59 + 62 + 75	C59						
2',3,4,5'-TeCB	76	61 + 70 + 74 + 76	C61						
3,3',4,5'-TeCB	78			1.08	M/M+2	0.78	0.65-0.89	0.987	0.986 - 0.989
3,3',4,5'-TeCB	79			1.24	M/M+2	0.78	0.65-0.89	0.970	0.969 - 0.972
3,3',5,5'-TeCB	80			1.15	M/M+2	0.78	0.65-0.89	0.924	0.922 - 0.925
2,2',3,3',4'-PeCB	82			0.73	M+2/M+4	1.54	1.32-1.78	0.933	0.932 - 0.935
2,2',3,3',5'-PeCB	83	83 + 99	C	0.78	M+2/M+4	1.54	1.32-1.78	0.884	0.881 - 0.887
2,2',3,3',6'-PeCB	84			0.70	M+2/M+4	1.57	1.32-1.78	1.163	1.161 - 1.165
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	0.99	M+2/M+4	1.57	1.32-1.78	0.919	0.916 - 0.922
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 109 + 119 + 125	C	0.93	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 + 109 + 119 + 125	C86						
2,2',3,4,6'-PeCB	88	88 + 91	C	0.78	M+2/M+4	1.60	1.32-1.78	1.152	1.148 - 1.156
2,2',3,4,6'-PeCB	89			0.75	M+2/M+4	1.54	1.32-1.78	1.181	1.179 - 1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	0.91	M+2/M+4	1.57	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			0.78	M+2/M+4	1.53	1.32-1.78	0.853	0.852 - 0.854
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	0.80	M+2/M+4	1.57	1.32-1.78	1.129	1.118 - 1.140
2,2',3,5,6'-PeCB	94			0.71	M+2/M+4	1.53	1.32-1.78	1.102	1.101 - 1.104
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93						
2,2',3,6,6'-PeCB	96			1.12	M+2/M+4	1.56	1.32-1.78	1.015	1.012 - 1.019
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 109 + 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			0.87	M+2/M+4	1.56	1.32-1.78	1.093	1.091 - 1.095
2,3,3',4,5'-PeCB	106			1.12	M+2/M+4	1.55	1.32-1.78	1.004	1.002 - 1.005
2,3,3',4',5'-PeCB	107 ⁴			1.16	M+2/M+4	1.53	1.32-1.78	0.997	0.996 - 0.998
2,3,3',4,5'-PeCB	108 ⁴	108 + 124	C	1.01	M+2/M+4	1.56	1.32-1.78	0.990	0.988 - 0.992
2,3,3',4,6'-PeCB	109 ⁴	86 + 87 + 97 + 109 + 119 + 125	C86						
2,3,3',4',6'-PeCB	110	110 + 115	C	1.09	M+2/M+4	1.57	1.32-1.78	0.926	0.924 - 0.928
2,3,3',5,5'-PeCB	111			1.08	M+2/M+4	1.56	1.32-1.78	0.945	0.944 - 0.946
2,3,3',5,6'-PeCB	112			1.11	M+2/M+4	1.55	1.32-1.78	0.888	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 + 109 + 119 + 125	C86						
2,3',4,5,5'-PeCB	120			1.16	M+2/M+4	1.58	1.32-1.78	0.958	0.957 - 0.960
2,3',4,5',6'-PeCB	121			1.03	M+2/M+4	1.58	1.32-1.78	1.200	1.198 - 1.202
2',3,3',4,5'-PeCB	122			0.98	M+2/M+4	1.54	1.32-1.78	1.010	1.009 - 1.012
2',3,4,5,5'-PeCB	124	108 + 124	C108						
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 109 + 119 + 125	C86						

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
3,3',4,5,5'-PeCB	127			0.96	M+2/M+4	1.51	1.32-1.78	1.041	1.039 - 1.042
2,2',3,3',4,4'-HxCB	128	128 + 166	C	0.93	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	0.99	M+2/M+4	1.24	1.05-1.43	0.930	0.927 - 0.932
2,2',3,3',4,5'-HxCB	130			0.81	M+2/M+4	1.26	1.05-1.43	0.913	0.912 - 0.914
2,2',3,3',4,6'-HxCB	131			0.94	M+2/M+4	1.24	1.05-1.43	1.158	1.157 - 1.160
2,2',3,3',4,6'-HxCB	132			0.89	M+2/M+4	1.27	1.05-1.43	1.174	1.171 - 1.176
2,2',3,3',5,5'-HxCB	133			0.92	M+2/M+4	1.27	1.05-1.43	1.191	1.189 - 1.192
2,2',3,3',5,6'-HxCB	134	134 + 143	C	0.98	M+2/M+4	1.26	1.05-1.43	1.141	1.138 - 1.143
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	1.15	M+2/M+4	1.25	1.05-1.43	1.106	1.100 - 1.112
2,2',3,3',6,6'-HxCB	136			1.54	M+2/M+4	1.26	1.05-1.43	1.023	1.021 - 1.025
2,2',3,4,4',5'-HxCB	137			0.81	M+2/M+4	1.26	1.05-1.43	0.918	0.917 - 0.919
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129						
2,2',3,4,4',6'-HxCB	139	139 + 140	C	1.07	M+2/M+4	1.27	1.05-1.43	1.152	1.150 - 1.155
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			0.95	M+2/M+4	1.28	1.05-1.43	1.164	1.162 - 1.165
2,2',3,4,5,6'-HxCB	143	134 + 143	C134						
2,2',3,4,5,6'-HxCB	144			1.10	M+2/M+4	1.24	1.05-1.43	1.120	1.119 - 1.122
2,2',3,4,6,6'-HxCB	145			1.44	M+2/M+4	1.26	1.05-1.43	1.033	1.032 - 1.035
2,2',3,4',5,5'-HxCB	146			1.14	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	1.12	M+2/M+4	1.26	1.05-1.43	1.133	1.130 - 1.136
2,2',3,4',5,6'-HxCB	148			1.12	M+2/M+4	1.27	1.05-1.43	1.083	1.082 - 1.085
2,2',3,4',5,6'-HxCB	149	147 + 149	C147						
2,2',3,4',6,6'-HxCB	150			1.48	M+2/M+4	1.26	1.05-1.43	1.012	1.010 - 1.014
2,2',3,5,5',6'-HxCB	151	135 + 151 + 154	C135						
2,2',3,5,6,6'-HxCB	152			1.60	M+2/M+4	1.25	1.05-1.43	1.006	1.004 - 1.007
2,2',4,4',5,5'-HxCB	153	153 + 168	C	1.18	M+2/M+4	1.25	1.05-1.43	0.899	0.897 - 0.901
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135						
2,3,3',4,4',6'-HxCB	158			1.25	M+2/M+4	1.26	1.05-1.43	0.938	0.936 - 0.939
2,3,3',4,5,5'-HxCB	159			1.04	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			1.28	M+2/M+4	1.26	1.05-1.43	0.887	0.886 - 0.888
2,3,3',4',5,5'-HxCB	162			1.08	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			1.24	M+2/M+4	1.28	1.05-1.43	0.921	0.920 - 0.922
2,3,3',5,5',6'-HxCB	165			1.14	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			1.08	M+2/M+4	1.02	0.89-1.21	1.001	1.000 - 1.002
2,2',3,3',4,4',6'-HpCB	171	171 + 173	C	0.66	M+2/M+4	1.05	0.89-1.21	1.162	1.160 - 1.164
2,2',3,3',4,5,5'-HpCB	172			0.61	M+2/M+4	1.04	0.89-1.21	0.897	0.896 - 0.898
2,2',3,3',4,5,6'-HpCB	173	171 + 173	C171						
2,2',3,3',4,5,6'-HpCB	174			0.73	M+2/M+4	1.03	0.89-1.21	1.133	1.132 - 1.134
2,2',3,3',4,5,6'-HpCB	175			0.76	M+2/M+4	1.04	0.89-1.21	1.102	1.101 - 1.104
2,2',3,3',4,6,6'-HpCB	176			1.10	M+2/M+4	1.06	0.89-1.21	1.034	1.033 - 1.035
2,2',3,3',4',5,6'-HpCB	177			1.02	M+2/M+4	1.05	0.89-1.21	1.145	1.144 - 1.146
2,2',3,3',5,5',6'-HpCB	178			0.77	M+2/M+4	1.03	0.89-1.21	1.085	1.083 - 1.086
2,2',3,3',5,6,6'-HpCB	179			1.18	M+2/M+4	1.05	0.89-1.21	1.009	1.008 - 1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	0.96	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			0.69	M+2/M+4	1.05	0.89-1.21	1.156	1.155 - 1.157
2,2',3,4,4',5,6'-HpCB	182			0.79	M+2/M+4	1.04	0.89-1.21	1.115	1.114 - 1.116
2,2',3,4,4',5',6'-HpCB	183	183 + 185	C	0.73	M+2/M+4	1.04	0.89-1.21	1.128	1.127 - 1.129
2,2',3,4,4',6,6'-HpCB	184			1.18	M+2/M+4	1.04	0.89-1.21	1.024	1.023 - 1.025
2,2',3,4,5,5',6'-HpCB	185	183 + 185	C183						
2,2',3,4,5,6,6'-HpCB	186			1.04	M+2/M+4	1.05	0.89-1.21	1.047	1.045 - 1.048
2,2',3,4',5,5',6'-HpCB	187			0.79	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			0.78	M+2/M+4	1.04	0.89-1.21	0.947	0.946 - 0.948
2,3,3',4,4',5',6'-HpCB	191			0.81	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			0.75	M+2/M+4	1.02	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			0.61	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			0.62	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			0.69	M+2/M+4	0.89	0.76-1.02	0.916	0.915 - 0.917

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	1.02	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	0.68	M+2/M+4	0.89	0.76-1.02	1.114	1.112 - 1.116
2,2',3,3',4,5,5',6'-OcCB	199	198 + 199	C198						
2,2',3,3',4,5,6,6'-OcCB	200	197 + 200	C197						
2,2',3,3',4,5',6,6'-OcCB	201			1.01	M+2/M+4	0.91	0.76-1.02	1.023	1.021 - 1.024
2,2',3,4,4',5,5',6-OcCB	203			0.72	M+2/M+4	0.88	0.76-1.02	0.919	0.918 - 0.920
2,2',3,4,4',5,6,6'-OcCB	204			0.99	M+2/M+4	0.88	0.76-1.02	1.039	1.038 - 1.040
2,2',3,3',4,4',5,6,6'-NoCB	207			1.20	M+2/M+4	0.77	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.

(4) PCB Congener numbers 107, 108, and 109 defined as per EPA1668C specifications.

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

Signed: _____ Brian Watson _____

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AXYS METHOD MLA-010 Rev 11

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: 27-Nov-2016

CAL Data Filename: PB7C_110 S: 1

Instrument ID: HR GC/MS

Analysis Date: 28-Mar-2017

GC Column ID: SPB OCTYL

Analysis Time: 23:03:50

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			1.01	M/M+2	3.26	2.66-3.60	0.720	0.704 - 0.735
13C12-4-MoCB	3L			0.98	M/M+2	3.10	2.66-3.60	0.858	0.843 - 0.874
13C12-2,2'-DiCB	4L			0.64	M/M+2	1.59	1.33-1.79	0.874	0.858 - 0.890
13C12-4,4'-DiCB	15L			1.04	M/M+2	1.57	1.33-1.79	1.253	1.238 - 1.269
13C12-2,2',6-TriCB	19L			0.55	M/M+2	1.04	0.88-1.20	1.072	1.056 - 1.088
13C12-3,4,4'-TriCB	37L			1.61	M/M+2	1.05	0.88-1.20	1.090	1.080 - 1.100
13C12-2,2',6,6'-TeCB	54L			1.27	M/M+2	0.79	0.65-0.89	0.811	0.805 - 0.818
13C12-3,3',4,4'-TeCB	77L			1.41	M/M+2	0.78	0.65-0.89	1.395	1.388 - 1.402
13C12-3,4,4',5-TeCB	81L			1.41	M/M+2	0.76	0.65-0.89	1.372	1.365 - 1.378
13C12-2,2',4,6,6'-PeCB	104L			1.28	M+2/M+4	1.56	1.32-1.78	0.808	0.803 - 0.814
13C12-2,3,3',4,4'-PeCB	105L			1.22	M+2/M+4	1.59	1.32-1.78	1.200	1.195 - 1.205
13C12-2,3,4,4',5-PeCB	114L			1.20	M+2/M+4	1.60	1.32-1.78	1.179	1.173 - 1.184
13C12-2,3',4,4',5-PeCB	118L			1.24	M+2/M+4	1.57	1.32-1.78	1.161	1.156 - 1.167
13C12-2',3,4,4',5-PeCB	123L			1.27	M+2/M+4	1.58	1.32-1.78	1.151	1.146 - 1.156
13C12-3,3',4,4',5-PeCB	126L			0.96	M+2/M+4	1.56	1.32-1.78	1.300	1.295 - 1.305
13C12-2,2',4,4',6,6'-HxCB	155L			1.88	M+2/M+4	1.24	1.05-1.43	0.786	0.782 - 0.790
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	1.05	M+2/M+4	1.24	1.05-1.43	1.107	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			1.04	M+2/M+4	1.26	1.05-1.43	1.078	1.074 - 1.082
13C12-3,3',4,4',5,5'-HxCB	169L			0.96	M+2/M+4	1.28	1.05-1.43	1.191	1.187 - 1.195
13C12-2,2',3,3',4,4',5-HpCB	170L			1.24	M+2/M+4	1.05	0.89-1.21	0.897	0.894 - 0.900
13C12-2,2',3,4,4',5,5'-HpCB	180L			1.53	M+2/M+4	1.04	0.89-1.21	0.872	0.869 - 0.875
13C12-2,2',3,4',5,6,6'-HpCB	188L			2.85	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			1.71	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			2.53	M+2/M+4	0.91	0.76-1.02	0.818	0.814 - 0.821
13C12-2,3,3',4,4',5,5',6-OxCB	205L			1.42	M+2/M+4	0.90	0.76-1.02	1.009	1.005 - 1.014
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			0.95	M+2/M+4	0.80	0.65-0.89	1.043	1.038 - 1.048
13C12-2,2',3,3',4,4',5,5',6,6'-NoCB	208L			1.35	M+2/M+4	0.78	0.65-0.89	0.949	0.946 - 0.952

(1) Suffix "L" indicates labeled compound

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

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

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

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

Signed: _____ Brian Watson _____

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AXYS METHOD MLA-010 Rev 11

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: 27-Nov-2016 VER Data Filename: PB7C_111 S: 1
 Instrument ID: HR GC/MS Analysis Date: 29-Mar-2017
 GC Column ID: SPB OCTYL Analysis Time: 09:10:25

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	3.16	2.66-3.60	24.5	18.8 - 31.3
4-MoCB	3			M/M+2	3.13	2.66-3.60	25.7	18.8 - 31.3
2,2'-DiCB	4			M/M+2	1.54	1.33-1.79	25.2	18.8 - 31.3
4,4'-DiCB	15			M/M+2	1.55	1.33-1.79	28.6	21.0 - 35.0
2,2',6-TriCB	19			M/M+2	1.06	0.88-1.20	27.4	18.8 - 31.3
3,4,4'-TriCB	37			M/M+2	1.03	0.88-1.20	24.9	18.8 - 31.3
2,2',6,6'-TeCB	54			M/M+2	0.78	0.65-0.89	52.2	37.5 - 62.5
3,3',4,4'-TeCB	77			M/M+2	0.77	0.65-0.89	50.8	37.5 - 62.5
3,4,4',5-TeCB	81			M/M+2	0.77	0.65-0.89	53.3	37.5 - 62.5
2,2',4,6,6'-PeCB	104			M+2/M+4	1.54	1.32-1.78	52.1	37.5 - 62.5
2,3,3',4,4'-PeCB	105			M+2/M+4	1.54	1.32-1.78	51.7	37.5 - 62.5
2,3,4,4',5-PeCB	114			M+2/M+4	1.57	1.32-1.78	51.1	37.5 - 62.5
2,3',4,4',5-PeCB	118			M+2/M+4	1.55	1.32-1.78	49.8	37.5 - 62.5
2',3,4,4',5-PeCB	123			M+2/M+4	1.55	1.32-1.78	55.4	37.5 - 62.5
3,3',4,4',5-PeCB	126			M+2/M+4	1.57	1.32-1.78	54.8	41.8 - 69.6
2,2',4,4',6,6'-HxCB	155			M+2/M+4	1.25	1.05-1.43	51.0	37.5 - 62.5
2,3,3',4,4',5-HxCB	156	156 + 157	C	M+2/M+4	1.26	1.05-1.43	106	75.0 - 125
2,3,3',4,4',5'-HxCB	157	156 + 157	C156					
2,3',4,4',5,5'-HxCB	167			M+2/M+4	1.27	1.05-1.43	59.9	37.5 - 62.5
3,3',4,4',5,5'-HxCB	169			M+2/M+4	1.35	1.05-1.43	59.4	37.5 - 62.5
2,2',3,4',5,6,6'-HpCB	188			M+2/M+4	1.04	0.89-1.21	52.0	37.5 - 62.5
2,3,3',4,4',5,5'-HpCB	189			M+2/M+4	1.04	0.89-1.21	52.8	37.5 - 62.5
2,2',3,3',5,5',6,6'-OoCB	202			M+2/M+4	0.90	0.76-1.02	80.4	63.2 - 105
2,3,3',4,4',5,5',6-OoCB	205			M+2/M+4	0.90	0.76-1.02	81.0	56.3 - 93.8
2,2',3,3',4,4',5,5',6-NoCB	206			M+2/M+4	0.79	0.65-0.89	79.8	56.3 - 93.8
2,2',3,3',4,5,5',6,6'-NoCB	208			M+2/M+4	0.77	0.65-0.89	83.3	62.9 - 105
2,2',3,3',4,4',5,5',6,6'-DeCB	209			M+4/M+6	1.18	0.99-1.33	70.7	56.3 - 93.8

(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: _____ Brian Watson _____

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AXYS METHOD MLA-010 Rev 11

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: 27-Nov-2016

VER Data Filename: PB7C_111 S: 1

Instrument ID: HR GC/MS

Analysis Date: 29-Mar-2017

GC Column ID: SPB OCTYL

Analysis Time: 09:10:25

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	95.7	50.0 - 145
13C12-4-MoCB	3L			M/M+2	3.14	2.66-3.60	96.1	50.0 - 145
13C12-2,2'-DiCB	4L			M/M+2	1.60	1.33-1.79	93.2	50.0 - 145
13C12-4,4'-DiCB	15L			M/M+2	1.59	1.33-1.79	95.8	50.0 - 145
13C12-2,2',6-TriCB	19L			M/M+2	1.05	0.88-1.20	90.1	50.0 - 145
13C12-3,4,4'-TriCB	37L			M/M+2	1.05	0.88-1.20	93.4	50.0 - 145
13C12-2,2',6,6'-TeCB	54L			M/M+2	0.79	0.65-0.89	89.6	50.0 - 145
13C12-3,3',4,4'-TeCB	77L			M/M+2	0.78	0.65-0.89	102	50.0 - 145
13C12-3,4,4',5'-TeCB	81L			M/M+2	0.78	0.65-0.89	104	50.0 - 145
13C12-2,2',4,6,6'-PeCB	104L			M+2/M+4	1.55	1.32-1.78	86.4	50.0 - 145
13C12-2,3,3',4,4'-PeCB	105L			M+2/M+4	1.59	1.32-1.78	94.3	50.0 - 145
13C12-2,3,4,4',5'-PeCB	114L			M+2/M+4	1.59	1.32-1.78	98.2	50.0 - 145
13C12-2,3',4,4',5'-PeCB	118L			M+2/M+4	1.56	1.32-1.78	97.2	50.0 - 145
13C12-2',3,4,4',5'-PeCB	123L			M+2/M+4	1.56	1.32-1.78	96.8	50.0 - 145
13C12-3,3',4,4',5'-PeCB	126L			M+2/M+4	1.58	1.32-1.78	92.5	50.0 - 145
13C12-2,2',4,4',6,6'-HxCB	155L			M+2/M+4	1.25	1.05-1.43	99.8	50.0 - 145
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C	M+2/M+4	1.26	1.05-1.43	163	100 - 290
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L	M+2/M+4	1.25	1.05-1.43	84.6	50.0 - 145
13C12-2,3',4,4',5,5'-HxCB	167L			M+2/M+4	1.27	1.05-1.43	77.1	50.0 - 145
13C12-3,3',4,4',5,5'-HxCB	169L			M+2/M+4	1.06	0.89-1.21	107	50.0 - 145
13C12-2,2',3,4',5,6,6'-HpCB	188L			M+2/M+4	1.05	0.89-1.21	109	50.0 - 145
13C12-2,3,3',4,4',5,5'-HpCB	189L			M+2/M+4	0.90	0.76-1.02	97.4	50.0 - 145
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			M+2/M+4	0.90	0.76-1.02	91.4	50.0 - 145
13C12-2,3,3',4,4',5,5',6-OxCB	205L			M+2/M+4	0.80	0.65-0.89	83.1	50.0 - 145
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			M+2/M+4	0.76	0.65-0.89	81.0	50.0 - 145
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	208L			M+2/M+4	1.17	0.99-1.33	79.9	50.0 - 145
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			M+4/M+6				

CLEAN-UP STANDARD

13C12-2,4,4'-TriCB	28L			M/M+2	1.05	0.88-1.20	94.3	65.0 - 135
13C12-2,3,3',5,5'-PeCB	111L			M+2/M+4	1.57	1.32-1.78	98.0	75.0 - 125
13C12-2,2',3,3',5,5',6-HpCB	178L			M+2/M+4	1.03	0.89-1.21	83.9	75.0 - 125

(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: _____ Brian Watson _____

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: 27-Nov-2016

VER Data Filename: PB7C_111 S: 1

Instrument ID: HR GC/MS

Analysis Date: 29-Mar-2017

GC Column ID: SPB OCTYL

Analysis Time: 09:10:25

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	1.000	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	1.001	1.000-1.001
2,3',4,4',5-PeCB	118			13C12-2,3',4,4',5-PeCB	118L	1.000	1.000-1.001
2',3,4,4',5-PeCB	123			13C12-2',3,4,4',5-PeCB	123L	1.000	1.000-1.001
3,3',4,4',5-PeCB	126			13C12-3,3',4,4',5-PeCB	126L	1.000	1.000-1.001
2,2',4,4',6,6'-HxCB	155			13C12-2,2',4,4',6,6'-HxCB	155L	1.001	0.999-1.002
2,3,3',4,4',5-HxCB	156	156 + 157	C	13C12-2,3,3',4,4',5-HxCB and 13C12-2,3,3',4,4',5'-HxCB	156L/157L	1.000	0.998-1.003
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3',4,4',5,5'-HxCB	167			13C12-2,3',4,4',5,5'-HxCB	167L	1.000	1.000-1.001
3,3',4,4',5,5'-HxCB	169			13C12-3,3',4,4',5,5'-HxCB	169L	1.001	1.000-1.001
2,2',3,4',5,6,6'-HpCB	188			13C12-2,2',3,4',5,6,6'-HpCB	188L	1.001	1.000-1.001
2,3,3',4,4',5,5'-HpCB	189			13C12-2,3,3',4,4',5,5'-HpCB	189L	1.000	1.000-1.001
2,2',3,3',5,5',6,6'-OcCB	202			13C12-2,2',3,3',5,5',6,6'-OcCB	202L	1.000	1.000-1.001
2,3,3',4,4',5,5',6-OcCB	205			13C12-2,3,3',4,4',5,5',6-OcCB	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: _____ Brian Watson _____

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AXYS METHOD MLA-010 Rev 11

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: 27-Nov-2016

VER Data Filename: PB7C_111 S: 1

Instrument ID: HR GC/MS

Analysis Date: 29-Mar-2017

GC Column ID: SPB OCTYL

Analysis Time: 09:10:25

LABELLED COMPOUND	IUPAC NO. ¹	CO-ELUTIONS	LAB FLAG ²	RETENTION TIME REFERENCE	IUPAC NO. ¹	RRT	RRT QC LIMITS
13C12-2-MoCB	1L			13C12-2,5-DiCB	9L	0.718	0.687-0.749
13C12-4-MoCB	3L			13C12-2,5-DiCB	9L	0.857	0.826-0.889
13C12-2,2'-DiCB	4L			13C12-2,5-DiCB	9L	0.873	0.842-0.904
13C12-4,4'-DiCB	15L			13C12-2,5-DiCB	9L	1.253	1.222-1.284
13C12-2,2',6-TriCB	19L			13C12-2,5-DiCB	9L	1.072	1.041-1.103
13C12-3,4,4'-TriCB	37L			13C12-2,2',5,5'-TeCB	52L	1.090	1.070-1.110
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	1.395	1.381-1.408
13C12-3,4,4',5-TeCB	81L			13C12-2,2',5,5'-TeCB	52L	1.371	1.358-1.385
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	1.199	1.189-1.210
13C12-2,3,4,4',5-PeCB	114L			13C12-2,2',4,5,5'-PeCB	101L	1.178	1.168-1.189
13C12-2,3',4,4',5-PeCB	118L			13C12-2,2',4,5,5'-PeCB	101L	1.161	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	1.300	1.290-1.310
13C12-2,2',4,4',6,6'-HxCB	155L			13C12-2,2',3,4,4',5'-HxCB	138L	0.786	0.778-0.795
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	13C12-2,2',3,4,4',5'-HxCB	138L	1.107	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	1.077	1.069-1.086
13C12-3,3',4,4',5,5'-HxCB	169L			13C12-2,2',3,4,4',5'-HxCB	138L	1.191	1.183-1.199
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	0.952-0.965
13C12-2,2',3,3',5,5',6,6'-OcCB	202L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.818	0.811-0.824
13C12-2,3,3',4,4',5,5',6-OcCB	205L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.009	1.000-1.019
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.043	1.034-1.053
13C12-2,2',3,3',4,4',5,5',6,6'-NoCB	208L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	0.949	0.943-0.955
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			13C12-2,2',3,3',4,4',5,5'-OcCB	194L	1.075	1.065-1.084

CLEANUP STANDARD

13C12-2,4,4'-TriCB	28L			13C12-2,2',5,5'-TeCB	52L	0.924	0.911-0.938
13C12-2,3,3',5,5'-PeCB	111L			13C12-2,2',4,5,5'-PeCB	101L	1.087	1.077-1.098
13C12-2,2',3,3',5,5',6-HpCB	178L			13C12-2,2',3,4,4',5'-HxCB	138L	1.012	1.004-1.020

(1) Suffix "L" indicates labeled compound

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

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

Signed: _____ Brian Watson _____

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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: 27-Nov-2016

CAL Data Filename: PB7C_111 S: 1

Instrument ID: HR GC/MS

Analysis Date: 29-Mar-2017

GC Column ID: SPB OCTYL

Analysis Time: 09:10:25

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	3.10	2.66-3.60	0.988	0.984 - 0.992
2,3-DiCB	5			1.08	M/M+2	1.54	1.33-1.79	1.198	1.194 - 1.201
2,3'-DiCB	6			1.19	M/M+2	1.56	1.33-1.79	1.176	1.173 - 1.180
2,4-DiCB	7			1.17	M/M+2	1.54	1.33-1.79	1.159	1.155 - 1.162
2,4'-DiCB	8			1.32	M/M+2	1.56	1.33-1.79	1.206	1.203 - 1.210
2,5-DiCB	9			1.22	M/M+2	1.55	1.33-1.79	1.147	1.143 - 1.150
2,6-DiCB	10			1.17	M/M+2	1.54	1.33-1.79	1.013	1.010 - 1.017
3,3'-DiCB	11			1.20	M/M+2	1.55	1.33-1.79	0.968	0.966 - 0.971
3,4-DiCB	12	12 + 13	C	1.20	M/M+2	1.56	1.33-1.79	0.984	0.982 - 0.987
3,4'-DiCB	13	12 + 13	C12						
3,5-DiCB	14			1.21	M/M+2	1.56	1.33-1.79	0.925	0.923 - 0.928
2,2',3-TriCB	16			0.75	M/M+2	1.06	0.88-1.20	1.164	1.161 - 1.167
2,2',4-TriCB	17			0.91	M/M+2	1.05	0.88-1.20	1.137	1.134 - 1.140
2,2',5-TriCB	18	18 + 30	C	1.07	M/M+2	1.05	0.88-1.20	1.112	1.109 - 1.115
2,3,3'-TriCB	20	20 + 28	C	1.29	M/M+2	1.03	0.88-1.20	0.849	0.846 - 0.852
2,3,4-TriCB	21	21 + 33	C	1.31	M/M+2	1.03	0.88-1.20	0.856	0.853 - 0.859
2,3,4'-TriCB	22			1.19	M/M+2	1.04	0.88-1.20	0.872	0.870 - 0.874
2,3,5-TriCB	23			1.18	M/M+2	1.03	0.88-1.20	1.283	1.280 - 1.285
2,3,6-TriCB	24			1.18	M/M+2	1.05	0.88-1.20	1.158	1.155 - 1.161
2,3',4-TriCB	25			1.42	M/M+2	1.04	0.88-1.20	0.825	0.823 - 0.827
2,3',5-TriCB	26	26 + 29	C	1.26	M/M+2	1.04	0.88-1.20	1.302	1.297 - 1.307
2,3',6-TriCB	27			1.31	M/M+2	1.06	0.88-1.20	1.150	1.148 - 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			1.36	M/M+2	1.03	0.88-1.20	0.837	0.835 - 0.839
2,4',6-TriCB	32			1.29	M/M+2	1.02	0.88-1.20	1.197	1.194 - 1.200
2',3,4-TriCB	33	21 + 33	C21						
2',3,5-TriCB	34			1.22	M/M+2	1.04	0.88-1.20	1.273	1.270 - 1.276
3,3',4-TriCB	35			1.27	M/M+2	1.04	0.88-1.20	0.985	0.983 - 0.987
3,3',5-TriCB	36			1.32	M/M+2	1.04	0.88-1.20	0.932	0.930 - 0.934
3,4,5-TriCB	38			1.31	M/M+2	1.03	0.88-1.20	0.968	0.966 - 0.970
3,4',5-TriCB	39			1.33	M/M+2	1.03	0.88-1.20	0.946	0.944 - 0.948
2,2',3,3'-TeCB	40	40 + 41 + 71	C	0.80	M/M+2	0.78	0.65-0.89	1.334	1.330 - 1.339
2,2',3,4-TeCB	41	40 + 41 + 71	C40						
2,2',3,4'-TeCB	42			0.77	M/M+2	0.78	0.65-0.89	1.311	1.309 - 1.314
2,2',3,5-TeCB	43			0.65	M/M+2	0.79	0.65-0.89	1.247	1.244 - 1.249
2,2',3,5'-TeCB	44	44 + 47 + 65	C	0.88	M/M+2	0.78	0.65-0.89	1.286	1.282 - 1.290
2,2',3,6-TeCB	45	45 + 51	C	0.76	M/M+2	0.77	0.65-0.89	1.147	1.143 - 1.151
2,2',3,6'-TeCB	46			0.67	M/M+2	0.78	0.65-0.89	1.161	1.158 - 1.163
2,2',4,4'-TeCB	47	44 + 47 + 65	C44						
2,2',4,5-TeCB	48			0.79	M/M+2	0.78	0.65-0.89	1.273	1.270 - 1.275
2,2',4,5'-TeCB	49	49 + 69	C	0.92	M/M+2	0.78	0.65-0.89	1.257	1.253 - 1.261
2,2',4,6-TeCB	50	50 + 53	C	0.79	M/M+2	0.79	0.65-0.89	1.111	1.107 - 1.116
2,2',4,6'-TeCB	51	45 + 51	C45						
2,2',5,5'-TeCB	52			0.84	M/M+2	0.77	0.65-0.89	1.234	1.232 - 1.237
2,2',5,6'-TeCB	53	50 + 53	C50						
2,3,3',4-TeCB	55			1.01	M/M+2	0.77	0.65-0.89	0.889	0.888 - 0.891
2,3,3',4'-TeCB	56			1.01	M/M+2	0.78	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			1.06	M/M+2	0.77	0.65-0.89	0.844	0.843 - 0.846
2,3,3',5'-TeCB	58			1.02	M/M+2	0.79	0.65-0.89	0.851	0.850 - 0.853
2,3,3',6'-TeCB	59	59 + 62 + 75	C	1.06	M/M+2	0.79	0.65-0.89	1.302	1.298 - 1.307
2,3,4,4'-TeCB	60			1.02	M/M+2	0.79	0.65-0.89	0.911	0.910 - 0.913
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76		1.07	M/M+2	0.77	0.65-0.89	0.874	0.871 - 0.877
2,3,4,6'-TeCB	62	59 + 62 + 75	C59						
2,3,4',5'-TeCB	63			1.10	M/M+2	0.77	0.65-0.89	0.865	0.863 - 0.866
2,3,4',6'-TeCB	64			1.09	M/M+2	0.78	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			1.08	M/M+2	0.78	0.65-0.89	0.884	0.883 - 0.886
2,3',4,5'-TeCB	67			1.19	M/M+2	0.77	0.65-0.89	0.857	0.855 - 0.858
2,3',4,5'-TeCB	68			1.10	M/M+2	0.78	0.65-0.89	0.831	0.830 - 0.833
2,3',4,6'-TeCB	69	49 + 69	C49						
2,3',4',5'-TeCB	70	61 + 70 + 74 + 76	C61						
2,3',4',6'-TeCB	71	40 + 41 + 71	C40						
2,3',5,5'-TeCB	72			1.09	M/M+2	0.77	0.65-0.89	0.823	0.822 - 0.825
2,3',5,6'-TeCB	73			1.05	M/M+2	0.79	0.65-0.89	1.242	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			1.08	M/M+2	0.76	0.65-0.89	0.987	0.985 - 0.988
3,3',4,5'-TeCB	79			1.27	M/M+2	0.78	0.65-0.89	0.970	0.969 - 0.971
3,3',5,5'-TeCB	80			1.15	M/M+2	0.78	0.65-0.89	0.924	0.922 - 0.925
2,2',3,3',4'-PeCB	82			0.75	M+2/M+4	1.59	1.32-1.78	0.934	0.933 - 0.935
2,2',3,3',5'-PeCB	83	83 + 99	C	0.76	M+2/M+4	1.59	1.32-1.78	0.884	0.882 - 0.887
2,2',3,3',6'-PeCB	84			0.68	M+2/M+4	1.61	1.32-1.78	1.163	1.161 - 1.165
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	0.98	M+2/M+4	1.55	1.32-1.78	0.920	0.917 - 0.922
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 109 + 119 + 125	C	0.94	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 + 109 + 119 + 125	C86						
2,2',3,4,6'-PeCB	88	88 + 91	C	0.77	M+2/M+4	1.57	1.32-1.78	1.153	1.149 - 1.157
2,2',3,4,6'-PeCB	89			0.75	M+2/M+4	1.55	1.32-1.78	1.182	1.181 - 1.184
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	0.91	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			0.78	M+2/M+4	1.54	1.32-1.78	0.853	0.852 - 0.854
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	0.79	M+2/M+4	1.59	1.32-1.78	1.130	1.119 - 1.141
2,2',3,5,6'-PeCB	94			0.70	M+2/M+4	1.62	1.32-1.78	1.102	1.101 - 1.104
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93						
2,2',3,6,6'-PeCB	96			1.11	M+2/M+4	1.56	1.32-1.78	1.015	1.012 - 1.019
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 109 + 119 + 125	C86						
2,2',3',4,6'-PeCB	98	93 + 95 + 98 + 100 + 102	C93						
2,2',4,4',5'-PeCB	99	83 + 99	C83						
2,2',4,4',6'-PeCB	100	93 + 95 + 98 + 100 + 102	C93						
2,2',4,5,5'-PeCB	101	90 + 101 + 113	C90						
2,2',4,5,6'-PeCB	102	93 + 95 + 98 + 100 + 102	C93						
2,2',4,5',6'-PeCB	103			0.86	M+2/M+4	1.60	1.32-1.78	1.094	1.092 - 1.096
2,3,3',4,5'-PeCB	106			1.02	M+2/M+4	1.56	1.32-1.78	1.004	1.003 - 1.005
2,3,3',4',5'-PeCB	107 ⁴			1.11	M+2/M+4	1.54	1.32-1.78	0.997	0.996 - 0.999
2,3,3',4,5'-PeCB	108 ⁴	108 + 124	C	1.02	M+2/M+4	1.55	1.32-1.78	0.991	0.988 - 0.993
2,3,3',4,6'-PeCB	109 ⁴	86 + 87 + 97 + 109 + 119 + 125	C86						
2,3,3',4',6'-PeCB	110	110 + 115	C	1.11	M+2/M+4	1.59	1.32-1.78	0.926	0.924 - 0.929
2,3,3',5,5'-PeCB	111			1.13	M+2/M+4	1.58	1.32-1.78	0.946	0.944 - 0.947
2,3,3',5,6'-PeCB	112			1.15	M+2/M+4	1.58	1.32-1.78	0.889	0.888 - 0.891
2,3,3',5',6'-PeCB	113	90 + 101 + 113	C90						
2,3,4,4',6'-PeCB	115	110 + 115	C110						
2,3,4,5,6'-PeCB	116	85 + 116 + 117	C85						
2,3,4',5,6'-PeCB	117	85 + 116 + 117	C85						
2,3',4,4',6'-PeCB	119	86 + 87 + 97 + 109 + 119 + 125	C86						
2,3',4,5,5'-PeCB	120			1.20	M+2/M+4	1.57	1.32-1.78	0.959	0.957 - 0.960
2,3',4,5',6'-PeCB	121			1.02	M+2/M+4	1.60	1.32-1.78	1.200	1.198 - 1.202
2',3,3',4,5'-PeCB	122			0.94	M+2/M+4	1.57	1.32-1.78	1.010	1.008 - 1.011
2',3,4,5,5'-PeCB	124	108 + 124	C108						
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 109 + 119 + 125	C86						

COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	RRF	MZ's FORMING RATIO ²	ION ABUND. RATIO	RATIO QC LIMITS ³	RRT	RRT QC LIMITS
3,3',4,5,5'-PeCB	127			1.07	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	0.95	M+2/M+4	1.27	1.05-1.43	0.959	0.957 - 0.960
2,2',3,3',4,5'-HxCB	129	129 + 138 + 160 + 163	C	1.04	M+2/M+4	1.27	1.05-1.43	0.930	0.927 - 0.933
2,2',3,3',4,5'-HxCB	130			0.85	M+2/M+4	1.26	1.05-1.43	0.913	0.912 - 0.914
2,2',3,3',4,6'-HxCB	131			0.96	M+2/M+4	1.24	1.05-1.43	1.158	1.157 - 1.160
2,2',3,3',4,6'-HxCB	132			0.91	M+2/M+4	1.26	1.05-1.43	1.174	1.171 - 1.176
2,2',3,3',5,5'-HxCB	133			0.95	M+2/M+4	1.27	1.05-1.43	1.190	1.189 - 1.192
2,2',3,3',5,6'-HxCB	134	134 + 143	C	0.92	M+2/M+4	1.28	1.05-1.43	1.141	1.138 - 1.143
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	1.18	M+2/M+4	1.25	1.05-1.43	1.106	1.100 - 1.112
2,2',3,3',6,6'-HxCB	136			1.46	M+2/M+4	1.27	1.05-1.43	1.023	1.022 - 1.025
2,2',3,4,4',5'-HxCB	137			0.93	M+2/M+4	1.26	1.05-1.43	0.918	0.917 - 0.919
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129						
2,2',3,4,4',6'-HxCB	139	139 + 140	C	1.07	M+2/M+4	1.26	1.05-1.43	1.152	1.150 - 1.155
2,2',3,4,4',6'-HxCB	140	139 + 140	C139						
2,2',3,4,5,5'-HxCB	141			1.02	M+2/M+4	1.28	1.05-1.43	0.904	0.903 - 0.905
2,2',3,4,5,6'-HxCB	142			0.92	M+2/M+4	1.26	1.05-1.43	1.164	1.162 - 1.165
2,2',3,4,5,6'-HxCB	143	134 + 143	C134						
2,2',3,4,5,6'-HxCB	144			1.16	M+2/M+4	1.26	1.05-1.43	1.121	1.119 - 1.122
2,2',3,4,6,6'-HxCB	145			1.42	M+2/M+4	1.26	1.05-1.43	1.033	1.032 - 1.035
2,2',3,4',5,5'-HxCB	146			1.14	M+2/M+4	1.27	1.05-1.43	0.884	0.883 - 0.886
2,2',3,4',5,6'-HxCB	147	147 + 149	C	1.04	M+2/M+4	1.23	1.05-1.43	1.132	1.130 - 1.135
2,2',3,4',5,6'-HxCB	148			1.15	M+2/M+4	1.25	1.05-1.43	1.083	1.081 - 1.084
2,2',3,4',5,6'-HxCB	149	147 + 149	C147						
2,2',3,4',6,6'-HxCB	150			1.45	M+2/M+4	1.24	1.05-1.43	1.012	1.010 - 1.014
2,2',3,5,5',6'-HxCB	151	135 + 151 + 154	C135						
2,2',3,5,6,6'-HxCB	152			1.54	M+2/M+4	1.27	1.05-1.43	1.006	1.005 - 1.008
2,2',4,4',5,5'-HxCB	153	153 + 168	C	1.21	M+2/M+4	1.28	1.05-1.43	0.900	0.898 - 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	1.26	1.05-1.43	0.938	0.937 - 0.939
2,3,3',4,5,5'-HxCB	159			1.12	M+2/M+4	1.27	1.05-1.43	0.983	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			1.36	M+2/M+4	1.28	1.05-1.43	0.888	0.887 - 0.889
2,3,3',4',5,5'-HxCB	162			1.13	M+2/M+4	1.28	1.05-1.43	0.989	0.988 - 0.990
2,3,3',4',5,6'-HxCB	163	129 + 138 + 160 + 163	C129						
2,3,3',4',5,6'-HxCB	164			1.22	M+2/M+4	1.28	1.05-1.43	0.921	0.920 - 0.922
2,3,3',5,5',6'-HxCB	165			1.17	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			1.09	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	0.63	M+2/M+4	1.05	0.89-1.21	1.162	1.159 - 1.164
2,2',3,3',4,5,5'-HpCB	172			0.59	M+2/M+4	1.04	0.89-1.21	0.897	0.896 - 0.898
2,2',3,3',4,5,6'-HpCB	173	171 + 173	C171						
2,2',3,3',4,5,6'-HpCB	174			0.69	M+2/M+4	1.03	0.89-1.21	1.133	1.132 - 1.134
2,2',3,3',4,5',6'-HpCB	175			0.75	M+2/M+4	1.04	0.89-1.21	1.102	1.101 - 1.103
2,2',3,3',4,6,6'-HpCB	176			1.09	M+2/M+4	1.05	0.89-1.21	1.034	1.032 - 1.035
2,2',3,3',4',5,6'-HpCB	177			0.95	M+2/M+4	1.04	0.89-1.21	1.145	1.144 - 1.147
2,2',3,3',5,5',6'-HpCB	178			0.73	M+2/M+4	1.03	0.89-1.21	1.085	1.083 - 1.086
2,2',3,3',5,6,6'-HpCB	179			1.18	M+2/M+4	1.05	0.89-1.21	1.010	1.008 - 1.011
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	0.98	M+2/M+4	1.05	0.89-1.21	1.000	0.999 - 1.001
2,2',3,4,4',5,6'-HpCB	181			0.69	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			0.75	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	0.73	M+2/M+4	1.05	0.89-1.21	1.128	1.126 - 1.129
2,2',3,4,4',6,6'-HpCB	184			1.17	M+2/M+4	1.04	0.89-1.21	1.025	1.023 - 1.026
2,2',3,4,5,5',6'-HpCB	185	183 + 185	C183						
2,2',3,4,5,6,6'-HpCB	186			1.02	M+2/M+4	1.03	0.89-1.21	1.047	1.045 - 1.048
2,2',3,4',5,5',6'-HpCB	187			0.75	M+2/M+4	1.05	0.89-1.21	1.109	1.108 - 1.111
2,3,3',4,4',5,6'-HpCB	190			0.77	M+2/M+4	1.02	0.89-1.21	0.947	0.946 - 0.948
2,3,3',4,4',5',6'-HpCB	191			0.80	M+2/M+4	1.05	0.89-1.21	0.918	0.917 - 0.919
2,3,3',4,5,5',6'-HpCB	192			0.73	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			0.65	M+2/M+4	0.91	0.76-1.02	0.991	0.990 - 0.992
2,2',3,3',4,4',5,6'-OcCB	195			0.60	M+2/M+4	0.90	0.76-1.02	0.945	0.945 - 0.946
2,2',3,3',4,4',5,6'-OcCB	196			0.69	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'-O ₂ CB	197	197 + 200	C	1.03	M+2/M+4	0.91	0.76-1.02	1.046	1.043 - 1.048
2,2',3,3',4,5,5',6-O ₂ CB	198	198 + 199	C	0.69	M+2/M+4	0.87	0.76-1.02	1.114	1.112 - 1.116
2,2',3,3',4,5,5',6'-O ₂ CB	199	198 + 199	C198						
2,2',3,3',4,5,6,6'-O ₂ CB	200	197 + 200	C197						
2,2',3,3',4,5',6,6'-O ₂ CB	201			1.06	M+2/M+4	0.89	0.76-1.02	1.023	1.021 - 1.024
2,2',3,4,4',5,5',6-O ₂ CB	203			0.72	M+2/M+4	0.91	0.76-1.02	0.919	0.918 - 0.920
2,2',3,4,4',5,6,6'-O ₂ CB	204			1.00	M+2/M+4	0.88	0.76-1.02	1.039	1.037 - 1.040
2,2',3,3',4,4',5,6,6'-NoCB	207			1.26	M+2/M+4	0.78	0.65-0.89	1.019	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.

(4) PCB Congener numbers 107, 108, and 109 defined as per EPA1668C specifications.

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

Signed: _____ Brian Watson _____

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AXYS METHOD MLA-010 Rev 11

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: 27-Nov-2016

CAL Data Filename: PB7C_111 S: 1

Instrument ID: HR GC/MS

Analysis Date: 29-Mar-2017

GC Column ID: SPB OCTYL

Analysis Time: 09:10:25

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			0.99	M/M+2	3.15	2.66-3.60	0.718	0.702 - 0.734
13C12-4-MoCB	3L			0.97	M/M+2	3.14	2.66-3.60	0.857	0.842 - 0.873
13C12-2,2'-DiCB	4L			0.62	M/M+2	1.60	1.33-1.79	0.873	0.857 - 0.889
13C12-4,4'-DiCB	15L			1.04	M/M+2	1.59	1.33-1.79	1.253	1.237 - 1.268
13C12-2,2',6-TriCB	19L			0.54	M/M+2	1.05	0.88-1.20	1.072	1.056 - 1.087
13C12-3,4,4'-TriCB	37L			1.58	M/M+2	1.05	0.88-1.20	1.090	1.080 - 1.100
13C12-2,2',6,6'-TeCB	54L			1.25	M/M+2	0.79	0.65-0.89	0.811	0.804 - 0.817
13C12-3,3',4,4'-TeCB	77L			1.43	M/M+2	0.78	0.65-0.89	1.395	1.388 - 1.401
13C12-3,4,4',5-TeCB	81L			1.42	M/M+2	0.78	0.65-0.89	1.371	1.365 - 1.378
13C12-2,2',4,6,6'-PeCB	104L			1.27	M+2/M+4	1.55	1.32-1.78	0.808	0.803 - 0.813
13C12-2,3,3',4,4'-PeCB	105L			1.22	M+2/M+4	1.59	1.32-1.78	1.199	1.194 - 1.204
13C12-2,3,4,4',5-PeCB	114L			1.22	M+2/M+4	1.59	1.32-1.78	1.178	1.173 - 1.184
13C12-2,3',4,4',5-PeCB	118L			1.25	M+2/M+4	1.56	1.32-1.78	1.161	1.156 - 1.167
13C12-2',3,4,4',5-PeCB	123L			1.26	M+2/M+4	1.56	1.32-1.78	1.151	1.145 - 1.156
13C12-3,3',4,4',5-PeCB	126L			1.08	M+2/M+4	1.58	1.32-1.78	1.300	1.295 - 1.305
13C12-2,2',4,4',6,6'-HxCB	155L			1.72	M+2/M+4	1.25	1.05-1.43	0.786	0.782 - 0.791
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	1.05	M+2/M+4	1.26	1.05-1.43	1.107	1.103 - 1.111
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L						
13C12-2,3',4,4',5,5'-HxCB	167L			1.05	M+2/M+4	1.25	1.05-1.43	1.077	1.073 - 1.082
13C12-3,3',4,4',5,5'-HxCB	169L			0.95	M+2/M+4	1.27	1.05-1.43	1.191	1.187 - 1.195
13C12-2,2',3,3',4,4',5-HpCB	170L			1.16	M+2/M+4	1.05	0.89-1.21	0.897	0.894 - 0.900
13C12-2,2',3,4,4',5,5'-HpCB	180L			1.44	M+2/M+4	1.05	0.89-1.21	0.872	0.869 - 0.876
13C12-2,2',3,4',5,6,6'-HpCB	188L			2.67	M+2/M+4	1.06	0.89-1.21	0.712	0.709 - 0.715
13C12-2,3,3',4,4',5,5'-HpCB	189L			1.74	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			2.25	M+2/M+4	0.90	0.76-1.02	0.818	0.815 - 0.821
13C12-2,3,3',4,4',5,5',6-OxCB	205L			1.37	M+2/M+4	0.90	0.76-1.02	1.009	1.005 - 1.014
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			0.91	M+2/M+4	0.80	0.65-0.89	1.043	1.039 - 1.048
13C12-2,2',3,3',4,4',5,5',6,6'-NoCB	208L			1.17	M+2/M+4	0.76	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: _____ Brian Watson _____

For Axy Internal Use Only [XSL Template: Form1668346B.xsl; Created: 03-Apr-2017 12:48:43; Application: XMLTransformer-1.16.2; Report Filename: 1668_PCB1668_PB7C_111S1_Form346B_SJ2191380_GS69506.html; Workgroup: WG58704; Design ID: 2500]

AXYS METHOD MLA-010 Rev 11

Form 1A
PCB CONGENER ANALYSIS REPORT

CLIENT SAMPLE NO.
CDA INFLUENT
Sample Collection:
07-Mar-2017 06:30

SGS AXYS ANALYTICAL SERVICES

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

Contract No.: 4826

Matrix: INFLUENT

Sample Receipt Date: 14-Mar-2017

Extraction Date: 23-Mar-2017

Analysis Date: 29-Mar-2017 Time: 17:44:24

Extract Volume (uL): 20

Injection Volume (uL): 1.0

Dilution Factor: N/A

Concentration Units: pg/L

Project No.

CDA PCB - INFLUENT BI-MONTHLY 2

Lab Sample I.D.:

L26951-1

Sample Size:

0.985 L

Initial Calibration Date:

27-Nov-2016

Instrument ID:

HR GC/MS

GC Column ID:

SPB OCTYL

Sample Data Filename:

PB7C_111 S: 9

Blank Data Filename:

PB7C_110 S: 4

Cal. Ver. Data Filename:

PB7C_111 S: 1

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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		B	18.3	0.508 (Q)	3.05	1.001
3-MoCB	2		B	5.18	0.508 (Q)	3.03	0.988
4-MoCB	3		B	18.3	0.508 (Q)	3.11	1.001
2,2'-DiCB	4			26.0	0.508 (Q)	1.55	1.001
2,3-DiCB	5		J	2.09	0.508 (Q)	1.59	1.198
2,3'-DiCB	6			25.7	0.508 (Q)	1.55	1.175
2,4-DiCB	7		B	4.48	0.508 (Q)	1.50	1.159
2,4'-DiCB	8			74.9	0.508 (Q)	1.53	1.208
2,5-DiCB	9			4.67	0.508 (Q)	1.54	1.146
2,6-DiCB	10		K J	0.890	0.508 (Q)	2.38	1.013
3,3'-DiCB	11		B	388	0.508 (Q)	1.54	0.969
3,4-DiCB	12	12 + 13	C	17.0	0.508 (Q)	1.58	0.985
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.508 (Q)		
4,4'-DiCB	15			42.1	0.508 (Q)	1.70	1.000
2,2',3-TriCB	16			52.9	0.508 (Q)	1.04	1.165
2,2',4-TriCB	17			47.5	0.508 (Q)	1.06	1.138
2,2',5-TriCB	18	18 + 30	C	98.1	0.508 (Q)	1.03	1.114
2,2',6-TriCB	19			10.4	0.508 (Q)	0.98	1.001
2,3,3'-TriCB	20	20 + 28	C	166	0.508 (Q)	1.05	0.848
2,3,4-TriCB	21	21 + 33	C	101	0.508 (Q)	1.10	0.857
2,3,4'-TriCB	22			66.6	0.508 (Q)	1.05	0.872
2,3,5-TriCB	23		U		0.508 (Q)		
2,3,6-TriCB	24		J	1.74	0.508 (Q)	1.08	1.159
2,3',4-TriCB	25			10.6	0.508 (Q)	1.05	0.825
2,3',5-TriCB	26	26 + 29	C	24.7	0.508 (Q)	1.02	1.303
2,3',6-TriCB	27			6.45	0.508 (Q)	1.10	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			142	0.508 (Q)	1.05	0.837
2,4',6-TriCB	32			33.0	0.508 (Q)	1.01	1.197
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34		U		0.508 (Q)		
3,3',4-TriCB	35			16.0	0.508 (Q)	1.01	0.985
3,3',5-TriCB	36			4.92	0.508 (Q)	0.90	0.932
3,4,4'-TriCB	37			39.9	0.508 (Q)	1.00	1.000
3,4,5-TriCB	38		U		0.508 (Q)		
3,4',5-TriCB	39		K J	1.39	0.508 (Q)	1.35	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	79.7	0.508 (Q)	0.76	1.336
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42			34.8	0.508 (Q)	0.76	1.312
2,2',3,5'-TeCB	43			6.59	0.508 (Q)	0.86	1.246
2,2',3,5'-TeCB	44	44 + 47 + 65	C	218	0.508 (Q)	0.78	1.285
2,2',3,6'-TeCB	45	45 + 51	C	37.8	0.508 (Q)	0.83	1.147
2,2',3,6'-TeCB	46			8.42	0.508 (Q)	0.87	1.160
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48			33.3	0.508 (Q)	0.81	1.273
2,2',4,5'-TeCB	49	49 + 69	C	91.0	0.508 (Q)	0.80	1.258
2,2',4,6'-TeCB	50	50 + 53	C	18.4	0.508 (Q)	0.80	1.111
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			261	0.508 (Q)	0.79	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		U		0.508 (Q)		
2,3,3',4'-TeCB	55		J	2.79	0.779 (S)	0.74	0.889
2,3,3',4'-TeCB	56			61.5	0.779 (S)	0.76	0.905
2,3,3',5'-TeCB	57		U		0.737 (S)		
2,3,3',5'-TeCB	58		U		0.769 (S)		
2,3,3',6'-TeCB	59	59 + 62 + 75	C	12.2	0.508 (Q)	0.71	1.301
2,3,4,4'-TeCB	60			36.1	0.771 (S)	0.75	0.911
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C	298	0.736 (S)	0.76	0.874
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63			4.84	0.712 (S)	0.76	0.864
2,3,4',6'-TeCB	64			65.3	0.508 (Q)	0.80	1.348
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66			114	0.724 (S)	0.79	0.884
2,3',4,5'-TeCB	67		J	3.48	0.660 (S)	0.84	0.857
2,3',4,5'-TeCB	68		B	10.8	0.713 (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		U		0.720 (S)		
2,3',5',6'-TeCB	73		U		0.508 (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			10.6	0.804 (S)	0.71	1.000
3,3',4,5'-TeCB	78		U		0.723 (S)		
3,3',4,5'-TeCB	79		J	3.22	0.619 (S)	0.66	0.970
3,3',5,5'-TeCB	80		U		0.681 (S)		
3,4,4',5'-TeCB	81		K J	2.31	0.797 (S)	0.92	0.997
2,2',3,3',4'-PeCB	82			25.8	1.74 (S)	1.46	0.934
2,2',3,3',5'-PeCB	83	83 + 99	C	154	1.71 (S)	1.62	0.885
2,2',3,3',6'-PeCB	84			74.6	1.90 (S)	1.59	1.163
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C	42.7	1.33 (S)	1.57	0.920
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 109 + 119 + 125	C	192	1.38 (S)	1.63	0.901
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 109 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C	35.4	1.70 (S)	1.55	1.154
2,2',3,4,6'-PeCB	89		J	2.28	1.75 (S)	1.62	1.183
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C	290	1.43 (S)	1.55	0.870
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92			48.6	1.67 (S)	1.67	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C	262	1.65 (S)	1.61	1.121
2,2',3,5,6'-PeCB	94		U		1.86 (S)		
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		K J	1.72	0.508 (Q)	1.23	1.015
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 109 + 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			4.73	1.51 (S)	1.40	1.094
2,2',4,6,6'-PeCB	104		J	1.81	0.508 (Q)	1.45	1.001
2,3,3',4,4'-PeCB	105			85.9	1.50 (S)	1.46	1.000
2,3,3',4,5-PeCB	106		U		1.44 (S)		
2,3,3',4',5-PeCB	107			11.9	1.32 (S)	1.71	0.997
2,3,3',4,5'-PeCB	108	108 + 124	C	7.92	1.43 (S)	1.60	0.991
2,3,3',4,6-PeCB	109	86 + 87 + 97 + 109 + 119 + 125	C86				
2,3,3',4',6-PeCB	110	110 + 115	C	269	1.17 (S)	1.66	0.925
2,3,3',5,5'-PeCB	111		U		1.16 (S)		
2,3,3',5,6-PeCB	112		U		1.13 (S)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		K	6.80	1.42 (S)	1.28	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			222	1.44 (S)	1.57	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 109 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		U		1.08 (S)		
2,3',4,5',6-PeCB	121		J	3.10	1.28 (S)	1.44	1.201
2',3,3',4,5-PeCB	122		J	2.03	1.55 (S)	1.73	1.010
2',3,4,4',5-PeCB	123		K	11.1	1.51 (S)	1.78	1.001
2',3,4,5,5'-PeCB	124	108 + 124	C108				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 109 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		U		1.53 (S)		
3,3',4,5,5'-PeCB	127		U		1.37 (S)		
2,2',3,3',4,4'-HxCB	128	128 + 166	C	33.1	0.946 (S)	1.25	0.958
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C	258	0.866 (S)	1.27	0.928
2,2',3,3',4,5'-HxCB	130			14.4	1.06 (S)	1.36	0.913
2,2',3,3',4,6-HxCB	131		J	3.29	0.931 (S)	1.40	1.159
2,2',3,3',4,6'-HxCB	132			69.6	0.989 (S)	1.23	1.174
2,2',3,3',5,5'-HxCB	133		J	3.91	0.942 (S)	1.42	1.191
2,2',3,3',5,6-HxCB	134	134 + 143	C	11.5	0.976 (S)	1.41	1.139
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C	80.5	0.508 (Q)	1.19	1.104
2,2',3,3',6,6'-HxCB	136			32.7	0.508 (Q)	1.23	1.023
2,2',3,4,4',5-HxCB	137			14.4	0.966 (S)	1.09	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	7.70	0.840 (S)	1.35	1.152
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141			41.7	0.883 (S)	1.29	0.903
2,2',3,4,5,6-HxCB	142		U		0.972 (S)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		K	12.1	0.508 (Q)	1.50	1.121
2,2',3,4,6,6'-HxCB	145		U		0.508 (Q)		
2,2',3,4',5,5'-HxCB	146			45.4	0.787 (S)	1.19	0.884
2,2',3,4',5,6-HxCB	147	147 + 149	C	183	0.862 (S)	1.25	1.133
2,2',3,4',5,6'-HxCB	148		J	2.48	0.508 (Q)	1.29	1.083
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		J	2.28	0.508 (Q)	1.30	1.013
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		U		0.508 (Q)		
2,2',4,4',5,5'-HxCB	153	153 + 168	C	230	0.738 (S)	1.28	0.899
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155			27.9	0.508 (Q)	1.27	1.001
2,3,3',4,4',5-HxCB	156	156 + 157	C	34.9	1.08 (S)	1.42	1.000
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158			24.2	0.694 (S)	1.29	0.938
2,3,3',4,5,5'-HxCB	159		U		0.798 (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		J	0.985	0.658 (S)	1.31	0.887
2,3,3',4',5,5'-HxCB	162		U		0.794 (S)		
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164			14.5	0.737 (S)	1.18	0.921
2,3,3',5,5',6-HxCB	165		U		0.766 (S)		
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167			9.71	0.809 (S)	1.38	1.000
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U		1.03 (S)		
2,2',3,3',4,4',5-HpCB	170			49.0	0.508 (Q)	0.96	1.001
2,2',3,3',4,4',6-HpCB	171	171 + 173	C	15.2	0.508 (Q)	1.10	1.163
2,2',3,3',4,5,5'-HpCB	172			10.3	0.508 (Q)	1.20	0.897
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174			55.5	0.508 (Q)	1.03	1.133
2,2',3,3',4,5',6-HpCB	175		K J	2.96	0.508 (Q)	1.41	1.102
2,2',3,3',4,6,6'-HpCB	176			9.51	0.508 (Q)	1.21	1.034
2,2',3,3',4',5,6-HpCB	177			20.7	0.508 (Q)	1.07	1.145
2,2',3,3',5,5',6-HpCB	178			16.7	0.508 (Q)	1.13	1.085
2,2',3,3',5,6,6'-HpCB	179			30.5	0.508 (Q)	1.17	1.009
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C	151	0.508 (Q)	1.05	1.000
2,2',3,4,4',5,6-HpCB	181		J	0.654	0.508 (Q)	0.99	1.156
2,2',3,4,4',5,6'-HpCB	182		U		0.508 (Q)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C	50.9	0.508 (Q)	1.12	1.127
2,2',3,4,4',6,6'-HpCB	184			73.6	0.508 (Q)	1.02	1.024
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.508 (Q)		
2,2',3,4',5,5',6-HpCB	187			97.8	0.508 (Q)	1.00	1.110
2,2',3,4',5,6,6'-HpCB	188		U		0.508 (Q)		
2,3,3',4,4',5,5'-HpCB	189		K J	2.28	0.508 (Q)	0.77	1.000
2,3,3',4,4',5,6-HpCB	190		K	10.1	0.508 (Q)	1.63	0.947
2,3,3',4,4',5',6-HpCB	191		J	2.35	0.508 (Q)	1.17	0.918
2,3,3',4,5,5',6-HpCB	192		U		0.508 (Q)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194			36.2	0.508 (Q)	0.77	0.991
2,2',3,3',4,4',5,6-OxCB	195			12.3	0.508 (Q)	0.93	0.945
2,2',3,3',4,4',5,6'-OxCB	196			20.6	0.508 (Q)	0.85	0.915
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C	13.1	0.508 (Q)	0.98	1.046
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C	52.6	0.508 (Q)	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		K	7.29	0.508 (Q)	1.09	1.023
2,2',3,3',5,5',6,6'-OxCB	202			15.8	0.508 (Q)	0.83	1.000
2,2',3,4,4',5,5',6-OxCB	203			39.2	0.508 (Q)	0.90	0.919
2,2',3,4,4',5,6,6'-OxCB	204		J	3.14	0.508 (Q)	1.02	1.039
2,3,3',4,4',5,5',6-OxCB	205		J	1.88	0.508 (Q)	0.87	1.000
2,2',3,3',4,4',5,5',6-NoCB	206			30.7	1.79 (S)	0.68	1.000
2,2',3,3',4,4',5,6,6'-NoCB	207			4.61	1.23 (S)	0.88	1.020
2,2',3,3',4,5,5',6,6'-NoCB	208		K	9.59	1.56 (S)	0.91	1.000
2,2',3,3',4,4',5,5',6,6'-DeCB	209		B	11.0	0.508 (Q)	1.01	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; B = analyte found in the associated blank and concentration in sample is less than 10X the concentration in the associated blank; J = concentration less than lowest calibration equivalent; C = co-eluting congener.

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

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

Signed: _____ Brian Watson _____

AXYS METHOD MLA-010 Rev 11

Form 2
PCB CONGENER ANALYSIS REPORT

CLIENT SAMPLE NO.
CDA INFLUENT
Sample Collection:
07-Mar-2017 06:30

SGS AXYS ANALYTICAL SERVICES

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

Contract No.: 4826
Matrix: INFLUENT
Sample Receipt Date: 14-Mar-2017
Extraction Date: 23-Mar-2017
Analysis Date: 29-Mar-2017 Time: 17:44:24
Extract Volume (uL): 20
Injection Volume (uL): 1.0
Dilution Factor: N/A
Concentration Units: pg absolute

Project No. CDA PCB - INFLUENT BI-MONTHLY 2
Lab Sample I.D.: L26951-1
Sample Size: 0.985 L
Initial Calibration Date: 27-Nov-2016
Instrument ID: HR GC/MS
GC Column ID: SPB OCTYL
Sample Data Filename: PB7C_111 S: 9
Blank Data Filename: PB7C_110 S: 4
Cal. Ver. Data Filename: PB7C_111 S: 1

This page is part of a total report that contains information necessary for accreditation compliance.
Results are compliant with NELAP accreditation described in the total report. 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	1150	57.3	3.17	0.718
13C12-4-MoCB	3L			2000	1190	59.7	3.12	0.858
13C12-2,2'-DiCB	4L			2000	1240	62.2	1.60	0.874
13C12-4,4'-DiCB	15L			2000	1400	70.2	1.58	1.253
13C12-2,2',6-TriCB	19L			2000	1280	64.1	1.05	1.072
13C12-3,4,4'-TriCB	37L			2000	1560	77.9	1.04	1.091
13C12-2,2',6,6'-TeCB	54L			2000	1410	70.5	0.77	0.811
13C12-3,3',4,4'-TeCB	77L			2000	1680	83.9	0.76	1.396
13C12-3,4,4',5-TeCB	81L			2000	1700	84.9	0.77	1.373
13C12-2,2',4,6,6'-PeCB	104L			2000	1320	65.8	1.56	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1510	75.6	1.59	1.200
13C12-2,3,4,4',5-PeCB	114L			2000	1580	79.0	1.61	1.179
13C12-2,3',4,4',5-PeCB	118L			2000	1550	77.6	1.59	1.162
13C12-2',3,4,4',5-PeCB	123L			2000	1550	77.7	1.59	1.151
13C12-3,3',4,4',5-PeCB	126L			2000	1670	83.7	1.57	1.301
13C12-2,2',4,4',6,6'-HxCB	155L			2000	1390	69.7	1.24	0.786
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	2580	64.5	1.26	1.107
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	1.24	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1260	63.0	1.25	1.191
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1750	87.6	1.02	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1920	95.9	1.06	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1730	86.4	1.06	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1740	87.1	1.06	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	1410	70.7	0.88	0.818
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1500	75.2	0.93	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1510	75.3	0.79	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1350	67.3	0.79	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	1270	63.4	1.22	1.075
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1600	80.0	1.06	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1580	79.0	1.59	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1510	75.3	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: _____ Brian Watson _____

AXYS METHOD MLA-010 Rev 11

Form 1A
PCB CONGENER ANALYSIS REPORT

CLIENT 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.: 4826

Matrix: AQUEOUS

Sample Receipt Date: N/A

Extraction Date: 23-Mar-2017

Analysis Date: 29-Mar-2017 Time: 02:16:31

Extract Volume (uL): 20

Injection Volume (uL): 1.0

Dilution Factor: N/A

Concentration Units: pg/L

Project No. N/A

Lab Sample I.D.: WG58704-101

Sample Size: 1.00 L

Initial Calibration Date: 27-Nov-2016

Instrument ID: HR GC/MS

GC Column ID: SPB OCTYL

Sample Data Filename: PB7C_110 S: 4

Blank Data Filename: PB7C_110 S: 4

Cal. Ver. Data Filename: PB7C_110 S: 1

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Results are compliant with NELAP accreditation described in the total report. 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		J	3.87	0.500 (Q)	3.17	1.000
3-MoCB	2		J	1.78	0.500 (Q)	3.11	0.988
4-MoCB	3		J	2.80	0.500 (Q)	3.22	1.001
2,2'-DiCB	4		J	2.08	0.646 (S)	1.54	1.001
2,3-DiCB	5		U		0.500 (Q)		
2,3'-DiCB	6		J	0.914	0.500 (Q)	1.56	1.175
2,4-DiCB	7		K J	0.901	0.500 (Q)	1.19	1.159
2,4'-DiCB	8			4.92	0.500 (Q)	1.74	1.208
2,5-DiCB	9		U		0.500 (Q)		
2,6-DiCB	10		U		0.500 (Q)		
3,3'-DiCB	11			85.3	0.500 (Q)	1.60	0.969
3,4-DiCB	12	12 + 13	C K J	1.67	0.500 (Q)	1.83	0.984
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.500 (Q)		
4,4'-DiCB	15			4.04	0.521 (S)	1.64	1.000
2,2',3-TriCB	16		K J	2.14	0.500 (Q)	1.38	1.165
2,2',4-TriCB	17		J	1.74	0.500 (Q)	1.00	1.138
2,2',5-TriCB	18	18 + 30	C	4.23	0.500 (Q)	1.14	1.113
2,2',6-TriCB	19		K J	0.713	0.500 (Q)	0.53	1.001
2,3,3'-TriCB	20	20 + 28	C	6.18	0.500 (Q)	1.12	0.848
2,3,4-TriCB	21	21 + 33	C J	3.69	0.500 (Q)	0.90	0.857
2,3,4'-TriCB	22		J	2.31	0.500 (Q)	0.89	0.872
2,3,5-TriCB	23		U		0.500 (Q)		
2,3,6-TriCB	24		U		0.500 (Q)		
2,3',4-TriCB	25		U		0.500 (Q)		
2,3',5-TriCB	26	26 + 29	C J	1.05	0.500 (Q)	0.94	1.303
2,3',6-TriCB	27		U		0.500 (Q)		
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			4.52	0.500 (Q)	0.92	0.837
2,4',6-TriCB	32		J	1.38	0.500 (Q)	1.05	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34		U		0.500 (Q)		
3,3',4-TriCB	35		J	0.756	0.500 (Q)	0.96	0.985
3,3',5-TriCB	36		U		0.500 (Q)		
3,4,4'-TriCB	37		J	1.33	0.500 (Q)	1.04	1.001
3,4,5-TriCB	38		U		0.500 (Q)		
3,4',5-TriCB	39		U		0.500 (Q)		

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C J	1.82	0.500 (Q)	0.85	1.336
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		J	0.736	0.500 (Q)	0.68	1.311
2,2',3,5'-TeCB	43		U		0.500 (Q)		
2,2',3,5'-TeCB	44	44 + 47 + 65	C	12.8	0.500 (Q)	0.72	1.287
2,2',3,6'-TeCB	45	45 + 51	C J	2.79	0.500 (Q)	0.78	1.148
2,2',3,6'-TeCB	46		U		0.500 (Q)		
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		K J	0.749	0.500 (Q)	1.04	1.272
2,2',4,5'-TeCB	49	49 + 69	C K J	1.99	0.500 (Q)	0.91	1.258
2,2',4,6'-TeCB	50	50 + 53	C U		0.500 (Q)		
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52			5.29	0.500 (Q)	0.88	1.234
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		U		0.500 (Q)		
2,3,3',4'-TeCB	55		U		0.500 (Q)		
2,3,3',4'-TeCB	56		J	0.901	0.500 (Q)	0.66	0.905
2,3,3',5'-TeCB	57		U		0.500 (Q)		
2,3,3',5'-TeCB	58		U		0.500 (Q)		
2,3,3',6'-TeCB	59	59 + 62 + 75	C U		0.500 (Q)		
2,3,4,4'-TeCB	60		J	0.501	0.500 (Q)	0.75	0.910
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C J	3.27	0.500 (Q)	0.81	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		U		0.500 (Q)		
2,3,4',6'-TeCB	64		J	1.16	0.500 (Q)	0.68	1.348
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		J	1.42	0.500 (Q)	0.70	0.884
2,3',4,5'-TeCB	67		U		0.500 (Q)		
2,3',4,5'-TeCB	68		J	2.04	0.500 (Q)	0.84	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		U		0.500 (Q)		
2,3',5',6'-TeCB	73		U		0.500 (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		0.500 (Q)		
3,3',4,5'-TeCB	78		U		0.500 (Q)		
3,3',4,5'-TeCB	79		U		0.500 (Q)		
3,3',5,5'-TeCB	80		U		0.500 (Q)		
3,4,4',5'-TeCB	81		U		0.500 (Q)		
2,2',3,3',4'-PeCB	82		U		0.500 (Q)		
2,2',3,3',5'-PeCB	83	83 + 99	C K J	1.86	0.500 (Q)	1.92	0.883
2,2',3,3',6'-PeCB	84		K J	0.594	0.500 (Q)	1.05	1.163
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C U		0.500 (Q)		
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 109 + 119 + 125	C J	3.11	0.500 (Q)	1.71	0.900
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 109 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C U		0.500 (Q)		
2,2',3,4,6'-PeCB	89		U		0.500 (Q)		
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C J	2.55	0.500 (Q)	1.76	0.870
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		U		0.500 (Q)		
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C J	2.62	0.500 (Q)	1.63	1.122
2,2',3,5,6'-PeCB	94		U		0.500 (Q)		
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		U		0.500 (Q)		
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 109 + 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		0.500 (Q)		
2,2',4,6,6'-PeCB	104		U		0.500 (Q)		
2,3,3',4,4'-PeCB	105		J	0.542	0.500 (Q)	1.64	1.000
2,3,3',4,5-PeCB	106		U		0.500 (Q)		
2,3,3',4',5-PeCB	107		U		0.500 (Q)		
2,3,3',4,5'-PeCB	108	108 + 124	C U		0.500 (Q)		
2,3,3',4,6-PeCB	109	86 + 87 + 97 + 109 + 119 + 125	C86				
2,3,3',4',6-PeCB	110	110 + 115	C J	2.36	0.500 (Q)	1.44	0.925
2,3,3',5,5'-PeCB	111		U		0.500 (Q)		
2,3,3',5,6-PeCB	112		U		0.500 (Q)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		U		0.500 (Q)		
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		K J	1.39	0.500 (Q)	1.15	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 109 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		U		0.500 (Q)		
2,3',4,5',6-PeCB	121		U		0.500 (Q)		
2',3,3',4,5-PeCB	122		U		0.500 (Q)		
2',3,4,4',5-PeCB	123		U		0.500 (Q)		
2',3,4,5,5'-PeCB	124	108 + 124	C108				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 109 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		U		0.500 (Q)		
3,3',4,5,5'-PeCB	127		U		0.500 (Q)		
2,2',3,3',4,4'-HxCB	128	128 + 166	C U		0.500 (Q)		
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C K J	1.19	0.500 (Q)	1.93	0.928
2,2',3,3',4,5'-HxCB	130		U		0.511 (S)		
2,2',3,3',4,6-HxCB	131		U		0.500 (Q)		
2,2',3,3',4,6'-HxCB	132		U		0.500 (Q)		
2,2',3,3',5,5'-HxCB	133		U		0.500 (Q)		
2,2',3,3',5,6-HxCB	134	134 + 143	C U		0.500 (Q)		
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C J	1.05	0.500 (Q)	1.13	1.105
2,2',3,3',6,6'-HxCB	136		U		0.500 (Q)		
2,2',3,4,4',5-HxCB	137		U		0.514 (S)		
2,2',3,4,4',5'-HxCB	138	129 + 138 + 160 + 163	C129				
2,2',3,4,4',6-HxCB	139	139 + 140	C U		0.500 (Q)		
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		U		0.500 (Q)		
2,2',3,4,5,6-HxCB	142		U		0.500 (Q)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		U		0.500 (Q)		
2,2',3,4,6,6'-HxCB	145		U		0.500 (Q)		
2,2',3,4',5,5'-HxCB	146		U		0.500 (Q)		
2,2',3,4',5,6-HxCB	147	147 + 149	C J	1.47	0.500 (Q)	1.31	1.133
2,2',3,4',5,6'-HxCB	148		U		0.500 (Q)		
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		U		0.500 (Q)		
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		U		0.500 (Q)		
2,2',4,4',5,5'-HxCB	153	153 + 168	C J	1.01	0.500 (Q)	1.33	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		U		0.500 (Q)		
2,3,3',4,4',5-HxCB	156	156 + 157	C U		0.531 (S)		
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		U		0.500 (Q)		
2,3,3',4,5,5'-HxCB	159		U		0.500 (Q)		
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		0.500 (Q)		
2,3,3',4',5,5'-HxCB	162		U		0.500 (Q)		
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		U		0.500 (Q)		
2,3,3',5,5',6-HxCB	165		U		0.500 (Q)		
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		U		0.500 (Q)		
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U		0.510 (S)		
2,2',3,3',4,4',5-HpCB	170		U		0.500 (Q)		
2,2',3,3',4,4',6-HpCB	171	171 + 173	C U		0.500 (Q)		
2,2',3,3',4,5,5'-HpCB	172		U		0.500 (Q)		
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		U		0.500 (Q)		
2,2',3,3',4,5',6-HpCB	175		U		0.500 (Q)		
2,2',3,3',4,6,6'-HpCB	176		U		0.500 (Q)		
2,2',3,3',4',5,6-HpCB	177		U		0.500 (Q)		
2,2',3,3',5,5',6-HpCB	178		U		0.500 (Q)		
2,2',3,3',5,6,6'-HpCB	179		U		0.500 (Q)		
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C U		0.500 (Q)		
2,2',3,4,4',5,6-HpCB	181		U		0.500 (Q)		
2,2',3,4,4',5,6'-HpCB	182		U		0.500 (Q)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C U		0.500 (Q)		
2,2',3,4,4',6,6'-HpCB	184		U		0.500 (Q)		
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.500 (Q)		
2,2',3,4',5,5',6-HpCB	187		U		0.500 (Q)		
2,2',3,4',5,6,6'-HpCB	188		U		0.500 (Q)		
2,3,3',4,4',5,5'-HpCB	189		U		0.500 (Q)		
2,3,3',4,4',5,6-HpCB	190		U		0.500 (Q)		
2,3,3',4,4',5',6-HpCB	191		U		0.500 (Q)		
2,3,3',4,5,5',6-HpCB	192		U		0.500 (Q)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		U		0.524 (S)		
2,2',3,3',4,4',5,6-OxCB	195		U		0.512 (S)		
2,2',3,3',4,4',5,6'-OxCB	196		U		0.500 (Q)		
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C U		0.500 (Q)		
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C U		0.500 (Q)		
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5',6,6'-OxCB	201		U		0.500 (Q)		
2,2',3,3',5,5',6,6'-OxCB	202		U		0.500 (Q)		
2,2',3,4,4',5,5',6-OxCB	203		U		0.500 (Q)		
2,2',3,4,4',5,6,6'-OxCB	204		U		0.500 (Q)		
2,3,3',4,4',5,5',6-OxCB	205		U		0.500 (Q)		
2,2',3,3',4,4',5,5',6-NoCB	206		U		1.60 (S)		
2,2',3,3',4,4',5,6,6'-NoCB	207		U		1.07 (S)		
2,2',3,3',4,5,5',6,6'-NoCB	208		U		1.22 (S)		
2,2',3,3',4,4',5,5',6,6'-DeCB	209		K J	1.11	0.500 (Q)	0.74	1.000

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

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

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

Signed: _____ Brian Watson _____

AXYS METHOD MLA-010 Rev 11

Form 2
PCB CONGENER ANALYSIS REPORT

CLIENT 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.: 4826
Matrix: AQUEOUS
Sample Receipt Date: N/A
Extraction Date: 23-Mar-2017
Analysis Date: 29-Mar-2017 Time: 02:16:31
Extract Volume (uL): 20
Injection Volume (uL): 1.0
Dilution Factor: N/A
Concentration Units: pg absolute

Project No. N/A
Lab Sample I.D.: WG58704-101
Sample Size: 1.00 L
Initial Calibration Date: 27-Nov-2016
Instrument ID: HR GC/MS
GC Column ID: SPB OCTYL
Sample Data Filename: PB7C_110 S: 4
Blank Data Filename: PB7C_110 S: 4
Cal. Ver. Data Filename: PB7C_110 S: 1

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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	1040	52.2	3.14	0.719
13C12-4-MoCB	3L			2000	1040	52.2	3.23	0.858
13C12-2,2'-DiCB	4L			2000	1110	55.6	1.58	0.874
13C12-4,4'-DiCB	15L			2000	1230	61.6	1.57	1.253
13C12-2,2',6-TriCB	19L			2000	1200	60.2	1.04	1.072
13C12-3,4,4'-TriCB	37L			2000	1440	71.8	1.06	1.091
13C12-2,2',6,6'-TeCB	54L			2000	1320	65.8	0.80	0.811
13C12-3,3',4,4'-TeCB	77L			2000	1620	81.2	0.76	1.396
13C12-3,4,4',5'-TeCB	81L			2000	1650	82.6	0.78	1.373
13C12-2,2',4,6,6'-PeCB	104L			2000	1340	67.1	1.56	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1660	83.0	1.58	1.199
13C12-2,3,4,4',5'-PeCB	114L			2000	1620	81.1	1.58	1.179
13C12-2,3',4,4',5'-PeCB	118L			2000	1650	82.4	1.55	1.161
13C12-2',3,4,4',5'-PeCB	123L			2000	1640	81.8	1.56	1.151
13C12-3,3',4,4',5'-PeCB	126L			2000	1420	70.9	1.59	1.300
13C12-2,2',4,4',6,6'-HxCB	155L			2000	1880	94.1	1.26	0.786
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C	4000	2830	70.7	1.28	1.107
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			2000	1490	74.4	1.28	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1330	66.5	1.27	1.191
13C12-2,2',3,3',4,4',5'-HpCB	170L			2000	1850	92.3	1.05	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1870	93.6	1.02	0.873
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	2010	100	1.04	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1790	89.3	1.05	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	1740	87.0	0.90	0.818
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1680	84.0	0.91	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1560	77.8	0.78	1.044
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1550	77.6	0.76	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	1460	72.9	1.15	1.075
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1470	73.7	1.07	0.924
13C12-2,3,3',5,5'-PeCB	111L			2000	1640	81.8	1.60	1.087
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1600	79.9	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: _____ Brian Watson _____

AXYS METHOD MLA-010 Rev 11

Form 1A
PCB CONGENER ANALYSIS REPORT

CLIENT 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.: 4826

Matrix: AQUEOUS

Sample Receipt Date: N/A

Extraction Date: 23-Mar-2017

Analysis Date: 29-Mar-2017 Time: 03:20:44

Extract Volume (uL): 20

Injection Volume (uL): 1.0

Dilution Factor: N/A

Concentration Units: pg/L

Project No. N/A

Lab Sample I.D.: WG58704-102

Sample Size: 1.00 L

Initial Calibration Date: 27-Nov-2016

Instrument ID: HR GC/MS

GC Column ID: SPB OCTYL

Sample Data Filename: PB7C_110 S: 5

Blank Data Filename: PB7C_110 S: 4

Cal. Ver. Data Filename: PB7C_110 S: 1

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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		B	4.31	0.500 (Q)	2.91	1.001
3-MoCB	2		B J	1.91	0.500 (Q)	3.24	0.987
4-MoCB	3		B J	2.64	0.500 (Q)	2.83	1.000
2,2'-DiCB	4		B J	2.39	0.620 (S)	1.55	1.000
2,3-DiCB	5		U		0.500 (Q)		
2,3'-DiCB	6		B J	0.968	0.500 (Q)	1.72	1.175
2,4-DiCB	7		B J	2.03	0.500 (Q)	1.40	1.158
2,4'-DiCB	8		B	5.43	0.500 (Q)	1.63	1.208
2,5-DiCB	9		U		0.500 (Q)		
2,6-DiCB	10		U		0.500 (Q)		
3,3'-DiCB	11		B	86.0	0.500 (Q)	1.51	0.968
3,4-DiCB	12	12 + 13	C K B J	1.82	0.500 (Q)	1.22	0.984
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.500 (Q)		
4,4'-DiCB	15		B J	3.89	0.500 (Q)	1.63	1.001
2,2',3-TriCB	16		B J	2.24	0.500 (Q)	0.91	1.166
2,2',4-TriCB	17		B J	1.94	0.500 (Q)	1.11	1.139
2,2',5-TriCB	18	18 + 30	C B	4.24	0.500 (Q)	1.19	1.114
2,2',6-TriCB	19		K B J	0.562	0.500 (Q)	1.25	1.001
2,3,3'-TriCB	20	20 + 28	C B	5.83	0.500 (Q)	0.99	0.848
2,3,4-TriCB	21	21 + 33	C B J	3.60	0.500 (Q)	1.12	0.857
2,3,4'-TriCB	22		B J	2.19	0.500 (Q)	1.18	0.871
2,3,5-TriCB	23		U		0.500 (Q)		
2,3,6-TriCB	24		U		0.500 (Q)		
2,3',4-TriCB	25		K J	0.531	0.500 (Q)	1.44	0.825
2,3',5-TriCB	26	26 + 29	C B J	0.849	0.500 (Q)	1.14	1.302
2,3',6-TriCB	27		U		0.500 (Q)		
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		B	4.74	0.500 (Q)	1.12	0.837
2,4',6-TriCB	32		B J	1.34	0.500 (Q)	1.16	1.197
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34		U		0.500 (Q)		
3,3',4-TriCB	35		B J	0.727	0.500 (Q)	0.98	0.985
3,3',5-TriCB	36		U		0.500 (Q)		
3,4,4'-TriCB	37		K B J	1.25	0.500 (Q)	0.76	1.001
3,4,5-TriCB	38		U		0.500 (Q)		
3,4',5-TriCB	39		U		0.500 (Q)		

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C K B J	2.01	0.500 (Q)	0.57	1.336
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		B J	0.916	0.500 (Q)	0.81	1.313
2,2',3,5'-TeCB	43		U		0.500 (Q)		
2,2',3,5'-TeCB	44	44 + 47 + 65	C B	12.7	0.500 (Q)	0.78	1.287
2,2',3,6'-TeCB	45	45 + 51	C B J	3.58	0.500 (Q)	0.88	1.149
2,2',3,6'-TeCB	46		U		0.500 (Q)		
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		B J	0.980	0.500 (Q)	0.67	1.274
2,2',4,5'-TeCB	49	49 + 69	C K B J	2.00	0.500 (Q)	1.01	1.260
2,2',4,6'-TeCB	50	50 + 53	C U		0.500 (Q)		
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52		B	4.33	0.500 (Q)	0.78	1.235
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		U		0.500 (Q)		
2,3,3',4'-TeCB	55		U		0.500 (Q)		
2,3,3',4'-TeCB	56		K B J	0.564	0.500 (Q)	1.00	0.904
2,3,3',5'-TeCB	57		U		0.500 (Q)		
2,3,3',5'-TeCB	58		U		0.500 (Q)		
2,3,3',6'-TeCB	59	59 + 62 + 75	C U		0.500 (Q)		
2,3,4,4'-TeCB	60		U		0.500 (Q)		
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C B J	3.43	0.500 (Q)	0.87	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		U		0.500 (Q)		
2,3,4',6'-TeCB	64		B J	1.51	0.500 (Q)	0.78	1.350
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		B J	1.33	0.500 (Q)	0.76	0.884
2,3',4,5'-TeCB	67		U		0.500 (Q)		
2,3',4,5'-TeCB	68		B J	1.61	0.500 (Q)	0.82	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		U		0.500 (Q)		
2,3',5',6'-TeCB	73		U		0.500 (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		0.500 (Q)		
3,3',4,5'-TeCB	78		U		0.500 (Q)		
3,3',4,5'-TeCB	79		U		0.500 (Q)		
3,3',5,5'-TeCB	80		U		0.500 (Q)		
3,4,4',5'-TeCB	81		U		0.500 (Q)		
2,2',3,3',4'-PeCB	82		U		0.500 (Q)		
2,2',3,3',5'-PeCB	83	83 + 99	C K B J	2.08	0.500 (Q)	2.00	0.883
2,2',3,3',6'-PeCB	84		K B J	0.691	0.500 (Q)	0.76	1.163
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C U		0.500 (Q)		
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 109 + 119 + 125	C B J	3.23	0.500 (Q)	1.53	0.900
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 109 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C U		0.500 (Q)		
2,2',3,4,6'-PeCB	89		U		0.500 (Q)		
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C B J	2.76	0.500 (Q)	1.71	0.870
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		K J	0.684	0.500 (Q)	1.05	0.853
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C B J	2.62	0.500 (Q)	1.47	1.121
2,2',3,5,6'-PeCB	94		U		0.500 (Q)		
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		U		0.500 (Q)		
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 109 + 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		0.500 (Q)		
2,2',4,6,6'-PeCB	104		U		0.500 (Q)		
2,3,3',4,4'-PeCB	105		B J	0.621	0.500 (Q)	1.66	1.000
2,3,3',4,5-PeCB	106		U		0.500 (Q)		
2,3,3',4',5-PeCB	107		U		0.500 (Q)		
2,3,3',4,5'-PeCB	108	108 + 124	C U		0.500 (Q)		
2,3,3',4,6-PeCB	109	86 + 87 + 97 + 109 + 119 + 125	C86				
2,3,3',4',6-PeCB	110	110 + 115	C B J	2.71	0.500 (Q)	1.47	0.925
2,3,3',5,5'-PeCB	111		U		0.500 (Q)		
2,3,3',5,6-PeCB	112		U		0.500 (Q)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		U		0.500 (Q)		
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		B J	1.51	0.500 (Q)	1.69	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 109 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		U		0.500 (Q)		
2,3',4,5',6-PeCB	121		U		0.500 (Q)		
2',3,3',4,5-PeCB	122		U		0.500 (Q)		
2',3,4,4',5-PeCB	123		U		0.500 (Q)		
2',3,4,5,5'-PeCB	124	108 + 124	C108				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 109 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		U		0.500 (Q)		
3,3',4,5,5'-PeCB	127		U		0.500 (Q)		
2,2',3,3',4,4'-HxCB	128	128 + 166	C U		0.500 (Q)		
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C B J	2.29	0.500 (Q)	1.10	0.929
2,2',3,3',4,5'-HxCB	130		U		0.500 (Q)		
2,2',3,3',4,6-HxCB	131		U		0.500 (Q)		
2,2',3,3',4,6'-HxCB	132		K J	0.526	0.500 (Q)	0.82	1.174
2,2',3,3',5,5'-HxCB	133		U		0.500 (Q)		
2,2',3,3',5,6-HxCB	134	134 + 143	C U		0.500 (Q)		
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C K B J	0.975	0.500 (Q)	3.37	1.104
2,2',3,3',6,6'-HxCB	136		U		0.500 (Q)		
2,2',3,4,4',5-HxCB	137		U		0.500 (Q)		
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		0.500 (Q)		
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		U		0.500 (Q)		
2,2',3,4,5,6-HxCB	142		U		0.500 (Q)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		U		0.500 (Q)		
2,2',3,4,6,6'-HxCB	145		U		0.500 (Q)		
2,2',3,4',5,5'-HxCB	146		K J	0.561	0.500 (Q)	1.60	0.884
2,2',3,4',5,6-HxCB	147	147 + 149	C B J	1.57	0.500 (Q)	1.20	1.132
2,2',3,4',5,6'-HxCB	148		U		0.500 (Q)		
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		U		0.500 (Q)		
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		U		0.500 (Q)		
2,2',4,4',5,5'-HxCB	153	153 + 168	C B J	2.15	0.500 (Q)	1.10	0.899
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		U		0.500 (Q)		
2,3,3',4,4',5-HxCB	156	156 + 157	C U		0.500 (Q)		
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		U		0.500 (Q)		
2,3,3',4,5,5'-HxCB	159		U		0.500 (Q)		
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		0.500 (Q)		
2,3,3',4',5,5'-HxCB	162		U		0.500 (Q)		
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		U		0.500 (Q)		
2,3,3',5,5',6-HxCB	165		U		0.500 (Q)		
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		U		0.500 (Q)		
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U		0.500 (Q)		
2,2',3,3',4,4',5-HpCB	170		U		0.500 (Q)		
2,2',3,3',4,4',6-HpCB	171	171 + 173	C U		0.500 (Q)		
2,2',3,3',4,5,5'-HpCB	172		U		0.500 (Q)		
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		U		0.500 (Q)		
2,2',3,3',4,5',6-HpCB	175		U		0.500 (Q)		
2,2',3,3',4,6,6'-HpCB	176		U		0.500 (Q)		
2,2',3,3',4',5,6-HpCB	177		U		0.500 (Q)		
2,2',3,3',5,5',6-HpCB	178		U		0.500 (Q)		
2,2',3,3',5,6,6'-HpCB	179		U		0.500 (Q)		
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C J	1.08	0.500 (Q)	0.96	1.001
2,2',3,4,4',5,6-HpCB	181		U		0.500 (Q)		
2,2',3,4,4',5,6'-HpCB	182		U		0.500 (Q)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C U		0.500 (Q)		
2,2',3,4,4',6,6'-HpCB	184		U		0.500 (Q)		
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.500 (Q)		
2,2',3,4',5,5',6-HpCB	187		U		0.500 (Q)		
2,2',3,4',5,6,6'-HpCB	188		U		0.500 (Q)		
2,3,3',4,4',5,5'-HpCB	189		U		0.500 (Q)		
2,3,3',4,4',5,6-HpCB	190		U		0.500 (Q)		
2,3,3',4,4',5',6-HpCB	191		U		0.500 (Q)		
2,3,3',4,5,5',6-HpCB	192		U		0.500 (Q)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OxCB	194		U		0.521 (S)		
2,2',3,3',4,4',5,6-OxCB	195		U		0.509 (S)		
2,2',3,3',4,4',5,6'-OxCB	196		U		0.500 (Q)		
2,2',3,3',4,4',6,6'-OxCB	197	197 + 200	C U		0.500 (Q)		
2,2',3,3',4,5,5',6-OxCB	198	198 + 199	C J	1.09	0.500 (Q)	0.90	1.114
2,2',3,3',4,5,5',6'-OxCB	199	198 + 199	C198				
2,2',3,3',4,5,6,6'-OxCB	200	197 + 200	C197				
2,2',3,3',4,5',6,6'-OxCB	201		U		0.500 (Q)		
2,2',3,3',5,5',6,6'-OxCB	202		U		0.500 (Q)		
2,2',3,4,4',5,5',6-OxCB	203		U		0.500 (Q)		
2,2',3,4,4',5,6,6'-OxCB	204		U		0.500 (Q)		
2,3,3',4,4',5,5',6-OxCB	205		U		0.500 (Q)		
2,2',3,3',4,4',5,5',6-NoCB	206		U		2.19 (S)		
2,2',3,3',4,4',5,6,6'-NoCB	207		U		1.46 (S)		
2,2',3,3',4,5,5',6,6'-NoCB	208		U		1.67 (S)		
2,2',3,3',4,4',5,5',6,6'-DeCB	209		K B J	1.22	0.500 (Q)	0.90	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; B = analyte found in the blank; J = concentration less than lowest calibration equivalent; C = co-eluting congener.

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

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

Signed: _____ Brian Watson _____

AXYS METHOD MLA-010 Rev 11

Form 2
PCB CONGENER ANALYSIS REPORT

CLIENT 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.: 4826
Matrix: AQUEOUS
Sample Receipt Date: N/A
Extraction Date: 23-Mar-2017
Analysis Date: 29-Mar-2017 Time: 03:20:44
Extract Volume (uL): 20
Injection Volume (uL): 1.0
Dilution Factor: N/A
Concentration Units: pg absolute

Project No. N/A
Lab Sample I.D.: WG58704-102
Sample Size: 1.00 L
Initial Calibration Date: 27-Nov-2016
Instrument ID: HR GC/MS
GC Column ID: SPB OCTYL
Sample Data Filename: PB7C_110 S: 5
Blank Data Filename: PB7C_110 S: 4
Cal. Ver. Data Filename: PB7C_110 S: 1

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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	884	44.2	3.14	0.718
13C12-4-MoCB	3L			2000	964	48.2	3.11	0.858
13C12-2,2'-DiCB	4L			2000	1030	51.4	1.59	0.874
13C12-4,4'-DiCB	15L			2000	1260	62.8	1.61	1.253
13C12-2,2',6-TriCB	19L			2000	1210	60.5	1.05	1.072
13C12-3,4,4'-TriCB	37L			2000	1430	71.7	1.04	1.091
13C12-2,2',6,6'-TeCB	54L			2000	1310	65.3	0.79	0.810
13C12-3,3',4,4'-TeCB	77L			2000	1560	77.8	0.76	1.396
13C12-3,4,4',5'-TeCB	81L			2000	1610	80.4	0.75	1.373
13C12-2,2',4,6,6'-PeCB	104L			2000	1340	67.1	1.56	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1570	78.3	1.56	1.200
13C12-2,3,4,4',5'-PeCB	114L			2000	1540	77.0	1.59	1.179
13C12-2,3',4,4',5'-PeCB	118L			2000	1570	78.5	1.57	1.162
13C12-2',3,4,4',5'-PeCB	123L			2000	1560	78.2	1.57	1.151
13C12-3,3',4,4',5'-PeCB	126L			2000	1360	68.2	1.62	1.301
13C12-2,2',4,4',6,6'-HxCB	155L			2000	1750	87.4	1.25	0.786
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C	4000	2620	65.4	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	1370	68.3	1.25	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1230	61.7	1.25	1.192
13C12-2,2',3,3',4,4',5'-HpCB	170L			2000	1730	86.5	1.06	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1740	87.2	1.02	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1930	96.4	1.06	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1700	84.8	1.03	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	1630	81.7	0.91	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1610	80.3	0.89	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1480	74.2	0.77	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1480	74.0	0.78	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	1420	71.2	1.18	1.075
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1450	72.7	1.05	0.924
13C12-2,3,3',5,5'-PeCB	111L			2000	1600	80.0	1.62	1.088
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1470	73.6	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: _____ Brian Watson _____

AXYS METHOD MLA-010 Rev 11

Form 1A
PCB CONGENER ANALYSIS REPORT

CLIENT 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.: 4826

Matrix: AQUEOUS

Sample Receipt Date: N/A

Extraction Date: 23-Mar-2017

Analysis Date: 29-Mar-2017 Time: 04:24:57

Extract Volume (uL): 20

Injection Volume (uL): 1.0

Dilution Factor: N/A

Concentration Units: pg/L

Project No. N/A

Lab Sample I.D.: WG58704-103

Sample Size: 1.00 L

Initial Calibration Date: 27-Nov-2016

Instrument ID: HR GC/MS

GC Column ID: SPB OCTYL

Sample Data Filename: PB7C_110 S: 6

Blank Data Filename: PB7C_110 S: 4

Cal. Ver. Data Filename: PB7C_110 S: 1

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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		B J	3.99	0.500 (Q)	3.50	1.001
3-MoCB	2		B J	1.23	0.500 (Q)	3.29	0.988
4-MoCB	3		B J	2.56	0.500 (Q)	3.43	1.000
2,2'-DiCB	4		K B J	2.05	0.553 (S)	2.04	1.000
2,3-DiCB	5		U		0.500 (Q)		
2,3'-DiCB	6		K B J	0.821	0.500 (Q)	1.03	1.177
2,4-DiCB	7		U		0.500 (Q)		
2,4'-DiCB	8		B	4.72	0.500 (Q)	1.35	1.208
2,5-DiCB	9		U		0.500 (Q)		
2,6-DiCB	10		U		0.500 (Q)		
3,3'-DiCB	11		B	56.4	0.500 (Q)	1.60	0.969
3,4-DiCB	12	12 + 13	C B J	1.01	0.500 (Q)	1.33	0.985
3,4'-DiCB	13	12 + 13	C12				
3,5-DiCB	14		U		0.500 (Q)		
4,4'-DiCB	15		B	4.19	0.500 (Q)	1.43	1.001
2,2',3-TriCB	16		K B J	1.83	0.500 (Q)	1.96	1.166
2,2',4-TriCB	17		B J	1.71	0.500 (Q)	1.19	1.139
2,2',5-TriCB	18	18 + 30	C B J	3.62	0.500 (Q)	0.90	1.114
2,2',6-TriCB	19		K B J	0.504	0.500 (Q)	1.21	1.001
2,3,3'-TriCB	20	20 + 28	C B	4.96	0.500 (Q)	0.96	0.848
2,3,4-TriCB	21	21 + 33	C B J	3.20	0.500 (Q)	0.96	0.857
2,3,4'-TriCB	22		B J	1.82	0.500 (Q)	0.93	0.872
2,3,5-TriCB	23		U		0.500 (Q)		
2,3,6-TriCB	24		U		0.500 (Q)		
2,3',4-TriCB	25		U		0.500 (Q)		
2,3',5-TriCB	26	26 + 29	C B J	0.767	0.500 (Q)	1.02	1.302
2,3',6-TriCB	27		U		0.500 (Q)		
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		B	4.14	0.500 (Q)	1.03	0.837
2,4',6-TriCB	32		B J	1.06	0.500 (Q)	0.91	1.198
2',3,4-TriCB	33	21 + 33	C21				
2',3,5-TriCB	34		U		0.500 (Q)		
3,3',4-TriCB	35		U		0.500 (Q)		
3,3',5-TriCB	36		U		0.500 (Q)		
3,4,4'-TriCB	37		B J	1.03	0.500 (Q)	1.10	1.001
3,4,5-TriCB	38		U		0.500 (Q)		
3,4',5-TriCB	39		U		0.500 (Q)		

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COMPOUND	IUPAC NO.	CO-ELUTIONS	LAB FLAG ¹	CONC. FOUND	REPORTING LIMIT (RL) ²	ION ABUND. RATIO	RRT
2,2',3,3'-TeCB	40	40 + 41 + 71	C B J	1.72	0.500 (Q)	0.87	1.337
2,2',3,4'-TeCB	41	40 + 41 + 71	C40				
2,2',3,4'-TeCB	42		B J	0.582	0.500 (Q)	0.83	1.312
2,2',3,5'-TeCB	43		U		0.500 (Q)		
2,2',3,5'-TeCB	44	44 + 47 + 65	C B	9.81	0.500 (Q)	0.70	1.288
2,2',3,6'-TeCB	45	45 + 51	C B J	2.52	0.500 (Q)	0.85	1.149
2,2',3,6'-TeCB	46		U		0.500 (Q)		
2,2',4,4'-TeCB	47	44 + 47 + 65	C44				
2,2',4,5'-TeCB	48		K B J	0.582	0.500 (Q)	0.57	1.274
2,2',4,5'-TeCB	49	49 + 69	C B J	2.00	0.500 (Q)	0.71	1.260
2,2',4,6'-TeCB	50	50 + 53	C J	0.579	0.500 (Q)	0.83	1.112
2,2',4,6'-TeCB	51	45 + 51	C45				
2,2',5,5'-TeCB	52		B	4.00	0.500 (Q)	0.83	1.235
2,2',5,6'-TeCB	53	50 + 53	C50				
2,2',6,6'-TeCB	54		U		0.500 (Q)		
2,3,3',4'-TeCB	55		U		0.500 (Q)		
2,3,3',4'-TeCB	56		U		0.500 (Q)		
2,3,3',5'-TeCB	57		U		0.500 (Q)		
2,3,3',5'-TeCB	58		U		0.500 (Q)		
2,3,3',6'-TeCB	59	59 + 62 + 75	C U		0.500 (Q)		
2,3,4,4'-TeCB	60		U		0.500 (Q)		
2,3,4,5'-TeCB	61	61 + 70 + 74 + 76	C B J	2.73	0.500 (Q)	0.86	0.875
2,3,4,6'-TeCB	62	59 + 62 + 75	C59				
2,3,4',5'-TeCB	63		U		0.500 (Q)		
2,3,4',6'-TeCB	64		B J	1.13	0.500 (Q)	0.71	1.349
2,3,5,6'-TeCB	65	44 + 47 + 65	C44				
2,3',4,4'-TeCB	66		B J	1.18	0.500 (Q)	0.67	0.885
2,3',4,5'-TeCB	67		U		0.500 (Q)		
2,3',4,5'-TeCB	68		B J	1.21	0.500 (Q)	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		U		0.500 (Q)		
2,3',5',6'-TeCB	73		U		0.500 (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		0.500 (Q)		
3,3',4,5'-TeCB	78		U		0.500 (Q)		
3,3',4,5'-TeCB	79		U		0.500 (Q)		
3,3',5,5'-TeCB	80		U		0.500 (Q)		
3,4,4',5'-TeCB	81		U		0.500 (Q)		
2,2',3,3',4'-PeCB	82		U		0.500 (Q)		
2,2',3,3',5'-PeCB	83	83 + 99	C K B J	1.68	0.500 (Q)	1.26	0.883
2,2',3,3',6'-PeCB	84		K B J	0.603	0.500 (Q)	1.18	1.163
2,2',3,4,4'-PeCB	85	85 + 116 + 117	C U		0.500 (Q)		
2,2',3,4,5'-PeCB	86	86 + 87 + 97 + 109 + 119 + 125	C B J	2.63	0.500 (Q)	1.67	0.901
2,2',3,4,5'-PeCB	87	86 + 87 + 97 + 109 + 119 + 125	C86				
2,2',3,4,6'-PeCB	88	88 + 91	C J	0.588	0.500 (Q)	1.33	1.153
2,2',3,4,6'-PeCB	89		U		0.500 (Q)		
2,2',3,4',5'-PeCB	90	90 + 101 + 113	C B J	2.39	0.500 (Q)	1.52	0.870
2,2',3,4',6'-PeCB	91	88 + 91	C88				
2,2',3,5,5'-PeCB	92		U		0.500 (Q)		
2,2',3,5,6'-PeCB	93	93 + 95 + 98 + 100 + 102	C B J	2.06	0.500 (Q)	1.37	1.122
2,2',3,5,6'-PeCB	94		U		0.500 (Q)		
2,2',3,5',6'-PeCB	95	93 + 95 + 98 + 100 + 102	C93				
2,2',3,6,6'-PeCB	96		U		0.500 (Q)		
2,2',3',4,5'-PeCB	97	86 + 87 + 97 + 109 + 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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Results are compliant with NELAP accreditation described in the total report. 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		U		0.500 (Q)		
2,2',4,6,6'-PeCB	104		U		0.500 (Q)		
2,3,3',4,4'-PeCB	105		K B J	0.607	0.500 (Q)	2.46	1.000
2,3,3',4,5-PeCB	106		U		0.500 (Q)		
2,3,3',4',5-PeCB	107		U		0.500 (Q)		
2,3,3',4,5'-PeCB	108	108 + 124	C U		0.500 (Q)		
2,3,3',4,6-PeCB	109	86 + 87 + 97 + 109 + 119 + 125	C86				
2,3,3',4',6-PeCB	110	110 + 115	C B J	2.18	0.500 (Q)	1.54	0.925
2,3,3',5,5'-PeCB	111		U		0.500 (Q)		
2,3,3',5,6-PeCB	112		U		0.500 (Q)		
2,3,3',5',6-PeCB	113	90 + 101 + 113	C90				
2,3,4,4',5-PeCB	114		U		0.500 (Q)		
2,3,4,4',6-PeCB	115	110 + 115	C110				
2,3,4,5,6-PeCB	116	85 + 116 + 117	C85				
2,3,4',5,6-PeCB	117	85 + 116 + 117	C85				
2,3',4,4',5-PeCB	118		B J	1.26	0.500 (Q)	1.52	1.000
2,3',4,4',6-PeCB	119	86 + 87 + 97 + 109 + 119 + 125	C86				
2,3',4,5,5'-PeCB	120		U		0.500 (Q)		
2,3',4,5',6-PeCB	121		U		0.500 (Q)		
2',3,3',4,5-PeCB	122		U		0.500 (Q)		
2',3,4,4',5-PeCB	123		U		0.500 (Q)		
2',3,4,5,5'-PeCB	124	108 + 124	C108				
2',3,4,5,6'-PeCB	125	86 + 87 + 97 + 109 + 119 + 125	C86				
3,3',4,4',5-PeCB	126		U		0.500 (Q)		
3,3',4,5,5'-PeCB	127		U		0.500 (Q)		
2,2',3,3',4,4'-HxCB	128	128 + 166	C U		0.500 (Q)		
2,2',3,3',4,5-HxCB	129	129 + 138 + 160 + 163	C B J	0.826	0.500 (Q)	1.23	0.929
2,2',3,3',4,5'-HxCB	130		U		0.500 (Q)		
2,2',3,3',4,6-HxCB	131		U		0.500 (Q)		
2,2',3,3',4,6'-HxCB	132		U		0.500 (Q)		
2,2',3,3',5,5'-HxCB	133		U		0.500 (Q)		
2,2',3,3',5,6-HxCB	134	134 + 143	C U		0.500 (Q)		
2,2',3,3',5,6'-HxCB	135	135 + 151 + 154	C U		0.500 (Q)		
2,2',3,3',6,6'-HxCB	136		U		0.500 (Q)		
2,2',3,4,4',5-HxCB	137		U		0.500 (Q)		
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		0.500 (Q)		
2,2',3,4,4',6'-HxCB	140	139 + 140	C139				
2,2',3,4,5,5'-HxCB	141		U		0.500 (Q)		
2,2',3,4,5,6-HxCB	142		U		0.500 (Q)		
2,2',3,4,5,6'-HxCB	143	134 + 143	C134				
2,2',3,4,5',6-HxCB	144		U		0.500 (Q)		
2,2',3,4,6,6'-HxCB	145		U		0.500 (Q)		
2,2',3,4',5,5'-HxCB	146		U		0.500 (Q)		
2,2',3,4',5,6-HxCB	147	147 + 149	C K B J	1.19	0.500 (Q)	1.51	1.132
2,2',3,4',5,6'-HxCB	148		U		0.500 (Q)		
2,2',3,4',5',6-HxCB	149	147 + 149	C147				
2,2',3,4',6,6'-HxCB	150		U		0.500 (Q)		
2,2',3,5,5',6-HxCB	151	135 + 151 + 154	C135				
2,2',3,5,6,6'-HxCB	152		U		0.500 (Q)		
2,2',4,4',5,5'-HxCB	153	153 + 168	C K B J	1.01	0.500 (Q)	1.60	0.898
2,2',4,4',5,6'-HxCB	154	135 + 151 + 154	C135				
2,2',4,4',6,6'-HxCB	155		U		0.500 (Q)		
2,3,3',4,4',5-HxCB	156	156 + 157	C U		0.500 (Q)		
2,3,3',4,4',5'-HxCB	157	156 + 157	C156				
2,3,3',4,4',6-HxCB	158		U		0.500 (Q)		
2,3,3',4,5,5'-HxCB	159		U		0.500 (Q)		
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		0.500 (Q)		
2,3,3',4',5,5'-HxCB	162		U		0.500 (Q)		
2,3,3',4',5,6-HxCB	163	129 + 138 + 160 + 163	C129				
2,3,3',4',5',6-HxCB	164		U		0.500 (Q)		
2,3,3',5,5',6-HxCB	165		U		0.500 (Q)		
2,3,4,4',5,6-HxCB	166	128 + 166	C128				
2,3',4,4',5,5'-HxCB	167		U		0.500 (Q)		
2,3',4,4',5',6-HxCB	168	153 + 168	C153				
3,3',4,4',5,5'-HxCB	169		U		0.500 (Q)		
2,2',3,3',4,4',5-HpCB	170		U		0.500 (Q)		
2,2',3,3',4,4',6-HpCB	171	171 + 173	C U		0.500 (Q)		
2,2',3,3',4,5,5'-HpCB	172		U		0.500 (Q)		
2,2',3,3',4,5,6-HpCB	173	171 + 173	C171				
2,2',3,3',4,5,6'-HpCB	174		U		0.500 (Q)		
2,2',3,3',4,5',6-HpCB	175		U		0.500 (Q)		
2,2',3,3',4,6,6'-HpCB	176		U		0.500 (Q)		
2,2',3,3',4',5,6-HpCB	177		U		0.500 (Q)		
2,2',3,3',5,5',6-HpCB	178		U		0.500 (Q)		
2,2',3,3',5,6,6'-HpCB	179		U		0.500 (Q)		
2,2',3,4,4',5,5'-HpCB	180	180 + 193	C U		0.500 (Q)		
2,2',3,4,4',5,6-HpCB	181		U		0.500 (Q)		
2,2',3,4,4',5,6'-HpCB	182		U		0.500 (Q)		
2,2',3,4,4',5',6-HpCB	183	183 + 185	C U		0.500 (Q)		
2,2',3,4,4',6,6'-HpCB	184		U		0.500 (Q)		
2,2',3,4,5,5',6-HpCB	185	183 + 185	C183				
2,2',3,4,5,6,6'-HpCB	186		U		0.500 (Q)		
2,2',3,4',5,5',6-HpCB	187		U		0.500 (Q)		
2,2',3,4',5,6,6'-HpCB	188		U		0.500 (Q)		
2,3,3',4,4',5,5'-HpCB	189		U		0.500 (Q)		
2,3,3',4,4',5,6-HpCB	190		U		0.500 (Q)		
2,3,3',4,4',5',6-HpCB	191		U		0.500 (Q)		
2,3,3',4,5,5',6-HpCB	192		U		0.500 (Q)		
2,3,3',4',5,5',6-HpCB	193	180 + 193	C180				
2,2',3,3',4,4',5,5'-OcCB	194		U		0.546 (S)		
2,2',3,3',4,4',5,6-OcCB	195		U		0.533 (S)		
2,2',3,3',4,4',5,6'-OcCB	196		U		0.500 (Q)		
2,2',3,3',4,4',6,6'-OcCB	197	197 + 200	C U		0.500 (Q)		
2,2',3,3',4,5,5',6-OcCB	198	198 + 199	C U		0.500 (Q)		
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		U		0.500 (Q)		
2,2',3,3',5,5',6,6'-OcCB	202		U		0.500 (Q)		
2,2',3,4,4',5,5',6-OcCB	203		U		0.500 (Q)		
2,2',3,4,4',5,6,6'-OcCB	204		U		0.500 (Q)		
2,3,3',4,4',5,5',6-OcCB	205		U		0.500 (Q)		
2,2',3,3',4,4',5,5',6-NoCB	206		U		2.54 (S)		
2,2',3,3',4,4',5,6,6'-NoCB	207		U		1.73 (S)		
2,2',3,3',4,5,5',6,6'-NoCB	208		U		2.02 (S)		
2,2',3,3',4,4',5,5',6,6'-DeCB	209		K B J	1.04	0.500 (Q)	0.80	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; B = analyte found in the blank; J = concentration less than lowest calibration equivalent; C = co-eluting congener.

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

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

Signed: _____ Brian Watson _____

AXYS METHOD MLA-010 Rev 11

Form 2
PCB CONGENER ANALYSIS REPORT

CLIENT 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.: 4826
Matrix: AQUEOUS
Sample Receipt Date: N/A
Extraction Date: 23-Mar-2017
Analysis Date: 29-Mar-2017 Time: 04:24:57
Extract Volume (uL): 20
Injection Volume (uL): 1.0
Dilution Factor: N/A
Concentration Units: pg absolute

Project No. N/A
Lab Sample I.D.: WG58704-103
Sample Size: 1.00 L
Initial Calibration Date: 27-Nov-2016
Instrument ID: HR GC/MS
GC Column ID: SPB OCTYL
Sample Data Filename: PB7C_110 S: 6
Blank Data Filename: PB7C_110 S: 4
Cal. Ver. Data Filename: PB7C_110 S: 1

This page is part of a total report that contains information necessary for accreditation compliance.
Results are compliant with NELAP accreditation described in the total report. 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	1250	62.6	3.19	0.718
13C12-4-MoCB	3L			2000	1260	62.8	3.10	0.857
13C12-2,2'-DiCB	4L			2000	1270	63.5	1.57	0.873
13C12-4,4'-DiCB	15L			2000	1380	68.9	1.57	1.252
13C12-2,2',6-TriCB	19L			2000	1330	66.3	1.05	1.071
13C12-3,4,4'-TriCB	37L			2000	1540	76.8	1.06	1.091
13C12-2,2',6,6'-TeCB	54L			2000	1390	69.4	0.78	0.810
13C12-3,3',4,4'-TeCB	77L			2000	1710	85.6	0.77	1.396
13C12-3,4,4',5-TeCB	81L			2000	1720	85.8	0.77	1.373
13C12-2,2',4,6,6'-PeCB	104L			2000	1350	67.6	1.57	0.808
13C12-2,3,3',4,4'-PeCB	105L			2000	1750	87.4	1.57	1.199
13C12-2,3,4,4',5-PeCB	114L			2000	1720	86.1	1.56	1.179
13C12-2,3',4,4',5-PeCB	118L			2000	1740	86.9	1.56	1.161
13C12-2',3,4,4',5-PeCB	123L			2000	1710	85.6	1.55	1.151
13C12-3,3',4,4',5-PeCB	126L			2000	1530	76.4	1.56	1.301
13C12-2,2',4,4',6,6'-HxCB	155L			2000	1760	88.2	1.26	0.786
13C12-2,3,3',4,4',5-HxCB	156L	156L + 157L	C	4000	2910	72.9	1.25	1.107
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			2000	1520	76.0	1.26	1.078
13C12-3,3',4,4',5,5'-HxCB	169L			2000	1410	70.7	1.28	1.191
13C12-2,2',3,3',4,4',5-HpCB	170L			2000	1850	92.5	1.06	0.897
13C12-2,2',3,4,4',5,5'-HpCB	180L			2000	1860	92.8	1.08	0.872
13C12-2,2',3,4',5,6,6'-HpCB	188L			2000	1950	97.6	1.03	0.712
13C12-2,3,3',4,4',5,5'-HpCB	189L			2000	1810	90.4	1.04	0.959
13C12-2,2',3,3',5,5',6,6'-OxCB	202L			2000	1670	83.4	0.90	0.817
13C12-2,3,3',4,4',5,5',6-OxCB	205L			2000	1690	84.7	0.89	1.009
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			2000	1580	79.1	0.78	1.043
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			2000	1530	76.6	0.78	0.949
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			2000	1410	70.5	1.18	1.075
CLEANUP STANDARD								
13C12-2,4,4'-TriCB	28L			2000	1510	75.7	1.05	0.925
13C12-2,3,3',5,5'-PeCB	111L			2000	1720	86.2	1.60	1.087
13C12-2,2',3,3',5,5',6-HpCB	178L			2000	1620	80.8	1.04	1.012

(1) Suffix "L" indicates labeled compound.

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

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

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

Signed: _____ Brian Watson _____

AXYS METHOD MLA-010 Rev 11

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.:	4826	Lab Sample I.D.:	WG58704-104
Matrix:	AQUEOUS	Initial Calibration Date:	27-Nov-2016
Extraction Date:	23-Mar-2017	Instrument ID:	HR GC/MS
Analysis Date:	29-Mar-2017 Time: 00:08:01	GC Column ID:	SPB OCTYL
Extract Volume (uL):	20	OPR Data Filename:	PB7C_110 S: 2
Injection Volume (uL):	1.0	Blank Data Filename:	PB7C_110 S: 4
Dilution Factor:	N/A	Cal. Ver. Data Filename:	PB7C_110 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			3.05	50.0	48.0	30.0 - 67.5	96.0
4-MoCB	3			3.06	50.0	48.8	30.0 - 67.5	97.5
2,2'-DiCB	4			1.57	50.0	50.2	30.0 - 67.5	100
4,4'-DiCB	15			1.54	50.0	49.5	30.0 - 67.5	99.0
2,2',6-TriCB	19			1.06	50.0	51.8	30.0 - 67.5	104
3,4,4'-TriCB	37			1.02	50.0	49.3	30.0 - 67.5	98.6
2,2',6,6'-TeCB	54			0.80	50.0	50.4	30.0 - 67.5	101
3,3',4,4'-TeCB	77			0.78	50.0	50.1	30.0 - 67.5	100
3,4,4',5-TeCB	81			0.77	50.0	49.6	30.0 - 67.5	99.2
2,2',4,6,6'-PeCB	104			1.57	50.0	51.4	30.0 - 67.5	103
2,3,3',4,4'-PeCB	105			1.53	50.0	49.4	30.0 - 67.5	98.8
2,3,4,4',5-PeCB	114			1.55	50.0	49.6	30.0 - 67.5	99.2
2,3',4,4',5-PeCB	118			1.55	50.0	48.7	30.0 - 67.5	97.4
2',3,4,4',5-PeCB	123			1.53	50.0	49.0	30.0 - 67.5	98.1
3,3',4,4',5-PeCB	126			1.55	50.0	51.0	30.0 - 67.5	102
2,2',4,4',6,6'-HxCB	155			1.25	50.0	49.6	30.0 - 67.5	99.2
2,3,3',4,4',5-HxCB	156	156 + 157	C	1.26	100	104	60.0 - 135	104
2,3,3',4,4',5',5'-HxCB	157	156 + 157	C156					
2,3',4,4',5,5',5'-HxCB	167			1.26	50.0	52.9	30.0 - 67.5	106
3,3',4,4',5,5',5'-HxCB	169			1.28	50.0	51.8	30.0 - 67.5	104
2,2',3,4',5,6,6'-HpCB	188			1.04	50.0	51.7	30.0 - 67.5	103
2,3,3',4,4',5,5',5'-HpCB	189			1.03	50.0	51.1	30.0 - 67.5	102
2,2',3,3',5,5',6,6'-OcCB	202			0.89	50.0	51.1	30.0 - 67.5	102
2,3,3',4,4',5,5',6-OcCB	205			0.90	50.0	52.0	30.0 - 67.5	104
2,2',3,3',4,4',5,5',6-NoCB	206			0.79	50.0	51.7	30.0 - 67.5	103
2,2',3,3',4,5,5',6,6'-NoCB	208			0.78	50.0	51.5	30.0 - 67.5	103
2,2',3,3',4,4',5,5',6,6'-DeCB	209			1.19	50.0	44.9	30.0 - 67.5	89.8

(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: _____ Brian Watson _____

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

For Axys Internal Use Only [XSL Template: Form16688A.xsl; Created: 03-Apr-2017 12:48:43; Application: XMLTransformer-1.16.2; Report Filename: 1668_PCB1668_PCBTFC_WG58704-104_Form8A_SJ2190886.html; Workgroup: WG58704; Design ID: 2500]

AXYS METHOD MLA-010 Rev 11

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.:	4826	Lab Sample I.D.:	WG58704-104
Matrix:	AQUEOUS	Initial Calibration Date:	27-Nov-2016
Extraction Date:	23-Mar-2017	Instrument ID:	HR GC/MS
Analysis Date:	29-Mar-2017 Time: 00:08:01	GC Column ID:	SPB OCTYL
Extract Volume (uL):	20	OPR Data Filename:	PB7C_110 S: 2
Injection Volume (uL):	1.0	Blank Data Filename:	PB7C_110 S: 4
Dilution Factor:	N/A	Cal. Ver. Data Filename:	PB7C_110 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			3.28	100	45.1	15.0 - 145	45.1
13C12-4-MoCB	3L			3.14	100	48.6	15.0 - 145	48.6
13C12-2,2'-DiCB	4L			1.58	100	52.4	15.0 - 145	52.4
13C12-4,4'-DiCB	15L			1.58	100	62.4	15.0 - 145	62.4
13C12-2,2',6-TriCB	19L			1.04	100	58.9	15.0 - 145	58.9
13C12-3,4,4'-TriCB	37L			1.05	100	70.9	15.0 - 145	70.9
13C12-2,2',6,6'-TeCB	54L			0.79	100	64.3	15.0 - 145	64.3
13C12-3,3',4,4'-TeCB	77L			0.77	100	81.7	40.0 - 145	81.7
13C12-3,4,4',5'-TeCB	81L			0.76	100	81.8	40.0 - 145	81.8
13C12-2,2',4,6,6'-PeCB	104L			1.58	100	66.7	40.0 - 145	66.7
13C12-2,3,3',4,4'-PeCB	105L			1.57	100	79.3	40.0 - 145	79.3
13C12-2,3,4,4',5'-PeCB	114L			1.63	100	76.8	40.0 - 145	76.8
13C12-2,3',4,4',5'-PeCB	118L			1.60	100	79.6	40.0 - 145	79.6
13C12-2',3,4,4',5'-PeCB	123L			1.61	100	79.1	40.0 - 145	79.1
13C12-3,3',4,4',5'-PeCB	126L			1.56	100	69.2	40.0 - 145	69.2
13C12-2,2',4,4',6,6'-HxCB	155L			1.25	100	84.2	40.0 - 145	84.2
13C12-2,3,3',4,4',5'-HxCB	156L	156L + 157L	C	1.26	200	134	80.0 - 290	66.8
13C12-2,3,3',4,4',5'-HxCB	157L	156L + 157L	C156L					
13C12-2,3',4,4',5,5'-HxCB	167L			1.27	100	70.2	40.0 - 145	70.2
13C12-3,3',4,4',5,5'-HxCB	169L			1.25	100	64.2	40.0 - 145	64.2
13C12-2,2',3,4',5,6,6'-HpCB	188L			1.07	100	87.2	40.0 - 145	87.2
13C12-2,3,3',4,4',5,5'-HpCB	189L			1.03	100	87.9	40.0 - 145	87.9
13C12-2,2',3,3',5,5',6,6'-OcCB	202L			0.91	100	74.9	40.0 - 145	74.9
13C12-2,3,3',4,4',5,5',6-OcCB	205L			0.91	100	78.0	40.0 - 145	78.0
13C12-2,2',3,3',4,4',5,5',6-NoCB	206L			0.77	100	71.4	40.0 - 145	71.4
13C12-2,2',3,3',4,5,5',6,6'-NoCB	208L			0.79	100	70.9	40.0 - 145	70.9
13C12-2,2',3,3',4,4',5,5',6,6'-DeCB	209L			1.17	100	66.1	40.0 - 145	66.1

CLEANUP STANDARD

13C12-2,4,4'-TriCB	28L			1.06	100	71.8	15.0 - 145	71.8
13C12-2,3,3',5,5'-PeCB	111L			1.60	100	78.6	40.0 - 145	78.6
13C12-2,2',3,3',5,5',6-HpCB	178L			1.05	100	73.1	40.0 - 145	73.1

(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: _____ Brian Watson _____

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.

Accreditation Scope

SGS AXYS Analytical Services Ltd.
(formerly AXYS Analytical Services Ltd.)
file ref.: ACC-101 Rev. 33

Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	Pulp	Serum	Solids	Tissue	Urine	Water	Water, Non-Potable																														
				CALA	CALA	CALA		CALA	CALA		CALA																													
				California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE	Maine DOH	ANAB	CALA	Florida DOH	Minnesota DOH	New Jersey DEP	Virginia DGS	ANAB	CALA	CALA	California DPH	Florida DOH	Minnesota DOH	New Jersey DEP	New York DOH	Virginia DGS	Washington DE *	Maine DOH	ANAB	Pennsylvania DEP										
BFR	BTBPE	SGS AXYS MLA-033	MLA-033										Y																											
	DBDPE	SGS AXYS MLA-033	MLA-033										Y																											
	HBB	SGS AXYS MLA-033	MLA-033										Y																											
	PBEB	SGS AXYS MLA-033	MLA-033										Y																											
BPA and MPE	4,4'-dihydroxy-2,2-diphenylpropane (Bisphenol A) (BPA)	SGS AXYS MLA-059	MLA-059																																					
	Mono-(2-ethyl-5-hydroxyhexyl) phthalate (MEHHP)	SGS AXYS MLA-059	MLA-059																																					
	Mono-(2-ethyl-5-oxohexyl) phthalate (MEOHP)	SGS AXYS MLA-059	MLA-059																																					
	Mono-(3-carboxypropyl) phthalate (MCPP)	SGS AXYS MLA-059	MLA-059																																					
	Mono-2-ethylhexyl phthalate (MEHP)	SGS AXYS MLA-059	MLA-059																																					
	Mono-benzyl phthalate (MBzP)	SGS AXYS MLA-059	MLA-059																																					
	Mono-butyl phthalate (MBP) (n + iso)	SGS AXYS MLA-059	MLA-059																																					
	Mono-cyclohexyl phthalate (MCHP)	SGS AXYS MLA-059	MLA-059																																					
	Mono-ethyl phthalate (MEP)	SGS AXYS MLA-059	MLA-059																																					
	Mono-iso-nonyl phthalate (MiNP)	SGS AXYS MLA-059	MLA-059																																					
Mono-methyl phthalate (MMP)	SGS AXYS MLA-059	MLA-059																																						
FTS	4:2 fluorotelomer sulfonate (4:2 FTS)	SGS AXYS MLA-081	MLA-081																																					
	6:2 fluorotelomer sulfonate (6:2 FTS)	SGS AXYS MLA-089	MLA-089																																					
	8:2 fluorotelomer sulfonate (8:2 FTS)	SGS AXYS MLA-081	MLA-081																																					
		SGS AXYS MLA-089	MLA-089																																					
HBCDD	alpha-hexabromocyclododecane (a-HBCDD)	SGS AXYS MLA-070	MLA-070																																					
	beta-hexabromocyclododecane (b-HBCDD)	SGS AXYS MLA-070	MLA-070																																					
	gamma-hexabromocyclododecane (g-HBCDD)	SGS AXYS MLA-070	MLA-070																																					
OC Pesticides	2,4'-DDD	EPA 625	MLA-007																																					
		EPA 8270	MLA-007																																					
		EPA 1699	MLA-028																																					
		SGS AXYS MLA-028	MLA-028																																					
		SGS AXYS MLA-007	MLA-007																																					
	2,4'-DDE	EPA 625	MLA-007																																					
		EPA 8270	MLA-007																																					
		EPA 1699	MLA-028																																					
		SGS AXYS MLA-028	MLA-028																																					
		SGS AXYS MLA-007	MLA-007																																					
	2,4'-DDT	EPA 625	MLA-007																																					
		EPA 8270	MLA-007																																					
		EPA 1699	MLA-028																																					
		SGS AXYS MLA-028	MLA-028																																					
		SGS AXYS MLA-007	MLA-007																																					
	4,4'-DDD	EPA 625	MLA-007																																					
		EPA 8270	MLA-007																																					
		EPA 1699	MLA-028																																					
		SGS AXYS MLA-028	MLA-028																																					
		SGS AXYS MLA-007	MLA-007																																					
	4,4'-DDE	EPA 625	MLA-007																																					
		EPA 8270	MLA-007																																					
		EPA 1699	MLA-028																																					
		SGS AXYS MLA-028	MLA-028																																					
SGS AXYS MLA-007		MLA-007																																						
4,4'-DDT	EPA 625	MLA-007																																						

Accreditation Scope

SGS AXYS Analytical Services Ltd.
(formerly AXYS Analytical Services Ltd.)
file ref.: ACC-101 Rev. 33

Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	Pulp	Serum	Solids	Tissue	Urine	Water	Water, Non-Potable	
				CALA	CALA	CALA	California DPH Florida DOH Minnesota DOH New Jersey DEP New York DOH Virginia DGS Washington DE Maine DOH ANAB	CALA Florida DOH Minnesota DOH New Jersey DEP Virginia DGS ANAB	CALA CALA	California DPH Florida DOH Minnesota DOH New Jersey DEP New York DOH Virginia DGS Washington DE * Maine DOH ANAB Pennsylvania DEP	
Perfluorinated Compounds	Perfluorononanoate (PFNA)	SGS AXYS MLA-043	MLA-043				Y				
		SGS AXYS MLA-042	MLA-042		Y						
		EPA 537 modified	MLA-041 MLA-043 MLA-060					YD	YD		YD
		SGS AXYS MLA-060	MLA-060							Y	Y Y Y YD
		SGS AXYS MLA-041	MLA-041			Y	Y Y Y Y	YD			
		SGS AXYS MLA-043	MLA-043					Y Y Y Y YD			
	Perfluorooctane sulfonamide (PFOSA)	EPA 537 modified	MLA-041 MLA-043 MLA-060					YD	YD		YD
		SGS AXYS MLA-060	MLA-060							Y	Y Y Y YD
		SGS AXYS MLA-041	MLA-041			Y	Y Y Y Y	YD			
		SGS AXYS MLA-043	MLA-043					Y Y Y Y YD			
		SGS AXYS MLA-042	MLA-042		Y						
		EPA 537 modified	MLA-041 MLA-043 MLA-060					YD	YD		YD
	Perfluorooctanesulfonate (PFOS)	SGS AXYS MLA-060	MLA-060							Y	Y Y Y YD
		SGS AXYS MLA-041	MLA-041			Y	Y Y Y Y	YD			
		SGS AXYS MLA-043	MLA-043					Y Y Y Y YD			
		SGS AXYS MLA-042	MLA-042		Y						
		EPA 537 modified	MLA-041 MLA-043 MLA-060					YD	YD		YD
		SGS AXYS MLA-060	MLA-060							Y	Y Y Y YD
	Perfluorooctanoate (PFOA)	SGS AXYS MLA-041	MLA-041			Y	Y Y Y Y	YD			
		SGS AXYS MLA-043	MLA-043					Y Y Y Y YD			
		SGS AXYS MLA-042	MLA-042		Y						
		EPA 537 modified	MLA-041 MLA-043 MLA-060					YD	YD		YD
		SGS AXYS MLA-060	MLA-060							Y	Y Y Y YD
		SGS AXYS MLA-041	MLA-041			Y	Y Y Y Y	YD			
Perfluoropentanoate (PFPeA)	SGS AXYS MLA-043	MLA-043					Y Y Y Y YD				
	SGS AXYS MLA-042	MLA-042		Y							
	EPA 537 modified	MLA-041 MLA-043 MLA-060					YD	YD		YD	
	SGS AXYS MLA-060	MLA-060							Y	Y Y Y YD	
	SGS AXYS MLA-041	MLA-041			Y	Y Y Y Y	YD				
	SGS AXYS MLA-043	MLA-043					Y Y Y Y YD				
Perfluoroundecanoate (PFUnA)	SGS AXYS MLA-042	MLA-042		Y							
	EPA 537 modified	MLA-041 MLA-043 MLA-060					YD	YD		YD	
	SGS AXYS MLA-060	MLA-060							Y	Y Y Y YD	
	SGS AXYS MLA-041	MLA-041			Y	Y Y Y Y	YD				
	SGS AXYS MLA-043	MLA-043					Y Y Y Y YD				
	SGS AXYS MLA-042	MLA-042		Y							
PPCP	1,7-Dimethylxanthine	EPA 1694	MLA-075				Y			Y	
		SGS AXYS MLA-075	MLA-075			Y			Y		
	10-hydroxy-amitriptyline	SGS AXYS MLA-075	MLA-075			Y			Y		
	2-hydroxy-ibuprofen	SGS AXYS MLA-075	MLA-075			Y			Y		
	4-Epianhydrochlorotetracycline (EACTC)	EPA 1694	MLA-075				Y			Y	
	SGS AXYS MLA-075	MLA-075			Y			Y			

Accreditation Scope

SGS AXYS Analytical Services Ltd.
(formerly AXYS Analytical Services Ltd.)
file ref.: ACC-101 Rev. 33

Compound Class	Compound	Accredited Method ID	SGS AXYS Method ID	Sample Matrix							Tissue	Urine		Water	Water, Non-Potable	
				CALA	CALA	CALA	California DPH Florida DOH Minnesota DOH New Jersey DEP New York DOH Virginia DGS Washington DE Maine DOH ANAB	CALA	Florida DOH Minnesota DOH New Jersey DEP Virginia DGS ANAB	CALA		CALA				
Compound Class	Sulfamethizole	SGS AXYS MLA-075 EPA 1694	MLA-075 MLA-075													
	Sulfamethoxazole	SGS AXYS MLA-075 EPA 1694	MLA-075 MLA-075													
	Sulfanilamide	SGS AXYS MLA-075 EPA 1694	MLA-075 MLA-075													
	Sulfathiazole	SGS AXYS MLA-075 EPA 1694	MLA-075 MLA-075													
	Tetracycline (TC)	SGS AXYS MLA-075 EPA 1694	MLA-075 MLA-075													
	Theophylline	SGS AXYS MLA-075 EPA 1694	MLA-075 MLA-075													
	Thiabendazole	SGS AXYS MLA-075 EPA 1694	MLA-075 MLA-075													
	Trenbolone	SGS AXYS MLA-075 EPA 1694	MLA-075 MLA-075													
	Trenbolone acetate	SGS AXYS MLA-075 EPA 1694	MLA-075 MLA-075													
	Triamterene	SGS AXYS MLA-075 EPA 1694	MLA-075 MLA-075													
	Triclocarban	SGS AXYS MLA-075 EPA 1694	MLA-075 MLA-075													
	Triclosan	SGS AXYS MLA-075 EPA 1694	MLA-075 MLA-075													
	Trimethoprim	SGS AXYS MLA-075 EPA 1694	MLA-075 MLA-075													
	Tylosin	SGS AXYS MLA-075 EPA 1694	MLA-075 MLA-075													
	Valsartan	SGS AXYS MLA-075 EPA 1694	MLA-075 MLA-075													
	Verapamil	SGS AXYS MLA-075 EPA 1694	MLA-075 MLA-075													
	Virginiamycin	SGS AXYS MLA-075 EPA 1694	MLA-075 MLA-075													
	Warfarin	SGS AXYS MLA-075 EPA 1694	MLA-075 MLA-075													
	Targeted Metabolites	11, 14, 17-eicosatrienoic acid (eicosatrienoic acid)	SGS AXYS MLM-001	MLM-001												
		11, 14-eicosadienoic acid	SGS AXYS MLM-001	MLM-001												
		3-hydroxytyrosine	SGS AXYS MLM-001	MLM-001												
		Acetylcarnitine	SGS AXYS MLM-001	MLM-001												
		Acetylmethionine	SGS AXYS MLM-001	MLM-001												
Alanine		SGS AXYS MLM-001	MLM-001													
alpha-Aminoadipic acid		SGS AXYS MLM-001	MLM-001													
Arginine		SGS AXYS MLM-001	MLM-001													
Asparagine		SGS AXYS MLM-001	MLM-001													
Aspartate		SGS AXYS MLM-001	MLM-001													
Asymmetric dimethylarginine		SGS AXYS MLM-001	MLM-001													
Butyrylcarnitine		SGS AXYS MLM-001	MLM-001													
Butyrylcarnitine		SGS AXYS MLM-001	MLM-001													
C22:5 ISOMER 1 (tentatively all-cis-4, 8, 12, 15, 19-docosapentaenoic acid)		SGS AXYS MLM-001	MLM-001													
C22:5 ISOMER 2 (all-cis-7,10,13,16,19-docosapentaenoic acid (DPA))		SGS AXYS MLM-001	MLM-001													
C22:5 ISOMER 3 (tentatively all-cis-4, 7, 10, 13, 16-docosapentaenoic acid)		SGS AXYS MLM-001	MLM-001													
Carnitine		SGS AXYS MLM-001	MLM-001													
Carnosine		SGS AXYS MLM-001	MLM-001													
chenodeoxycholic acid		SGS AXYS MLM-001	MLM-001													
cholic acid		SGS AXYS MLM-001	MLM-001													
Citrulline		SGS AXYS MLM-001	MLM-001													
Creatinine		SGS AXYS MLM-001	MLM-001													
Decadienylcarnitine		SGS AXYS MLM-001	MLM-001													
decanoic acid (capric acid)		SGS AXYS MLM-001	MLM-001													
Decanoylcarnitine		SGS AXYS MLM-001	MLM-001													
Decenoylcarnitine		SGS AXYS MLM-001	MLM-001													
deoxycholic acid		SGS AXYS MLM-001	MLM-001													

Legend

Y	Accreditation scope
YD	Accreditation scope, including US DOD scope
BFR	Brominated flame retardants (non-PBDPE)
BPA and mPE	Bisphenol A and mono-Phthalate Esters
FTS	Fluorotelomer sulfonates
HBCDD	Hexabromocyclododecane
OC Pesticides	Organochlorine Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PBDPE	Polybrominated diphenylethers
PCB	Polychlorinated Biphenyls
PCDDF	Polychlorinated dibenzodioxins/furans
PFC	Perfluorinated Compounds
PPCP	Pharmaceutical and Personal Care Products
TBBPA	Tetrabromobisphenol A
California DPH	California Department of Public Health, Lab ID 2911 (target analytes shown are those approved 2014)
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

CALA Canadian Association for Laboratory Accreditation Inc.,
Lab ID A2637, (ISO/IEC 17025:2005 Standard)



CALA



Testing
Accreditation No. A 2637

ANAB ANSI-ASQ National Accreditation Board, certificate ADE-1861,
(ISO/IEC 17025:2005 and US DOD Standards)

