

PCBs

AccuStandard is known throughout the world as the only source for all 209 PCB congeners.

PCB Standards are listed as follows:

- Neats and Single Solutions
- International Methods
- Selected USEPA and Other Mixtures
- Metabolites and Derivatives
- Aroclors

USEPA Methods:

AccuStandard offers many more mixes, which can be found on our website, or in our other catalogs, including products for USEPA Methods:

EPA Method	PCB Methods
505	Organohalide Pesticides & Aroclors (ECD)
508 & 508.A	Chlorinated Pesticides & Aroclors (ECD)
525.1	Semi-Volatiles, Congeners, Chlorinated Pesticides (GC/MS)
625	BN/A Semivolatiles, Pesticides, Aroclors (GC/MS)
680	Pesticides & PCB Congeners (GC/MS)
1668	209 PCB Congeners (GC)
8082	PCBs (ECD)

Many more related products available!!!

See our EPA Method Supplement or www.accustandard.com for the complete line organized by USEPA Method number.

Synthesis capabilities are what sets AccuStandard above the rest. AccuStandard employs experienced PhD chemists with many years of academic and industrial experience. These chemists can synthesize chemicals of high purity to be used as reference standards. If you do not see the compound you are looking for, contact us by phone or e-mail at techservice@accustandard.com to see if we can synthesize the material for you.

Custom mixtures can be formulated to meet your individual needs. If you do not see what you are looking for, we will help you design the product that will best suit your requirements.

Historical Perspective

Polychlorinated biphenyls (PCBs) have been the subject of numerous studies and investigations over the last several decades because of their environmental persistency and bioaccumulation.

Their abundance as a pollutant stems from their worldwide manufacture as heavily-used industrial chemicals (in the USA, as Aroclors by Monsanto), with the main application as a di-electric fluid for capacitors and transformers. As late as 1984, about 758 million pounds were still in use in the United States alone.

Toxicity & Bioaccumulation

The chemical formulation of PCBs, its physiological properties (lipophilicity causing bioaccumulation in body lipids and liver organs) and overall toxicity are quite similar to that of the banned pesticide, DDT.

One of the first signals of the effect of PCBs on the environment, in the United States, was noted in 1970 on Great Gull Island at the entrance to Long Island Sound. Scientists observed a sharp increase in the number of abnormalities found in young sea gulls, such as feather loss, crossed beaks, and four legs. In addition, the egg shells were extremely thin.

In 1968, Japan documented the first of over 1200 human patients, many of them children, who developed acneform skin eruptions (chloracne) and other clinical symptoms. These symptoms were eventually traced to the ingestion of the industrial PCB, Kanechlor 400, (trademark of the Kanegafuchi Chemical Industry Company) which had been blended with Rice Oil (Yusho).

The effect was thus termed Yusho Disease. The average amount of actual PCBs consumed by the victims was estimated at 2 grams. By 1973, 22 of the 1200 victims had died, 41% from malignant tumors, suggesting a possible excess mortality from that cause.

Since then, additional studies have been performed discovering many more occurrences and correlations.

Regulatory Actions

The overwhelming problem with PCBs is their continuing environmental impact. Their stability, and widespread prior use, has caused global contamination of soils, rivers and other waterways that could affect our food and water supplies for years to come.

This problem has become of paramount concern to the US EPA, which prohibited, under Section 6(e) of the Toxic Substances Control Act, the use of PCBs, except in totally enclosed systems, after July 1, 1978; the manufacture of PCBs, after January 1, 1979 and the processing and distribution in commerce of PCBs after July 1, 1979. PCBs use as industrial chemicals were totally prohibited after July 1, 1984.

In order to facilitate environmental monitoring, toxicity studies, and possible destruction of PCBs present in the environment, the EPA permits the synthesis and distribution of small quantities for research purposes.

In the course of the investigations, it was determined that some of the 209 congeners that constitute the industrial PCB product behave differently than others and it is very helpful, even essential, to the scientific and regulatory communities, that individual congeners be available. For this reason, the EPA granted manufacturing and export exemptions to a few, select standards manufacturers.

The founder of AccuStandard, Inc. was the first to obtain this exemption. AccuStandard is the leader in synthesizing those chemicals and indeed, is the first, and so far only, manufacturer to have made all 209 congeners. Our expertise can assist you in your PCB investigations.

PCB Congeners

PCB Groupings and Formulations

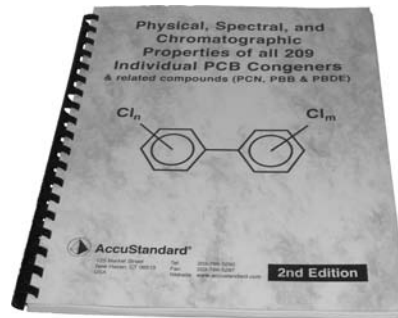
Toxicity and Abundance

PCB Congeners can be grouped according to their presence in the technical mixtures (i.e. Aroclors) and according to their toxicity, generally falling into the following pattern:

ConBrio704 Congeners that contain the fewer chlorine substitutions in the ortho positions are more toxic than those having more chlorines in those positions. The most toxic are the tetra, penta and hexachlorobiphenyl congeners that are unsubstituted in the ortho position.

Analytical Convenience

To obtain meaningful analytical data, the congeners need to be formulated into groupings of solutions that are all resolved on a gas chromatographic column. The "holy grail" of columns, the one column by which all 209 congeners are separated has, to this date, eluded all GC column manufacturers.



There are 2 columns that are closest to achieving the "holy grail" status of separating all the PCB congeners. These two columns: Agilent DB-XLB & SGE's HT 8 which resolve all but 4 pairs of significant congeners and 5 pairs of minor congeners.

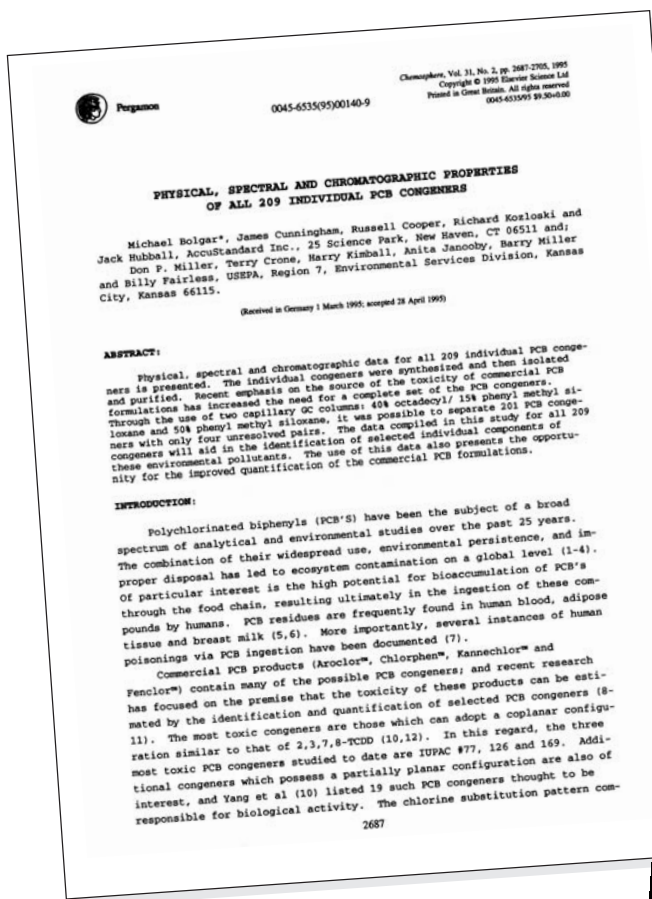
George Frame and his co-workers at General Electric Company have coordinated a seminal study of specially formulated PCB groups - five of which are composed of the congeners contained in Aroclors, the remaining four mixtures contain those congeners generally absent in Aroclors. AccuStandard prepared and supplied the nine mixtures used in Dr. Frame's study from its inventory of the 209 pure congeners.

These nine mixtures were then tested on 17 different columns by independent laboratories and column manufacturers. The resulting chromatographic retention time and response data was compiled and published (see reference 1). This information has proven invaluable for identification and quantification of the different Aroclors as well as for congener specific analysis.

AccuStandard's FT/IR, Mass Spectral data, melting point and chromatographic information along with chromatographic data from George Frame's study is available in the book listed below:

PCB Book

Physical, Spectral and Chromatographic Properties of all 209 Individual PCB Congeners S-3571



INDEX48.XLS

Capillary GC Systems Characteristics, Researchers, and Aroclor PCB Coelutions and System Resolving Power

Sys#	Column	Silicone Substitution*	Len. (m)	I.D. (mm)	Film (µm)	Analyst	Company	Det.	No. of Coel. #	No. of "TZ#"	209IS (min)
1	DB1	100% A	30	.25	.25	G. Frame	GE	ECD	55	35	20
2	RTX-1	100% A	30	.25	.25	G. Frame	GE	MS	55	38	17
3	SPB-Detyl	100% E	30	.25	.25	J. Cochrane	HWRIIC	MS-FT	48	31	14
4	SPB-Detyl	100% E	30	.25	.25	G. Frame	GE	ECD	47	23	24
5	SPB-Detyl	100% E	30	.25	.25	G. Frame	GE	ECD	41	17	24
6	SPB-Detyl	100% E	30	.25	.25	H. Erwin	HWRIIC	ECD	38	25	22
7	CP-SB-C18	100% D	100	.25	.10	E. deWitte	Supelco	MS	51	29	11
8	CP-SB-C18	100% D	100	.25	.10	E. deWitte	Supelco	MS	51	29	11
9	DB-MS	5% K	30	.32	.10	D. LeMiter	NIST	ECD	50	39	11
10	RTX-5	5% B	30	.25	.50	M. Hastings	J&W	ECD	35	35	17
11	CP-SB 13	14% B	30	.25	.25	C. Loope	Restek	MS	52	35	17
12	SPB-20	20% B	30	.25	.30	E. deWitte	Chrompack	MS	80	38	25
13	RTX-35	35% BAC	30	.25	.25	M. Erwin	Supelco	MS	59	32	17
14	DB-17	35% B	30	.25	.25	C. Loope	H-P	MS	63	41	25
15	HP-35	35% B	30	.25	.25	L. Chang	Restek	MS	55	30	25
16	DB-17	50% B	30	.25	.25	C. Loope	H-P	MS	63	41	25
17	HP-1301	5% G	30	.25	.25	M. Hastings	J&W	MS	54	47	30
18	AT-1701	14% G	30	.25	.25	L. Chang	Restek	MS	54	47	30
19	007-00P	80%Q/15%N	30	.25	.25	S. Miller	H-P	MS	55	25	17
20	DB-XLB	"Prop."	50	.25	.10	J. Christie	Altech	MS	58	42	28
21	DBS-MS	35%BAC+	30	.25	.50	M. Hastings	ECD	MS	58	42	28
22	HT-8	XX%L	30	.25	.25	M. Hastings	J&W	MS	34	12	22
23	"CBAS"	XX%L	30	.25	.25	M. Cummings	J&W	MS	58	30	28
24	Agilent L	Hydrocarbon	25	.25	.25	E. Harty	ECD	59	27	32	
25	Polyfide	Hydrocarbon	30	.25	.25	E. Barnard	NIST	ECD	60	28	32
26	CHMPF2	XX%L	30	.25	.25	S. Miller	HYSDOH	ECD	64	51	13
27	007-23	75% H	48	.25	.10	G. Frame	J&W	MS	53	24	28
							GE	MS	58	30	28

* Indicates system listed in Table 3 (Congener Elution Order) of Elution Database paper

No. of # indicates number of coeluting PCB isomers or congeners coeluting with +2Cl homologs, found in Aroclors

No. of < or > indicates number of coeluting homologs in Aroclors differing by 1 Cl, potentially resolvable by MS detection

No. of Coel. is sum of above 2 categories, the number of coeluting congeners in Aroclors not resolvable with ECD

"TZ#" is value similar to Separation No. (Trenozak), calculated by dividing the difference in retention times of PCBs 1 and 209 (the 1st and last to elute on the linear temp. ramp) by the sum of the W@12H values of PCBs 1 and 209 in the system. The number may be thought of as the number of PCBs which could be baseline resolved between these extremes if they were sequentially spaced along the retention axis.

209IS is the retention time in minutes of the PCB #209 internal standard, the last peak to elute, indicative of analysis time

☐ = System included in minimum No. of Calibrating Mixes Calculation

Key to Polydimethylsiloxane-based Stationary Phase Structures

A	Me-Si-Me	P = phenyl
B	P-Si-P	Me = methyl
C	P-Si-Me	CB = n-octyl
D	C18-Si-Me	CB = n-octyl
E	CB-Si-Me	C18 = n-octadecyl
F	Propylary	Propylary
G	CyP-Si-P	CyP = p-cyano, n-propyl
H	CyP-Si-CyP	CyP = p-cyano, p-allyloxy biphenyl
I	CyBA-Si-Me	C = m-carborane
J	O-Si-P-Si-O	
K	O-Si-C-Si-O	
L	O-Si-C-Si-O	

PCB Congeners

All 209 are 99+% by GC/FID & GC/MS

Individual PCB Congener Standards (in 1 mL of solvent, unless otherwise noted)

BZ#	PCB CONGENER	CAS NO.	QTY./CONC.	MATRIX	CAT. NO.
1	2-Chlorobiphenyl	2051-60-7	50 mg	Neat	C-001N
			35 µg/mL	Isooctane	C-001S
			100 µg/mL	Isooctane	C-001S-TP
2	3-Chlorobiphenyl	2051-61-8	50 mg	Neat	C-002N
			35 µg/mL	Isooctane	C-002S
			100 µg/mL	Isooctane	C-002S-TP
3	4-Chlorobiphenyl	2051-62-9	50 mg	Neat	C-003N
			35 µg/mL	Isooctane	C-003S
			100 µg/mL	Isooctane	C-003S-TP
4	2,2'-Dichlorobiphenyl	13029-08-8	25 mg	Neat	C-004N
			35 µg/mL	Isooctane	C-004S
			100 µg/mL	Isooctane	C-004S-TP
5	2,3-Dichlorobiphenyl	16605-91-7	50 mg	Neat	C-005N
			35 µg/mL	Isooctane	C-005S
			100 µg/mL	Isooctane	C-005S-TP
6	2,3'-Dichlorobiphenyl	25569-80-6	5 mg	Neat	C-006N
			35 µg/mL	Isooctane	C-006S
			100 µg/mL	Isooctane	C-006S-TP
7	2,4-Dichlorobiphenyl	33284-50-3	25 mg	Neat	C-007N
			35 µg/mL	Isooctane	C-007S
			100 µg/mL	Isooctane	C-007S-TP
8	2,4'-Dichlorobiphenyl	34883-43-7	25 mg	Neat	C-008N
			35 µg/mL	Isooctane	C-008S
			100 µg/mL	Isooctane	C-008S-TP
9	2,5-Dichlorobiphenyl	34883-39-1	50 mg	Neat	C-009N
			35 µg/mL	Isooctane	C-009S
			100 µg/mL	Isooctane	C-009S-TP
10	2,6-Dichlorobiphenyl	33146-45-1	25 mg	Neat	C-010N
			35 µg/mL	Isooctane	C-010S
			100 µg/mL	Isooctane	C-010S-TP
11	3,3'-Dichlorobiphenyl	2050-67-1	50 mg	Neat	C-011N
			35 µg/mL	Isooctane	C-011S
			100 µg/mL	Isooctane	C-011S-TP
12	3,4-Dichlorobiphenyl	2974-92-7	50 mg	Neat	C-012N
			35 µg/mL	Isooctane	C-012S
			100 µg/mL	Isooctane	C-012S-TP
13	3,4'-Dichlorobiphenyl	2974-90-5	5 mg	Neat	C-013N
			35 µg/mL	Isooctane	C-013S
			100 µg/mL	Isooctane	C-013S-TP
14	3,5-Dichlorobiphenyl	34883-41-5	50 mg	Neat	C-014N
			35 µg/mL	Isooctane	C-014S
			100 µg/mL	Isooctane	C-014S-TP
15	4,4'-Dichlorobiphenyl	2050-68-2	10 mg	Neat	C-015N
			35 µg/mL	Isooctane	C-015S
			100 µg/mL	Isooctane	C-015S-TP
16	2,2',3-Trichlorobiphenyl	38444-78-9	5 mg	Neat	C-016N
			35 µg/mL	Isooctane	C-016S
			100 µg/mL	Isooctane	C-016S-TP
17	2,2',4-Trichlorobiphenyl	37680-66-3	5 mg	Neat	C-017N
			35 µg/mL	Isooctane	C-017S
			100 µg/mL	Isooctane	C-017S-TP
18	2,2',5-Trichlorobiphenyl	37680-65-2	25 mg	Neat	C-018N
			35 µg/mL	Isooctane	C-018S
			100 µg/mL	Isooctane	C-018S-TP
19	2,2',6-Trichlorobiphenyl	38444-73-4	5 mg	Neat	C-019N
			35 µg/mL	Isooctane	C-019S
			100 µg/mL	Isooctane	C-019S-TP
20	2,3,3'-Trichlorobiphenyl	38444-84-7	5 mg	Neat	C-020N
			35 µg/mL	Isooctane	C-020S
			100 µg/mL	Isooctane	C-020S-TP
21	2,3,4-Trichlorobiphenyl	55702-46-0	25 mg	Neat	C-021N
			35 µg/mL	Isooctane	C-021S
			100 µg/mL	Isooctane	C-021S-TP
22	2,3,4'-Trichlorobiphenyl	38444-85-8	5 mg	Neat	C-022N
			35 µg/mL	Isooctane	C-022S
			100 µg/mL	Isooctane	C-022S-TP
23	2,3,5-Trichlorobiphenyl	55720-44-0	5 mg	Neat	C-023N
			35 µg/mL	Isooctane	C-023S
			100 µg/mL	Isooctane	C-023S-TP
24	2,3,6-Trichlorobiphenyl	55702-45-9	10 mg	Neat	C-024N
			35 µg/mL	Isooctane	C-024S
			100 µg/mL	Isooctane	C-024S-TP
25	2,3',4-Trichlorobiphenyl	55712-37-3	5 mg	Neat	C-025N
			35 µg/mL	Isooctane	C-025S
			100 µg/mL	Isooctane	C-025S-TP
26	2,3',5-Trichlorobiphenyl	38444-81-4	25 mg	Neat	C-026N
			35 µg/mL	Isooctane	C-026S
			100 µg/mL	Isooctane	C-026S-TP
27	2,3',6-Trichlorobiphenyl	38444-76-7	5 mg	Neat	C-027N
			35 µg/mL	Isooctane	C-027S
			100 µg/mL	Isooctane	C-027S-TP
28	2,4,4'-Trichlorobiphenyl	7012-37-5	10 mg	Neat	C-028N
			35 µg/mL	Isooctane	C-028S
			100 µg/mL	Isooctane	C-028S-TP

Individual PCB Congeners

PCB Congeners

Individual PCB Congener Standards (in 1 mL of solvent, unless otherwise noted)

Individual PCB Congeners

BZ#	PCB CONGENER	CAS NO.	QTY./CONC.	MATRIX	CAT. NO.
29	2,4,5-Trichlorobiphenyl	15862-07-4	50 mg	Neat	C-029N
			35 µg/mL	Isooctane	C-029S
			100 µg/mL	Isooctane	C-029S-TP
30	2,4,6-Trichlorobiphenyl	35693-92-6	50 mg	Neat	C-030N
			35 µg/mL	Isooctane	C-030S
			100 µg/mL	Isooctane	C-030S-TP
31	2,4',5-Trichlorobiphenyl	16606-02-3	25 mg	Neat	C-031N
			35 µg/mL	Isooctane	C-031S
			100 µg/mL	Isooctane	C-031S-TP
32	2,4',6-Trichlorobiphenyl	38444-77-4	5 mg	Neat	C-032N
			35 µg/mL	Isooctane	C-032S
			100 µg/mL	Isooctane	C-032S-TP
33	2',3,4-Trichlorobiphenyl	38444-86-9	10 mg	Neat	C-033N
			35 µg/mL	Isooctane	C-033S
			100 µg/mL	Isooctane	C-033S-TP
34	2',3,5-Trichlorobiphenyl	37680-68-5	5 mg	Neat	C-034N
			35 µg/mL	Isooctane	C-034S
			100 µg/mL	Isooctane	C-034S-TP
35	3,3',4-Trichlorobiphenyl	37680-69-6	5 mg	Neat	C-035N
			35 µg/mL	Isooctane	C-035S
			100 µg/mL	Isooctane	C-035S-TP
36	3,3',5-Trichlorobiphenyl	38444-87-0	5 mg	Neat	C-036N
			35 µg/mL	Isooctane	C-036S
			100 µg/mL	Isooctane	C-036S-TP
37	3,4,4'-Trichlorobiphenyl	38444-90-5	5 mg	Neat	C-037N
			35 µg/mL	Isooctane	C-037S
			100 µg/mL	Isooctane	C-037S-TP
38	3,4,5-Trichlorobiphenyl	53555-66-1	5 mg	Neat	C-038N
			35 µg/mL	Isooctane	C-038S
			100 µg/mL	Isooctane	C-038S-TP
39	3,4',5-Trichlorobiphenyl	38444-88-1	5 mg	Neat	C-039N
			35 µg/mL	Isooctane	C-039S
			100 µg/mL	Isooctane	C-039S-TP
40	2,2',3,3'-Tetrachlorobiphenyl	38444-93-8	50 mg	Neat	C-040N
			35 µg/mL	Isooctane	C-040S
			100 µg/mL	Isooctane	C-040S-TP
41	2,2',3,4-Tetrachlorobiphenyl	52663-59-9	5 mg	Neat	C-041N
			35 µg/mL	Isooctane	C-041S
			100 µg/mL	Isooctane	C-041S-TP
42	2,2',3,4'-Tetrachlorobiphenyl	36559-22-5	5 mg	Neat	C-042N
			35 µg/mL	Isooctane	C-042S
			100 µg/mL	Isooctane	C-042S-TP
43	2,2',3,5-Tetrachlorobiphenyl	70362-46-8	5 mg	Neat	C-043N
			35 µg/mL	Isooctane	C-043S
			100 µg/mL	Isooctane	C-043S-TP
44	2,2',3,5'-Tetrachlorobiphenyl	41464-39-5	25 mg	Neat	C-044N
			35 µg/mL	Isooctane	C-044S
			100 µg/mL	Isooctane	C-044S-TP
45	2,2',3,6-Tetrachlorobiphenyl	70362-45-7	5 mg	Neat	C-045N
			35 µg/mL	Isooctane	C-045S
			100 µg/mL	Isooctane	C-045S-TP
46	2,2',3,6'-Tetrachlorobiphenyl	41464-47-5	5 mg	Neat	C-046N
			35 µg/mL	Isooctane	C-046S
			100 µg/mL	Isooctane	C-046S-TP
47	2,2',4,4'-Tetrachlorobiphenyl	2437-79-8	50 mg	Neat	C-047N
			35 µg/mL	Isooctane	C-047S
			100 µg/mL	Isooctane	C-047S-TP
48	2,2',4,5-Tetrachlorobiphenyl	70362-47-9	5 mg	Neat	C-048N
			35 µg/mL	Isooctane	C-048S
			100 µg/mL	Isooctane	C-048S-TP
49	2,2',4,5'-Tetrachlorobiphenyl	41464-40-8	20 mg	Neat	C-049N
			35 µg/mL	Isooctane	C-049S
			100 µg/mL	Isooctane	C-049S-TP
50	2,2',4,6-Tetrachlorobiphenyl	62796-65-0	5 mg	Neat	C-050N
			35 µg/mL	Isooctane	C-050S
			100 µg/mL	Isooctane	C-050S-TP
51	2,2',4,6'-Tetrachlorobiphenyl	68194-04-7	5 mg	Neat	C-051N
			35 µg/mL	Isooctane	C-051S
			100 µg/mL	Isooctane	C-051S-TP
52	2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	10 mg	Neat	C-052N
			35 µg/mL	Isooctane	C-052S
			100 µg/mL	Isooctane	C-052S-TP
53	2,2',5,6'-Tetrachlorobiphenyl	41464-41-9	25 mg	Neat	C-053N
			35 µg/mL	Isooctane	C-053S
			100 µg/mL	Isooctane	C-053S-TP
54	2,2',6,6'-Tetrachlorobiphenyl	15968-05-5	50 mg	Neat	C-054N
			35 µg/mL	Isooctane	C-054S
			100 µg/mL	Isooctane	C-054S-TP
55	2,3,3',4-Tetrachlorobiphenyl	74338-24-2	5 mg	Neat	C-055N
			35 µg/mL	Isooctane	C-055S
			100 µg/mL	Isooctane	C-055S-TP

PCB Congeners

All 209 are 99+% by GC/FID & GC/MS

Individual PCB Congener Standards (in 1 mL of solvent, unless otherwise noted)

BZ#	PCB CONGENER	CAS NO.	QTY./CONC.	MATRIX	CAT. NO.
56	2,3,3',4'-Tetrachlorobiphenyl	41464-43-1	5 mg	Neat	C-056N
			35 µg/mL	Isooctane	C-056S
			100 µg/mL	Isooctane	C-056S-TP
57	2,3,3',5'-Tetrachlorobiphenyl	70424-67-8	5 mg	Neat	C-057N
			35 µg/mL	Isooctane	C-057S
			100 µg/mL	Isooctane	C-057S-TP
58	2,3,3',5'-Tetrachlorobiphenyl	41464-49-7	5 mg	Neat	C-058N
			35 µg/mL	Isooctane	C-058S
			100 µg/mL	Isooctane	C-058S-TP
59	2,3,3',6'-Tetrachlorobiphenyl	74472-33-6	5 mg	Neat	C-059N
			35 µg/mL	Isooctane	C-059S
			100 µg/mL	Isooctane	C-059S-TP
60	2,3,4,4'-Tetrachlorobiphenyl	33025-41-1	5 mg	Neat	C-060N
			35 µg/mL	Isooctane	C-060S
			100 µg/mL	Isooctane	C-060S-TP
61	2,3,4,5'-Tetrachlorobiphenyl	33284-53-6	50 mg	Neat	C-061N
			35 µg/mL	Isooctane	C-061S
			100 µg/mL	Isooctane	C-061S-TP
62	2,3,4,6'-Tetrachlorobiphenyl	54230-22-7	5 mg	Neat	C-062N
			35 µg/mL	Isooctane	C-062S
			100 µg/mL	Isooctane	C-062S-TP
63	2,3,4',5'-Tetrachlorobiphenyl	74472-34-7	5 mg	Neat	C-063N
			35 µg/mL	Isooctane	C-063S
			100 µg/mL	Isooctane	C-063S-TP
64	2,3,4',6'-Tetrachlorobiphenyl	52663-58-8	5 mg	Neat	C-064N
			35 µg/mL	Isooctane	C-064S
			100 µg/mL	Isooctane	C-064S-TP
65	2,3,5,6'-Tetrachlorobiphenyl	33284-54-7	25 mg	Neat	C-065N
			35 µg/mL	Isooctane	C-065S
			100 µg/mL	Isooctane	C-065S-TP
66	2,3',4,4'-Tetrachlorobiphenyl	32598-10-0	20 mg	Neat	C-066N
			35 µg/mL	Isooctane	C-066S
			100 µg/mL	Isooctane	C-066S-TP
67	2,3',4,5'-Tetrachlorobiphenyl	73557-53-8	5 mg	Neat	C-067N
			35 µg/mL	Isooctane	C-067S
			100 µg/mL	Isooctane	C-067S-TP
68	2,3',4,5'-Tetrachlorobiphenyl	73575-52-7	5 mg	Neat	C-068N
			35 µg/mL	Isooctane	C-068S
			100 µg/mL	Isooctane	C-068S-TP
69	2,3',4,6'-Tetrachlorobiphenyl	60233-24-1	5 mg	Neat	C-069N
			35 µg/mL	Isooctane	C-069S
			100 µg/mL	Isooctane	C-069S-TP
70	2,3',4',5'-Tetrachlorobiphenyl	32598-11-1	10 mg	Neat	C-070N
			35 µg/mL	Isooctane	C-070S
			100 µg/mL	Isooctane	C-070S-TP
71	2,3',4',6'-Tetrachlorobiphenyl	41464-46-4	5 mg	Neat	C-071N
			35 µg/mL	Isooctane	C-071S
			100 µg/mL	Isooctane	C-071S-TP
72	2,3',5,5'-Tetrachlorobiphenyl	41464-42-0	25 mg	Neat	C-072N
			35 µg/mL	Isooctane	C-072S
			100 µg/mL	Isooctane	C-072S-TP
73	2,3',5',6'-Tetrachlorobiphenyl	74338-23-1	5 mg	Neat	C-073N
			35 µg/mL	Isooctane	C-073S
			100 µg/mL	Isooctane	C-073S-TP
74	2,4,4',5'-Tetrachlorobiphenyl	32690-93-0	5 mg	Neat	C-074N
			35 µg/mL	Isooctane	C-074S
			100 µg/mL	Isooctane	C-074S-TP
75	2,4,4',6'-Tetrachlorobiphenyl	32598-12-2	5 mg	Neat	C-075N
			35 µg/mL	Isooctane	C-075S
			100 µg/mL	Isooctane	C-075S-TP
76	2',3,4,5'-Tetrachlorobiphenyl	70362-48-0	5 mg	Neat	C-076N
			35 µg/mL	Isooctane	C-076S
			100 µg/mL	Isooctane	C-076S-TP
77	3,3',4,4'-Tetrachlorobiphenyl	32598-13-3	25 mg	Neat	C-077N
			35 µg/mL	Isooctane	C-077S
			100 µg/mL	Isooctane	C-077S-TP
78	3,3',4,5'-Tetrachlorobiphenyl	70362-49-1	5 mg	Neat	C-078N
			35 µg/mL	Isooctane	C-078S
			100 µg/mL	Isooctane	C-078S-TP
79	3,3',4,5'-Tetrachlorobiphenyl	41464-48-6	5 mg	Neat	C-079N
			35 µg/mL	Isooctane	C-079S
			100 µg/mL	Isooctane	C-079S-TP
80	3,3',5,5'-Tetrachlorobiphenyl	33284-52-5	5 mg	Neat	C-080N
			35 µg/mL	Isooctane	C-080S
			100 µg/mL	Isooctane	C-080S-TP
81	3,4,4',5'-Tetrachlorobiphenyl	70362-50-4	5 mg	Neat	C-081N
			35 µg/mL	Isooctane	C-081S
			100 µg/mL	Isooctane	C-081S-TP
82	2,2',3,3',4'-Pentachlorobiphenyl	52663-62-4	5 mg	Neat	C-082N
			35 µg/mL	Isooctane	C-082S
			100 µg/mL	Isooctane	C-082S-TP

Individual PCB Congeners

PCB Congeners

Individual PCB Congener Standards (in 1 mL of solvent, unless otherwise noted)

Individual PCB Congeners

BZ#	PCB CONGENER	CAS NO.	QTY./CONC.	MATRIX	CAT. NO.
83	2,2',3,3',5-Pentachlorobiphenyl	60145-20-2	5 mg	Neat	C-083N
			35 µg/mL	Isooctane	C-083S
			100 µg/mL	Isooctane	C-083S-TP
84	2,2',3,3',6-Pentachlorobiphenyl	52663-60-2	5 mg	Neat	C-084N
			35 µg/mL	Isooctane	C-084S
			100 µg/mL	Isooctane	C-084S-TP
85	2,2',3,4,4'-Pentachlorobiphenyl	65510-45-4	5 mg	Neat	C-085N
			35 µg/mL	Isooctane	C-085S
			100 µg/mL	Isooctane	C-085S-TP
86	2,2',3,4,5-Pentachlorobiphenyl	55312-69-1	5 mg	Neat	C-086N
			35 µg/mL	Isooctane	C-086S
			100 µg/mL	Isooctane	C-086S-TP
87	2,2',3,4,5'-Pentachlorobiphenyl	38380-02-8	10 mg	Neat	C-087N
			35 µg/mL	Isooctane	C-087S
			100 µg/mL	Isooctane	C-087S-TP
88	2,2',3,4,6-Pentachlorobiphenyl	55215-17-3	5 mg	Neat	C-088N
			35 µg/mL	Isooctane	C-088S
			100 µg/mL	Isooctane	C-088S-TP
89	2,2',3,4,6'-Pentachlorobiphenyl	73575-57-2	5 mg	Neat	C-089N
			35 µg/mL	Isooctane	C-089S
			100 µg/mL	Isooctane	C-089S-TP
90	2,2',3,4',5-Pentachlorobiphenyl	68194-07-0	5 mg	Neat	C-090N
			35 µg/mL	Isooctane	C-090S
			100 µg/mL	Isooctane	C-090S-TP
91	2,2',3,4',6-Pentachlorobiphenyl	68194-05-8	5 mg	Neat	C-091N
			35 µg/mL	Isooctane	C-091S
			100 µg/mL	Isooctane	C-091S-TP
92	2,2',3,5,5'-Pentachlorobiphenyl	52663-61-3	5 mg	Neat	C-092N
			35 µg/mL	Isooctane	C-092S
			100 µg/mL	Isooctane	C-092S-TP
93	2,2',3,5,6-Pentachlorobiphenyl	73575-56-1	5 mg	Neat	C-093N
			35 µg/mL	Isooctane	C-093S
			100 µg/mL	Isooctane	C-093S-TP
94	2,2',3,5,6'-Pentachlorobiphenyl	73575-55-0	5 mg	Neat	C-094N
			35 µg/mL	Isooctane	C-094S
			100 µg/mL	Isooctane	C-094S-TP
95	2,2',3,5',6-Pentachlorobiphenyl	38379-99-6	5 mg	Neat	C-095N
			35 µg/mL	Isooctane	C-095S
			100 µg/mL	Isooctane	C-095S-TP
96	2,2',3,6,6'-Pentachlorobiphenyl	73575-54-9	5 mg	Neat	C-096N
			35 µg/mL	Isooctane	C-096S
			100 µg/mL	Isooctane	C-096S-TP
97	2,2',3',4,5-Pentachlorobiphenyl	41464-51-1	10 mg	Neat	C-097N
			35 µg/mL	Isooctane	C-097S
			100 µg/mL	Isooctane	C-097S-TP
98	2,2',3',4,6-Pentachlorobiphenyl	60233-25-2	5 mg	Neat	C-098N
			35 µg/mL	Isooctane	C-098S
			100 µg/mL	Isooctane	C-098S-TP
99	2,2',4,4',5-Pentachlorobiphenyl	38380-01-7	5 mg	Neat	C-099N
			35 µg/mL	Isooctane	C-099S
			100 µg/mL	Isooctane	C-099S-TP
100	2,2',4,4',6-Pentachlorobiphenyl	39485-83-1	5 mg	Neat	C-100N
			35 µg/mL	Isooctane	C-100S
			100 µg/mL	Isooctane	C-100S-TP
101	2,2',4,5,5'-Pentachlorobiphenyl	37680-73-2	10 mg	Neat	C-101N
			35 µg/mL	Isooctane	C-101S
			100 µg/mL	Isooctane	C-101S-TP
102	2,2',4,5,6'-Pentachlorobiphenyl	68194-06-9	5 mg	Neat	C-102N
			35 µg/mL	Isooctane	C-102S
			100 µg/mL	Isooctane	C-102S-TP
103	2,2',4,5,6-Pentachlorobiphenyl	60145-21-3	10 mg	Neat	C-103N
			35 µg/mL	Isooctane	C-103S
			100 µg/mL	Isooctane	C-103S-TP
104	2,2',4,6,6'-Pentachlorobiphenyl	56558-16-8	5 mg	Neat	C-104N
			35 µg/mL	Isooctane	C-104S
			100 µg/mL	Isooctane	C-104S-TP
105	2,3,3',4,4'-Pentachlorobiphenyl	32598-14-4	5 mg	Neat	C-105N
			35 µg/mL	Isooctane	C-105S
			100 µg/mL	Isooctane	C-105S-TP
106	2,3,3',4,5-Pentachlorobiphenyl	70424-69-0	5 mg	Neat	C-106N
			35 µg/mL	Isooctane	C-106S
			100 µg/mL	Isooctane	C-106S-TP
107 (IUPAC#109)	2,3,3',4',5-Pentachlorobiphenyl	70424-68-9	5 mg	Neat	C-107N
			35 µg/mL	Isooctane	C-107S
			100 µg/mL	Isooctane	C-107S-TP
108 (IUPAC#107)	2,3,3',4,5'-Pentachlorobiphenyl	70362-41-3	5 mg	Neat	C-108N
			35 µg/mL	Isooctane	C-108S
			100 µg/mL	Isooctane	C-108S-TP
109 (IUPAC#108)	2,3,3',4,6-Pentachlorobiphenyl	74472-35-8	5 mg	Neat	C-109N
			35 µg/mL	Isooctane	C-109S
			100 µg/mL	Isooctane	C-109S-TP

PCB Congeners

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Individual PCB Congener Standards (in 1 mL of solvent, unless otherwise noted)

BZ#	PCB CONGENER	CAS NO.	QTY./CONC.	MATRIX	CAT. NO.
110	2,3,3',4',6-Pentachlorobiphenyl	38380-03-9	5 mg	Neat	C-110N
			35 µg/mL	Isooctane	C-110S
			100 µg/mL	Isooctane	C-110S-TP
111	2,3,3',5,5'-Pentachlorobiphenyl	39635-32-0	5 mg	Neat	C-111N
			35 µg/mL	Isooctane	C-111S
			100 µg/mL	Isooctane	C-111S-TP
112	2,3,3',5,6-Pentachlorobiphenyl	74472-36-9	5 mg	Neat	C-112N
			35 µg/mL	Isooctane	C-112S
			100 µg/mL	Isooctane	C-112S-TP
113	2,3,3',5',6-Pentachlorobiphenyl	68194-10-5	5 mg	Neat	C-113N
			35 µg/mL	Isooctane	C-113S
			100 µg/mL	Isooctane	C-113S-TP
114	2,3,4,4',5-Pentachlorobiphenyl	74472-37-0	5 mg	Neat	C-114N
			35 µg/mL	Isooctane	C-114S
			100 µg/mL	Isooctane	C-114S-TP
115	2,3,4,4',6-Pentachlorobiphenyl	74472-38-1	5 mg	Neat	C-115N
			35 µg/mL	Isooctane	C-115S
			100 µg/mL	Isooctane	C-115S-TP
116	2,3,4,5,6-Pentachlorobiphenyl	18259-05-7	10 mg	Neat	C-116N
			35 µg/mL	Isooctane	C-116S
			100 µg/mL	Isooctane	C-116S-TP
117	2,3,4',5,6-Pentachlorobiphenyl	68194-11-6	5 mg	Neat	C-117N
			35 µg/mL	Isooctane	C-117S
			100 µg/mL	Isooctane	C-117S-TP
118	2,3',4,4',5-Pentachlorobiphenyl	31508-00-6	5 mg	Neat	C-118N
			35 µg/mL	Isooctane	C-118S
			100 µg/mL	Isooctane	C-118S-TP
119	2,3',4,4',6-Pentachlorobiphenyl	56558-17-9	5 mg	Neat	C-119N
			35 µg/mL	Isooctane	C-119S
			100 µg/mL	Isooctane	C-119S-TP
120	2,3',4,5,5'-Pentachlorobiphenyl	68194-12-7	5 mg	Neat	C-120N
			35 µg/mL	Isooctane	C-120S
			100 µg/mL	Isooctane	C-120S-TP
121	2,3',4,5',6-Pentachlorobiphenyl	56558-18-0	5 mg	Neat	C-121N
			35 µg/mL	Isooctane	C-121S
			100 µg/mL	Isooctane	C-121S-TP
122	2',3,3',4,5-Pentachlorobiphenyl	76842-07-4	5 mg	Neat	C-122N
			35 µg/mL	Isooctane	C-122S
			100 µg/mL	Isooctane	C-122S-TP
123	2',3,4,4',5-Pentachlorobiphenyl	65510-44-3	5 mg	Neat	C-123N
			35 µg/mL	Isooctane	C-123S
			100 µg/mL	Isooctane	C-123S-TP
124	2',3,4,5,5'-Pentachlorobiphenyl	70424-70-3	5 mg	Neat	C-124N
			35 µg/mL	Isooctane	C-124S
			100 µg/mL	Isooctane	C-124S-TP
125	2',3,4,5,6'-Pentachlorobiphenyl	74472-39-2	5 mg	Neat	C-125N
			35 µg/mL	Isooctane	C-125S
			100 µg/mL	Isooctane	C-125S-TP
126	3,3',4,4',5-Pentachlorobiphenyl	57465-28-8	5 mg	Neat	C-126N
			35 µg/mL	Isooctane	C-126S
			100 µg/mL	Isooctane	C-126S-TP
127	3,3',4,5,5'-Pentachlorobiphenyl	39635-33-1	5 mg	Neat	C-127N
			35 µg/mL	Isooctane	C-127S
			100 µg/mL	Isooctane	C-127S-TP
128	2,2',3,3',4,4'-Hexachlorobiphenyl	38380-07-3	20 mg	Neat	C-128N
			35 µg/mL	Isooctane	C-128S
			100 µg/mL	Isooctane	C-128S-TP
129	2,2',3,3',4,5-Hexachlorobiphenyl	55215-18-4	5 mg	Neat	C-129N
			35 µg/mL	Isooctane	C-129S
			100 µg/mL	Isooctane	C-129S-TP
130	2,2',3,3',4,5'-Hexachlorobiphenyl	52663-66-8	5 mg	Neat	C-130N
			35 µg/mL	Isooctane	C-130S
			100 µg/mL	Isooctane	C-130S-TP
131	2,2',3,3',4,6-Hexachlorobiphenyl	61798-70-7	5 mg	Neat	C-131N
			35 µg/mL	Isooctane	C-131S
			100 µg/mL	Isooctane	C-131S-TP
132	2,2',3,3',4,6'-Hexachlorobiphenyl	38380-05-1	5 mg	Neat	C-132N
			35 µg/mL	Isooctane	C-132S
			100 µg/mL	Isooctane	C-132S-TP
133	2,2',3,3',5,5'-Hexachlorobiphenyl	35694-04-3	5 mg	Neat	C-133N
			35 µg/mL	Isooctane	C-133S
			100 µg/mL	Isooctane	C-133S-TP
134	2,2',3,3',5,6-Hexachlorobiphenyl	52704-70-8	5 mg	Neat	C-134N
			35 µg/mL	Isooctane	C-134S
			100 µg/mL	Isooctane	C-134S-TP
135	2,2',3,3',5,6'-Hexachlorobiphenyl	52744-13-5	5 mg	Neat	C-135N
			35 µg/mL	Isooctane	C-135S
			100 µg/mL	Isooctane	C-135S-TP
136	2,2',3,3',6,6'-Hexachlorobiphenyl	38411-22-2	20 mg	Neat	C-136N
			35 µg/mL	Isooctane	C-136S
			100 µg/mL	Isooctane	C-136S-TP

Individual PCB Congeners

PCB Congeners

Individual PCB Congeners

Individual PCB Congener Standards (in 1 mL of solvent, unless otherwise noted)

BZ#	PCB CONGENER	CAS NO.	QTY./CONC.	MATRIX	CAT. NO.
137	2,2',3,4,4',5'-Hexachlorobiphenyl	35694-06-5	5 mg	Neat	C-137N
			35 µg/mL	Isooctane	C-137S
			100 µg/mL	Isooctane	C-137S-TP
138	2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	5 mg	Neat	C-138N
			35 µg/mL	Isooctane	C-138S
			100 µg/mL	Isooctane	C-138S-TP
139	2,2',3,4,4',6'-Hexachlorobiphenyl	56030-56-9	5 mg	Neat	C-139N
			35 µg/mL	Isooctane	C-139S
			100 µg/mL	Isooctane	C-139S-TP
140	2,2',3,4,4',6'-Hexachlorobiphenyl	59291-64-4	5 mg	Neat	C-140N
			35 µg/mL	Isooctane	C-140S
			100 µg/mL	Isooctane	C-140S-TP
141	2,2',3,4,5,5'-Hexachlorobiphenyl	52712-04-6	5 mg	Neat	C-141N
			35 µg/mL	Isooctane	C-141S
			100 µg/mL	Isooctane	C-141S-TP
142	2,2',3,4,5,6'-Hexachlorobiphenyl	41411-61-4	5 mg	Neat	C-142N
			35 µg/mL	Isooctane	C-142S
			100 µg/mL	Isooctane	C-142S-TP
143	2,2',3,4,5,6'-Hexachlorobiphenyl	68194-15-0	5 mg	Neat	C-143N
			35 µg/mL	Isooctane	C-143S
			100 µg/mL	Isooctane	C-143S-TP
144	2,2',3,4,5',6'-Hexachlorobiphenyl	68194-14-9	5 mg	Neat	C-144N
			35 µg/mL	Isooctane	C-144S
			100 µg/mL	Isooctane	C-144S-TP
145	2,2',3,4,6,6'-Hexachlorobiphenyl	74472-40-5	5 mg	Neat	C-145N
			35 µg/mL	Isooctane	C-145S
			100 µg/mL	Isooctane	C-145S-TP
146	2,2',3,4',5,5'-Hexachlorobiphenyl	51908-16-8	5 mg	Neat	C-146N
			35 µg/mL	Isooctane	C-146S
			100 µg/mL	Isooctane	C-146S-TP
147	2,2',3,4',5,6'-Hexachlorobiphenyl	68194-13-8	5 mg	Neat	C-147N
			35 µg/mL	Isooctane	C-147S
			100 µg/mL	Isooctane	C-147S-TP
148	2,2',3,4',5,6'-Hexachlorobiphenyl	74472-41-6	5 mg	Neat	C-148N
			35 µg/mL	Isooctane	C-148S
			100 µg/mL	Isooctane	C-148S-TP
149	2,2',3,4',5',6'-Hexachlorobiphenyl	38380-04-0	5 mg	Neat	C-149N
			35 µg/mL	Isooctane	C-149S
			100 µg/mL	Isooctane	C-149S-TP
150	2,2',3,4',6,6'-Hexachlorobiphenyl	68194-08-1	5 mg	Neat	C-150N
			35 µg/mL	Isooctane	C-150S
			100 µg/mL	Isooctane	C-150S-TP
151	2,2',3,5,5',6'-Hexachlorobiphenyl	52663-63-5	5 mg	Neat	C-151N
			35 µg/mL	Isooctane	C-151S
			100 µg/mL	Isooctane	C-151S-TP
152	2,2',3,5,6,6'-Hexachlorobiphenyl	68194-09-2	5 mg	Neat	C-152N
			35 µg/mL	Isooctane	C-152S
			100 µg/mL	Isooctane	C-152S-TP
153	2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	5 mg	Neat	C-153N
			35 µg/mL	Isooctane	C-153S
			100 µg/mL	Isooctane	C-153S-TP
154	2,2',4,4',5,6'-Hexachlorobiphenyl	60145-22-4	5 mg	Neat	C-154N
			35 µg/mL	Isooctane	C-154S
			100 µg/mL	Isooctane	C-154S-TP
155	2,2',4,4',6,6'-Hexachlorobiphenyl	33979-03-2	5 mg	Neat	C-155N
			35 µg/mL	Isooctane	C-155S
			100 µg/mL	Isooctane	C-155S-TP
156	2,3,3',4,4',5'-Hexachlorobiphenyl	38380-08-4	5 mg	Neat	C-156N
			35 µg/mL	Isooctane	C-156S
			100 µg/mL	Isooctane	C-156S-TP
157	2,3,3',4,4',5'-Hexachlorobiphenyl	69782-90-7	5 mg	Neat	C-157N
			35 µg/mL	Isooctane	C-157S
			100 µg/mL	Isooctane	C-157S-TP
158	2,3,3',4,4',6'-Hexachlorobiphenyl	74472-42-7	5 mg	Neat	C-158N
			35 µg/mL	Isooctane	C-158S
			100 µg/mL	Isooctane	C-158S-TP
159	2,3,3',4,5,5'-Hexachlorobiphenyl	39635-35-3	5 mg	Neat	C-159N
			35 µg/mL	Isooctane	C-159S
			100 µg/mL	Isooctane	C-159S-TP
160	2,3,3',4,5,6'-Hexachlorobiphenyl	41411-62-5	5 mg	Neat	C-160N
			35 µg/mL	Isooctane	C-160S
			100 µg/mL	Isooctane	C-160S-TP
161	2,3,3',4,5',6'-Hexachlorobiphenyl	74474-43-8	5 mg	Neat	C-161N
			35 µg/mL	Isooctane	C-161S
			100 µg/mL	Isooctane	C-161S-TP
162	2,3,3',4',5,5'-Hexachlorobiphenyl	39635-34-2	5 mg	Neat	C-162N
			35 µg/mL	Isooctane	C-162S
			100 µg/mL	Isooctane	C-162S-TP
163	2,3,3',4',5,6'-Hexachlorobiphenyl	74472-44-9	5 mg	Neat	C-163N
			35 µg/mL	Isooctane	C-163S
			100 µg/mL	Isooctane	C-163S-TP

PCB Congeners

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Individual PCB Congener Standards (in 1 mL of solvent, unless otherwise noted)

BZ#	PCB CONGENER	CAS NO.	QTY./CONC.	MATRIX	CAT. NO.
164	2,3,3',4',5',6'-Hexachlorobiphenyl	74472-45-0	5 mg	Neat	C-164N
			35 µg/mL	Isooctane	C-164S
			100 µg/mL	Isooctane	C-164S-TP
165	2,3,3',5',5',6'-Hexachlorobiphenyl	74472-46-1	5 mg	Neat	C-165N
			35 µg/mL	Isooctane	C-165S
			100 µg/mL	Isooctane	C-165S-TP
166	2,3,4,4',5,6'-Hexachlorobiphenyl	41411-63-6	5 mg	Neat	C-166N
			35 µg/mL	Isooctane	C-166S
			100 µg/mL	Isooctane	C-166S-TP
167	2,3',4,4',5,5'-Hexachlorobiphenyl	52663-72-6	5 mg	Neat	C-167N
			35 µg/mL	Isooctane	C-167S
			100 µg/mL	Isooctane	C-167S-TP
168	2,3',4,4',5',6'-Hexachlorobiphenyl	59291-65-5	5 mg	Neat	C-168N
			35 µg/mL	Isooctane	C-168S
			100 µg/mL	Isooctane	C-168S-TP
169	3,3',4,4',5,5'-Hexachlorobiphenyl	32774-16-6	5 mg	Neat	C-169N
			35 µg/mL	Isooctane	C-169S
			100 µg/mL	Isooctane	C-169S-TP
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	35065-30-6	5 mg	Neat	C-170N
			35 µg/mL	Isooctane	C-170S
			100 µg/mL	Isooctane	C-170S-TP
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	52663-71-5	5 mg	Neat	C-171N
			35 µg/mL	Isooctane	C-171S
			100 µg/mL	Isooctane	C-171S-TP
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	52663-74-8	5 mg	Neat	C-172N
			35 µg/mL	Isooctane	C-172S
			100 µg/mL	Isooctane	C-172S-TP
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	68194-16-1	5 mg	Neat	C-173N
			35 µg/mL	Isooctane	C-173S
			100 µg/mL	Isooctane	C-173S-TP
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	38411-25-5	5 mg	Neat	C-174N
			35 µg/mL	Isooctane	C-174S
			100 µg/mL	Isooctane	C-174S-TP
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	40186-70-7	5 mg	Neat	C-175N
			35 µg/mL	Isooctane	C-175S
			100 µg/mL	Isooctane	C-175S-TP
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	52663-65-7	5 mg	Neat	C-176N
			35 µg/mL	Isooctane	C-176S
			100 µg/mL	Isooctane	C-176S-TP
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	52663-70-4	5 mg	Neat	C-177N
			35 µg/mL	Isooctane	C-177S
			100 µg/mL	Isooctane	C-177S-TP
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	52663-67-9	5 mg	Neat	C-178N
			35 µg/mL	Isooctane	C-178S
			100 µg/mL	Isooctane	C-178S-TP
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	52663-64-6	5 mg	Neat	C-179N
			35 µg/mL	Isooctane	C-179S
			100 µg/mL	Isooctane	C-179S-TP
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	5 mg	Neat	C-180N
			35 µg/mL	Isooctane	C-180S
			100 µg/mL	Isooctane	C-180S-TP
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	74472-47-2	5 mg	Neat	C-181N
			35 µg/mL	Isooctane	C-181S
			100 µg/mL	Isooctane	C-181S-TP
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	60145-23-5	5 mg	Neat	C-182N
			35 µg/mL	Isooctane	C-182S
			100 µg/mL	Isooctane	C-182S-TP
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	52663-69-1	5 mg	Neat	C-183N
			35 µg/mL	Isooctane	C-183S
			100 µg/mL	Isooctane	C-183S-TP
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	74472-48-3	5 mg	Neat	C-184N
			35 µg/mL	Isooctane	C-184S
			100 µg/mL	Isooctane	C-184S-TP
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	52712-05-7	5 mg	Neat	C-185N
			35 µg/mL	Isooctane	C-185S
			100 µg/mL	Isooctane	C-185S-TP
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	74472-49-4	5 mg	Neat	C-186N
			35 µg/mL	Isooctane	C-186S
			100 µg/mL	Isooctane	C-186S-TP
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	52663-68-0	5 mg	Neat	C-187N
			35 µg/mL	Isooctane	C-187S
			100 µg/mL	Isooctane	C-187S-TP
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	74487-85-7	5 mg	Neat	C-188N
			35 µg/mL	Isooctane	C-188S
			100 µg/mL	Isooctane	C-188S-TP
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	39635-31-9	5 mg	Neat	C-189N
			35 µg/mL	Isooctane	C-189S
			100 µg/mL	Isooctane	C-189S-TP
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	41411-64-7	5 mg	Neat	C-190N
			35 µg/mL	Isooctane	C-190S
			100 µg/mL	Isooctane	C-190S-TP

Individual PCB Congeners

PCB Congeners

All 209 are 99+% by GC/FID & GC/MS

Individual PCB Congener Standards (in 1 mL of solvent, unless otherwise noted)

Individual PCB Congeners

BZ#	PCB CONGENER	CAS NO.	QTY./CONC.	MATRIX	CAT. NO.
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	74472-50-7	5 mg	Neat	C-191N
			35 µg/mL	Isooctane	C-191S
			100 µg/mL	Isooctane	C-191S-TP
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	74472-51-8	5 mg	Neat	C-192N
			35 µg/mL	Isooctane	C-192S
			100 µg/mL	Isooctane	C-192S-TP
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	69782-91-8	5 mg	Neat	C-193N
			35 µg/mL	Isooctane	C-193S
			100 µg/mL	Isooctane	C-193S-TP
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	35694-08-7	5 mg	Neat	C-194N
			35 µg/mL	Isooctane	C-194S
			100 µg/mL	Isooctane	C-194S-TP
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	52663-78-2	5 mg	Neat	C-195N
			35 µg/mL	Isooctane	C-195S
			100 µg/mL	Isooctane	C-195S-TP
196	2,2',3,3',4,4',5,6'-Octachlorobiphenyl	42740-50-1	5 mg	Neat	C-196N
			35 µg/mL	Isooctane	C-196S
			100 µg/mL	Isooctane	C-196S-TP
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	33091-17-7	5 mg	Neat	C-197N
			35 µg/mL	Isooctane	C-197S
			100 µg/mL	Isooctane	C-197S-TP
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	68194-17-2	5 mg	Neat	C-198N
			35 µg/mL	Isooctane	C-198S
			100 µg/mL	Isooctane	C-198S-TP
199 (IUPAC#200)	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	52663-73-7	5 mg	Neat	C-199N
			35 µg/mL	Isooctane	C-199S
			100 µg/mL	Isooctane	C-199S-TP
200 (IUPAC#201)	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	40186-71-8	5 mg	Neat	C-200N
			35 µg/mL	Isooctane	C-200S
			100 µg/mL	Isooctane	C-200S-TP
201 (IUPAC#199)	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	52663-75-9	5 mg	Neat	C-201N
			35 µg/mL	Isooctane	C-201S
			100 µg/mL	Isooctane	C-201S-TP
202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	2136-99-4	5 mg	Neat	C-202N
			35 µg/mL	Isooctane	C-202S
			100 µg/mL	Isooctane	C-202S-TP
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	52663-76-0	5 mg	Neat	C-203N
			35 µg/mL	Isooctane	C-203S
			100 µg/mL	Isooctane	C-203S-TP
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	74472-52-9	5 mg	Neat	C-204N
			35 µg/mL	Isooctane	C-204S
			100 µg/mL	Isooctane	C-204S-TP
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	74472-53-0	5 mg	Neat	C-205N
			35 µg/mL	Isooctane	C-205S
			100 µg/mL	Isooctane	C-205S-TP
206	2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl	40186-72-9	5 mg	Neat	C-206N
			35 µg/mL	Isooctane	C-206S
			100 µg/mL	Isooctane	C-206S-TP
207	2,2',3,3',4,4',5,6,6'-Nonachlorobiphenyl	52663-79-3	5 mg	Neat	C-207N
			35 µg/mL	Isooctane	C-207S
			100 µg/mL	Isooctane	C-207S-TP
208	2,2',3,3',4,5,5',6,6'-Nonachlorobiphenyl	52663-77-1	5 mg	Neat	C-208N
			35 µg/mL	Isooctane	C-208S
			100 µg/mL	Isooctane	C-208S-TP
209	2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl	2051-24-3	10 mg	Neat	C-209N
			35 µg/mL	Isooctane	C-209S
			100 µg/mL	Isooctane	C-209S-TP



15862-07-4:4	38444-76-7:3	52663-79-3:10	70424-69-0:6	C-007S:3
15968-05-5:4	38444-77-4:4	52704-70-8:7	70424-70-3:7	C-007S-TP:3
16606-02-3:4	38444-78-9:3	52712-04-6:8	73557-53-8:5	C-008N:3
18259-05-7:7	38444-81-4:3	52712-05-7:9	73575-52-7:5	C-008S:3
2050-67-1:3	38444-84-7:3	52744-13-5:7	73575-54-9:6	C-008S-TP:3
2050-68-2:3	38444-85-8:3	53555-66-1:4	73575-55-0:6	C-009N:3
2051-24-3:10	38444-86-9:4	54230-22-7:5	73575-56-1:6	C-009S:3
2136-99-4:10	38444-87-0:4	55215-17-3:6	73575-57-2:6	C-009S-TP:3
2437-79-8:4	38444-88-1:4	55215-18-4:7	74338-23-1:5	C-010N:3
25569-80-6:3	38444-90-5:4	55312-69-1:6	74338-24-2:4	C-010S:3
2974-90-5:3	38444-93-8:4	55702-45-9:3	74472-33-6:5	C-010S-TP:3
2974-92-7:3	39485-83-1:6	55702-46-0:3	74472-34-7:5	C-011N:3
31508-00-6:7	39635-31-9:9	55712-37-3:3	74472-35-8:6	C-011S:3
32598-10-0:5	39635-32-0:7	55720-44-0:3	74472-36-9:7	C-011S-TP:3
32598-11-1:5	39635-33-1:7	56030-56-9:8	74472-37-0:7	C-012N:3
32598-12-2:5	39635-34-2:8	56558-16-8:6	74472-38-1:7	C-012S:3
32598-13-3:5	39635-35-3:8	56558-17-9:7	74472-39-2:7	C-012S-TP:3
32598-14-4:6	40186-70-7:9	56558-18-0:7	74472-40-5:8	C-013N:3
32690-93-0:5	40186-71-8:10	57465-28-8:7	74472-41-6:8	C-013S:3
32774-16-6:9	40186-72-9:10	59291-64-4:8	74472-42-7:8	C-013S-TP:3
33025-41-1:5	41411-61-4:8	59291-65-5:9	74472-44-9:8	C-014N:3
33091-17-7:10	41411-62-5:8	60145-20-2:6	74472-45-0:9	C-014S:3
33146-45-1:3	41411-63-6:9	60145-21-3:6	74472-46-1:9	C-014S-TP:3
33284-50-3:3	41411-64-7:9	60145-22-4:8	74472-47-2:9	C-015N:3
33284-52-5:5	41464-39-5:4	60145-23-5:9	74472-48-3:9	C-015S:3
33284-53-6:5	41464-40-8:4	60233-24-1:5	74472-49-4:9	C-015S-TP:3
33284-54-7:5	41464-41-9:4	60233-25-2:6	74472-50-7:10	C-016N:3
33979-03-2:8	41464-42-0:5	61798-70-7:7	74472-51-8:10	C-016S:3
34883-39-1:3	41464-43-1:5	62796-65-0:4	74472-52-9:10	C-016S-TP:3
34883-41-5:3	41464-46-4:5	65510-44-3:7	74472-53-0:10	C-017N:3
34883-43-7:3	41464-47-5:4	65510-45-4:6	74474-43-8:8	C-017S:3
35065-27-1:8	41464-48-6:5	68194-04-7:4	74487-85-7:9	C-017S-TP:3
35065-28-2:8	41464-49-7:5	68194-05-8:6	76842-07-4:7	C-018N:3
35065-29-3:9	41464-51-1:6	68194-06-9:6	C-001N:3	C-018S:3
35065-30-6:9	42740-50-1:10	68194-07-0:6	C-001S:3	C-018S-TP:3
35693-92-6:4	51908-16-8:8	68194-08-1:8	C-001S-TP:3	C-019N:3
35693-99-3:4	52663-58-8:5	68194-09-2:8	C-002N:3	C-019S:3
35694-04-3:7	52663-59-9:4	68194-10-5:7	C-002S:3	C-019S-TP:3
35694-06-5:8	52663-60-2:6	68194-11-6:7	C-002S-TP:3	C-020N:3
35694-08-7:10	52663-61-3:6	68194-12-7:7	13029-08-8:3	C-020S:3
36559-22-5:4	52663-62-4:5	68194-13-8:8	16605-91-7:3	C-020S-TP:3
37680-65-2:3	52663-63-5:8	68194-14-9:8	2051-60-7:3	C-021N:3
37680-66-3:3	52663-64-6:9	68194-15-0:8	2051-61-8:3	C-021S:3
37680-68-5:4	52663-65-7:9	68194-16-1:9	2051-62-9:3	C-021S-TP:3
37680-69-6:4	52663-66-8:7	68194-17-2:10	C-003N:3	C-022N:3
37680-73-2:6	52663-67-9:9	69782-90-7:8	C-003S:3	C-022S:3
38379-99-6:6	52663-68-0:9	69782-91-8:10	C-003S-TP:3	C-022S-TP:3
38380-01-7:6	52663-69-1:9	7012-37-5:3	C-004N:3	C-023N:3
38380-02-8:6	52663-70-4:9	70362-41-3:6	C-004S:3	C-023S:3
38380-03-9:7	52663-71-5:9	70362-45-7:4	C-004S-TP:3	C-023S-TP:3
38380-04-0:8	52663-72-6:9	70362-46-8:4	C-005N:3	C-024N:3
38380-05-1:7	52663-73-7:10	70362-47-9:4	C-005S:3	C-024S:3
38380-07-3:7	52663-74-8:9	70362-48-0:5	C-005S-TP:3	C-024S-TP:3
38380-08-4:8	52663-75-9:10	70362-49-1:5	C-006N:3	C-025N:3
38411-22-2:7	52663-76-0:10	70362-50-4:5	C-006S:3	C-025S:3
38411-25-5:9	52663-77-1:10	70424-67-8:5	C-006S-TP:3	C-025S-TP:3
38444-73-4:3	52663-78-2:10	70424-68-9:6	C-007N:3	C-026N:3