

## Reagent Chemicals

Ninth Edition

### ACS Specifications

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Reagent: **Polychlorinated  
Biphenyl Congeners**

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## Polychlorinated Biphenyl Congeners

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### REQUIREMENTS

#### Identity by

Infrared spectroscopy . . . . . Passes test

Gas chromatography/mass spectrometry . . . . . Passes test

#### Assay by

Gas chromatography (using two methods) . . . . . ≥98.0%

Melting point (for solids) . . . . . Passes test

### TESTS

**IDENTITY BY INFRARED SPECTROSCOPY.** Analyze the sample using the general procedure cited on page 79. Identifying absorbances for the compound listed in Table XVI must be present. The spectrum is compared to the NIST standardized library of compounds, if available. Absorbances in the test spectrum must match those found in the NIST spectrum.

**IDENTITY BY GAS CHROMATOGRAPHY/MASS SPECTROMETRY.** Analyze the sample by gas chromatography/mass spectrometry using method GCMS-PCB1 described below.

#### Method GCMS-PCB1

**Ionization Mode:** Electron ionization/70eV

**Column:** 5% Diphenyl–95% dimethylpolysiloxane, 30 M × 0.25 mm i.d., 0.25 μm film thickness

**Temperature Program:** 140 °C for 1 min, then 10 °C/min to 320 °C, then hold 5 min

**Carrier Gas:** Helium at 1 mL/min

**Injector:** Split/splitless (50:1 split)

**Injector Temperature:** 280 °C

**Scan Range:** 40–600 amu

**Sample Size:** 0.5 μL of a 2000 μg/mL solution

Identifying ions for the compound listed in Table XVI must be present. The spectrum is compared to the NIST standardized library of compounds, if available. Ions in the test spectrum must match those found in the NIST spectrum.

**ASSAY BY GAS CHROMATOGRAPHY.** Analyze the sample by gas chromatography using method GCMS-PCB1 described above and method GC-PCB1 described below.

#### Method GC-PCB1

**Column:** 50% Diphenyl–50% dimethylpolysiloxane, 25 M × 0.53 mm i.d., 1.0 μm film thickness

**Detector:** Flame ionization

**Detector Temperature:** 300 °C

**Injector:** Splitless

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Injector Temperature: 280 °C

Sample Size: 1 µL of a 1000 µg/mL solution

Carrier Gas: Helium at 3 mL/min

Temperature Program: 100 °C for 1 min, then 10 °C/min to 300 °C, then hold 5 min

Measure the area under all peaks (excluding the solvent peak) and calculate the analyte content in area percent for each analysis.

Reagent: **Polychlorinated Biphenyl Congeners**

**ASSAY BY MELTING POINT.** Analyze the sample using the general procedure listed on page 22. Assayed values must be within the temperature ranges stated in Table XVI. The melting point assay should have a melting range of no more than 3 °C.

**Table XVI. Polychlorinated Biphenyl Congeners Compound Data**

BZ No.	Name	CAS No.	Chemical Formula	Formula Weight	IR (cm <sup>-1</sup> )					MS (m/z)			MP
					IR-1	IR-2	IR-3	IR-4	IR-5	MS-1	MS-2	MS-3	
1	2-Chlorobiphenyl	2051-60-7	C <sub>12</sub> H <sub>9</sub> Cl	188.65	750	699	1471	1039	771	188	152	190	28-33
2	3-Chlorobiphenyl	2051-61-8	C <sub>12</sub> H <sub>9</sub> Cl	188.65	756	698	1477	1597	1570	188	152	190	—
3	4-Chlorobiphenyl	2051-62-9	C <sub>12</sub> H <sub>9</sub> Cl	188.65	1482	760	1097	834	1009	188	152	190	74-79
4	2,2'-Dichlorobiphenyl	13029-08-8	C <sub>12</sub> H <sub>8</sub> Cl <sub>2</sub>	223.10	752	762	1467	1462	1064	222	152	224	58-63
5	2,3-Dichlorobiphenyl	16605-91-7	C <sub>12</sub> H <sub>8</sub> Cl <sub>2</sub>	223.10	759	699	1453	1410	1044	222	224	152	—
6	2,3'-Dichlorobiphenyl	25569-80-6	C <sub>12</sub> H <sub>8</sub> Cl <sub>2</sub>	223.10	756	1463	1467	1040	825	222	224	152	—
7	2,4-Dichlorobiphenyl	33284-50-3	C <sub>12</sub> H <sub>8</sub> Cl <sub>2</sub>	223.10	1469	817	700	1107	825	222	224	152	—
8	2,4'-Dichlorobiphenyl	34883-43-7	C <sub>12</sub> H <sub>8</sub> Cl <sub>2</sub>	223.10	757	1471	830	1098	1008	222	224	152	42-47
9	2,5-Dichlorobiphenyl	34883-39-1	C <sub>12</sub> H <sub>8</sub> Cl <sub>2</sub>	223.10	1463	1101	700	766	815	222	224	152	—
10	2,6-Dichlorobiphenyl	33146-45-1	C <sub>12</sub> H <sub>8</sub> Cl <sub>2</sub>	223.10	1428	698	781	761	1441	222	224	152	33-38
11	3,3'-Dichlorobiphenyl	2050-67-1	C <sub>12</sub> H <sub>8</sub> Cl <sub>2</sub>	223.10	722	1597	780	1468	1566	222	224	152	27-32
12	3,4-Dichlorobiphenyl	2974-92-7	C <sub>12</sub> H <sub>8</sub> Cl <sub>2</sub>	223.10	1467	761	1033	1138	1139	222	224	152	46-51
13	3,4'-Dichlorobiphenyl	2974-90-5	C <sub>12</sub> H <sub>8</sub> Cl <sub>2</sub>	223.10	1098	803	785	1475	832	222	224	152	—
14	3,5-Dichlorobiphenyl	34883-41-5	C <sub>12</sub> H <sub>8</sub> Cl <sub>2</sub>	223.10	1561	761	806	1596	697	222	224	152	30-35
15	4,4'-Dichlorobiphenyl	2050-68-2	C <sub>12</sub> H <sub>8</sub> Cl <sub>2</sub>	223.10	1097	815	1477	1488	1007	222	224	152	148-153
16	2,2',3-Trichlorobiphenyl	38444-78-9	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	756	1411	787	810	1035	256	186	258	—
17	2,2',4-Trichlorobiphenyl	37680-66-3	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	1463	821	758	1590	1105	256	258	186	—
18	2,2',5-Trichlorobiphenyl	37680-65-2	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	758	1463	1100	1019	816	256	258	186	42-47
19	2,2',6-Trichlorobiphenyl	38444-73-4	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	754	1431	779	794	1444	256	258	186	88-93
20	2,3,3'-Trichlorobiphenyl	38444-84-7	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	781	1451	1398	1561	702	256	258	186	42-47
21	2,3,4-Trichlorobiphenyl	55702-46-0	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	1444	1450	700	1364	837	256	258	186	100-105
22	2,3,4'-Trichlorobiphenyl	38444-85-8	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	1094	1452	804	785	1494	256	258	186	70-75
23	2,3,5-Trichlorobiphenyl	55720-44-0	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	1414	699	766	1554	1121	256	258	186	37-42
24	2,3,6-Trichlorobiphenyl	55702-45-9	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	1433	1181	698	1385	763	256	258	186	54-59
25	2,3',4-Trichlorobiphenyl	55712-37-3	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	1463	1109	836	1604	787	256	258	186	34-39
26	2,3',5-Trichlorobiphenyl	38444-81-4	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	1458	1103	1032	1464	696	256	258	186	40-45
27	2,3',6-Trichlorobiphenyl	38444-76-7	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	786	1434	1444	695	1561	256	258	186	—
28	2,4,4'-Trichlorobiphenyl	7012-37-5	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	1469	1098	816	738	1006	256	258	186	56-61
29	2,4,5-Trichlorobiphenyl	15862-07-4	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	1458	699	1092	1048	1447	256	258	186	75-80
30	2,4,6-Trichlorobiphenyl	35693-92-6	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	833	1544	1581	698	1371	222	258	186	60-65
31	2,4',5-Trichlorobiphenyl	16606-02-3	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	1460	1098	1499	1027	833	256	258	186	63-68
32	2,4',6-Trichlorobiphenyl	38444-77-4	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	787	1433	780	1440	1114	256	258	186	53-58
33	2',3,4-Trichlorobiphenyl	38444-86-9	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	1461	758	1136	1035	1041	256	258	186	59-64
34	2',3,5-Trichlorobiphenyl	37680-68-5	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	757	1562	1590	809	1045	256	258	186	55-60
35	3,3',4-Trichlorobiphenyl	37680-69-6	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	1465	737	786	1138	1553	256	258	186	64-69
36	3,3',5-Trichlorobiphenyl	38444-87-0	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	1561	1592	807	786	712	256	258	186	76-81

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					IR-1	IR-2	IR-3	IR-4	IR-5	MS-1	MS-2	MS-3	
37	3,4,4'-Trichlorobiphenyl	38444-90-5	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	1466	1098	815	1015	1376	256	258	186	86-91
38	3,4,5-Trichlorobiphenyl	53555-66-1	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	1434	1546	761	1377	813	256	258	186	69-74
39	3,4',5-Trichlorobiphenyl	38444-88-1	C <sub>12</sub> H <sub>7</sub> Cl <sub>3</sub>	257.55	1097	1498	1559	804	827	256	258	186	85-90
40	2,2',3,3'-Tetrachlorobiphenyl	38444-93-8	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1441	782	1407	1420	1041	290	292	220	121-126
41	2,2',3,4-Tetrachlorobiphenyl	52663-59-9	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1444	1365	757	1436	1177	290	292	220	46-51
42	2,2',3,4'-Tetrachlorobiphenyl	36559-22-5	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	837	1444	787	1452	1417	290	292	220	66-71
43	2,2',3,5-Tetrachlorobiphenyl	70362-46-8	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	758	1412	1388	1123	1557	290	292	220	43-48
44	2,2',3,5'-Tetrachlorobiphenyl	41464-39-5	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1450	1033	1102	788	755	290	292	220	46-51
45	2,2',3,6-Tetrachlorobiphenyl	70362-45-7	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1434	757	1386	1177	1440	290	292	220	78-83
46	2,2',3,6'-Tetrachlorobiphenyl	41464-47-5	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	779	1435	1412	1563	811	290	292	220	123-128
47	2,2',4,4'-Tetrachlorobiphenyl	2437-79-8	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1465	791	1107	1588	817	290	292	294	44-49
48	2,2',4,5-Tetrachlorobiphenyl	70362-47-9	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1456	1075	760	1347	735	290	292	220	84-89
49	2,2',4,5'-Tetrachlorobiphenyl	41464-40-8	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1459	1100	1106	843	1018	290	292	220	64-69
50	2,2',4,6-Tetrachlorobiphenyl	62796-65-0	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	757	1546	1429	1582	1373	290	292	220	45-50
51	2,2',4,6'-Tetrachlorobiphenyl	68194-04-7	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1435	790	820	1107	780	290	292	220	—
52	2,2',5,5'-Tetrachlorobiphenyl	35693-99-3	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1463	1102	817	1456	1026	290	292	220	84-89
53	2,2',5,6'-Tetrachlorobiphenyl	41464-41-9	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1434	1444	793	1099	780	290	292	220	99-104
54	2,2',6,6'-Tetrachlorobiphenyl	15968-05-5	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	798	1434	777	1564	1084	290	292	294	195-200
55	2,3,3',4-Tetrachlorobiphenyl	74338-24-2	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1446	1359	789	743	1178	290	292	294	84-89
56	2,3,3',4'-Tetrachlorobiphenyl	41464-43-1	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1449	1036	787	1136	752	290	292	294	96-101
57	2,3,3',5-Tetrachlorobiphenyl	70424-67-8	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1555	1414	1576	1125	697	290	292	294	85-90
58	2,3,3',5'-Tetrachlorobiphenyl	41464-49-7	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	785	1560	1387	1570	1585	290	292	294	123-128
59	2,3,3',6-Tetrachlorobiphenyl	74472-33-6	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1434	1442	786	709	812	290	292	294	—
60	2,3,4,4'-Tetrachlorobiphenyl	33025-41-1	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1447	1093	816	836	1363	290	292	294	143-148
61	2,3,4,5-Tetrachlorobiphenyl	33284-53-6	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1414	1350	708	766	824	290	292	294	91-96
62	2,3,4,6-Tetrachlorobiphenyl	54230-22-7	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1422	1345	697	819	770	290	292	294	76-81
63	2,3,4',5-Tetrachlorobiphenyl	74472-34-7	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1433	1098	1543	808	1373	290	292	294	159-164
64	2,3,4',6-Tetrachlorobiphenyl	52663-58-8	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1437	787	1498	1094	1181	290	292	294	85-90
65	2,3,5,6-Tetrachlorobiphenyl	33284-54-7	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	700	1392	1062	680	1380	290	292	294	75-80
66	2,3',4,4'-Tetrachlorobiphenyl	32598-10-0	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1463	817	1107	1036	777	290	292	294	122-127
67	2,3',4,5-Tetrachlorobiphenyl	73557-53-8	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1459	1453	886	697	789	290	292	294	60-65
68	2,3',4,5'-Tetrachlorobiphenyl	73575-52-7	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	847	805	1482	1569	1597	290	292	294	90-95
69	2,3',4,6-Tetrachlorobiphenyl	60233-24-1	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	845	1446	1580	1372	787	290	292	294	50-55
70	2,3',4',5-Tetrachlorobiphenyl	32598-11-1	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1460	1033	1139	1105	824	290	292	294	102-107
71	2,3',4',6-Tetrachlorobiphenyl	41464-46-4	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	789	1439	1435	781	1136	290	292	294	34-39
72	2,3',5,5'-Tetrachlorobiphenyl	41464-42-0	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1558	808	1487	1104	1569	290	292	294	104-109
73	2,3',5',6-Tetrachlorobiphenyl	74338-23-1	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	789	1413	1568	1600	811	290	292	294	68-73
74	2,4,4',5-Tetrachlorobiphenyl	32690-93-0	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1458	1099	1088	1016	830	290	292	294	125-130
75	2,4,4',6-Tetrachlorobiphenyl	32598-12-2	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1099	1583	1447	1544	1430	290	292	294	60-65
76	2',3,4,5-Tetrachlorobiphenyl	70362-48-0	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	757	1430	1544	1378	812	290	292	294	132-137
77	3,3',4,4'-Tetrachlorobiphenyl	32598-13-3	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1464	1137	816	1033	1363	290	292	294	178-183

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					IR-1	IR-2	IR-3	IR-4	IR-5	MS-1	MS-2	MS-3	
78	3,3',4,5-Tetrachlorobiphenyl	70362-49-1	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1546	1436	811	1369	786	290	292	294	116-121
79	3,3',4,5'-Tetrachlorobiphenyl	41464-48-6	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	806	1590	1552	1481	1434	290	292	294	119-124
80	3,3',5,5'-Tetrachlorobiphenyl	33284-52-5	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1559	1589	805	1129	1378	290	292	294	169-174
81	3,4,4',5-Tetrachlorobiphenyl	70362-50-4	C <sub>12</sub> H <sub>6</sub> Cl <sub>4</sub>	291.99	1495	1121	830	1416	1040	290	292	294	86-91
82	2,2',3,3',4-Pentachlorobiphenyl	52663-62-4	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1439	1415	791	753	1179	324	326	328	116-121
83	2,2',3,3',5-Pentachlorobiphenyl	60145-20-2	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1413	787	1386	1041	1558	324	326	328	81-86
84	2,2',3,3',6-Pentachlorobiphenyl	52663-60-2	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1434	1044	1178	812	785	324	326	328	107-112
85	2,2',3,4,4'-Pentachlorobiphenyl	65510-45-4	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1440	794	1108	1179	817	324	326	328	46-51
86	2,2',3,4,5-Pentachlorobiphenyl	55312-69-1	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1409	1350	759	736	1178	324	326	328	83-88
87	2,2',3,4,5'-Pentachlorobiphenyl	38380-02-8	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1444	819	1101	1363	1179	324	326	328	108-113
88	2,2',3,4,6-Pentachlorobiphenyl	55215-17-3	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1346	1424	743	761	1570	324	326	328	64-69
89	2,2',3,4,6'-Pentachlorobiphenyl	73575-57-2	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1430	791	1435	1368	778	324	326	328	83-88
90	2,2',3,4',5-Pentachlorobiphenyl	68194-07-1	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	850	1416	819	1109	1389	324	326	328	49-54
91	2,2',3,4',6-Pentachlorobiphenyl	68194-05-8	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1438	846	809	1107	1178	324	326	328	60-65
92	2,2',3,5,5'-Pentachlorobiphenyl	52663-61-3	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1475	1101	1036	832	1390	324	326	328	58-63
93	2,2',3,5,6-Pentachlorobiphenyl	73575-56-1	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1395	741	678	1044	1166	324	326	328	94-99
94	2,2',3,5,6'-Pentachlorobiphenyl	73575-55-0	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1408	794	1436	1385	780	324	326	328	80-85
95	2,2',3,5',6-Pentachlorobiphenyl	38379-99-6	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	816	1033	1180	1436	1098	324	326	328	91-96
96	2,2',3,6,6'-Pentachlorobiphenyl	73575-54-9	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1429	796	1437	1179	812	324	326	328	117-122
97	2,2',3',4,5-Pentachlorobiphenyl	41464-51-1	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1445	1417	789	1060	889	324	326	328	76-81
98	2,2',3',4,6-Pentachlorobiphenyl	60233-25-2	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	848	1431	1413	1547	785	324	326	328	92-97
99	2,2',4,4',5-Pentachlorobiphenyl	38380-01-1	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1456	1450	801	1098	1107	324	326	328	57-62
100	2,2',4,4',6-Pentachlorobiphenyl	39485-83-1	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	800	1432	1580	1098	1547	324	326	328	—
101	2,2',4,5,5'-Pentachlorobiphenyl	37680-73-2	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1457	1101	1075	1144	1480	324	326	328	76-81
102	2,2',4,5,6'-Pentachlorobiphenyl	68194-06-9	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1438	793	781	1096	1477	324	326	328	69-74
103	2,2',4,5',6-Pentachlorobiphenyl	60145-21-3	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1439	851	1097	818	1371	324	326	328	67-72
104	2,2',4,6,6'-Pentachlorobiphenyl	56558-16-8	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1436	1416	836	1579	795	324	326	328	85-90
105	2,3,3',4,4'-Pentachlorobiphenyl	32598-14-4	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1443	1136	1355	787	1036	324	326	328	115-120
106	2,3,3',4,5-Pentachlorobiphenyl	70424-69-0	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1412	1348	1400	698	789	324	326	328	83-88
107	2,3,3',4',5-Pentachlorobiphenyl	70424-68-9	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1480	1138	821	1415	1036	324	326	328	94-99
108	2,3,3',4,5'-Pentachlorobiphenyl	70362-41-3	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	806	1567	1427	1357	1594	324	326	328	118-123
109	2,3,3',4,6-Pentachlorobiphenyl	74472-35-8	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	704	1343	1430	1415	824	324	326	328	68-73
110	2,3,3',4',6-Pentachlorobiphenyl	38380-03-9	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1435	1177	1037	813	1135	324	326	328	81-86
111	2,3,3',5,5'-Pentachlorobiphenyl	39635-32-0	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1555	1414	1377	1568	809	324	326	328	105-110
112	2,3,3',5,6-Pentachlorobiphenyl	74472-36-9	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	719	1390	1063	1165	708	324	326	328	89-94
113	2,3,3',5',6-Pentachlorobiphenyl	68194-10-5	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1568	814	1178	1377	701	324	326	328	54-59
114	2,3,4,4',5-Pentachlorobiphenyl	74472-37-0	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1413	1496	1346	738	1018	324	326	328	96-101
115	2,3,4,4',6-Pentachlorobiphenyl	74472-38-1	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1342	1419	747	1097	821	324	326	328	63-68
116	2,3,4,5,6-Pentachlorobiphenyl	18259-05-7	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	701	1351	1329	1386	1372	324	326	328	121-126
117	2,3,4',5,6-Pentachlorobiphenyl	68194-11-6	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1495	1059	1385	677	1095	324	326	328	166-171
118	2,3',4,4',5-Pentachlorobiphenyl	31508-00-6	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1455	1094	1142	1051	824	324	326	328	109-114

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# Reagent Chemicals

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## ACS Specifications

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### Reagent: Polychlorinated Biphenyl Congeners

BZ No.	Name	CAS No.	Chemical Formula	Formula Weight	IR (cm <sup>-1</sup> )					MS (m/z)			MP
					IR-1	IR-2	IR-3	IR-4	IR-5	MS-1	MS-2	MS-3	
119	2,3',4,4',6-Pentachlorobiphenyl	56558-17-9	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1431	853	1447	1579	1544	324	326	328	73-78
120	2,3',4,5,5'-Pentachlorobiphenyl	68194-12-7	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1470	1565	808	1430	1569	324	326	328	129-134
121	2,3',4,5',6-Pentachlorobiphenyl	56558-18-0	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	854	1596	1564	801	1372	324	326	328	91-96
122	2',3,3',4,5-Pentachlorobiphenyl	76842-07-4	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1430	785	1544	1164	817	324	326	328	115-120
123	2',3,4,4',5-Pentachlorobiphenyl	65510-44-3	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1431	810	1365	1483	1110	324	326	328	132-137
124	2',3,4,5,5'-Pentachlorobiphenyl	70424-70-3	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1433	1544	817	814	1102	324	326	328	114-119
125	2',3,4,5,6'-Pentachlorobiphenyl	74472-39-2	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1419	790	1434	817	1547	324	326	328	124-129
126	3,3',4,4',5-Pentachlorobiphenyl	57465-28-8	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1432	811	1033	1144	1359	324	326	328	158-163
127	3,3',4,5,5'-Pentachlorobiphenyl	39635-33-1	C <sub>12</sub> H <sub>5</sub> Cl <sub>5</sub>	326.43	1545	808	1420	1586	1416	358	326	328	150-155
128	2,2',3,3',4,4'-Hexachlorobiphenyl	38380-07-3	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1434	1184	796	1356	817	358	360	362	148-153
129	2,2',3,3',4,5-Hexachlorobiphenyl	52215-18-4	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1410	1348	1420	788	735	358	360	362	100-105
130	2,2',3,3',4,5'-Hexachlorobiphenyl	52663-66-8	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1413	818	1390	1460	1361	358	360	362	112-117
131	2,2',3,3',4,6-Hexachlorobiphenyl	61798-70-7	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1412	1345	1425	740	788	358	360	362	133-138
132	2,2',3,3',4,6'-Hexachlorobiphenyl	38380-05-1	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1431	1181	811	1365	875	358	360	362	115-120
133	2,2',3,3',5,5'-Hexachlorobiphenyl	35694-04-3	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1557	1125	835	1378	869	358	360	362	125-130
134	2,2',3,3',5,6-Hexachlorobiphenyl	52704-70-8	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	735	1397	1071	1049	1167	358	360	362	130-135
135	2,2',3,3',5,6'-Hexachlorobiphenyl	52744-13-5	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1043	1417	1181	812	1369	358	360	362	100-105
136	2,2',3,3',6,6'-Hexachlorobiphenyl	38411-22-2	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1179	1430	813	1049	1407	358	360	362	111-116
137	2,2',3,4,4',5-Hexachlorobiphenyl	35694-06-5	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1413	1350	789	1106	821	358	360	362	79-84
138	2,2',3,4,4',5'-Hexachlorobiphenyl	35065-28-2	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1440	805	1368	1054	1180	358	360	362	77-82
139	2,2',3,4,4',6-Hexachlorobiphenyl	56030-56-9	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1424	801	1346	1108	819	358	360	362	76-81
140	2,2',3,4,4',6'-Hexachlorobiphenyl	59291-64-4	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1426	804	859	1366	1576	358	360	362	66-71
141	2,2',3,4,5,5'-Hexachlorobiphenyl	52712-04-6	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1421	1348	1099	1474	819	358	360	362	86-91
142	2,2',3,4,5,6-Hexachlorobiphenyl	41411-61-4	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1353	742	1329	1387	690	358	360	362	132-137
143	2,2',3,4,5,6'-Hexachlorobiphenyl	68194-15-0	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1404	1349	798	1436	1565	358	360	362	87-92
144	2,2',3,4,5',6-Hexachlorobiphenyl	68194-14-9	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1344	1433	1428	1099	818	358	360	362	70-75
145	2,2',3,4,6,6'-Hexachlorobiphenyl	74472-40-5	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1409	1346	780	796	1572	358	360	362	134-139
146	2,2',3,4',5,5'-Hexachlorobiphenyl	51908-16-8	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1470	1416	1079	1146	1389	358	360	362	86-91
147	2,2',3,4',5,6-Hexachlorobiphenyl	68194-13-8	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1400	848	1482	1386	1167	358	360	362	134-139
148	2,2',3,4',5,6'-Hexachlorobiphenyl	74472-41-6	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1409	857	1588	1126	1371	358	360	362	79-84
149	2,2',3,4',5',6-Hexachlorobiphenyl	38380-04-0	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1436	1475	1181	1049	1392	358	360	362	76-81
150	2,2',3,4',6,6'-Hexachlorobiphenyl	68194-08-1	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	854	1430	819	1549	1374	358	360	362	74-79
151	2,2',3,5,5',6-Hexachlorobiphenyl	52663-63-5	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1393	1099	1409	1045	1087	358	360	362	96-101
152	2,2',3,5,6,6'-Hexachlorobiphenyl	68194-09-2	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1397	782	675	1436	797	358	360	362	124-129
153	2,2',4,4',5,5'-Hexachlorobiphenyl	35065-27-1	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1449	1455	1087	1148	1048	358	360	362	101-106
154	2,2',4,4',5,6'-Hexachlorobiphenyl	60145-22-4	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1434	818	1105	1578	1083	358	360	362	66-71
155	2,2',4,4',6,6'-Hexachlorobiphenyl	33979-03-2	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1577	817	1419	1550	859	358	360	362	109-114
156	2,3,3',4,4',5-Hexachlorobiphenyl	38380-08-4	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1413	1136	1343	1036	773	358	360	362	128-133
157	2,3,3',4,4',5'-Hexachlorobiphenyl	69782-90-7	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1426	810	1353	1167	789	358	360	362	159-164
158	2,3,3',4,4',6-Hexachlorobiphenyl	74472-42-7	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1414	1343	820	1132	1037	358	360	362	108-113
159	2,3,3',4,5,5'-Hexachlorobiphenyl	39635-35-3	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1404	1342	809	1569	1595	358	360	362	147-152

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# Reagent Chemicals

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## ACS Specifications

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### Reagent: Polychlorinated Biphenyl Congeners

BZ No.	Name	CAS No.	Chemical Formula	Formula Weight	IR (cm <sup>-1</sup> )					MS (m/z)			MP
					IR-1	IR-2	IR-3	IR-4	IR-5	MS-1	MS-2	MS-3	
160	2,3,3',4,5,6-Hexachlorobiphenyl	41411-62-5	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	722	1328	1349	1381	1366	358	360	362	90-95
161	2,3,3',4,5',6-Hexachlorobiphenyl	74474-43-8	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1409	1567	1341	810	1595	358	360	362	103-108
162	2,3,3',4',5,5'-Hexachlorobiphenyl	39635-34-2	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	816	1546	1413	1391	1367	358	360	362	141-146
163	2,3,3',4',5,6-Hexachlorobiphenyl	74472-44-9	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1400	1383	729	1066	1479	358	360	362	119-124
164	2,3,3',4',5',6-Hexachlorobiphenyl	74472-45-0	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1425	818	1180	808	1371	358	360	362	90-95
165	2,3,3',5,5',6-Hexachlorobiphenyl	74472-46-1	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1078	724	1385	1569	812	358	360	362	149-154
166	2,3,4,4',5,6-Hexachlorobiphenyl	41411-63-6	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1329	1379	1353	751	737	358	360	362	162-167
167	2,3',4,4',5,5'-Hexachlorobiphenyl	52663-72-6	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1431	1066	1471	813	1553	358	360	362	123-128
168	2,3',4,4',5',6-Hexachlorobiphenyl	59291-65-5	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1420	1552	1367	862	822	358	360	362	107-112
169	3,3',4,4',5,5'-Hexachlorobiphenyl	32774-16-6	C <sub>12</sub> H <sub>4</sub> Cl <sub>6</sub>	360.88	1423	1538	808	1357	1529	358	360	362	206-211
170	2,2',3,3',4,4',5-Heptachlorobiphenyl	35065-30-6	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1409	1181	794	1348	666	392	394	396	135-140
171	2,2',3,3',4,4',6-Heptachlorobiphenyl	52663-71-5	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1419	1347	806	1177	818	392	394	396	115-120
172	2,2',3,3',4,5,5'-Heptachlorobiphenyl	52663-74-8	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1346	1409	1382	841	1558	392	394	396	133-138
173	2,2',3,3',4,5,6-Heptachlorobiphenyl	68194-16-1	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1352	737	1328	1384	1372	392	394	396	202-207
174	2,2',3,3',4,5,6'-Heptachlorobiphenyl	38411-25-5	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1418	1182	814	1345	1380	392	394	396	122-127
175	2,2',3,3',4,5',6-Heptachlorobiphenyl	40186-70-7	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1407	1343	1389	823	1124	392	394	396	119-124
176	2,2',3,3',4,6,6'-Heptachlorobiphenyl	52663-65-7	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1423	1343	1180	898	813	392	394	396	100-105
177	2,2',3,3',4',5,6-Heptachlorobiphenyl	52663-70-4	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1401	1378	1367	686	1166	392	394	396	150-155
178	2,2',3,3',5,5',6-Heptachlorobiphenyl	52663-67-9	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1393	1358	1095	1048	1401	392	394	396	108-113
179	2,2',3,3',5,6,6'-Heptachlorobiphenyl	52663-64-6	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1062	1399	813	1410	1348	392	394	396	127-132
180	2,2',3,4,4',5,5'-Heptachlorobiphenyl	35065-29-3	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1413	1469	1353	847	1066	392	394	396	111-116
181	2,2',3,4,4',5,6-Heptachlorobiphenyl	74472-47-2	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1330	1390	803	1352	1368	392	394	396	123-128
182	2,2',3,4,4',5,6'-Heptachlorobiphenyl	60145-23-5	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1406	1349	800	1548	1587	392	394	396	106-111
183	2,2',3,4,4',5',6-Heptachlorobiphenyl	52663-69-1	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1424	1133	1095	1350	1357	392	394	396	91-96
184	2,2',3,4,4',6,6'-Heptachlorobiphenyl	74472-48-3	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1413	813	1346	1569	1373	392	394	396	113-118
185	2,2',3,4,5,5',6-Heptachlorobiphenyl	52712-05-7	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1353	1330	1361	1408	1098	392	394	396	146-151
186	2,2',3,4,5,6,6'-Heptachlorobiphenyl	74472-49-4	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1353	1363	782	1328	1437	392	394	396	193-198
187	2,2',3,4',5,5',6-Heptachlorobiphenyl	52663-68-0	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1398	1468	1389	1167	908	392	394	396	102-107
188	2,2',3,4',5,6,6'-Heptachlorobiphenyl	74487-85-7	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1400	859	1587	1369	672	392	394	396	132-137
189	2,3,3',4,4',5,5'-Heptachlorobiphenyl	39635-31-9	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1406	817	1339	771	840	392	394	396	160-165
190	2,3,3',4,4',5,6-Heptachlorobiphenyl	41411-64-7	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1329	731	1368	1350	1387	392	394	396	120-125
191	2,3,3',4,4',5',6-Heptachlorobiphenyl	74472-50-7	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1415	1341	1405	817	1547	392	394	396	111-116
192	2,3,3',4,5,5',6-Heptachlorobiphenyl	74472-51-8	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1365	1327	1350	728	1569	392	394	396	169-174
193	2,3,3',4',5,5',6-Heptachlorobiphenyl	69782-91-8	C <sub>12</sub> H <sub>3</sub> Cl <sub>7</sub>	395.32	1373	1167	724	1401	819	392	394	396	137-142
194	2,2',3,3',4,4',5,5'-Octachlorobiphenyl	35694-08-7	C <sub>12</sub> H <sub>2</sub> Cl <sub>8</sub>	429.77	1403	1349	1181	1342	852	426	430	428	153-158
195	2,2',3,3',4,4',5,6-Octachlorobiphenyl	52663-78-2	C <sub>12</sub> H <sub>2</sub> Cl <sub>8</sub>	429.77	1372	1328	1350	806	1368	426	430	428	168-173
196	2,2',3,3',4,4',5',6-Octachlorobiphenyl	42740-50-1	C <sub>12</sub> H <sub>2</sub> Cl <sub>8</sub>	429.77	1402	1341	1350	802	1335	426	430	428	125-130
197	2,2',3,3',4,4',6,6'-Octachlorobiphenyl	33091-17-7	C <sub>12</sub> H <sub>2</sub> Cl <sub>8</sub>	429.77	1403	814	1564	1356	1336	426	430	428	135-140

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# Reagent Chemicals

Ninth Edition

## ACS Specifications

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### Reagent: Polychlorinated Biphenyl Congeners

BZ No.	Name	CAS No.	Chemical Formula	Formula Weight	IR ( $\text{cm}^{-1}$ )					MS ( $m/z$ )			MP
					IR-1	IR-2	IR-3	IR-4	IR-5	MS-1	MS-2	MS-3	
198	2,2',3,3',4,5,5',6-Octachlorobiphenyl	68194-17-2	$\text{C}_{12}\text{H}_2\text{Cl}_8$	429.77	1360	1353	1331	1401	749	426	430	428	193-198
199	2,2',3,3',4,5,6,6'-Octachlorobiphenyl	52663-73-7	$\text{C}_{12}\text{H}_2\text{Cl}_8$	429.77	1353	1329	1411	1181	1073	426	430	428	173-178
200	2,2',3,3',4,5',6,6'-Octachlorobiphenyl	40186-71-8	$\text{C}_{12}\text{H}_2\text{Cl}_8$	429.77	1403	1338	1368	685	1169	426	430	428	139-144
201	2,2',3,3',4,5,5',6'-Octachlorobiphenyl	52663-75-9	$\text{C}_{12}\text{H}_2\text{Cl}_8$	429.77	1403	1338	1377	1169	745	426	430	428	155-160
202	2,2',3,3',5,5',6,6'-Octachlorobiphenyl	2136-99-4	$\text{C}_{12}\text{H}_2\text{Cl}_8$	429.77	1406	1331	1073	1169	760	426	430	428	155-160
203	2,2',3,4,4',5,5',6-Octachlorobiphenyl	52663-76-0	$\text{C}_{12}\text{H}_2\text{Cl}_8$	429.77	1356	1329	1333	1383	1393	426	430	428	109-114
204	2,2',3,4,4',5,6,6'-Octachlorobiphenyl	74472-52-9	$\text{C}_{12}\text{H}_2\text{Cl}_8$	429.77	1365	817	1353	1331	1550	426	430	428	174-179
205	2,3,3',4,4',5,5',6-Octachlorobiphenyl	74472-53-0	$\text{C}_{12}\text{H}_2\text{Cl}_8$	429.77	1370	1327	1383	1327	727	426	430	428	195-200
206	2,2',3,3',4,4',5,5',6-Nonachloro- biphenyl	40186-72-9	$\text{C}_{12}\text{HCl}_9$	464.23	1378	1354	1331	1341	805	460	464	462	200-205
207	2,2',3,3',4,4',5,6,6'-Nonachloro- biphenyl	52663-79-3	$\text{C}_{12}\text{HCl}_9$	464.23	1374	1338	1357	818	693	460	464	462	211-216
208	2,2',3,3',4,5,5',6,6'-Nonachloro- biphenyl	52663-77-1	$\text{C}_{12}\text{HCl}_9$	464.23	1343	1338	1409	1082	691	460	464	196	178-183
209	2,2',3,3',4,4',5,5',6,6'-Decachloro- biphenyl	2051-24-3	$\text{C}_{12}\text{Cl}_{10}$	498.66	1345	1328	829	696	760	494	214	213	316-321