

PCBs: ANALYTICAL METHOD SOLUTIONS

The electrophilic chlorination of biphenyl leads to complex mixtures of chlorobiphenyl (PCB) congeners ranging from monochloro- up to decachloro-biphenyl. Although 209 PCB congeners are theoretically possible, only about 150 are found in industrial mixtures and have ended up in the environment.

Certain PCB congeners are considered more toxic than others and are termed 'dioxin-like'. For this reason there are analytical methods that target only these 'dioxin-like' PCBs, while other methods focus on the major PCB congeners in the industrial mixtures. In addition, there are methods that address both groups of PCB congeners.

Wellington has designed, prepared, and offers a number of sets of calibration kits and support solutions for the analysis of individual PCB congeners.

WP-CVS

This set of solutions is to be used for the analysis of the 12 dioxin-like PCB congeners by HRGC/HRMS.

EPA Method 1668C

This series of calibration solutions, and corresponding support solutions, were prepared to be used according to U.S. EPA Method 1668, Revision C.

EPA Method 1668

This calibration kit and support solutions were designed and prepared to be used with the Draft version (March, 1997) of U.S. EPA Method 1668 which is still popular with some laboratories.

EC-9605-CVS

Environment Canada Method 1/RM/31 is a HRGC/LRMS method for PCB analysis and these solutions were prepared to be used with this method.

P48-W-CVS and P48-M-CVS

European Standard Method EN 1948-4 is to be used for analysis of the 12 'dioxin-like' PCB congeners and the 6 'marker' PCB congeners in stationary source emissions. These two calibration kits, and their support solutions, were prepared for this method.

WM48-CVS

This calibration set is a combination of P48-W-CVS and P48-M-CVS.



WP-CVS STANDARD SOLUTIONS

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|------------------|--|-----------------------|
| WP-CVS | Dioxin-Like PCBs Calibration and Verification Solutions CS1-CS7 | 1 kit (7 ampoules) |
| WP-CS1 | CS1 | 500 µl |
| WP-CS2 | CS2 | 500 µl |
| WP-CS3 | CS3 | 500 µl |
| WP-CS4 | CS4 | 500 µl |
| WP-CS5 | CS5 | 500 µl |
| WP-CS6 | CS6 | 500 µl |
| WP-CS7 | CS7 | 500 µl |

| NATIVE PCBs | IUPAC | WP-CS1 | WP-CS2 | WP-CS3 | WP-CS4 | WP-CS5 | WP-CS6 | WP-CS7 |
|---|-------|---------|---------|---------|---------|---------|---------|---------|
| | | (ng/ml) | (ng/ml) | (ng/ml) | (ng/ml) | (ng/ml) | (ng/ml) | (ng/ml) |
| 3,3',4,4'-Tetrachlorobiphenyl | 77 | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 | 800 |
| 3,4,4',5-Tetrachlorobiphenyl | 81 | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 | 800 |
| 2,3,3',4,4'-Pentachlorobiphenyl | 105 | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 | 800 |
| 2,3,4,4',5-Pentachlorobiphenyl | 114 | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 | 800 |
| 2,3',4,4',5-Pentachlorobiphenyl | 118 | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 | 800 |
| 2',3,4,4',5-Pentachlorobiphenyl | 123 | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 | 800 |
| 3,3',4,4',5-Pentachlorobiphenyl | 126 | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 | 800 |
| 2,3,3',4,4',5-Hexachlorobiphenyl | 156 | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 | 800 |
| 2,3,3',4,4',5'-Hexachlorobiphenyl | 157 | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 | 800 |
| 2,3',4,4',5,5'-Hexachlorobiphenyl | 167 | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 | 800 |
| 3,3',4,4',5,5'-Hexachlorobiphenyl | 169 | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 | 800 |
| 2,3,3',4,4',5,5'-Heptachlorobiphenyl | 189 | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 | 800 |
| MASS-LABELLED PCBs | | | | | | | | |
| 3,3',4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 77L | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| 3,4,4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 81L | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| 2,3,3',4,4'-Pentachloro[¹³ C ₁₂]biphenyl | 105L | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| 2,3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 114L | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| 2,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 118L | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| 2',3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 123L | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| 3,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 126L | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| 2,3,3',4,4',5-Hexachloro[¹³ C ₁₂]biphenyl | 156L | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| 2,3,3',4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 157L | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| 2,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 167L | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| 3,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 169L | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| 2,3,3',4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 189L | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| INTERNAL STANDARDS: MASS-LABELLED PCBs | | | | | | | | |
| 2,3',4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 70L | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| 2,3,3',5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 111L | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| 2,2',3,4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 138L | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| 2,2',3,3',4,4',5-Heptachloro[¹³ C ₁₂]biphenyl | 170L | 50 | 50 | 50 | 50 | 50 | 50 | 50 |

WP-CVS STANDARD SOLUTIONS

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|------------------|----------------------------|----------|
| WP-LCS | Surrogate Spiking Solution | 1.2 ml |
| WP-ISS | Internal Standard Solution | 1.2 ml |
| WP-STK | Native PCB Solution | 1.2 ml |

| NATIVE PCBs | IUPAC | WP-LCS (ng/ml) | WP-ISS (ng/ml) | WP-STK (ng/ml) |
|---|-------|-------------------|-------------------|-------------------|
| 3,3',4,4'-Tetrachlorobiphenyl | 77 | — | — | 2000 |
| 3,4,4',5-Tetrachlorobiphenyl | 81 | — | — | 2000 |
| 2,3,3',4,4'-Pentachlorobiphenyl | 105 | — | — | 2000 |
| 2,3,4,4',5-Pentachlorobiphenyl | 114 | — | — | 2000 |
| 2,3',4,4',5-Pentachlorobiphenyl | 118 | — | — | 2000 |
| 2',3,4,4',5-Pentachlorobiphenyl | 123 | — | — | 2000 |
| 3,3',4,4',5-Pentachlorobiphenyl | 126 | — | — | 2000 |
| 2,3,3',4,4',5-Hexachlorobiphenyl | 156 | — | — | 2000 |
| 2,3,3',4,4',5'-Hexachlorobiphenyl | 157 | — | — | 2000 |
| 2,3',4,4',5,5'-Hexachlorobiphenyl | 167 | — | — | 2000 |
| 3,3',4,4',5,5'-Hexachlorobiphenyl | 169 | — | — | 2000 |
| 2,3,3',4,4',5,5'-Heptachlorobiphenyl | 189 | — | — | 2000 |
| MASS-LABELLED PCBs | | | | |
| 3,3',4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 77L | 1000 | — | — |
| 3,4,4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 81L | 1000 | — | — |
| 2,3,3',4,4'-Pentachloro[¹³ C ₁₂]biphenyl | 105L | 1000 | — | — |
| 2,3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 114L | 1000 | — | — |
| 2,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 118L | 1000 | — | — |
| 2',3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 123L | 1000 | — | — |
| 3,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 126L | 1000 | — | — |
| 2,3,3',4,4',5-Hexachloro[¹³ C ₁₂]biphenyl | 156L | 1000 | — | — |
| 2,3,3',4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 157L | 1000 | — | — |
| 2,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 167L | 1000 | — | — |
| 3,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 169L | 1000 | — | — |
| 2,3,3',4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 189L | 1000 | — | — |
| INTERNAL STANDARDS: MASS-LABELLED PCBs | | | | |
| 2,3',4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 70L | — | 1000 | — |
| 2,3,3',5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 111L | — | 1000 | — |
| 2,2',3,4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 138L | — | 1000 | — |
| 2,2',3,3',4,4',5-Heptachloro[¹³ C ₁₂]biphenyl | 170L | — | 1000 | — |

EPA METHOD 1668C STANDARD SOLUTIONS

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|------------------|--|-----------------------|
| 68C-CV5 | EPA Method 1668C Calibration and Verification Solutions CS0.2-CS5 | 1 kit (6 ampoules) |
| 68C-CS0.2 | CS0.2 High Sensitivity | 200 µl |
| 68C-CS1 | CS1 | 200 µl |
| 68C-CS2 | CS2 | 200 µl |
| 68C-CS3 | CS3 Calibration Verification | 500 µl |
| 68C-CS4 | CS4 | 200 µl |
| 68C-CS5 | CS5 | 200 µl |

NOTE: The above product codes were updated to reflect the change of EPA Method 1668B to 1668C in April of 2010.

| Native Toxics/LOC | IUPAC | 68C-CS0.2 (ng/ml) | 68C-CS1 (ng/ml) | 68C-CS2 (ng/ml) | 68C-CS3 (ng/ml) | 68C-CS4 (ng/ml) | 68C-CS5 (ng/ml) |
|---|-------|----------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 2-Chlorobiphenyl | 1 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 4-Chlorobiphenyl | 3 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 2,2'-Dichlorobiphenyl | 4 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 4,4'-Dichlorobiphenyl | 15 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 2,2',6-Trichlorobiphenyl | 19 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 3,4,4'-Trichlorobiphenyl | 37 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 2,2',6,6'-Tetrachlorobiphenyl | 54 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 3,3',4,4'-Tetrachlorobiphenyl | 77 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 3,4,4',5-Tetrachlorobiphenyl | 81 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 2,2',4,6,6'-Pentachlorobiphenyl | 104 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 2,3,3',4,4'-Pentachlorobiphenyl | 105 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 2,3,4,4',5-Pentachlorobiphenyl | 114 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 2,3',4,4',5-Pentachlorobiphenyl | 118 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 2',3,4,4',5-Pentachlorobiphenyl | 123 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 3,3',4,4',5-Pentachlorobiphenyl | 126 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 2,2',4,4',6,6'-Hexachlorobiphenyl | 155 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 2,3,3',4,4',5-Hexachlorobiphenyl | 156 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 2,3,3',4,4',5'-Hexachlorobiphenyl | 157 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 2,3',4,4',5,5'-Hexachlorobiphenyl | 167 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 3,3',4,4',5,5'-Hexachlorobiphenyl | 169 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 2,2',3,4',5,6,6'-Heptachlorobiphenyl | 188 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 2,3,3',4,4',5,5'-Heptachlorobiphenyl | 189 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 2,2',3,3',5,5',6,6'-Octachlorobiphenyl | 202 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 2,3,3',4,4',5,5',6-Octachlorobiphenyl | 205 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl | 206 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| 2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl | 208 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| Decachlorobiphenyl | 209 | 0.2 | 1.0 | 5.0 | 50 | 400 | 2000 |
| Labelled Toxics/LOC/Window-Defining (68C-LCS) | | | | | | | |
| 2-Chloro[¹³ C ₁₂]biphenyl | 1L | 100 | 100 | 100 | 100 | 100 | 100 |
| 4-Chloro[¹³ C ₁₂]biphenyl | 3L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,2'-Dichloro[¹³ C ₁₂]biphenyl | 4L | 100 | 100 | 100 | 100 | 100 | 100 |
| 4,4'-Dichloro[¹³ C ₁₂]biphenyl | 15L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,2',6-Trichloro[¹³ C ₁₂]biphenyl | 19L | 100 | 100 | 100 | 100 | 100 | 100 |
| 3,4,4'-Trichloro[¹³ C ₁₂]biphenyl | 37L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,2',6,6'-Tetrachloro[¹³ C ₁₂]biphenyl | 54L | 100 | 100 | 100 | 100 | 100 | 100 |
| 3,3',4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 77L | 100 | 100 | 100 | 100 | 100 | 100 |
| 3,4,4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 81L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,2',4,6,6'-Pentachloro[¹³ C ₁₂]biphenyl | 104L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,3,3',4,4'-Pentachloro[¹³ C ₁₂]biphenyl | 105L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 114L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 118L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2',3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 123L | 100 | 100 | 100 | 100 | 100 | 100 |
| 3,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 126L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,2',4,4',6,6'-Hexachloro[¹³ C ₁₂]biphenyl | 155L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,3,3',4,4',5-Hexachloro[¹³ C ₁₂]biphenyl | 156L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,3,3',4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 157L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 167L | 100 | 100 | 100 | 100 | 100 | 100 |
| 3,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 169L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,2',3,4',5,6,6'-Heptachloro[¹³ C ₁₂]biphenyl | 188L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,3,3',4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 189L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,2',3,3',5,5',6,6'-Octachloro[¹³ C ₁₂]biphenyl | 202L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,3,3',4,4',5,5',6-Octachloro[¹³ C ₁₂]biphenyl | 205L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,2',3,3',4,4',5,5',6-Nonachloro[¹³ C ₁₂]biphenyl | 206L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,2',3,3',4,5,5',6,6'-Nonachloro[¹³ C ₁₂]biphenyl | 208L | 100 | 100 | 100 | 100 | 100 | 100 |
| Decachloro[¹³ C ₁₂]biphenyl | 209L | 100 | 100 | 100 | 100 | 100 | 100 |
| Labelled Clean-Up (68C-CS) | | | | | | | |
| 2,4,4'-Trichloro[¹³ C ₁₂]biphenyl | 28L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,3,3',5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 111L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,2',3,3',5,5',6-Heptachloro[¹³ C ₁₂]biphenyl | 178L | 100 | 100 | 100 | 100 | 100 | 100 |
| Labelled Injection/Internal (68C-IS) | | | | | | | |
| 2,5-Dichloro[¹³ C ₁₂]biphenyl | 9L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,2',5,5'-Tetrachloro[¹³ C ₁₂]biphenyl | 52L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,2',4,5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 101L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,2',3,4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 138L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,2',3,3',4,4',5,5'-Octachloro[¹³ C ₁₂]biphenyl | 194L | 100 | 100 | 100 | 100 | 100 | 100 |

EPA METHOD 1668C STANDARD SOLUTIONS

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|------------------|---|----------|
| 68C-LCS | Labelled Toxics/LOC/Window Defining Stock Solution | 1.2 ml |
| 68C-CS | Labelled Cleanup Stock Solution | 1.2 ml |
| 68C-IS | Labelled Injection/Internal Standard Stock Solution | 1.2 ml |
| 68C-PAR | Native Toxics/LOC Stock Solution | 1.2 ml |

NOTE: The above product codes were updated to reflect the change of EPA Method 1668B to 1668C in April of 2010.

| Native Toxics/LOC | IUPAC | 68C-LCS (ng/ml) | 68C-CS (ng/ml) | 68C-IS (ng/ml) | 68C-PAR (ng/ml) |
|---|-------|--------------------|-------------------|-------------------|--------------------|
| 2-Chlorobiphenyl | 1 | — | — | — | 2000 |
| 4-Chlorobiphenyl | 3 | — | — | — | 2000 |
| 2,2'-Dichlorobiphenyl | 4 | — | — | — | 2000 |
| 4,4'-Dichlorobiphenyl | 15 | — | — | — | 2000 |
| 2,2',6-Trichlorobiphenyl | 19 | — | — | — | 2000 |
| 3,4,4'-Trichlorobiphenyl | 37 | — | — | — | 2000 |
| 2,2',6,6'-Tetrachlorobiphenyl | 54 | — | — | — | 2000 |
| 3,3',4,4'-Tetrachlorobiphenyl | 77 | — | — | — | 2000 |
| 3,4,4',5-Tetrachlorobiphenyl | 81 | — | — | — | 2000 |
| 2,2',4,6,6'-Pentachlorobiphenyl | 104 | — | — | — | 2000 |
| 2,3,3',4,4'-Pentachlorobiphenyl | 105 | — | — | — | 2000 |
| 2,3,4,4',5-Pentachlorobiphenyl | 114 | — | — | — | 2000 |
| 2,3',4,4',5-Pentachlorobiphenyl | 118 | — | — | — | 2000 |
| 2',3,4,4',5-Pentachlorobiphenyl | 123 | — | — | — | 2000 |
| 3,3',4,4',5-Pentachlorobiphenyl | 126 | — | — | — | 2000 |
| 2,2',4,4',6,6'-Hexachlorobiphenyl | 155 | — | — | — | 2000 |
| 2,3,3',4,4',5-Hexachlorobiphenyl | 156 | — | — | — | 2000 |
| 2,3,3',4,4',5'-Hexachlorobiphenyl | 157 | — | — | — | 2000 |
| 2,3',4,4',5,5'-Hexachlorobiphenyl | 167 | — | — | — | 2000 |
| 3,3',4,4',5,5'-Hexachlorobiphenyl | 169 | — | — | — | 2000 |
| 2,2',3,4',5,6,6'-Heptachlorobiphenyl | 188 | — | — | — | 2000 |
| 2,3,3',4,4',5,5'-Heptachlorobiphenyl | 189 | — | — | — | 2000 |
| 2,2',3,3',5,5',6,6'-Octachlorobiphenyl | 202 | — | — | — | 2000 |
| 2,3,3',4,4',5,5',6-Octachlorobiphenyl | 205 | — | — | — | 2000 |
| 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl | 206 | — | — | — | 2000 |
| 2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl | 208 | — | — | — | 2000 |
| Decachlorobiphenyl | 209 | — | — | — | 2000 |
| Labelled Toxics/LOC/Window-Defining (68C-LCS) | | | | | |
| 2-Chloro[¹³ C ₁₂]biphenyl | 1L | 1000 | — | — | — |
| 4-Chloro[¹³ C ₁₂]biphenyl | 3L | 1000 | — | — | — |
| 2,2'-Dichloro[¹³ C ₁₂]biphenyl | 4L | 1000 | — | — | — |
| 4,4'-Dichloro[¹³ C ₁₂]biphenyl | 15L | 1000 | — | — | — |
| 2,2',6-Trichloro[¹³ C ₁₂]biphenyl | 19L | 1000 | — | — | — |
| 3,4,4'-Trichloro[¹³ C ₁₂]biphenyl | 37L | 1000 | — | — | — |
| 2,2',6,6'-Tetrachloro[¹³ C ₁₂]biphenyl | 54L | 1000 | — | — | — |
| 3,3',4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 77L | 1000 | — | — | — |
| 3,4,4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 81L | 1000 | — | — | — |
| 2,2',4,6,6'-Pentachloro[¹³ C ₁₂]biphenyl | 104L | 1000 | — | — | — |
| 2,3,3',4,4'-Pentachloro[¹³ C ₁₂]biphenyl | 105L | 1000 | — | — | — |
| 2,3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 114L | 1000 | — | — | — |
| 2,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 118L | 1000 | — | — | — |
| 2',3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 123L | 1000 | — | — | — |
| 3,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 126L | 1000 | — | — | — |
| 2,2',4,4',6,6'-Hexachloro[¹³ C ₁₂]biphenyl | 155L | 1000 | — | — | — |
| 2,3,3',4,4',5-Hexachloro[¹³ C ₁₂]biphenyl | 156L | 1000 | — | — | — |
| 2,3,3',4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 157L | 1000 | — | — | — |
| 2,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 167L | 1000 | — | — | — |
| 3,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 169L | 1000 | — | — | — |
| 2,2',3,4',5,6,6'-Heptachloro[¹³ C ₁₂]biphenyl | 188L | 1000 | — | — | — |
| 2,3,3',4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 189L | 1000 | — | — | — |
| 2,2',3,3',5,5',6,6'-Octachloro[¹³ C ₁₂]biphenyl | 202L | 1000 | — | — | — |
| 2,3,3',4,4',5,5',6-Octachloro[¹³ C ₁₂]biphenyl | 205L | 1000 | — | — | — |
| 2,2',3,3',4,4',5,5',6-Nonachloro[¹³ C ₁₂]biphenyl | 206L | 1000 | — | — | — |
| 2,2',3,3',4,5,5',6,6'-Nonachloro[¹³ C ₁₂]biphenyl | 208L | 1000 | — | — | — |
| Decachloro[¹³ C ₁₂]biphenyl | 209L | 1000 | — | — | — |
| Labelled Clean-Up (68C-CS) | | | | | |
| 2,4,4'-Trichloro[¹³ C ₁₂]biphenyl | 28L | — | 1000 | — | — |
| 2,3,3',5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 111L | — | 1000 | — | — |
| 2,2',3,3',5,5',6-Heptachloro[¹³ C ₁₂]biphenyl | 178L | — | 1000 | — | — |
| Labelled Injection/Internal (68C-IS) | | | | | |
| 2,5-Dichloro[¹³ C ₁₂]biphenyl | 9L | — | — | 5000 | — |
| 2,2',5,5'-Tetrachloro[¹³ C ₁₂]biphenyl | 52L | — | — | 5000 | — |
| 2,2',4,5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 101L | — | — | 5000 | — |
| 2,2',3,4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 138L | — | — | 5000 | — |
| 2,2',3,3',4,4',5,5'-Octachloro[¹³ C ₁₂]biphenyl | 194L | — | — | 5000 | — |

EPA METHOD 1668 STANDARD SOLUTIONS

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|--------------------|---|-----------------------|
| EPA-1668CVS | EPA Method 1668 Calibration and Verification Solutions CS1-CS5 | 1 kit (5 ampoules) |
| EPA-1668CS1 | CS1 | 200 µl |
| EPA-1668CS2 | CS2 | 200 µl |
| EPA-1668CS3 | CS3 Calibration Verification | 500 µl |
| EPA-1668CS4 | CS4 | 200 µl |
| EPA-1668CS5 | CS5 | 200 µl |

| NATIVE PCBs | IUPAC | 1668CS1 (ng/ml) | 1668CS2 (ng/ml) | 1668CS3 (ng/ml) | 1668CS4 (ng/ml) | 1668CS5 (ng/ml) |
|---|-------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 3,3',4,4'-Tetrachlorobiphenyl | 77 | 0.5 | 2.0 | 10 | 40 | 200 |
| 2,3,3',4,4'-Pentachlorobiphenyl | 105 | 2.5 | 10 | 50 | 200 | 1000 |
| 2,3,4,4',5-Pentachlorobiphenyl | 114 | 2.5 | 10 | 50 | 200 | 1000 |
| 2,3',4,4',5-Pentachlorobiphenyl | 118 | 2.5 | 10 | 50 | 200 | 1000 |
| 2',3,4,4',5-Pentachlorobiphenyl | 123 | 2.5 | 10 | 50 | 200 | 1000 |
| 3,3',4,4',5-Pentachlorobiphenyl | 126 | 2.5 | 10 | 50 | 200 | 1000 |
| 2,3,3',4,4',5-Hexachlorobiphenyl | 156 | 5.0 | 20 | 100 | 400 | 2000 |
| 2,3,3',4,4',5'-Hexachlorobiphenyl | 157 | 5.0 | 20 | 100 | 400 | 2000 |
| 2,3',4,4',5,5'-Hexachlorobiphenyl | 167 | 5.0 | 20 | 100 | 400 | 2000 |
| 3,3',4,4',5,5'-Hexachlorobiphenyl | 169 | 5.0 | 20 | 100 | 400 | 2000 |
| 2,2',3,3',4,4',5-Heptachlorobiphenyl | 170 | 5.0 | 20 | 100 | 400 | 2000 |
| 2,2',3,4,4',5,5'-Heptachlorobiphenyl | 180 | 5.0 | 20 | 100 | 400 | 2000 |
| 2,3,3',4,4',5,5'-Heptachlorobiphenyl | 189 | 5.0 | 20 | 100 | 400 | 2000 |
| MASS-LABELLED PCBs | | | | | | |
| 3,3',4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 77L | 100 | 100 | 100 | 100 | 100 |
| 2,3,3',4,4'-Pentachloro[¹³ C ₁₂]biphenyl | 105L | 100 | 100 | 100 | 100 | 100 |
| 2,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 118L | 100 | 100 | 100 | 100 | 100 |
| 3,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 126L | 100 | 100 | 100 | 100 | 100 |
| 2,3,3',4,4',5-Hexachloro[¹³ C ₁₂]biphenyl | 156L | 100 | 100 | 100 | 100 | 100 |
| 2,3,3',4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 157L | 100 | 100 | 100 | 100 | 100 |
| 2,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 167L | 100 | 100 | 100 | 100 | 100 |
| 3,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 169L | 100 | 100 | 100 | 100 | 100 |
| 2,2',3,4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 180L | 100 | 100 | 100 | 100 | 100 |
| 2,3,3',4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 189L | 100 | 100 | 100 | 100 | 100 |
| Decachloro[¹³ C ₁₂]biphenyl | 209L | 200 | 200 | 200 | 200 | 200 |
| CLEANUP STANDARDS | | | | | | |
| 3,4,4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 81L | 0.5 | 2.0 | 10 | 40 | 200 |
| 2,3,3',5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 111L | 2.5 | 10 | 50 | 200 | 1000 |
| INTERNAL STANDARDS | | | | | | |
| 2,2',5,5'-Tetrachloro[¹³ C ₁₂]biphenyl | 52L | 100 | 100 | 100 | 100 | 100 |
| 2,2',4,5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 101L | 100 | 100 | 100 | 100 | 100 |
| 2,2',3,4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 138L | 100 | 100 | 100 | 100 | 100 |
| 2,2',3,3',5,5',6-Heptachloro[¹³ C ₁₂]biphenyl | 178L | 100 | 100 | 100 | 100 | 100 |

EPA METHOD 1668 STANDARD SOLUTIONS

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|--------------------|----------------------------------|----------|
| EPA-1668LCS | Labelled Compound Stock Solution | 1.2 ml |
| EPA-1668CS | Cleanup Standard Solution | 1.2 ml |
| EPA-1668IS | Internal Standard Stock Solution | 1.2 ml |
| EPA-1668PAR | Precision and Recovery Solution | 1.2 ml |

| NATIVE PCBs | IUPAC | 1668LCS (ng/ml) | 1668CS (ng/ml) | 1668IS (ng/ml) | 1668PAR (ng/ml) |
|---|-------|--------------------|-------------------|-------------------|--------------------|
| 3,3',4,4'-Tetrachlorobiphenyl | 77 | — | — | — | 20 |
| 2,3,3',4,4'-Pentachlorobiphenyl | 105 | — | — | — | 1000 |
| 2,3,4,4',5-Pentachlorobiphenyl | 114 | — | — | — | 1000 |
| 2,3',4,4',5-Pentachlorobiphenyl | 118 | — | — | — | 1000 |
| 2',3,4,4',5-Pentachlorobiphenyl | 123 | — | — | — | 1000 |
| 3,3',4,4',5-Pentachlorobiphenyl | 126 | — | — | — | 100 |
| 2,3,3',4,4',5-Hexachlorobiphenyl | 156 | — | — | — | 1000 |
| 2,3,3',4,4',5'-Hexachlorobiphenyl | 157 | — | — | — | 1000 |
| 2,3',4,4',5,5'-Hexachlorobiphenyl | 167 | — | — | — | 1000 |
| 3,3',4,4',5,5'-Hexachlorobiphenyl | 169 | — | — | — | 200 |
| 2,2',3,3',4,4',5-Heptachlorobiphenyl | 170 | — | — | — | 200 |
| 2,2',3,4,4',5,5'-Heptachlorobiphenyl | 180 | — | — | — | 1000 |
| 2,3,3',4,4',5,5'-Heptachlorobiphenyl | 189 | — | — | — | 200 |
| MASS-LABELLED PCBs | | | | | |
| 3,3',4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 77L | 1000 | — | — | — |
| 2,3,3',4,4'-Pentachloro[¹³ C ₁₂]biphenyl | 105L | 1000 | — | — | — |
| 2,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 118L | 1000 | — | — | — |
| 3,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 126L | 1000 | — | — | — |
| 2,3,3',4,4',5-Hexachloro[¹³ C ₁₂]biphenyl | 156L | 1000 | — | — | — |
| 2,3,3',4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 157L | 1000 | — | — | — |
| 2,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 167L | 1000 | — | — | — |
| 3,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 169L | 1000 | — | — | — |
| 2,2',3,4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 180L | 1000 | — | — | — |
| 2,3,3',4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 189L | 1000 | — | — | — |
| Decachloro[¹³ C ₁₂]biphenyl | 209L | 2000 | — | — | — |
| CLEANUP STANDARDS | | | | | |
| 3,4,4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 81L | — | 200 | — | — |
| 2,3,3',5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 111L | — | 1000 | — | — |
| INTERNAL STANDARDS | | | | | |
| 2,2',5,5'-Tetrachloro[¹³ C ₁₂]biphenyl | 52L | — | — | 1000 | — |
| 2,2',4,5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 101L | — | — | 1000 | — |
| 2,2',3,4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 138L | — | — | 1000 | — |
| 2,2',3,3',5,5',6-Heptachloro[¹³ C ₁₂]biphenyl | 178L | — | — | 1000 | — |

ENVIRONMENT CANADA METHOD 1/RM/31 STANDARD SOLUTIONS

| Catalogue Number | Product (isooctane solution) | Qty/Conc |
|-------------------|---|-----------------------|
| EC9605-CVS | PCB Calibration Solutions for GC/MS Calibration and Verification Solutions CS1-CS5 | 1 kit (5 ampoules) |
| ECPCS1 | CS1 | 500 µl |
| ECPCS2 | CS2 | 500 µl |
| ECPCS3 | CS3 | 500 µl |
| ECPCS4 | CS4 | 500 µl |
| ECPCS5 | CS5 | 500 µl |

| NATIVE PCBs* | IUPAC | ECPCS1 (ng/ml) | ECPCS2 (ng/ml) | ECPCS3 (ng/ml) | ECPCS4 (ng/ml) | ECPCS5 (ng/ml) |
|--|---|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| | 2,2',5-Trichlorobiphenyl | 20 | 50 | 200 | 800 | 2000 |
| | 2,4,4'-Trichlorobiphenyl | 20 | 50 | 200 | 800 | 2000 |
| | 2',3,4-Trichlorobiphenyl | 20 | 50 | 200 | 800 | 2000 |
| | 2,2',5,5'-Tetrachlorobiphenyl | 20 | 50 | 200 | 800 | 2000 |
| | 2,2',3,5'-Tetrachlorobiphenyl | 20 | 50 | 200 | 800 | 2000 |
| | 2,3',4',5-Tetrachlorobiphenyl | 20 | 50 | 200 | 800 | 2000 |
| | 2,2',4,5,5'-Pentachlorobiphenyl | 20 | 50 | 200 | 800 | 2000 |
| | 2,3',4,4',5-Pentachlorobiphenyl | 20 | 50 | 200 | 800 | 2000 |
| | 2,3,3',4,4'-Pentachlorobiphenyl | 20 | 50 | 200 | 800 | 2000 |
| | 2,2',4,4',5,5'-Hexachlorobiphenyl | 20 | 50 | 200 | 800 | 2000 |
| | 2,2',3,4,4',5'-Hexachlorobiphenyl | 20 | 50 | 200 | 800 | 2000 |
| | 2,2',3,3',4,4'-Hexachlorobiphenyl | 20 | 50 | 200 | 800 | 2000 |
| | 2,2',3,4',5,5',6-Heptachlorobiphenyl | 20 | 50 | 200 | 800 | 2000 |
| | 2,2',3,4,4',5,5'-Heptachlorobiphenyl | 20 | 50 | 200 | 800 | 2000 |
| | 2,2',3,3',4,4',5-Heptachlorobiphenyl | 20 | 50 | 200 | 800 | 2000 |
| | 2,2',3,3',4,5,5',6'-Octachlorobiphenyl | 20 | 50 | 200 | 800 | 2000 |
| | 2,2',3,3',4,4',5,6-Octachlorobiphenyl | 20 | 50 | 200 | 800 | 2000 |
| | 2,2',3,3',4,4',5,5'-Octachlorobiphenyl | 20 | 50 | 200 | 800 | 2000 |
| | 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl | 20 | 50 | 200 | 800 | 2000 |
| | Decachlorobiphenyl | 20 | 50 | 200 | 800 | 2000 |
| MASS-LABELLED PCBs* | | | | | | |
| | 2,4,4'-Trichloro[¹³ C ₁₂]biphenyl | 400 | 400 | 400 | 400 | 400 |
| | 2,2',5,5'-Tetrachloro[¹³ C ₁₂]biphenyl | 400 | 400 | 400 | 400 | 400 |
| | 2,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 400 | 400 | 400 | 400 | 400 |
| | 2,2',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 400 | 400 | 400 | 400 | 400 |
| | 2,2',3,4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 400 | 400 | 400 | 400 | 400 |
| | 2,2',3,3',5,5',6,6'-Octachloro[¹³ C ₁₂]biphenyl | 400 | 400 | 400 | 400 | 400 |
| | 2,2',3,3',4,4',5,5',6-Nonachloro[¹³ C ₁₂]biphenyl | 400 | 400 | 400 | 400 | 400 |
| | Decachloro[¹³ C ₁₂]biphenyl | 400 | 400 | 400 | 400 | 400 |
| MASS-LABELLED RECOVERY STANDARDS* | | | | | | |
| | 2,2',4,5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 400 | 400 | 400 | 400 | 400 |
| | 2,2',3,3',4,4',5,5'-Octachloro[¹³ C ₁₂]biphenyl | 400 | 400 | 400 | 400 | 400 |

* In order of elution on a 60m DB-5 column.

ENVIRONMENT CANADA METHOD 1/RM/31 STANDARD SOLUTIONS

| Catalogue Number | Product (isooctane solution) | Qty/Conc |
|-------------------|---------------------------------|----------|
| EC9605-RS | Recovery Standard Solution | 1.2 ml |
| EC9605-SS | Surrogate Solution | 1.2 ml |
| EC9605-PAR | Precision and Recovery Solution | 1.2 ml |

| NATIVE PCBs | IUPAC | EC9605-RS (µg/ml) | EC9605-SS (µg/ml) | EC9605-PAR (ng/ml) |
|---|-------|----------------------|----------------------|-----------------------|
| 2,2',5-Trichlorobiphenyl | 18 | — | — | 100 |
| 2,4,4'-Trichlorobiphenyl | 28 | — | — | 100 |
| 2',3,4-Trichlorobiphenyl | 33 | — | — | 100 |
| 2,2',5,5'-Tetrachlorobiphenyl | 52 | — | — | 100 |
| 2,2',3,5'-Tetrachlorobiphenyl | 44 | — | — | 100 |
| 2,3',4',5-Tetrachlorobiphenyl | 70 | — | — | 100 |
| 2,2',4,5,5'-Pentachlorobiphenyl | 101 | — | — | 100 |
| 2,3',4,4',5-Pentachlorobiphenyl | 118 | — | — | 100 |
| 2,3,3',4,4'-Pentachlorobiphenyl | 105 | — | — | 100 |
| 2,2',4,4',5,5'-Hexachlorobiphenyl | 153 | — | — | 100 |
| 2,2',3,4,4',5'-Hexachlorobiphenyl | 138 | — | — | 100 |
| 2,2',3,3',4,4'-Hexachlorobiphenyl | 128 | — | — | 100 |
| 2,2',3,4',5,5',6-Heptachlorobiphenyl | 187 | — | — | 100 |
| 2,2',3,4,4',5,5'-Heptachlorobiphenyl | 180 | — | — | 100 |
| 2,2',3,3',4,4',5-Heptachlorobiphenyl | 170 | — | — | 100 |
| 2,2',3,3',4,5,5',6'-Octachlorobiphenyl | 199 | — | — | 100 |
| 2,2',3,3',4,4',5,6-Octachlorobiphenyl | 195 | — | — | 100 |
| 2,2',3,3',4,4',5,5'-Octachlorobiphenyl | 194 | — | — | 100 |
| 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl | 206 | — | — | 100 |
| Decachlorobiphenyl | 209 | — | — | 100 |
| MASS-LABELLED PCBs | | | | |
| 2,4,4'-Trichloro[¹³ C ₁₂]biphenyl | 28L | — | 2.0 | — |
| 2,2',5,5'-Tetrachloro[¹³ C ₁₂]biphenyl | 52L | — | 2.0 | — |
| 2,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 118L | — | 2.0 | — |
| 2,2',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 153L | — | 2.0 | — |
| 2,2',3,4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 180L | — | 2.0 | — |
| 2,2',3,3',5,5',6,6'-Octachloro[¹³ C ₁₂]biphenyl | 202L | — | 2.0 | — |
| 2,2',3,3',4,4',5,5',6-Nonachloro[¹³ C ₁₂]biphenyl | 206L | — | 2.0 | — |
| Decachloro[¹³ C ₁₂]biphenyl | 209L | — | 2.0 | — |
| MASS-LABELLED RECOVERY STANDARDS | | | | |
| 2,2',4,5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 101L | 2.0 | — | — |
| 2,2',3,3',4,4',5,5'-Octachloro[¹³ C ₁₂]biphenyl | 194L | 2.0 | — | — |

P48-W-CVS

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|------------------|---|-----------------------|
| P48-W-CVS | P48-W-CVS; EN 1948-4:2010 HRGC/HRMS Calibration Solutions for the Dioxin-like PCBs | 1 kit (6 ampoules) |
| P48-W-CS1 | CS1 | 500 µl |
| P48-W-CS2 | CS2 | 500 µl |
| P48-W-CS3 | CS3 | 500 µl |
| P48-W-CS4 | CS4 | 500 µl |
| P48-W-CS5 | CS5 | 500 µl |
| P48-W-CS6 | CS6 | 500 µl |

| NATIVE DIOXIN-LIKE PCB CONGENERS | IUPAC | P48-W- | P48-W- | P48-W- | P48-W- | P48-W- | P48-W- |
|--------------------------------------|-------|----------------|----------------|----------------|----------------|----------------|----------------|
| | | CS1 (pg/µl) | CS2 (pg/µl) | CS3 (pg/µl) | CS4 (pg/µl) | CS5 (pg/µl) | CS6 (pg/µl) |
| 3,3',4,4'-Tetrachlorobiphenyl | 77 | 0.1 | 1.0 | 10 | 50 | 200 | 800 |
| 3,4,4',5-Tetrachlorobiphenyl | 81 | 0.1 | 1.0 | 10 | 50 | 200 | 800 |
| 2,3,3',4,4'-Pentachlorobiphenyl | 105 | 0.1 | 1.0 | 10 | 50 | 200 | 800 |
| 2,3,4,4',5-Pentachlorobiphenyl | 114 | 0.1 | 1.0 | 10 | 50 | 200 | 800 |
| 2,3',4,4',5-Pentachlorobiphenyl | 118 | 0.6 | 6.0 | 60 | 300 | 1200 | 4800 |
| 2',3,4,4',5-Pentachlorobiphenyl | 123 | 0.1 | 1.0 | 10 | 50 | 200 | 800 |
| 3,3',4,4',5-Pentachlorobiphenyl | 126 | 0.1 | 1.0 | 10 | 50 | 200 | 800 |
| 2,3,3',4,4',5-Hexachlorobiphenyl | 156 | 0.1 | 1.0 | 10 | 50 | 200 | 800 |
| 2,3,3',4,4',5'-Hexachlorobiphenyl | 157 | 0.1 | 1.0 | 10 | 50 | 200 | 800 |
| 2,3',4,4',5,5'-Hexachlorobiphenyl | 167 | 0.1 | 1.0 | 10 | 50 | 200 | 800 |
| 3,3',4,4',5,5'-Hexachlorobiphenyl | 169 | 0.1 | 1.0 | 10 | 50 | 200 | 800 |
| 2,3,3',4,4',5,5'-Heptachlorobiphenyl | 189 | 0.1 | 1.0 | 10 | 50 | 200 | 800 |

WHO PCB EXTRACTION SPIKE (P48-W-ES)

| | | | | | | | |
|---|------|----|----|----|----|----|----|
| 3,3',4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 77L | 10 | 10 | 10 | 10 | 10 | 10 |
| 3,4,4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 81L | 10 | 10 | 10 | 10 | 10 | 10 |
| 2,3,3',4,4'-Pentachloro[¹³ C ₁₂]biphenyl | 105L | 10 | 10 | 10 | 10 | 10 | 10 |
| 2,3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 114L | 10 | 10 | 10 | 10 | 10 | 10 |
| 2,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 118L | 10 | 10 | 10 | 10 | 10 | 10 |
| 2',3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 123L | 10 | 10 | 10 | 10 | 10 | 10 |
| 3,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 126L | 10 | 10 | 10 | 10 | 10 | 10 |
| 2,3,3',4,4',5-Hexachloro[¹³ C ₁₂]biphenyl | 156L | 10 | 10 | 10 | 10 | 10 | 10 |
| 2,3,3',4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 157L | 10 | 10 | 10 | 10 | 10 | 10 |
| 2,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 167L | 10 | 10 | 10 | 10 | 10 | 10 |
| 3,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 169L | 10 | 10 | 10 | 10 | 10 | 10 |
| 2,3,3',4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 189L | 10 | 10 | 10 | 10 | 10 | 10 |

SAMPLING SPIKE (P48-SS)

| | | | | | | | |
|---|------|----|----|----|----|----|----|
| 2,3,4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 60L | 10 | 10 | 10 | 10 | 10 | 10 |
| 3,3',4,5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 127L | 10 | 10 | 10 | 10 | 10 | 10 |
| 2,3,3',4,5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 159L | 10 | 10 | 10 | 10 | 10 | 10 |

RECOVERY SPIKE (P48-RS)

| | | | | | | | |
|---|------|----|----|----|----|----|----|
| 2,3',4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 70L | 10 | 10 | 10 | 10 | 10 | 10 |
| 2,3,3',5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 111L | 10 | 10 | 10 | 10 | 10 | 10 |
| 2,2',3,3',4,4',5-Heptachloro[¹³ C ₁₂]biphenyl | 170L | 10 | 10 | 10 | 10 | 10 | 10 |

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|--------------------|--|-----------------------|
| P48-M-CVS | P48-M-CVS; EN 1948-4:2010 HRGC/HRMS Calibration Solutions for the Marker PCBs | 1 kit (6 ampoules) |
| P48-M-CS0.1 | CS0.1 | 500 µl |
| P48-M-CS1 | CS1 | 500 µl |
| P48-M-CS2 | CS2 | 500 µl |
| P48-M-CS3 | CS3 | 500 µl |
| P48-M-CS4 | CS4 | 500 µl |
| P48-M-CS5 | CS5 | 500 µl |

| NATIVE MARKER PCB CONGENERS | IUPAC | P48-M-CS0.1 (pg/µl) | P48-M-CS1 (pg/µl) | P48-M-CS2 (pg/µl) | P48-M-CS3 (pg/µl) | P48-M-CS4 (pg/µl) | P48-M-CS5 (pg/µl) |
|---|-------|------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| 2,4,4'-Trichlorobiphenyl | 28 | 0.1 | 1.0 | 10 | 100 | 500 | 5000 |
| 2,2',5,5'-Tetrachlorobiphenyl | 52 | 0.1 | 1.0 | 10 | 100 | 500 | 5000 |
| 2,2',4,5,5'-Pentachlorobiphenyl | 101 | 0.1 | 1.0 | 10 | 100 | 500 | 5000 |
| 2,2',3,4,4',5'-Hexachlorobiphenyl | 138 | 0.1 | 1.0 | 10 | 100 | 500 | 5000 |
| 2,2',4,4',5,5'-Hexachlorobiphenyl | 153 | 0.1 | 1.0 | 10 | 100 | 500 | 5000 |
| 2,2',3,4,4',5,5'-Heptachlorobiphenyl | 180 | 0.1 | 1.0 | 10 | 100 | 500 | 5000 |
| MARKER PCB EXTRACTION SPIKE (P48-M-ES) | | | | | | | |
| 2,4,4'-Trichloro[¹³ C ₁₂]biphenyl | 28L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,2',5,5'-Tetrachloro[¹³ C ₁₂]biphenyl | 52L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,2',4,5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 101L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,2',3,4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 138L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,2',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 153L | 100 | 100 | 100 | 100 | 100 | 100 |
| 2,2',3,4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 180L | 100 | 100 | 100 | 100 | 100 | 100 |
| SAMPLING SPIKE (P48-SS) | | | | | | | |
| 2,3,4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 60L | 10 | 10 | 10 | 10 | 10 | 10 |
| 3,3',4,5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 127L | 10 | 10 | 10 | 10 | 10 | 10 |
| 2,3,3',4,5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 159L | 10 | 10 | 10 | 10 | 10 | 10 |
| RECOVERY SPIKE (P48-RS) | | | | | | | |
| 2,3',4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 70L | 10 | 10 | 10 | 10 | 10 | 10 |
| 2,3,3',5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 111L | 10 | 10 | 10 | 10 | 10 | 10 |
| 2,2',3,3',4,4',5-Heptachloro[¹³ C ₁₂]biphenyl | 170L | 10 | 10 | 10 | 10 | 10 | 10 |

WM48-CVS

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|------------------|--|-----------------------|
| WM48-CVS | WM48-CVS; EN 1948-4:2010 HRGC/HRMS Calibration Solutions for the Dioxin-like and Marker PCBs | 1 kit (6 ampoules) |
| WM48-CS1 | CS1 | 500 µl |
| WM48-CS2 | CS2 | 500 µl |
| WM48-CS3 | CS3 | 500 µl |
| WM48-CS4 | CS4 | 500 µl |
| WM48-CS5 | CS5 | 500 µl |
| WM48-CS6 | CS6 | 500 µl |

| | | WM48- CS1 (pg/µl) | WM48- CS2 (pg/µl) | WM48- CS3 (pg/µl) | WM48- CS4 (pg/µl) | WM48- CS5 (pg/µl) | WM48- CS6 (pg/µl) |
|---|---|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| NATIVE DIOXIN-LIKE PCB CONGENERS | IUPAC | | | | | | |
| | 3,3',4,4'-Tetrachlorobiphenyl | 0.1 | 0.5 | 2 | 10 | 40 | 200 |
| | 3,4,4',5-Tetrachlorobiphenyl | 0.1 | 0.5 | 2 | 10 | 40 | 200 |
| | 2,3,3',4,4'-Pentachlorobiphenyl | 0.1 | 0.5 | 2 | 10 | 40 | 200 |
| | 2,3,4,4',5-Pentachlorobiphenyl | 0.1 | 0.5 | 2 | 10 | 40 | 200 |
| | 2,3',4,4',5-Pentachlorobiphenyl | 0.5 | 2.5 | 10 | 50 | 200 | 1000 |
| | 2',3,4,4',5-Pentachlorobiphenyl | 0.1 | 0.5 | 2 | 10 | 40 | 200 |
| | 3,3',4,4',5-Pentachlorobiphenyl | 0.1 | 0.5 | 2 | 10 | 40 | 200 |
| | 2,3,3',4,4',5-Hexachlorobiphenyl | 0.1 | 0.5 | 2 | 10 | 40 | 200 |
| | 2,3,3',4,4',5'-Hexachlorobiphenyl | 0.1 | 0.5 | 2 | 10 | 40 | 200 |
| | 2,3',4,4',5,5'-Hexachlorobiphenyl | 0.1 | 0.5 | 2 | 10 | 40 | 200 |
| | 3,3',4,4',5,5'-Hexachlorobiphenyl | 0.1 | 0.5 | 2 | 10 | 40 | 200 |
| | 2,3,3',4,4',5,5'-Heptachlorobiphenyl | 0.1 | 0.5 | 2 | 10 | 40 | 200 |
| NATIVE MARKER PCB CONGENERS | | | | | | | |
| | 2,4,4'-Trichlorobiphenyl | 0.5 | 2.5 | 10 | 50 | 200 | 1000 |
| | 2,2',5,5'-Tetrachlorobiphenyl | 0.5 | 2.5 | 10 | 50 | 200 | 1000 |
| | 2,2',4,5,5'-Pentachlorobiphenyl | 0.5 | 2.5 | 10 | 50 | 200 | 1000 |
| | 2,2',3,4,4',5'-Hexachlorobiphenyl | 0.5 | 2.5 | 10 | 50 | 200 | 1000 |
| | 2,2',4,4',5,5'-Hexachlorobiphenyl | 0.5 | 2.5 | 10 | 50 | 200 | 1000 |
| | 2,2',3,4,4',5,5'-Heptachlorobiphenyl | 0.5 | 2.5 | 10 | 50 | 200 | 1000 |
| EXTRACTION SPIKE | | | | | | | |
| | 3,3',4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| | 3,4,4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| | 2,3,3',4,4'-Pentachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| | 2,3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| | 2,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| | 2',3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| | 3,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| | 2,3,3',4,4',5-Hexachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| | 2,3,3',4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| | 2,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| | 3,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| | 2,3,3',4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| | 2,4,4'-Trichloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| | 2,2',5,5'-Tetrachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| | 2,2',4,5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| | 2,2',3,4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| | 2,2',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| | 2,2',3,4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| SAMPLING SPIKE | | | | | | | |
| | 2,3,4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| | 3,3',4,5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| | 2,3,3',4,5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| RECOVERY SPIKE | | | | | | | |
| | 2,3',4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| | 2,3,3',5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |
| | 2,2',3,3',4,4',5-Heptachloro[¹³ C ₁₂]biphenyl | 10 | 10 | 10 | 10 | 10 | 10 |

P48-W-PAR: Native Dioxin-Like (WHO) PCB Solution

| Catalogue Number | Product (nonane solution) | Qty/Conc | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---------------------------|-------------------|--|-------|-------------------|-------------------------------|----|-----|------------------------------|----|-----|---------------------------------|-----|-----|--------------------------------|-----|-----|---------------------------------|-----|------|---------------------------------|-----|-----|---------------------------------|-----|-----|----------------------------------|-----|-----|-----------------------------------|-----|-----|-----------------------------------|-----|-----|-----------------------------------|-----|-----|--------------------------------------|-----|-----|
| P48-W-PAR | P48-W-PAR; EN 1948-4:2010 | 1.2 ml | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>NATIVE DIOXIN-LIKE (WHO) PCB CONGENERS</th> <th>IUPAC</th> <th>P48-W-PAR (pg/μl)</th> </tr> </thead> <tbody> <tr> <td>3,3',4,4'-Tetrachlorobiphenyl</td> <td>77</td> <td>250</td> </tr> <tr> <td>3,4,4',5-Tetrachlorobiphenyl</td> <td>81</td> <td>250</td> </tr> <tr> <td>2,3,3',4,4'-Pentachlorobiphenyl</td> <td>105</td> <td>250</td> </tr> <tr> <td>2,3,4,4',5-Pentachlorobiphenyl</td> <td>114</td> <td>250</td> </tr> <tr> <td>2,3',4,4',5-Pentachlorobiphenyl</td> <td>118</td> <td>1500</td> </tr> <tr> <td>2',3,4,4',5-Pentachlorobiphenyl</td> <td>123</td> <td>250</td> </tr> <tr> <td>3,3',4,4',5-Pentachlorobiphenyl</td> <td>126</td> <td>250</td> </tr> <tr> <td>2,3,3',4,4',5-Hexachlorobiphenyl</td> <td>156</td> <td>250</td> </tr> <tr> <td>2,3,3',4,4',5'-Hexachlorobiphenyl</td> <td>157</td> <td>250</td> </tr> <tr> <td>2,3',4,4',5,5'-Hexachlorobiphenyl</td> <td>167</td> <td>250</td> </tr> <tr> <td>3,3',4,4',5,5'-Hexachlorobiphenyl</td> <td>169</td> <td>250</td> </tr> <tr> <td>2,3,3',4,4',5,5'-Heptachlorobiphenyl</td> <td>189</td> <td>250</td> </tr> </tbody> </table> | | | NATIVE DIOXIN-LIKE (WHO) PCB CONGENERS | IUPAC | P48-W-PAR (pg/μl) | 3,3',4,4'-Tetrachlorobiphenyl | 77 | 250 | 3,4,4',5-Tetrachlorobiphenyl | 81 | 250 | 2,3,3',4,4'-Pentachlorobiphenyl | 105 | 250 | 2,3,4,4',5-Pentachlorobiphenyl | 114 | 250 | 2,3',4,4',5-Pentachlorobiphenyl | 118 | 1500 | 2',3,4,4',5-Pentachlorobiphenyl | 123 | 250 | 3,3',4,4',5-Pentachlorobiphenyl | 126 | 250 | 2,3,3',4,4',5-Hexachlorobiphenyl | 156 | 250 | 2,3,3',4,4',5'-Hexachlorobiphenyl | 157 | 250 | 2,3',4,4',5,5'-Hexachlorobiphenyl | 167 | 250 | 3,3',4,4',5,5'-Hexachlorobiphenyl | 169 | 250 | 2,3,3',4,4',5,5'-Heptachlorobiphenyl | 189 | 250 |
| NATIVE DIOXIN-LIKE (WHO) PCB CONGENERS | IUPAC | P48-W-PAR (pg/μl) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3,3',4,4'-Tetrachlorobiphenyl | 77 | 250 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3,4,4',5-Tetrachlorobiphenyl | 81 | 250 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,3,3',4,4'-Pentachlorobiphenyl | 105 | 250 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,3,4,4',5-Pentachlorobiphenyl | 114 | 250 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,3',4,4',5-Pentachlorobiphenyl | 118 | 1500 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2',3,4,4',5-Pentachlorobiphenyl | 123 | 250 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3,3',4,4',5-Pentachlorobiphenyl | 126 | 250 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,3,3',4,4',5-Hexachlorobiphenyl | 156 | 250 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,3,3',4,4',5'-Hexachlorobiphenyl | 157 | 250 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,3',4,4',5,5'-Hexachlorobiphenyl | 167 | 250 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3,3',4,4',5,5'-Hexachlorobiphenyl | 169 | 250 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2,3,3',4,4',5,5'-Heptachlorobiphenyl | 189 | 250 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

P48-M-PAR: Native Marker PCB Solution

| Catalogue Number | Product (nonane solution) | Qty/Conc | | | | | | | | | | | | | | | | | | | | | |
|---|---------------------------|-------------------|-----------------------------|-------|-------------------|--------------------------|----|-----|-------------------------------|----|-----|---------------------------------|-----|-----|-----------------------------------|-----|-----|-----------------------------------|-----|-----|--------------------------------------|-----|-----|
| P48-M-PAR | P48-M-PAR; EN 1948-4:2010 | 1.2 ml | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>NATIVE MARKER PCB CONGENERS</th> <th>IUPAC</th> <th>P48-M-PAR (pg/μl)</th> </tr> </thead> <tbody> <tr> <td>2,4,4'-Trichlorobiphenyl</td> <td>28</td> <td>250</td> </tr> <tr> <td>2,2',5,5'-Tetrachlorobiphenyl</td> <td>52</td> <td>250</td> </tr> <tr> <td>2,2',4,5,5'-Pentachlorobiphenyl</td> <td>101</td> <td>250</td> </tr> <tr> <td>2,2',3,4,4',5'-Hexachlorobiphenyl</td> <td>138</td> <td>250</td> </tr> <tr> <td>2,2',4,4',5,5'-Hexachlorobiphenyl</td> <td>153</td> <td>250</td> </tr> <tr> <td>2,2',3,4,4',5,5'-Heptachlorobiphenyl</td> <td>180</td> <td>250</td> </tr> </tbody> </table> | | | NATIVE MARKER PCB CONGENERS | IUPAC | P48-M-PAR (pg/μl) | 2,4,4'-Trichlorobiphenyl | 28 | 250 | 2,2',5,5'-Tetrachlorobiphenyl | 52 | 250 | 2,2',4,5,5'-Pentachlorobiphenyl | 101 | 250 | 2,2',3,4,4',5'-Hexachlorobiphenyl | 138 | 250 | 2,2',4,4',5,5'-Hexachlorobiphenyl | 153 | 250 | 2,2',3,4,4',5,5'-Heptachlorobiphenyl | 180 | 250 |
| NATIVE MARKER PCB CONGENERS | IUPAC | P48-M-PAR (pg/μl) | | | | | | | | | | | | | | | | | | | | | |
| 2,4,4'-Trichlorobiphenyl | 28 | 250 | | | | | | | | | | | | | | | | | | | | | |
| 2,2',5,5'-Tetrachlorobiphenyl | 52 | 250 | | | | | | | | | | | | | | | | | | | | | |
| 2,2',4,5,5'-Pentachlorobiphenyl | 101 | 250 | | | | | | | | | | | | | | | | | | | | | |
| 2,2',3,4,4',5'-Hexachlorobiphenyl | 138 | 250 | | | | | | | | | | | | | | | | | | | | | |
| 2,2',4,4',5,5'-Hexachlorobiphenyl | 153 | 250 | | | | | | | | | | | | | | | | | | | | | |
| 2,2',3,4,4',5,5'-Heptachlorobiphenyl | 180 | 250 | | | | | | | | | | | | | | | | | | | | | |

SUPPORT SOLUTIONS FOR EN 1948-4:2010

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|------------------|---|----------|
| P48-W-ES | Dioxin-like (WHO) PCB Extraction Standard | 1.2 ml |
| P48-M-ES | Marker PCB Extraction Standard | 1.2 ml |
| P48-SS | Mass-Labelled PCB Sampling Standard | 1.2 ml |
| P48-RS | Mass-Labelled PCB Recovery Standard | 1.2 ml |

| DIOXIN-LIKE PCB EXTRACTION STANDARD | IUPAC | P48-W-ES (pg/µl) | P48-M-ES (pg/µl) | P48-SS (pg/µl) | P48-RS (pg/ul) |
|---|-------|---------------------|---------------------|-------------------|-------------------|
| 3,3',4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 77L | 100 | — | — | — |
| 3,4,4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 81L | 100 | — | — | — |
| 2,3,3',4,4'-Pentachloro[¹³ C ₁₂]biphenyl | 105L | 100 | — | — | — |
| 2,3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 114L | 100 | — | — | — |
| 2,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 118L | 100 | — | — | — |
| 2',3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 123L | 100 | — | — | — |
| 3,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 126L | 100 | — | — | — |
| 2,3,3',4,4',5-Hexachloro[¹³ C ₁₂]biphenyl | 156L | 100 | — | — | — |
| 2,3,3',4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 157L | 100 | — | — | — |
| 2,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 167L | 100 | — | — | — |
| 3,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 169L | 100 | — | — | — |
| 2,3,3',4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 189L | 100 | — | — | — |
| MARKER PCB EXTRACTION STANDARD | | | | | |
| 2,4,4'-Trichloro[¹³ C ₁₂]biphenyl | 28L | — | 1000 | — | — |
| 2,2',5,5'-Tetrachloro[¹³ C ₁₂]biphenyl | 52L | — | 1000 | — | — |
| 2,2',4,5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 101L | — | 1000 | — | — |
| 2,2',3,4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 138L | — | 1000 | — | — |
| 2,2',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 153L | — | 1000 | — | — |
| 2,2',3,4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 180L | — | 1000 | — | — |
| MASS-LABELLED PCB SAMPLING STANDARD | | | | | |
| 2,3,4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 60L | — | — | 100 | — |
| 3,3',4,5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 127L | — | — | 100 | — |
| 2,3,3',4,5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 159L | — | — | 100 | — |
| MASS-LABELLED PCB RECOVERY STANDARD | | | | | |
| 2,3',4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 70L | — | — | — | 100 |
| 2,3,3',5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 111L | — | — | — | 100 |
| 2,2',3,3',4,4',5-Heptachloro[¹³ C ₁₂]biphenyl | 170L | — | — | — | 100 |

PCBs: MASS-LABELLED CONGENERES

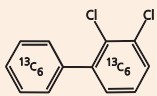
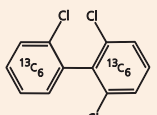
Wellington has prepared a very comprehensive collection of fully labelled ($^{13}\text{C}_{12}$) individual PCB congeners including the 12 'dioxin-like' PCBs and the more prominent congeners found in commercial mixtures and the environment.

All of the ^{13}C -PCBs in the following pages were prepared using one-product, unambiguous routes and purified using a variety of methods. Their structures and chemical and isotopic purities were confirmed using various instruments and this data is included in the Certificates of Analysis.

Additional ^{13}C -PCBs may be added in the future, so please continue to visit our website for updates or contact **Wellington** or your local distributor if you have any specific requests.

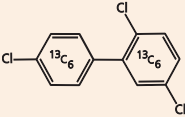


MASS-LABELLED CHLORINATED BIPHENYLS

| Catalogue Number | Product |
|------------------|---|
| MBP-1 |  <p>2-Chloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-3 |  <p>4-Chloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-4 |  <p>2,2'-Dichloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-5 |  <p>2,3-Dichloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-8 |  <p>2,4'-Dichloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-9 |  <p>2,5-Dichloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-11 |  <p>3,3'-Dichloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-15 |  <p>4,4'-Dichloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-19 |  <p>2,2',6-Trichloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-28 |  <p>2,4,4'-Trichloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |

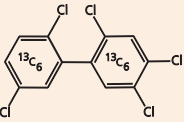
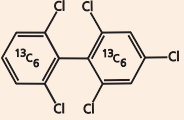
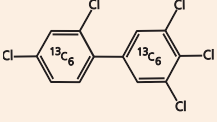
* Unless stated otherwise, isotopic purities of these compounds are 99% or greater.

MASS-LABELLED CHLORINATED BIPHENYLS

| Catalogue Number | Product |
|------------------|--|
| MBP-31 |  <p>2,4',5-Trichloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-37 |  <p>3,4,4'-Trichloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-52 |  <p>2,2',5,5'-Tetrachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-54 |  <p>2,2',6,6'-Tetrachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-60 |  <p>2,3,4,4'-Tetrachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-70 |  <p>2,3',4',5-Tetrachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-77 |  <p>3,3',4,4'-Tetrachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-79 |  <p>3,3',4,5'-Tetrachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-81 |  <p>3,4,4',5-Tetrachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-95 |  <p>2,2',3,5',6-Pentachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |

* Unless stated otherwise, isotopic purities of these compounds are 99% or greater.

MASS-LABELLED CHLORINATED BIPHENYLS

| Catalogue Number | Product |
|------------------|--|
| MBP-101 |  <p>2,2',4,5,5'-Pentachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-104 |  <p>2,2',4,6,6'-Pentachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-105 |  <p>2,3,3',4,4'-Pentachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-111 |  <p>2,3,3',5,5'-Pentachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-114 |  <p>2,3,4,4',5-Pentachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-118 |  <p>2,3',4,4',5-Pentachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-123 |  <p>2',3,4,4',5-Pentachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-126 |  <p>3,3',4,4',5-Pentachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-127 |  <p>3,3',4,5,5'-Pentachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-133 |  <p>2,2',3,3',5,5'-Hexachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |

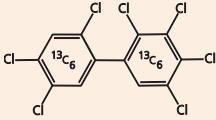
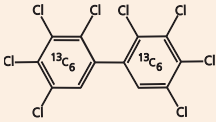
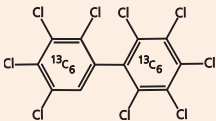
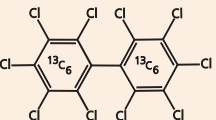
* Unless stated otherwise, isotopic purities of these compounds are 99% or greater.

MASS-LABELLED CHLORINATED BIPHENYLS

| Catalogue Number | Product |
|------------------|---|
| MBP-138 |  <p>2,2',3,4,4',5'-Hexachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-153 |  <p>2,2',4,4',5,5'-Hexachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-155 |  <p>2,2',4,4',6,6'-Hexachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-156 |  <p>2,3,3',4,4',5-Hexachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-157 |  <p>2,3,3',4,4',5'-Hexachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-159 |  <p>2,3,3',4,5,5'-Hexachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-162 |  <p>2,3,3',4',5,5'-Hexachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-167 |  <p>2,3',4,4',5,5'-Hexachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-169 |  <p>3,3',4,4',5,5'-Hexachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-170 |  <p>2,2',3,3',4,4',5-Heptachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |

* Unless stated otherwise, isotopic purities of these compounds are 99% or greater.

MASS-LABELLED CHLORINATED BIPHENYLS

| Catalogue Number | Product |
|------------------|---|
| MBP-178 |  <p>2,2',3,3',5,5',6-Heptachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-180 |  <p>2,2',3,4,4',5,5'-Heptachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-188 |  <p>2,2',3,4',5,6,6'-Heptachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-189 |  <p>2,3,3',4,4',5,5'-Heptachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-194 |  <p>2,2',3,3',4,4',5,5'-Octachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-202 |  <p>2,2',3,3',5,5',6,6'-Octachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-205 |  <p>2,3,3',4,4',5,5',6-Octachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-206 |  <p>2,2',3,3',4,4',5,5',6-Nonachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-208 |  <p>2,2',3,3',4,5,5',6,6'-Nonachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |
| MBP-209 |  <p>Decachloro[¹³C₁₂]biphenyl 1.2 ml; 50 µg/ml (±2.5 µg/ml); in nonane</p> |

* Unless stated otherwise, isotopic purities of these compounds are 99% or greater.

PCBs: SPECIALTY SOLUTION/MIXTURES

A number of additional PCB calibration sets and other solution/mixtures have been prepared and are presented in this section.

PCB-CVS-A10 and PCB-CVS-B10, and their support solutions, were designed and prepared to be used to satisfy the requirements of the Japanese Industrial Standards **JIS K 0311:2005** and **JIS K 0312:2005**. Note that PCB congeners 170 and 180, and their ¹³C analogues, have been added to the 12 dioxin-like PCBs.

Calibration sets and mixes containing a larger number of PCB congeners, such as PCB-CVS-H, are also offered.

All of the solutions from this section are accompanied by detailed CofAs that include HRGC/LRMS and/or HRGC/HRMS data as appropriate, along with RRF summaries for the calibration sets.



PCB-CVS-H

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|------------------|--|-----------------------------|
| PCB-CVS-H | Calibration Solutions for HRGC/HRMS Analysis of Polychlorinated Biphenyls (PCBs) | 1 kit (6 x 200 µl ampoules) |
| PCB-CS1-H | CS1 | 200 µl |
| PCB-CS2-H | CS2 | 200 µl |
| PCB-CS3-H | CS3 | 200 µl |
| PCB-CS4-H | CS4 | 200 µl |
| PCB-CS5-H | CS5 | 200 µl |
| PCB-CS6-H | CS6 | 200 µl |

| | PCB-CS1-H (ng/ml) | PCB-CS2-H (ng/ml) | PCB-CS3-H (ng/ml) | PCB-CS4-H (ng/ml) | PCB-CS5-H (ng/ml) | PCB-CS6-H (ng/ml) |
|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| NATIVE CHLORINATED BIPHENYLS (IUPAC) | | | | | | |
| CHLOROBIPHENYLS | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 |
| 1, 3 | | | | | | |
| DICHLOROBIPHENYLS | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 |
| 4, 6, 8, 10, 15 | | | | | | |
| TRICHLOROBIPHENYLS | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 |
| 16, 18, 19, 22, 28, 31, 33, 37 | | | | | | |
| TETRACHLOROBIPHENYLS | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 |
| 40, 41, 44, 49, 52, 54, 60, 66, 70, 74, 77, 81 | | | | | | |
| PENTACHLOROBIPHENYLS | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 |
| 84, 85, 87, 90, 95, 97, 99, 101, 104, 105, 110, 114, 118, 119, 123, 126 | | | | | | |
| HEXACHLOROBIPHENYLS | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 |
| 128, 129, 135, 137, 138, 141, 149, 151, 153, 155, 156, 157, 158, 167, 168, 169 | | | | | | |
| HEPTACHLOROBIPHENYLS | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 |
| 170, 171, 174, 177, 178, 180, 183, 187, 188, 189, 191, 193 | | | | | | |
| OCTACHLOROBIPHENYLS | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 |
| 194, 199, 200, 201, 202, 203, 205 | | | | | | |
| NONACHLOROBIPHENYLS | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 |
| 206, 207, 208 | | | | | | |
| DECACHLOROBIPHENYL | 0.1 | 0.5 | 2.0 | 10 | 40 | 200 |
| 209 | | | | | | |
| MASS-LABELLED CHLORINATED BIPHENYLS | | | | | | |
| EXTRACTION STANDARDS | IUPAC | | | | | |
| 2-Chloro[¹³ C ₁₂]biphenyl | 1L | 50 | 50 | 50 | 50 | 50 |
| 4-Chloro[¹³ C ₁₂]biphenyl | 3L | 50 | 50 | 50 | 50 | 50 |
| 2,2'-Dichloro[¹³ C ₁₂]biphenyl | 4L | 50 | 50 | 50 | 50 | 50 |
| 2,4'-Dichloro[¹³ C ₁₂]biphenyl | 8L | 50 | 50 | 50 | 50 | 50 |
| 4,4'-Dichloro[¹³ C ₁₂]biphenyl | 15L | 50 | 50 | 50 | 50 | 50 |
| 2,2',6'-Trichloro[¹³ C ₁₂]biphenyl | 19L | 50 | 50 | 50 | 50 | 50 |
| 2,4,4'-Trichloro[¹³ C ₁₂]biphenyl | 28L | 50 | 50 | 50 | 50 | 50 |
| 2,2',5,5'-Tetrachloro[¹³ C ₁₂]biphenyl | 52L | 50 | 50 | 50 | 50 | 50 |
| 2,2',6,6'-Tetrachloro[¹³ C ₁₂]biphenyl | 54L | 50 | 50 | 50 | 50 | 50 |
| 2,3',4',5'-Tetrachloro[¹³ C ₁₂]biphenyl | 70L | 50 | 50 | 50 | 50 | 50 |
| 3,3',4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 77L | 50 | 50 | 50 | 50 | 50 |
| 3,4,4',5'-Tetrachloro[¹³ C ₁₂]biphenyl | 81L | 50 | 50 | 50 | 50 | 50 |
| 2,2',3,5',6'-Pentachloro[¹³ C ₁₂]biphenyl | 95L | 50 | 50 | 50 | 50 | 50 |
| 2,2',4,5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 101L | 50 | 50 | 50 | 50 | 50 |
| 2,2',4,6,6'-Pentachloro[¹³ C ₁₂]biphenyl | 104L | 50 | 50 | 50 | 50 | 50 |
| 2,3,3',4,4'-Pentachloro[¹³ C ₁₂]biphenyl | 105L | 50 | 50 | 50 | 50 | 50 |
| 2,3,4,4',5'-Pentachloro[¹³ C ₁₂]biphenyl | 114L | 50 | 50 | 50 | 50 | 50 |
| 2,3',4,4',5'-Pentachloro[¹³ C ₁₂]biphenyl | 118L | 50 | 50 | 50 | 50 | 50 |
| 2',3,4,4',5'-Pentachloro[¹³ C ₁₂]biphenyl | 123L | 50 | 50 | 50 | 50 | 50 |
| 3,3',4,4',5'-Pentachloro[¹³ C ₁₂]biphenyl | 126L | 50 | 50 | 50 | 50 | 50 |
| 2,2',3,4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 138L | 50 | 50 | 50 | 50 | 50 |
| 2,2',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 153L | 50 | 50 | 50 | 50 | 50 |
| 2,2',4,4',6,6'-Hexachloro[¹³ C ₁₂]biphenyl | 155L | 50 | 50 | 50 | 50 | 50 |
| 2,3,3',4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 156L | 50 | 50 | 50 | 50 | 50 |
| 2,3,3',4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 157L | 50 | 50 | 50 | 50 | 50 |
| 2,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 167L | 50 | 50 | 50 | 50 | 50 |
| 3,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 169L | 50 | 50 | 50 | 50 | 50 |
| 2,2',3,3',4,4',5'-Heptachloro[¹³ C ₁₂]biphenyl | 170L | 50 | 50 | 50 | 50 | 50 |
| 2,2',3,4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 180L | 50 | 50 | 50 | 50 | 50 |
| 2,2',3,4',5,6,6'-Heptachloro[¹³ C ₁₂]biphenyl | 188L | 50 | 50 | 50 | 50 | 50 |
| 2,3,3',4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 189L | 50 | 50 | 50 | 50 | 50 |
| 2,2',3,3',5,5',6,6'-Octachloro[¹³ C ₁₂]biphenyl | 202L | 50 | 50 | 50 | 50 | 50 |
| 2,3,3',4,4',5,5',6'-Octachloro[¹³ C ₁₂]biphenyl | 205L | 50 | 50 | 50 | 50 | 50 |
| 2,2',3,3',4,4',5,5',6'-Nonachloro[¹³ C ₁₂]biphenyl | 208L | 50 | 50 | 50 | 50 | 50 |
| Decachloro[¹³ C ₁₂]biphenyl | 209L | 50 | 50 | 50 | 50 | 50 |
| RECOVERY/INTERNAL STANDARDS | | | | | | |
| 2,5-Dichloro[¹³ C ₁₂]biphenyl | 9L | 50 | 50 | 50 | 50 | 50 |
| 3,4,4'-Trichloro[¹³ C ₁₂]biphenyl | 37L | 50 | 50 | 50 | 50 | 50 |
| 3,3',4,5'-Tetrachloro[¹³ C ₁₂]biphenyl | 79L | 50 | 50 | 50 | 50 | 50 |
| 2,3,3',5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 111L | 50 | 50 | 50 | 50 | 50 |
| 2,3,3',4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 162L | 50 | 50 | 50 | 50 | 50 |
| 2,2',3,3',4,4',5,5'-Octachloro[¹³ C ₁₂]biphenyl | 194L | 50 | 50 | 50 | 50 | 50 |
| 2,2',3,3',4,4',5,5',6'-Nonachloro[¹³ C ₁₂]biphenyl | 206L | 50 | 50 | 50 | 50 | 50 |
| SAMPLING/CLEANUP STANDARDS | | | | | | |
| 2,3,4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 60L | 50 | 50 | 50 | 50 | 50 |
| 2,3,3',4,5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 159L | 50 | 50 | 50 | 50 | 50 |

SUPPORT SOLUTIONS FOR PCB-CVS-H

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|------------------|---|----------|
| PCB-LCS-H | Mass-Labelled PCB Extraction Standards | 1.2 ml |
| PCB-ISS-H | Mass-Labelled PCB Internal/Recovery Standards | 1.2 ml |
| PCB-SCS-H | Mass-Labelled PCB Cleanup/Sampling Standards | 1.2 ml |
| PCB-PAR-H | Native PCB Solution | 1.2 ml |

| | PCB-LCS-H (ng/ml) | PCB-ISS-H (ng/ml) | PCB-SCS-H (ng/ml) | PCB-PAR-H (ng/ml) |
|--|-------------------|-------------------|-------------------|-------------------|
| NATIVE CHLORINATED BIPHENYLS (IUPAC) | | | | |
| CHLOROBIPHENYLS | — | — | — | 500 |
| 1, 3 | | | | |
| DICHLOROBIPHENYLS | — | — | — | 500 |
| 4, 6, 8, 10, 15 | | | | |
| TRICHLOROBIPHENYLS | — | — | — | 500 |
| 16, 18, 19, 22, 28, 31, 33, 37 | | | | |
| TETRACHLOROBIPHENYLS | — | — | — | 500 |
| 40, 41, 44, 49, 52, 54, 60, 66, 70, 74, 77, 81 | | | | |
| PENTACHLOROBIPHENYLS | — | — | — | 500 |
| 84, 85, 87, 90, 95, 97, 99, 101, 104, 105, 110, 114, 118, 119, 123, 126 | | | | |
| HEXACHLOROBIPHENYLS | — | — | — | 500 |
| 128, 129, 135, 137, 138, 141, 149, 151, 153, 155, 156, 157, 158, 167, 168, 169 | | | | |
| HEPTACHLOROBIPHENYLS | — | — | — | 500 |
| 170, 171, 174, 177, 178, 180, 183, 187, 188, 189, 191, 193 | | | | |
| OCTACHLOROBIPHENYLS | — | — | — | 500 |
| 194, 199, 200, 201, 202, 203, 205 | | | | |
| NONACHLOROBIPHENYLS | — | — | — | 500 |
| 206, 207, 208 | | | | |
| DECACHLOROBIPHENYL | — | — | — | 500 |
| 209 | | | | |
| MASS-LABELLED CHLORINATED BIPHENYLS | IUPAC | | | |
| EXTRACTION STANDARDS | | | | |
| 2-Chloro[¹³ C ₁₂]biphenyl | 1L | 1000 | — | — |
| 4-Chloro[¹³ C ₁₂]biphenyl | 3L | 1000 | — | — |
| 2,2'-Dichloro[¹³ C ₁₂]biphenyl | 4L | 1000 | — | — |
| 2,4'-Dichloro[¹³ C ₁₂]biphenyl | 8L | 1000 | — | — |
| 4,4'-Dichloro[¹³ C ₁₂]biphenyl | 15L | 1000 | — | — |
| 2,2',6-Trichloro[¹³ C ₁₂]biphenyl | 19L | 1000 | — | — |
| 2,4,4'-Trichloro[¹³ C ₁₂]biphenyl | 28L | 1000 | — | — |
| 2,2',5,5'-Tetrachloro[¹³ C ₁₂]biphenyl | 52L | 1000 | — | — |
| 2,2',6,6'-Tetrachloro[¹³ C ₁₂]biphenyl | 54L | 1000 | — | — |
| 2,3',4',5'-Tetrachloro[¹³ C ₁₂]biphenyl | 70L | 1000 | — | — |
| 3,3',4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 77L | 1000 | — | — |
| 3,4,4',5'-Tetrachloro[¹³ C ₁₂]biphenyl | 81L | 1000 | — | — |
| 2,2',3,5',6-Pentachloro[¹³ C ₁₂]biphenyl | 95L | 1000 | — | — |
| 2,2',4,5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 101L | 1000 | — | — |
| 2,2',4,6,6'-Pentachloro[¹³ C ₁₂]biphenyl | 104L | 1000 | — | — |
| 2,3,3',4,4'-Pentachloro[¹³ C ₁₂]biphenyl | 105L | 1000 | — | — |
| 2,3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 114L | 1000 | — | — |
| 2,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 118L | 1000 | — | — |
| 2',3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 123L | 1000 | — | — |
| 3,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 126L | 1000 | — | — |
| 2,2',3,4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 138L | 1000 | — | — |
| 2,2',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 153L | 1000 | — | — |
| 2,2',4,4',6,6'-Hexachloro[¹³ C ₁₂]biphenyl | 155L | 1000 | — | — |
| 2,3,3',4,4',5-Hexachloro[¹³ C ₁₂]biphenyl | 156L | 1000 | — | — |
| 2,3,3',4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 157L | 1000 | — | — |
| 2,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 167L | 1000 | — | — |
| 3,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 169L | 1000 | — | — |
| 2,2',3,3',4,4',5-Heptachloro[¹³ C ₁₂]biphenyl | 170L | 1000 | — | — |
| 2,2',3,4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 180L | 1000 | — | — |
| 2,2',3,4',5,6,6'-Heptachloro[¹³ C ₁₂]biphenyl | 188L | 1000 | — | — |
| 2,3,3',4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 189L | 1000 | — | — |
| 2,2',3,3',5,5',6,6'-Octachloro[¹³ C ₁₂]biphenyl | 202L | 1000 | — | — |
| 2,2',3,3',4,4',5,5',6-Octachloro[¹³ C ₁₂]biphenyl | 205L | 1000 | — | — |
| 2,2',3,3',4,4',5,5',6'-Nonachloro[¹³ C ₁₂]biphenyl | 208L | 1000 | — | — |
| Decachloro[¹³ C ₁₂]biphenyl | 209L | 1000 | — | — |
| RECOVERY/INTERNAL STANDARDS | | | | |
| 2,5-Dichloro[¹³ C ₁₂]biphenyl | 9L | — | 1000 | — |
| 3,4,4'-Trichloro[¹³ C ₁₂]biphenyl | 37L | — | 1000 | — |
| 3,3',4,5'-Tetrachloro[¹³ C ₁₂]biphenyl | 79L | — | 1000 | — |
| 2,3,3',5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 111L | — | 1000 | — |
| 2,3,3',4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 162L | — | 1000 | — |
| 2,2',3,3',4,4',5,5'-Octachloro[¹³ C ₁₂]biphenyl | 194L | — | 1000 | — |
| 2,2',3,3',4,4',5,5',6-Nonachloro[¹³ C ₁₂]biphenyl | 206L | — | 1000 | — |
| SAMPLING/CLEANUP STANDARDS | | | | |
| 2,3,4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 60L | — | 1000 | — |
| 2,3,3',4,5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 159L | — | 1000 | — |

PCB-CVS-A10

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|-------------------------|------------------------------------|-----------------------------|
| PCB-CVS-A10-Set1 | CS1/CS3/CS5/CS7/CS9 | 1 kit (5 x 200 µl ampoules) |
| PCB-CVS-A10-Set2 | CS2/CS4/CS6/CS8/CS10 | 1 kit (5 x 200 µl ampoules) |
| PCB-CVS-A10-Set3 | CS3/CS5/CS7/CS9/CS11 | 1 kit (5 x 200 µl ampoules) |
| PCB-A10-CSL | CSL Extended Calibration/Low Level | 200 µl |
| PCB-A10-CS1 | CS1 | 200 µl |
| PCB-A10-CS2 | CS2 | 200 µl |
| PCB-A10-CS3 | CS3 | 200 µl |
| PCB-A10-CS4 | CS4 | 200 µl |

| NATIVE PCB CONGENERS | IUPAC | PCB-A10- | PCB-A10- | PCB-A10- | PCB-A10- | PCB-A10- |
|--------------------------------------|-------|----------|----------|----------|----------|----------|
| | | CSL | CS1 | CS2 | CS3 | CS4 |
| | | (ng/ml) | (ng/ml) | (ng/ml) | (ng/ml) | (ng/ml) |
| 3,3',4,4'-Tetrachlorobiphenyl | 77 | 0.05 | 0.1 | 0.2 | 0.5 | 1 |
| 3,4,4',5-Tetrachlorobiphenyl | 81 | 0.05 | 0.1 | 0.2 | 0.5 | 1 |
| 2,3,3',4,4'-Pentachlorobiphenyl | 105 | 0.05 | 0.1 | 0.2 | 0.5 | 1 |
| 2,3,4,4',5-Pentachlorobiphenyl | 114 | 0.05 | 0.1 | 0.2 | 0.5 | 1 |
| 2,3',4,4',5-Pentachlorobiphenyl | 118 | 0.05 | 0.1 | 0.2 | 0.5 | 1 |
| 2',3,4,4',5-Pentachlorobiphenyl | 123 | 0.05 | 0.1 | 0.2 | 0.5 | 1 |
| 3,3',4,4',5-Pentachlorobiphenyl | 126 | 0.05 | 0.1 | 0.2 | 0.5 | 1 |
| 2,3,3',4,4',5-Hexachlorobiphenyl | 156 | 0.05 | 0.1 | 0.2 | 0.5 | 1 |
| 2,3,3',4,4',5'-Hexachlorobiphenyl | 157 | 0.05 | 0.1 | 0.2 | 0.5 | 1 |
| 2,3',4,4',5,5'-Hexachlorobiphenyl | 167 | 0.05 | 0.1 | 0.2 | 0.5 | 1 |
| 3,3',4,4',5,5'-Hexachlorobiphenyl | 169 | 0.05 | 0.1 | 0.2 | 0.5 | 1 |
| 2,2',3,3',4,4',5-Heptachlorobiphenyl | 170 | 0.05 | 0.1 | 0.2 | 0.5 | 1 |
| 2,2',3,4,4',5,5'-Heptachlorobiphenyl | 180 | 0.05 | 0.1 | 0.2 | 0.5 | 1 |
| 2,3,3',4,4',5,5'-Heptachlorobiphenyl | 189 | 0.05 | 0.1 | 0.2 | 0.5 | 1 |

MASS-LABELLED PCB CONGENERS

Sampling and Syringe Spikes

| | | | | | | |
|---|------|----|----|----|----|----|
| * 3,3',4,5'-Tetrachloro[¹³ C ₁₂]biphenyl | 79L | 10 | 10 | 10 | 10 | 10 |
| ** 2,3',4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 70L | 10 | 10 | 10 | 10 | 10 |
| ** 2,3,3',5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 111L | 10 | 10 | 10 | 10 | 10 |
| ** 2,2',3,4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 138L | 10 | 10 | 10 | 10 | 10 |

Surrogates/Extraction Spikes

| | | | | | | |
|---|------|----|----|----|----|----|
| 3,3',4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 77L | 10 | 10 | 10 | 10 | 10 |
| 3,4,4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 81L | 10 | 10 | 10 | 10 | 10 |
| 2,3,3',4,4'-Pentachloro[¹³ C ₁₂]biphenyl | 105L | 10 | 10 | 10 | 10 | 10 |
| 2,3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 114L | 10 | 10 | 10 | 10 | 10 |
| 2,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 118L | 10 | 10 | 10 | 10 | 10 |
| 2',3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 123L | 10 | 10 | 10 | 10 | 10 |
| 3,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 126L | 10 | 10 | 10 | 10 | 10 |
| 2,3,3',4,4',5-Hexachloro[¹³ C ₁₂]biphenyl | 156L | 10 | 10 | 10 | 10 | 10 |
| 2,3,3',4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 157L | 10 | 10 | 10 | 10 | 10 |
| 2,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 167L | 10 | 10 | 10 | 10 | 10 |
| 3,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 169L | 10 | 10 | 10 | 10 | 10 |
| 2,2',3,3',4,4',5-Heptachloro[¹³ C ₁₂]biphenyl | 170L | 10 | 10 | 10 | 10 | 10 |
| 2,2',3,4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 180L | 10 | 10 | 10 | 10 | 10 |
| 2,3,3',4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 189L | 10 | 10 | 10 | 10 | 10 |

* for pre-sampling spike

** for syringe spike / recovery standard

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|------------------|-------------------------------------|----------|
| PCB-A10-CS5 | CS5 | 200 µl |
| PCB-A10-CS6 | CS6 | 200 µl |
| PCB-A10-CS7 | CS7 | 200 µl |
| PCB-A10-CS8 | CS8 | 200 µl |
| PCB-A10-CS9 | CS9 | 200 µl |
| PCB-A10-CS10 | CS10 | 200 µl |
| PCB-A10-CS11 | CS11 | 200 µl |
| PCB-A10-CSH | CSH Extended Calibration/High Level | 200 µl |

| PCB-A10-CS5 (ng/ml) | PCB-A10-CS6 (ng/ml) | PCB-A10-CS7 (ng/ml) | PCB-A10-CS8 (ng/ml) | PCB-A10-CS9 (ng/ml) | PCB-A10-CS10 (ng/ml) | PCB-A10-CS11 (ng/ml) | PCB-A10-CSH (ng/ml) |
|---------------------|---------------------|---------------------|---------------------|---------------------|----------------------|----------------------|---------------------|
| 2 | 5 | 10 | 20 | 50 | 100 | 250 | 1000 |
| 2 | 5 | 10 | 20 | 50 | 100 | 250 | 1000 |
| 2 | 5 | 10 | 20 | 50 | 100 | 250 | 1000 |
| 2 | 5 | 10 | 20 | 50 | 100 | 250 | 1000 |
| 2 | 5 | 10 | 20 | 50 | 100 | 250 | 1000 |
| 2 | 5 | 10 | 20 | 50 | 100 | 250 | 1000 |
| 2 | 5 | 10 | 20 | 50 | 100 | 250 | 1000 |
| 2 | 5 | 10 | 20 | 50 | 100 | 250 | 1000 |
| 2 | 5 | 10 | 20 | 50 | 100 | 250 | 1000 |
| 2 | 5 | 10 | 20 | 50 | 100 | 250 | 1000 |
| 2 | 5 | 10 | 20 | 50 | 100 | 250 | 1000 |
| 2 | 5 | 10 | 20 | 50 | 100 | 250 | 1000 |
| 2 | 5 | 10 | 20 | 50 | 100 | 250 | 1000 |
| 2 | 5 | 10 | 20 | 50 | 100 | 250 | 1000 |
| 2 | 5 | 10 | 20 | 50 | 100 | 250 | 1000 |
| 2 | 5 | 10 | 20 | 50 | 100 | 250 | 1000 |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |

PCB-CVS-B10

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|-------------------------|---------------------------|-----------------------------|
| PCB-CVS-B10-Set1 | CS1/CS2/CS3/CS4/CS5 | 1 kit (5 x 200 µl ampoules) |
| PCB-CVS-B10-Set2 | CS2/CS3/CS4/CS5/CS6 | 1 kit (5 x 200 µl ampoules) |
| PCB-B10-CS1 | CS1 | 200 µl |
| PCB-B10-CS2 | CS2 | 200 µl |
| PCB-B10-CS3 | CS3 | 200 µl |

| NATIVE PCB CONGENERS | IUPAC | PCB-B10-CS1 (ng/ml) | PCB-B10-CS2 (ng/ml) | PCB-B10-CS3 (ng/ml) |
|---|-------|------------------------|------------------------|------------------------|
| 3,3',4,4'-Tetrachlorobiphenyl | 77 | 0.2 | 1 | 4 |
| 3,4,4',5-Tetrachlorobiphenyl | 81 | 0.2 | 1 | 4 |
| 2,3,3',4,4'-Pentachlorobiphenyl | 105 | 0.2 | 1 | 4 |
| 2,3,4,4',5-Pentachlorobiphenyl | 114 | 0.2 | 1 | 4 |
| 2,3',4,4',5-Pentachlorobiphenyl | 118 | 0.2 | 1 | 4 |
| 2',3,4,4',5-Pentachlorobiphenyl | 123 | 0.2 | 1 | 4 |
| 3,3',4,4',5-Pentachlorobiphenyl | 126 | 0.2 | 1 | 4 |
| 2,3,3',4,4',5-Hexachlorobiphenyl | 156 | 0.2 | 1 | 4 |
| 2,3,3',4,4',5'-Hexachlorobiphenyl | 157 | 0.2 | 1 | 4 |
| 2,3',4,4',5,5'-Hexachlorobiphenyl | 167 | 0.2 | 1 | 4 |
| 3,3',4,4',5,5'-Hexachlorobiphenyl | 169 | 0.2 | 1 | 4 |
| 2,2',3,3',4,4',5-Heptachlorobiphenyl | 170 | 0.2 | 1 | 4 |
| 2,2',3,4,4',5,5'-Heptachlorobiphenyl | 180 | 0.2 | 1 | 4 |
| 2,3,3',4,4',5,5'-Heptachlorobiphenyl | 189 | 0.2 | 1 | 4 |
| MASS-LABELLED PCB CONGENERS | | | | |
| Sampling and Syringe Spikes | | | | |
| * 3,3',4,5'-Tetrachloro[¹³ C ₁₂]biphenyl | 79L | 10 | 10 | 10 |
| **2,3',4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 70L | 10 | 10 | 10 |
| **2,3,3',5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 111L | 10 | 10 | 10 |
| **2,2',3,4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 138L | 10 | 10 | 10 |
| **2,2',3,3',5,5',6-Heptachloro[¹³ C ₁₂]biphenyl | 178L | 10 | 10 | 10 |
| Surrogate/Extraction Spikes | | | | |
| 3,3',4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 77L | 10 | 10 | 10 |
| 3,4,4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 81L | 10 | 10 | 10 |
| 2,3,3',4,4'-Pentachloro[¹³ C ₁₂]biphenyl | 105L | 10 | 10 | 10 |
| 2,3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 114L | 10 | 10 | 10 |
| 2,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 118L | 10 | 10 | 10 |
| 2',3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 123L | 10 | 10 | 10 |
| 3,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 126L | 10 | 10 | 10 |
| 2,3,3',4,4',5-Hexachloro[¹³ C ₁₂]biphenyl | 156L | 10 | 10 | 10 |
| 2,3,3',4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 157L | 10 | 10 | 10 |
| 2,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 167L | 10 | 10 | 10 |
| 3,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 169L | 10 | 10 | 10 |
| 2,2',3,3',4,4',5-Heptachloro[¹³ C ₁₂]biphenyl | 170L | 10 | 10 | 10 |
| 2,2',3,4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 180L | 10 | 10 | 10 |
| 2,3,3',4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 189L | 10 | 10 | 10 |

* for sampling spike

** for syringe spike

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|------------------|---------------------------|----------|
| PCB-B10-CS4 | CS4 | 200 µl |
| PCB-B10-CS5 | CS5 | 200 µl |
| PCB-B10-CS6 | CS6 | 200 µl |
| PCB-B10-CS7 | CS7 | 200 µl |

| | IUPAC | PCB-B10-CS4 (ng/ml) | PCB-B10-CS5 (ng/ml) | PCB-B10-CS6 (ng/ml) | PCB-B10-CS7 (ng/ml) |
|---|-------|------------------------|------------------------|------------------------|------------------------|
| NATIVE PCB CONGENERS | | | | | |
| 3,3',4,4'-Tetrachlorobiphenyl | 77 | 20 | 100 | 400 | 1000 |
| 3,4,4',5-Tetrachlorobiphenyl | 81 | 20 | 100 | 400 | 1000 |
| 2,3,3',4,4'-Pentachlorobiphenyl | 105 | 20 | 100 | 400 | 1000 |
| 2,3,4,4',5-Pentachlorobiphenyl | 114 | 20 | 100 | 400 | 1000 |
| 2,3',4,4',5-Pentachlorobiphenyl | 118 | 20 | 100 | 400 | 1000 |
| 2',3,4,4',5-Pentachlorobiphenyl | 123 | 20 | 100 | 400 | 1000 |
| 3,3',4,4',5-Pentachlorobiphenyl | 126 | 20 | 100 | 400 | 1000 |
| 2,3,3',4,4',5-Hexachlorobiphenyl | 156 | 20 | 100 | 400 | 1000 |
| 2,3,3',4,4',5'-Hexachlorobiphenyl | 157 | 20 | 100 | 400 | 1000 |
| 2,3',4,4',5,5'-Hexachlorobiphenyl | 167 | 20 | 100 | 400 | 1000 |
| 3,3',4,4',5,5'-Hexachlorobiphenyl | 169 | 20 | 100 | 400 | 1000 |
| 2,2',3,3',4,4',5-Heptachlorobiphenyl | 170 | 20 | 100 | 400 | 1000 |
| 2,2',3,4,4',5,5'-Heptachlorobiphenyl | 180 | 20 | 100 | 400 | 1000 |
| 2,3,3',4,4',5,5'-Heptachlorobiphenyl | 189 | 20 | 100 | 400 | 1000 |
| MASS-LABELLED PCB CONGENERS | | | | | |
| Sampling and Syringe Spikes | | | | | |
| * 3,3',4,5'-Tetrachloro[¹³ C ₁₂]biphenyl | 79L | 10 | 10 | 10 | 10 |
| **2,3',4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 70L | 10 | 10 | 10 | 10 |
| **2,3,3',5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 111L | 10 | 10 | 10 | 10 |
| **2,2',3,4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 138L | 10 | 10 | 10 | 10 |
| **2,2',3,3',5,5',6-Heptachloro[¹³ C ₁₂]biphenyl | 178L | 10 | 10 | 10 | 10 |
| Surrogate/Extraction Spikes | | | | | |
| 3,3',4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 77L | 10 | 10 | 10 | 10 |
| 3,4,4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 81L | 10 | 10 | 10 | 10 |
| 2,3,3',4,4'-Pentachloro[¹³ C ₁₂]biphenyl | 105L | 10 | 10 | 10 | 10 |
| 2,3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 114L | 10 | 10 | 10 | 10 |
| 2,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 118L | 10 | 10 | 10 | 10 |
| 2',3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 123L | 10 | 10 | 10 | 10 |
| 3,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 126L | 10 | 10 | 10 | 10 |
| 2,3,3',4,4',5-Hexachloro[¹³ C ₁₂]biphenyl | 156L | 10 | 10 | 10 | 10 |
| 2,3,3',4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 157L | 10 | 10 | 10 | 10 |
| 2,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 167L | 10 | 10 | 10 | 10 |
| 3,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 169L | 10 | 10 | 10 | 10 |
| 2,2',3,3',4,4',5-Heptachloro[¹³ C ₁₂]biphenyl | 170L | 10 | 10 | 10 | 10 |
| 2,2',3,4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 180L | 10 | 10 | 10 | 10 |
| 2,3,3',4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 189L | 10 | 10 | 10 | 10 |

* for sampling spike

** for syringe spike

MASS-LABELLED PCBs: SOLUTION/MIXTURES

Support solutions for **PCB-CVS-A10**, **PCB-CVS-B10**, and **DFP-CVS-B10**

| Catalogue Number | Product (nonane solution) | Qty/Conc | | |
|---|--|-------------------------------|---------------------------------|--------------------------------|
| PCB-LCS-A1 | Mass-Labelled PCB Solution/Mixture | 1.2 ml | | |
| PCB-LCS-A100 | Mass-Labelled PCB Solution/Mixture | 1.2 ml | | |
| PCB-LCS-A20 | Mass-Labelled PCB Solution/Mixture | 1.2 ml | | |
| MASS-LABELLED PCB CONGENERS | IUPAC | PCB-LCS-A1 (ng/ml) | PCB-LCS-A100 (ng/ml) | PCB-LCS-A20 (ng/ml) |
| 3,3',4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 77L | 1000 | 100 | 20 |
| 3,4,4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 81L | 1000 | 100 | 20 |
| 2,3,3',4,4'-Pentachloro[¹³ C ₁₂]biphenyl | 105L | 1000 | 100 | 20 |
| 2,3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 114L | 1000 | 100 | 20 |
| 2,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 118L | 1000 | 100 | 20 |
| 2',3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 123L | 1000 | 100 | 20 |
| 3,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 126L | 1000 | 100 | 20 |
| 2,3,3',4,4',5-Hexachloro[¹³ C ₁₂]biphenyl | 156L | 1000 | 100 | 20 |
| 2,3,3',4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 157L | 1000 | 100 | 20 |
| 2,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 167L | 1000 | 100 | 20 |
| 3,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 169L | 1000 | 100 | 20 |
| 2,2',3,3',4,4',5-Heptachloro[¹³ C ₁₂]biphenyl | 170L | 1000 | 100 | 20 |
| 2,2',3,4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 180L | 1000 | 100 | 20 |
| 2,3,3',4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 189L | 1000 | 100 | 20 |
| PCB-IS-A | Mass-Labelled PCB Solution | 1.2 ml | | |
| PCB-IS-A100 | Mass-Labelled PCB Solution | 1.2 ml | | |
| PCB-IS-A20 | Mass-Labelled PCB Solution | 1.2 ml | | |
| MASS-LABELLED PCB CONGENER | IUPAC | PCB-IS-A (ng/ml) | PCB-IS-A100 (ng/ml) | PCB-IS-A20 (ng/ml) |
| 2,3',4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 70L | 1000 | 100 | 20 |
| PCB-IS-B | Mass-Labelled PCB Solution/Mixture | 1.2 ml | | |
| PCB-IS-B100 | Mass-Labelled PCB Solution/Mixture | 1.2 ml | | |
| PCB-IS-B20 | Mass-Labelled PCB Solution/Mixture | 1.2 ml | | |
| MASS-LABELLED PCB CONGENERS | IUPAC | PCB-IS-B (ng/ml) | PCB-IS-B100 (ng/ml) | PCB-IS-B20 (ng/ml) |
| 2,3',4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 70L | 1000 | 100 | 20 |
| 2,3,3',5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 111L | 1000 | 100 | 20 |
| 2,2',3,4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 138L | 1000 | 100 | 20 |
| PCB-IS-C | Mass-Labelled PCB Syringe Spike Solution | 1.2 ml | | |
| PCB-IS-C100 | Mass-Labelled PCB Syringe Spike Solution | 1.2 ml | | |
| PCB-IS-C20 | Mass-Labelled PCB Syringe Spike Solution | 1.2 ml | | |
| MASS-LABELLED PCB CONGENERS | IUPAC | PCB-IS-C (ng/ml) | PCB-IS-C100 (ng/ml) | PCB-IS-C20 (ng/ml) |
| 2,3',4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 70L | 1000 | 100 | 20 |
| 2,3,3',5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 111L | 1000 | 100 | 20 |
| 2,2',3,4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 138L | 1000 | 100 | 20 |
| 2,2',3,3',5,5',6-Heptachloro[¹³ C ₁₂]biphenyl | 178L | 1000 | 100 | 20 |
| PCB-SS-A | Mass-Labelled PCB Solution | 1.2 ml | | |
| PCB-SS-A100 | Mass-Labelled PCB Solution | 1.2 ml | | |
| PCB-SS-A20 | Mass-Labelled PCB Solution | 1.2 ml | | |
| MASS-LABELLED PCB CONGENER | IUPAC | PCB-SS-A (ng/ml) | PCB-SS-A100 (ng/ml) | PCB-SS-A20 (ng/ml) |
| 3,3',4,5'-Tetrachloro[¹³ C ₁₂]biphenyl | 79L | 1000 | 100 | 20 |

MASS-LABELLED PCBs: SOLUTION/MIXTURES

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|---|---|----------|
| MBP-CP | Mass-Labelled Coplanar PCB Solution/Mixture | 1.2 ml |
| | IUPAC | |
| 3,3',4,4'-Tetrachloro[¹³ C ₁₂]biphenyl | 77L | 10 µg/ml |
| 3,4,4',5-Tetrachloro[¹³ C ₁₂]biphenyl | 81L | 10 µg/ml |
| 3,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 126L | 10 µg/ml |
| 3,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 169L | 10 µg/ml |
| MBP-MO | Mass-Labelled Mono-ortho PCB Solution/Mixture | 1.2 ml |
| | IUPAC | |
| 2,3,3',4,4'-Pentachloro[¹³ C ₁₂]biphenyl | 105L | 5 µg/ml |
| 2,3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 114L | 5 µg/ml |
| 2,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 118L | 5 µg/ml |
| 2',3,4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 123L | 5 µg/ml |
| 2,3,3',4,4',5-Hexachloro[¹³ C ₁₂]biphenyl | 156L | 5 µg/ml |
| 2,3,3',4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 157L | 5 µg/ml |
| 2,3',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 167L | 5 µg/ml |
| 2,3,3',4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 189L | 5 µg/ml |
| MBP-CG | Mass-Labelled Mono To Decachloro PCB Solution/Mixture | 1.2 ml |
| | IUPAC | |
| 4-Chloro[¹³ C ₁₂]biphenyl | 3L | 5 µg/ml |
| 4,4'-Dichloro[¹³ C ₁₂]biphenyl | 15L | 5 µg/ml |
| 2,4',5-Trichloro[¹³ C ₁₂]biphenyl | 31L | 5 µg/ml |
| 2,2',5,5'-Tetrachloro[¹³ C ₁₂]biphenyl | 52L | 5 µg/ml |
| 2,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 118L | 5 µg/ml |
| 2,2',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 153L | 5 µg/ml |
| 2,2',3,4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 180L | 5 µg/ml |
| 2,2',3,3',4,4',5,5'-Octachloro[¹³ C ₁₂]biphenyl | 194L | 5 µg/ml |
| 2,2',3,3',4,4',5,5',6-Nonachloro[¹³ C ₁₂]biphenyl | 206L | 5 µg/ml |
| Decachloro[¹³ C ₁₂]biphenyl | 209L | 5 µg/ml |
| MBP-MXE | Mass-Labelled PCB Solution/Mixture | 1.2 ml |
| | IUPAC | |
| 2,4,4'-Trichloro[¹³ C ₁₂]biphenyl | 28L | 5 µg/ml |
| 2,2',5,5'-Tetrachloro[¹³ C ₁₂]biphenyl | 52L | 5 µg/ml |
| 2,2',4,5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 101L | 5 µg/ml |
| 2,2',3,4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 138L | 5 µg/ml |
| 2,2',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 153L | 5 µg/ml |
| 2,2',3,4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 180L | 5 µg/ml |
| Decachloro[¹³ C ₁₂]biphenyl | 209L | 5 µg/ml |

NATIVE PCBs: SOLUTION/MIXTURES

(*) Support solutions for **PCB-CVS-A10**, **PCB-CVS-B10**, and **DFP-CVS-B10**

| Catalogue Number | Product (nonane solution) | Qty/Conc | | |
|--------------------------------------|---------------------------|------------------------|----|---|
| PCB-ST-A* | Native PCB Stock Solution | 1.2 ml | | |
| PCB-ST-A10* | Native PCB Stock Solution | 1.2 ml | | |
| PCB-ST-A2* | Native PCB Stock Solution | 1.2 ml | | |
| NATIVE PCB CONGENERS | IUPAC | | | |
| | | PCB-ST-A* (ng/ml) | | |
| | | PCB-ST-A10* (ng/ml) | | |
| | | PCB-ST-A2* (ng/ml) | | |
| 3,3',4,4'-Tetrachlorobiphenyl | 77 | 2000 | 10 | 2 |
| 3,4,4',5-Tetrachlorobiphenyl | 81 | 2000 | 10 | 2 |
| 2,3,3',4,4'-Pentachlorobiphenyl | 105 | 2000 | 10 | 2 |
| 2,3,4,4',5-Pentachlorobiphenyl | 114 | 2000 | 10 | 2 |
| 2,3',4,4',5-Pentachlorobiphenyl | 118 | 2000 | 10 | 2 |
| 2',3,4,4',5-Pentachlorobiphenyl | 123 | 2000 | 10 | 2 |
| 3,3',4,4',5-Pentachlorobiphenyl | 126 | 2000 | 10 | 2 |
| 2,3,3',4,4',5-Hexachlorobiphenyl | 156 | 2000 | 10 | 2 |
| 2,3,3',4,4',5'-Hexachlorobiphenyl | 157 | 2000 | 10 | 2 |
| 2,3',4,4',5,5'-Hexachlorobiphenyl | 167 | 2000 | 10 | 2 |
| 3,3',4,4',5,5'-Hexachlorobiphenyl | 169 | 2000 | 10 | 2 |
| 2,2',3,3',4,4',5-Heptachlorobiphenyl | 170 | 2000 | 10 | 2 |
| 2,2',3,4,4',5,5'-Heptachlorobiphenyl | 180 | 2000 | 10 | 2 |
| 2,3,3',4,4',5,5'-Heptachlorobiphenyl | 189 | 2000 | 10 | 2 |

BP-CP81

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|-----------------------------------|--------------------------------------|----------|
| BP-CP81 | Native Coplanar PCB Solution/Mixture | 1.2 ml |
| NATIVE PCB CONGENERS | IUPAC | |
| 3,3',4,4'-Tetrachlorobiphenyl | 77 | 10 µg/ml |
| 3,4,4',5-Tetrachlorobiphenyl | 81 | 10 µg/ml |
| 3,3',4,4',5-Pentachlorobiphenyl | 126 | 10 µg/ml |
| 3,3',4,4',5,5'-Hexachlorobiphenyl | 169 | 10 µg/ml |

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|---|---|-----------|
| BP-WD | Native PCB Window Defining Solution/Mixture for DB-5 or Equivalent Column | 1.2 ml |
| NATIVE PCB CONGENERS | IUPAC | |
| Biphenyl | — | 2.5 µg/ml |
| 2-Chlorobiphenyl | 1 | 2.5 µg/ml |
| 4-Chlorobiphenyl | 3 | 2.5 µg/ml |
| 2,6-Dichlorobiphenyl | 10 | 2.5 µg/ml |
| 4,4'-Dichlorobiphenyl | 15 | 2.5 µg/ml |
| 2,2',6-Trichlorobiphenyl | 19 | 2.5 µg/ml |
| 3,4,4'-Trichlorobiphenyl | 37 | 2.5 µg/ml |
| 2,2',6,6'-Tetrachlorobiphenyl | 54 | 2.5 µg/ml |
| 3,3',4,4'-Tetrachlorobiphenyl | 77 | 2.5 µg/ml |
| 2,2',4,6,6'-Pentachlorobiphenyl | 104 | 2.5 µg/ml |
| 3,3',4,4',5-Pentachlorobiphenyl | 126 | 2.5 µg/ml |
| 2,2',4,4',6,6'-Hexachlorobiphenyl | 155 | 2.5 µg/ml |
| 3,3',4,4',5,5'-Hexachlorobiphenyl | 169 | 2.5 µg/ml |
| 2,2',3,4',5,6,6'-Heptachlorobiphenyl | 188 | 2.5 µg/ml |
| 2,3,3',4,4',5,5'-Heptachlorobiphenyl | 189 | 2.5 µg/ml |
| 2,2',3,3',5,5',6,6'-Octachlorobiphenyl | 202 | 2.5 µg/ml |
| 2,3,3',4,4',5,5',6-Octachlorobiphenyl | 205 | 2.5 µg/ml |
| 2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl | 206 | 2.5 µg/ml |
| 2,2',3,3',4,4',5,5',6,6'-Nonachlorobiphenyl | 208 | 2.5 µg/ml |
| Decachlorobiphenyl | 209 | 2.5 µg/ml |

BP-MO

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|--------------------------------------|--|----------|
| BP-MO | Solution/Mixture of Native Mono-ortho PCBs | 1.2 ml |
| NATIVE PCB CONGENERS | IUPAC | |
| 2,3,3',4,4'-Pentachlorobiphenyl | 105 | 10 µg/ml |
| 2,3,4,4',5-Pentachlorobiphenyl | 114 | 10 µg/ml |
| 2,3',4,4',5-Pentachlorobiphenyl | 118 | 10 µg/ml |
| 2',3,4,4',5-Pentachlorobiphenyl | 123 | 10 µg/ml |
| 2,3,3',4,4',5-Hexachlorobiphenyl | 156 | 10 µg/ml |
| 2,3,3',4,4',5'-Hexachlorobiphenyl | 157 | 10 µg/ml |
| 2,3',4,4',5,5'-Hexachlorobiphenyl | 167 | 10 µg/ml |
| 2,3,3',4,4',5,5'-Heptachlorobiphenyl | 189 | 10 µg/ml |

BP-MS

BP-MS-PL1, **BP-MS-PL2**, and **BP-MS-PL3** were prepared to be used in the identification/confirmation of the PCB congeners in **BP-MS**. Although DB-5 data is provided with **BP-MS**, there can be changes in the elution order on "equivalent capillary columns".

| Catalogue Number | Product (nonane solution) | Qty/Conc | | | | |
|------------------|--|----------|--|--|--|--|
| BP-MS | Native PCB Solution/Mixture for MS Detection | 1.2 ml | | | | |
| BP-MS2 | Native PCB Solution/Mixture for MS Detection | 1.2 ml | | | | |
| BP-MS-PL1 | Native PCB Solution/Mixture for MS Detection | 1.2 ml | | | | |
| BP-MS-PL2 | Native PCB Solution/Mixture for MS Detection | 1.2 ml | | | | |
| BP-MS-PL3 | Native PCB Solution/Mixture for MS Detection | 1.2 ml | | | | |

| PCB CONGENERS | IUPAC | BP-MS (µg/ml) | BP-MS2 (µg/ml) | BP-MS- PL1 (µg/ml) | BP-MS- PL2 (µg/ml) | BP-MS- PL3 (µg/ml) |
|---|-------|------------------|-------------------|--------------------------|--------------------------|--------------------------|
| 2-Chlorobiphenyl | 1 | 2.0 | — | — | — | — |
| 4-Chlorobiphenyl | 3 | 2.0 | — | — | — | — |
| 2,2'-Dichlorobiphenyl | 4 | 2.0 | — | — | — | — |
| 2,4'-Dichlorobiphenyl | 8 | 2.0 | — | — | — | — |
| 2,6-Dichlorobiphenyl | 10 | 2.0 | — | — | — | — |
| *4,4'-Dichlorobiphenyl | 15 | 2.0 | — | — | — | — |
| *2,2',5-Trichlorobiphenyl | 18 | 2.0 | — | — | — | — |
| 2,2',6-Trichlorobiphenyl | 19 | 2.0 | — | — | — | — |
| 2,3,4'-Trichlorobiphenyl | 22 | 2.0 | — | — | — | — |
| 2,4,4'-Trichlorobiphenyl | 28 | 2.0 | — | — | — | — |
| 2',3,4-Trichlorobiphenyl | 33 | 2.0 | — | — | — | — |
| 3,4,4'-Trichlorobiphenyl | 37 | 2.0 | — | — | — | — |
| 2,2',3,3'-Tetrachlorobiphenyl | 40 | — | 2.0 | — | — | — |
| 2,2',3,4-Tetrachlorobiphenyl | 41 | — | 2.0 | — | — | — |
| *2,2',3,5'-Tetrachlorobiphenyl | 44 | 2.0 | — | — | — | — |
| *2,2',4,5'-Tetrachlorobiphenyl | 49 | 2.0 | — | — | 2.0 | — |
| *2,2',5,5'-Tetrachlorobiphenyl | 52 | 2.0 | — | 2.0 | — | — |
| *2,2',6,6'-Tetrachlorobiphenyl | 54 | 2.0 | — | — | — | — |
| 2,3,4,4'-Tetrachlorobiphenyl | 60 | — | 2.0 | — | — | — |
| 2,3',4,4'-Tetrachlorobiphenyl | 66 | — | 2.0 | — | — | — |
| 2,3',4',5-Tetrachlorobiphenyl | 70 | 2.0 | — | 2.0 | — | — |
| 2,4,4',5-Tetrachlorobiphenyl | 74 | 2.0 | — | — | 2.0 | — |
| *3,3',4,4'-Tetrachlorobiphenyl | 77 | 2.0 | — | — | — | 2.0 |
| 3,4,4',5-Tetrachlorobiphenyl | 81 | 2.0 | — | — | — | — |
| *2,2',3,4,5'-Pentachlorobiphenyl | 87 | 2.0 | — | 2.0 | — | — |
| 2,2',3,4',5-Pentachlorobiphenyl | 90 | — | 2.0 | — | — | — |
| 2,2',3,5',6-Pentachlorobiphenyl | 95 | 2.0 | — | — | 2.0 | — |
| 2,2',4,4',5-Pentachlorobiphenyl | 99 | 2.0 | — | — | 2.0 | — |
| *2,2',4,5,5'-Pentachlorobiphenyl | 101 | 2.0 | — | 2.0 | — | — |
| 2,2',4,6,6'-Pentachlorobiphenyl | 104 | 2.0 | — | — | — | — |
| *2,3,3',4,4'-Pentachlorobiphenyl | 105 | 2.0 | — | — | — | — |
| 2,3,3',4',6-Pentachlorobiphenyl | 110 | 2.0 | — | 2.0 | — | — |
| *2,3,4,4',5-Pentachlorobiphenyl | 114 | 2.0 | — | — | — | — |
| *2,3',4,4',5-Pentachlorobiphenyl | 118 | 2.0 | — | — | — | — |
| 2,3',4,4',6-Pentachlorobiphenyl | 119 | 2.0 | — | — | — | — |
| 2',3,4,4',5-Pentachlorobiphenyl | 123 | 2.0 | — | — | — | — |
| 3,3',4,4',5-Pentachlorobiphenyl | 126 | 2.0 | — | — | — | — |
| *2,2',3,3',4,4'-Hexachlorobiphenyl | 128 | 2.0 | — | — | — | 2.0 |
| 2,2',3,3',4,5-Hexachlorobiphenyl | 129 | — | 2.0 | — | — | — |
| 2,2',3,4,4',5-Hexachlorobiphenyl | 137 | — | 2.0 | — | — | — |
| *2,2',3,4,4',5'-Hexachlorobiphenyl | 138 | 2.0 | — | 2.0 | — | — |
| 2,2',3,4,5,5'-Hexachlorobiphenyl | 141 | — | 2.0 | — | — | — |
| 2,2',3,4',5,6-Hexachlorobiphenyl | 149 | 2.0 | — | — | 2.0 | — |
| *2,2',3,5,5',6-Hexachlorobiphenyl | 151 | 2.0 | — | — | 2.0 | — |
| *2,2',4,4',5,5'-Hexachlorobiphenyl | 153 | 2.0 | — | 2.0 | — | — |
| 2,2',4,4',6,6'-Hexachlorobiphenyl | 155 | 2.0 | — | 2.0 | — | — |
| *2,3,3',4,4',5-Hexachlorobiphenyl | 156 | 2.0 | — | — | — | — |
| 2,3,3',4,4',5'-Hexachlorobiphenyl | 157 | 2.0 | — | — | — | — |
| 2,3,3',4,4',6-Hexachlorobiphenyl | 158 | 2.0 | — | — | 2.0 | — |
| 2,3',4,4',5,5'-Hexachlorobiphenyl | 167 | 2.0 | — | — | — | — |
| 2,3',4,4',5',6-Hexachlorobiphenyl | 168 | 2.0 | — | — | 2.0 | — |
| 3,3',4,4',5,5'-Hexachlorobiphenyl | 169 | 2.0 | — | — | — | — |
| *2,2',3,3',4,4',5-Heptachlorobiphenyl | 170 | 2.0 | — | — | — | — |
| *2,2',3,3',4,4',6-Heptachlorobiphenyl | 171 | 2.0 | — | — | 2.0 | — |
| 2,2',3,3',4',5,6-Heptachlorobiphenyl | 177 | 2.0 | — | 2.0 | — | — |
| 2,2',3,3',5,5',6-Heptachlorobiphenyl | 178 | 2.0 | — | — | — | 2.0 |
| *2,2',3,4,4',5,5'-Heptachlorobiphenyl | 180 | 2.0 | — | 2.0 | — | — |
| *2,2',3,4,4',5',6-Heptachlorobiphenyl | 183 | 2.0 | — | — | — | — |
| *2,2',3,4',5,5',6-Heptachlorobiphenyl | 187 | 2.0 | — | — | — | — |
| 2,2',3,4',5,6,6'-Heptachlorobiphenyl | 188 | 2.0 | — | 2.0 | — | — |
| *2,3,3',4,4',5,5'-Heptachlorobiphenyl | 189 | 2.0 | — | — | — | — |
| *2,3,3',4,4',5',6-Heptachlorobiphenyl | 191 | 2.0 | — | — | — | — |
| 2,3,3',4',5,5',6-Heptachlorobiphenyl | 193 | — | 2.0 | — | — | — |
| *2,2',3,3',4,4',5,5'-Octachlorobiphenyl | 194 | 2.0 | — | — | — | — |
| *2,2',3,3',4,5,5',6'-Octachlorobiphenyl | 199 | 2.0 | — | — | — | — |
| *2,2',3,3',4,5',6,6'-Octachlorobiphenyl | 201 | 2.0 | — | 2.0 | — | — |
| *2,2',3,3',5,5',6,6'-Octachlorobiphenyl | 202 | 2.0 | — | — | — | 2.0 |
| 2,2',3,4,4',5,5',6-Octachlorobiphenyl | 203 | — | 2.0 | — | — | — |
| *2,3,3',4,4',5,5',6-Octachlorobiphenyl | 205 | 2.0 | — | — | — | — |
| *2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl | 206 | 2.0 | — | — | — | — |
| *2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl | 208 | 2.0 | — | — | — | — |
| *Decachlorobiphenyl | 209 | 2.0 | — | — | — | — |

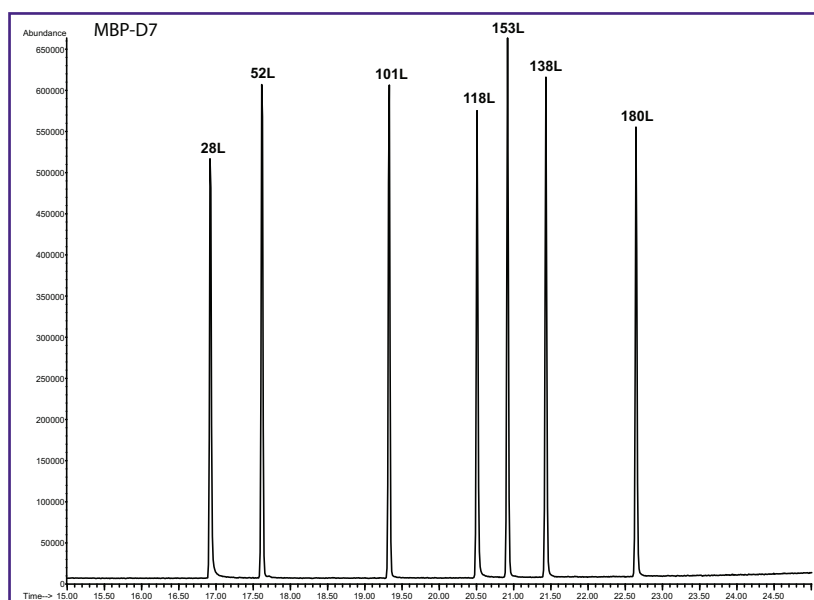
Congeners marked with an asterisk (*) are concentration-certified by direct comparison to the NRCC CLB-1 solutions.

Solution/Mixtures for the analysis of the Dutch 7 PCB Congeners.

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|------------------|---|----------|
| BP-D7 | Native PCB Congener Solution/Mixture | 1.2 ml |
| MBP-D7 | Mass-Labelled PCB Congener Solution/Mixture | 1.2 ml |

| NATIVE PCB CONGENERS | IUPAC | BP-D7 (µg/ml) |
|--------------------------------------|-------|---------------|
| 2,4,4'-Trichlorobiphenyl | 28 | 10 |
| 2,2',5,5'-Tetrachlorobiphenyl | 52 | 10 |
| 2,2',4,5,5'-Pentachlorobiphenyl | 101 | 10 |
| 2,3',4,4',5-Pentachlorobiphenyl | 118 | 10 |
| 2,2',3,4,4',5'-Hexachlorobiphenyl | 138 | 10 |
| 2,2',4,4',5,5'-Hexachlorobiphenyl | 153 | 10 |
| 2,2',3,4,4',5,5'-Heptachlorobiphenyl | 180 | 10 |

| MASS-LABELLED PCB CONGENERS | IUPAC | MBP-D7 (µg/ml) |
|---|-------|----------------|
| 2,4,4'-Trichloro[¹³ C ₁₂]biphenyl | 28L | 5.0 |
| 2,2',5,5'-Tetrachloro[¹³ C ₁₂]biphenyl | 52L | 5.0 |
| 2,2',4,5,5'-Pentachloro[¹³ C ₁₂]biphenyl | 101L | 5.0 |
| 2,3',4,4',5-Pentachloro[¹³ C ₁₂]biphenyl | 118L | 5.0 |
| 2,2',3,4,4',5'-Hexachloro[¹³ C ₁₂]biphenyl | 138L | 5.0 |
| 2,2',4,4',5,5'-Hexachloro[¹³ C ₁₂]biphenyl | 153L | 5.0 |
| 2,2',3,4,4',5,5'-Heptachloro[¹³ C ₁₂]biphenyl | 180L | 5.0 |



HRGC/LRMS Data: MBP-D7 on a 30m DB-5 column.

MASS-LABELLED PCDDs/PCDFs/PCBs: SOLUTION/MIXTURES

These three solutions were designed and prepared as support solutions to be used with the following calibration sets:

DF-CVS-A10 (see Page 42)

DF-CVS-B10 (see Page 44)

as well as:

PCB-CVS-A10

| Catalogue Number | Product (nonane solution) | Qty/Conc |
|---|--|----------|
| DFP-LCS-A | Mass-Labelled PCDD/PCDF/PCB Solution/Mixture | 1.2 ml |
| MASS-LABELLED PCDDs | | |
| 2,3,7,8-Tetrachloro ^[13C] dibenzo-p-dioxin | | 10 ng/ml |
| 1,2,3,7,8-Pentachloro ^[13C] dibenzo-p-dioxin | | 10 ng/ml |
| 1,2,3,4,7,8-Hexachloro ^[13C] dibenzo-p-dioxin | | 10 ng/ml |
| 1,2,3,6,7,8-Hexachloro ^[13C] dibenzo-p-dioxin | | 10 ng/ml |
| 1,2,3,7,8,9-Hexachloro ^[13C] dibenzo-p-dioxin | | 10 ng/ml |
| 1,2,3,4,6,7,8-Heptachloro ^[13C] dibenzo-p-dioxin | | 10 ng/ml |
| Octachloro ^[13C] dibenzo-p-dioxin | | 20 ng/ml |
| MASS-LABELLED PCDFs | | |
| 2,3,7,8-Tetrachloro ^[13C] dibenzofuran | | 10 ng/ml |
| 1,2,3,7,8-Pentachloro ^[13C] dibenzofuran | | 10 ng/ml |
| 2,3,4,7,8-Pentachloro ^[13C] dibenzofuran | | 10 ng/ml |
| 1,2,3,4,7,8-Hexachloro ^[13C] dibenzofuran | | 10 ng/ml |
| 1,2,3,6,7,8-Hexachloro ^[13C] dibenzofuran | | 10 ng/ml |
| 1,2,3,7,8,9-Hexachloro ^[13C] dibenzofuran | | 10 ng/ml |
| 2,3,4,6,7,8-Hexachloro ^[13C] dibenzofuran | | 10 ng/ml |
| 1,2,3,4,6,7,8-Heptachloro ^[13C] dibenzofuran | | 10 ng/ml |
| 1,2,3,4,7,8,9-Heptachloro ^[13C] dibenzofuran | | 10 ng/ml |
| Octachloro ^[13C] dibenzofuran | | 20 ng/ml |
| MASS-LABELLED PCBs | | |
| | IUPAC | |
| 3,3',4,4'-Tetrachloro ^[13C] biphenyl | 77L | 10 ng/ml |
| 3,4,4',5-Tetrachloro ^[13C] biphenyl | 81L | 10 ng/ml |
| 2,3,3',4,4'-Pentachloro ^[13C] biphenyl | 105L | 10 ng/ml |
| 2,3,4,4',5-Pentachloro ^[13C] biphenyl | 114L | 10 ng/ml |
| 2,3',4,4',5-Pentachloro ^[13C] biphenyl | 118L | 10 ng/ml |
| 2',3,4,4',5-Pentachloro ^[13C] biphenyl | 123L | 10 ng/ml |
| 3,3',4,4',5-Pentachloro ^[13C] biphenyl | 126L | 10 ng/ml |
| 2,3,3',4,4',5-Hexachloro ^[13C] biphenyl | 156L | 10 ng/ml |
| 2,3,3',4,4',5'-Hexachloro ^[13C] biphenyl | 157L | 10 ng/ml |
| 2,3',4,4',5,5'-Hexachloro ^[13C] biphenyl | 167L | 10 ng/ml |
| 3,3',4,4',5,5'-Hexachloro ^[13C] biphenyl | 169L | 10 ng/ml |
| 2,2',3,3',4,4',5-Heptachloro ^[13C] biphenyl | 170L | 10 ng/ml |
| 2,2',3,4,4',5,5'-Heptachloro ^[13C] biphenyl | 180L | 10 ng/ml |
| 2,3,3',4,4',5,5'-Heptachloro ^[13C] biphenyl | 189L | 10 ng/ml |
| DFP-IS-A | Mass-Labelled PCDF/PCB Syringe Spike | 1.2 ml |
| | IUPAC | |
| 2,3',4,5-Tetrachloro ^[13C] biphenyl | 70L | 10 ng/ml |
| 1,2,3,4,6,9-Hexachloro ^[13C] dibenzofuran | | 10 ng/ml |
| 1,2,3,4,6,8,9-Heptachloro ^[13C] dibenzofuran | | 10 ng/ml |
| DFP-SS-A | Mass-Labelled PCDD/PCB Sampling Spike | 1.2 ml |
| | IUPAC | |
| 3,3',4,5'-Tetrachloro ^[13C] biphenyl | 79L | 50 ng/ml |
| 1,2,3,4-Tetrachloro ^[13C] dibenzo-p-dioxin | | 50 ng/ml |