

THE MATRIX-ISOLATION INFRARED AND LOW-RESOLUTION MASS SPECTRA OF THE 209 POLYCHLOROBIPHENYL CONGENERS

by

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Foreward

The polychlorobiphenyls (PCBs) presently found in the environment are derived from man-made materials. One such set of materials are the commercial mixtures called Aroclors. These mixtures contain chlorinated biphenyl congeners, and there are 209 possible congeners. Different Aroclors and other similar commercial products each contain a different set of congeners. The identity and relative amount of each congener present in a particular commercial mixture is characteristic of that mixture. As a result, analytical methods have been developed and used widely which recognize the congener patterns of specific commercial mixtures and which report quantitative results in terms of the commercial mixtures. Each congener in general behaves differently in the environment. Some congeners are degraded fairly easily while others are comparatively persistent and bioaccumulate. Some congeners are relatively non-toxic while others are quite toxic.

In the late 1970's, toxicologists started calculating toxicity equivalency factors (TEFs) to indicate the relative toxicity of specific congeners of chlorinated dibenzo-p-dioxins and chlorinated dibenzofurans (CDD/CDFs) as compared to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). In the past five years, scientists have internationally agreed on the TEFs for all congeners of CDD/CDFs[1]. TEFs have been calculated for several PCB congeners having dioxin-like activity in test animals. Using TCDD as the index compound, PCBs with a coplanar molecular structure have much higher TEFs than those which do not possess that structure[1].

Since different PCB congeners have varying toxicity, a more effective assessment of risk would use environmental data based on the concentrations of the PCB congeners and not in terms of the concentrations of commercial PCB mixtures. As a result, analytical methods are needed which are congener specific.

Dual-column capillary gas chromatography with electron-capture detection is a cost-effective method for the quantitation of PCB congeners in environmental samples. However, analytical methods using a non-specific detector do not confirm the identity of analytes. Since interfering substances often confound environmental samples, analytical methods are needed which qualitatively confirm the presence of each PCB congener.

The most widely used method for qualitative identification of analytes in environmental samples is mass spectroscopy. For PCB analysis, however, the mass spectra of PCB congeners containing equal amounts of chlorine are not sufficiently unique to distinguish between their congeners. Therefore, other congener-specific techniques are needed.

Infrared (IR) spectroscopy is a technique which, in principle, provides a unique spectrum for each pure molecular compound; therefore, IR is useful for qualitative confirmation of analytes. Matrix-isolation IR spectroscopy (MI-IR) is a technique where the analyte is observed while trapped and isolated in a frozen argon matrix. The resulting spectral lines are narrow since no rotational contributions are present, and only the pure vibrational spectrum is observed.

The data presented in this report are the low-resolution mass spectra and the matrix-isolation infrared spectra of all 209 congeners of polychlorobiphenyl. Their purpose is to provide a library useful for the qualitative confirmation of individual PCB congeners observed in environmental samples.

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Abstract

Since the toxicity of each PCB congener is different, risk assessors need to know the concentration of each congener present in the environment. An analytical method that is sensitive and specific for each congener combines the separation of congeners by capillary gas chromatography, quantitation by electron capture detection, and qualitative confirmation by MI/FT-IR.

Qualitative confirmation of PCBs in environmental matrices is usually accomplished by low-resolution mass spectroscopy (LRMS); however, PCB congeners with an equal number of chlorine atoms (homologs) have indistinguishable spectra using LRMS. Therefore, a congener-specific qualitative test is needed. The matrix-isolation FT-IR spectrum is unique for each PCB congener.

This report presents LRMS and MI/FT-IR spectral data for the purpose of qualitative confirmation of each PCB congener.

This report covers a period from 1986 to 1993 and the work was completed in 1993.

SECTION 1

Introduction

Polychlorinated biphenyls (PCBs) are ubiquitous in the environment. They have been detected in streams, soil, rain, and are distributed as far as the polar regions of the planet[1]. PCBs have a high affinity for organic materials and do not readily degrade in the environment. This causes them to bind to soils and bioaccumulate in fat tissue. Investigators have found PCBs in eagles, fish, milk, and human adipose tissue [1,2].

The predominate source of PCBs is from man-made materials. For example, the Aroclors are a series of chlorinated biphenyls produced by Monsanto from 1930 to 1977[2]. Similar products were produced in Japan, Sweden, and elsewhere. An estimated 1.25 billion pounds of PCBs have been produced in the United States[2]. In 1982, Mackay[3] calculated that approximately 2 percent, or 2.4×10^7 pounds, was distributed throughout the environment in an accessible form, with another 7.2×10^8 pounds in various inaccessible forms. One example of an accessible form would be carbon paper; an inaccessible form would be a sealed electrical transformer.

In the Monsanto process, the chlorination reaction continues until the product has reached the desired level of chlorination, as determined by specific gravity. This reaction is not very selective; therefore, each Aroclor contained products with a considerable range in the degree of chlorination and isomeric configuration. Altogether, 209 congeners are possible, although no single Aroclor contains all of them. For example, Aroclor 1016 contains a high proportion of biphenyl and mono-substituted congeners, while Aroclor 1260, the most highly chlorinated product, contains more highly chlorinated PCBs.

Aroclors that have been exposed to environmental factors, i.e., that are "weathered", do not have the same ratios of PCB congeners as the original Aroclor products. Photolysis is a significant degradation process which occurs naturally. However, the atmospheric half-lives are dependent on the degree of chlorination. Half-lives of the monochlorobiphenyls range from 0.62-1.4 days, while pentachlorobiphenyl has a half-life of 67 days[2].

Microbial degradation of PCBs depends on the degree of chlorination and the position of the chlorine atoms on the biphenyl rings. Biphenyls with less chlorination are readily transformed by bacteria, but those with a high degree of chlorination are not[2].

The major PCB metabolites in higher animals are mono- and dihydroxylchlorobiphenyls and their conjugates. The metabolic rates are dependent on the degree of chlorination and the substitution pattern. The lower chlorinated PCBs are readily metabolized, while highly substituted PCB congeners are hardly metabolized at all. Instead, they are stored in the animal's adipose tissue[1].

Risk assessment studies have indicated that the different congeners of PCBs are not equally toxic[4,5,6]. These studies indicate that most of the congeners have low toxicity whereas only a few are highly toxic. For example, when the toxic response of 3,3',4,4',5-pentachlorobiphenyl (IUPAC Number 126) is compared to that of 2,3,7,8-TCDD (dioxin), the PCB congener gives a similar response at a dose level of 10 to 20 times that of dioxin in test animals. On the other hand, 3,3',4,4'-tetrachlorobiphenyl (IUPAC congener number 77) requires a dose level seven orders of magnitude higher. If these conclusions are valid for other organisms, including humans, the analytical methods must distinguish between the congeners with low toxicity and those with moderate to high toxicity in order to determine the risk associated with exposure to PCBs in particular environmental settings.

Safe, et al.[7], and Yashimura, et al.[8], identified two classes of PCB congeners as highly or potentially highly toxic. Class I, the coplanar PCB congeners, have been reported to be highly toxic. They bind with high affinity to a soluble intracellular protein called the Ah receptor and are very similar to dioxin in activity. The Class II mono-ortho-coplanar PCBs have been reported to be moderately toxic. They bind with much lower affinity to the Ah receptor, but are still similar to dioxin in activity. The diortho-coplanar PCBs, Class IV, are also reported to exhibit dioxin-like behavior, but

are considered to be too weak to be of major concern. The other classes of PCB congeners, along with the metabolites found in the environment, may have toxic effects not associated with the Ah receptor; however, insufficient evidence exists at this time to draw definite conclusions.

In 1980, Ballschmiter and Zell [6] arranged the 209 congeners in ascending numerical order and assigned them what has come to be known as "BZ" numbers from 1 to 209, which does not include biphenyl. Schulte and Malisch [9] corrected a minor discrepancy in the congener order in 1983 in order for the nomenclature to follow IUPAC rules. This discrepancy only affects congeners 199-201. This report adheres to IUPAC terminology. A complete list of IUPAC Numbers, compound names, and CAS Numbers may be found in Table A-I in Erickson's book [2].

There are a number of methods for the analysis of PCBs in environmental samples, such as ASTM D3534 and EPA Methods 608, 625, 8080, and 8270 [10]. These and other similar methods treat the PCBs as multi-component mixtures of the Aroclors and do not distinguish individual PCB congeners. After deciding which Aroclors are present, selected chromatographic peaks are used to quantitate the samples.

Schultz, et al. [11], have used two-dimensional high-resolution gas chromatography with electron-capture detection (GC/EC) to analyze all 209 congeners. This method can be used to analyze the coplanar and mono-ortho-coplanar PCBs with none of the peaks coeluting. The chromatographic retention times are used to identify the congeners but confirmation of the peak identity is not possible, since EC is a non-specific detector.

The analysis of the Class I and II PCB congeners has also been demonstrated using high-resolution gas chromatography coupled with high-resolution mass spectrometry (HRGC/MS) [12,13]. The mass spectrometer can confirm the presence of a characteristic set of masses, after chromatographic separation and sample cleanup. The HRGC/MS method produces sensitivity in the low part-per-trillion range for environmental samples. High resolution is required to selectively detect some PCB congeners in the presence of interferences. Chromatographic retention times determine the identification of individual congeners and the characteristic fragmentation patterns are used to indicate

the peak is a PCB. As mentioned above, the mass spectrometer is not able to distinguish between congeners with the same number of chlorines.

An alternative analytical method uses high-resolution GC to isolate the individual congeners followed by a split of the column effluent to two detectors, where an electron capture detector is used to quantitate the sample, and the identity of the PCB congener is qualitatively confirmed using the unique infrared(IR) spectrum for each congener. The sensitivity and throughput of the GC/EC/IR methodology for congeners is approximately the same as existing methods for PCB mixtures, such as EPA Methods 625 and 8080. The IR detector is not as sensitive as either the electron capture detector nor the high resolution mass spectrometer; however, both these more sensitive detectors are unable to qualitatively distinguish between all the PCB congeners. The productivity of all these methods are comparable when confirmatory runs are ignored in those methods which use non-specific detectors. The IR detection method is more cost effective when confirmations of the identities of the individual congeners are required since the qualitative identification of each congener is achieved in one GC run.

SECTION 2

Experimental

MATRIX-ISOLATION INFRARED SPECTROMETER DATA

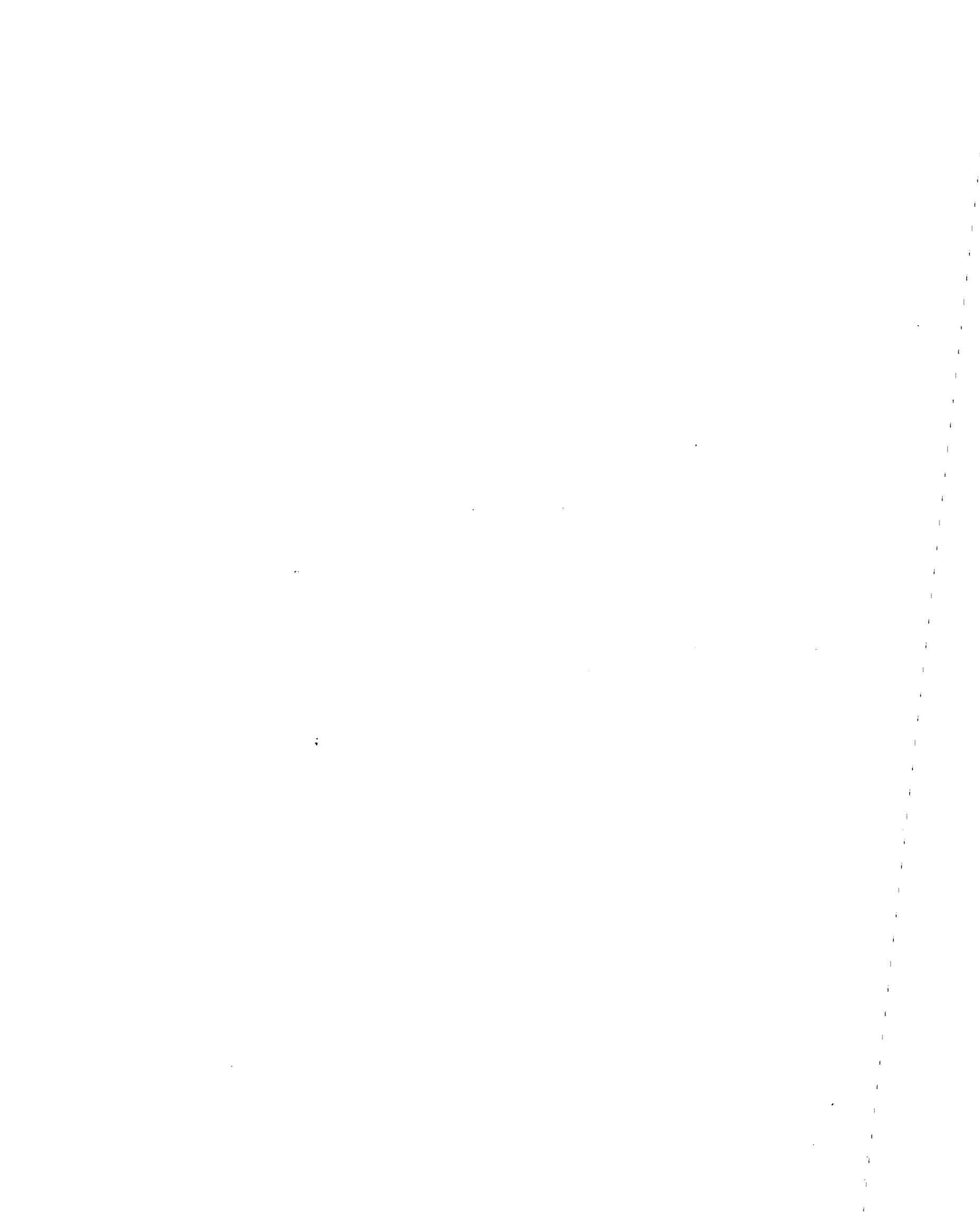
A Cryolect matrix-isolation GC/FT-IR (Mattson Scientific, Inc.) was used to collect all the data in this study. The Cryolect instrument consists of a Hewlett-Packard HPS890A gas chromatograph, a Mattson Sirius Model 100 FT-IR spectrometer, a cryogenic disk, and a Pixel computer to control Cryolect operations. The spectrometer was equipped with a broad-band MCT detector and the Cryolect sample chamber.

The GC was equipped with a flame-ionization detector. A DB-5 (5 percent phenyl-95 percent methyl-silicone) fused silica capillary column (J&W Scientific) 30m x 0.32mm id., 0.25 μ film thickness, was used for all chromatographic separations. After a one-minute hold at 50 degrees Celsius, the DB-5 column was programmed to 120°C at 25°C/min, then to 320°C at 5°C/min, with a final hold time of 7 minutes. The total run time was approximately 51 minutes.

A nominal 50 ng of standard was injected in the splitless mode. The injection port temperature was maintained at 225°C. The column head pressure was kept at 10 psi using ultra-high purity helium with 1.5 percent argon as the carrier gas at a flow rate of 40 mL/min. The effluent from the GC was split, with 80 percent going to the Cryolect for spectral identification and 20 percent going to the FID for quantitation and measurement of retention times.

The column effluent proceeds across an open-split interface, through a transfer line heated to 250°C, to the Cryodisk. The Cryodisk, cooled to 10 kelvin, is housed inside a chamber kept at 10⁻³ torr.

The solute is frozen onto the disk within an argon matrix in the form of a band. The sizes and lengths



of the fused silica transfer lines were chosen insure that the analyte reaches the detectors simultaneously.

The position of the spot on the disk that contains the analyte was determined from the FID retention time. One hundred twenty-eight scans or more were taken of the standard in the frozen argon matrix, and the FT-IR conditions were set to obtain 1 cm^{-1} resolution for the infrared interferograms over the wavelength region of $4000\text{-}650\text{ cm}^{-1}$. The transformed data contained 8192 points. The following criteria were established for spectra: The signal-to-noise ratio of the spectrum was at least 100, meaning that the peak-to-peak noise in the noisiest region of the spectrum (usually $3000\text{-}4000\text{ cm}^{-1}$) was less than one-hundredth the maximum intensity of the most intense band. If this requirement was not met, the number of scans was increased until the requirement was met. Carbon dioxide, water, and other known interferences were manually edited from the spectrum. The spectrum's baseline was corrected manually to remove fringe patterns.

The IR spectrum for each congener was added to the spectral library after being checked for uniqueness against all previous entries. This process determined that the matrix-isolation IR spectrum of each of the 209 congeners was unique.

MASS SPECTROMETER DATA

A HP5970 MSD was coupled with a HP5890 Series II gas chromatograph. The GC was equipped with a DB-5 column, $30\text{m} \times 0.23\text{mm i.d.}, 0.25\mu\text{ film thickness}$. After a one-minute hold time at 50°C , the oven was temperature programmed to 300°C at a rate of $7^\circ\text{C}/\text{min}$, with a final hold time of 10 minutes. The injection port temperature was maintained at 220°C and the transfer line to the spectrometer at 280°C .

The ionization potential on the mass spectrometer was set to 70eV. The mass range went from 33 to 550 during a one second scan. The mass spectrometer was tuned daily with DFTPP to optimize the signal. Nominally, the injection of 40-200 ng of each PCB standard yielded usable spectra.

STANDARDS

Standards were primarily from two sources, Chem Service and Dr. Stephen Safe at Texas A&M University. Those obtained from Chem Service were pure standards in hexane at a concentration of 100

ng/ μ L. Some of the congeners received from Dr. Safe were neat standards of high purity while others were mixtures of two to three congeners.

The identity of each congener provided by the supplier was assured using the following procedure:

- 1) The GC retention time of each congener was compared with published retention times[14].
- 2) As each successive IR spectrum was acquired, it was searched against the library of all previously acquired IR spectra. All 209 congeners had unique IR spectra.
- 3) The IR spectra of the congeners having a high degree of symmetry were compared to other spectra for congeners having less symmetry. The spectra of the congeners with more symmetry contained fewer peaks than those having less symmetry.
- 4) The mass spectrum of each congener was checked for total mass and the number of chlorines in the congener.
- 5) Independent of this effort, N. Smyrl[15] compiled a condensed-phase IR library of all 209 congeners. He obtained standards from Ultra Scientific at a concentration of 100 ng/ μ L. He acquired the spectra using a BioRad/Digilab Model FTS-4S FT-IR with a Tracer GC/FT-IR accessory. The spectra acquired in both laboratories matched uniquely each MI-IR spectrum with its corresponding condensed-phase spectrum. Only minor expected differences were noticed between the corresponding matrix-isolation and condensed phase spectra. Since independent sources of standards and different instruments were used to generate the two sets of IR spectra, the conclusion was that the identity of each spectrum was correct.

SECTION 3

Results

The low-resolution MS and matrix-isolation IR spectra and their respective peak tables are arranged together by IUPAC congener number.

The IR absorbance for each congener ranged from 0.05–0.16 AU. All spectra were normalized so that the most intense peak had a value of 1.0 AU.

The threshold value of the IR spectra was chosen to be at least three times the spectral noise level in a clear region of the spectrum. The threshold value of the IR peak table was chosen so that the peak table included the 20 to 30 most intense peaks.

The mass spectral intensity tables were generated using RTE-A software without background correction. The mass threshold was set at 50 counts.

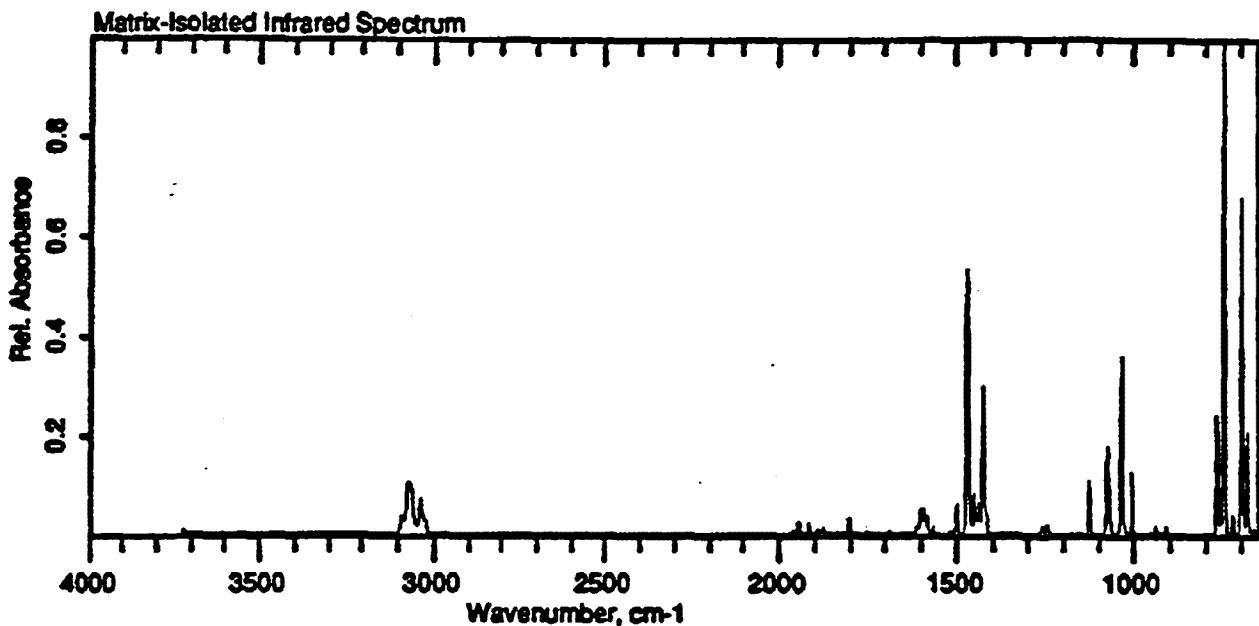
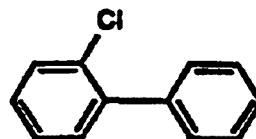
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IUPAC Congener No. 1

2-CHLOROBIPHENYL

CAS No. 2051-60-7



cm^{-1}	abs								
683.56	0.21	771.70	0.24	1131.00	0.11	1471.28	0.54	3040.36	0.07
699.51	0.68	1011.09	0.13	1428.49	0.30	1502.66	0.06		
750.19	1.00	1039.97	0.36	1438.99	0.07	1595.49	0.05		
762.56	0.09	1078.36	0.18	1453.14	0.08	1605.17	0.05		

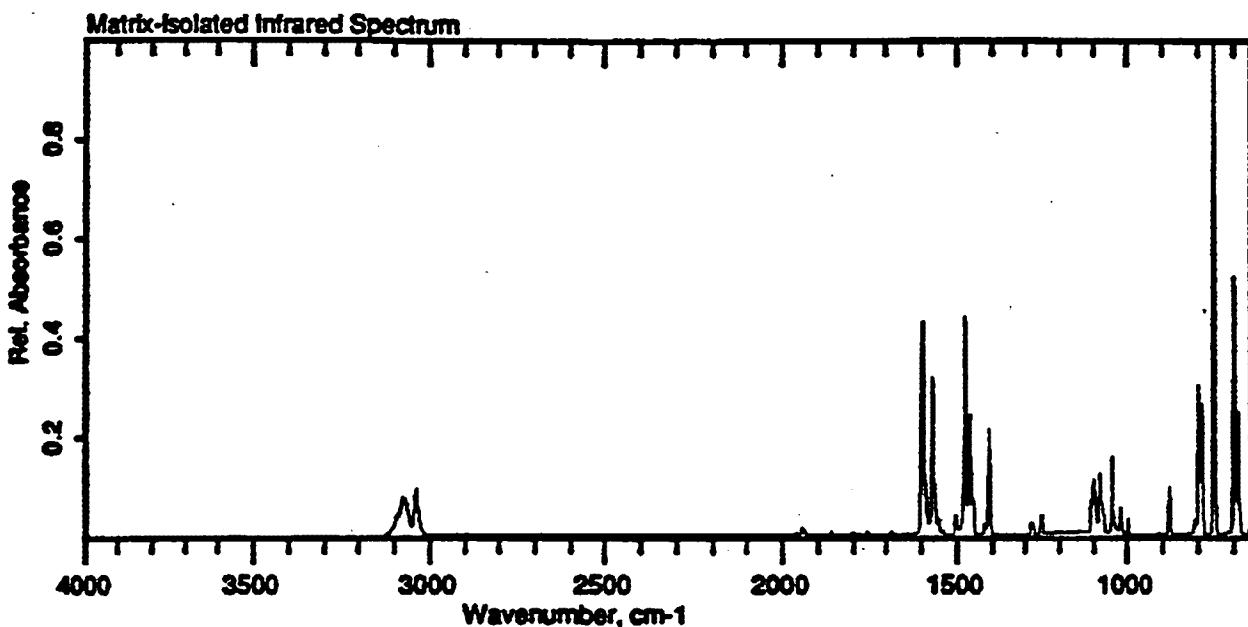
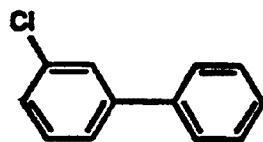


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
39.10	0.05	63.05	0.15	77.05	0.05	151.10	0.17	189.10	0.13
50.00	0.08	74.05	0.08	126.05	0.06	152.10	0.55	190.10	0.32
51.00	0.09	75.05	0.12	127.05	0.04	153.10	0.30		
62.05	0.04	76.05	0.26	150.10	0.06	188.10	1.00		

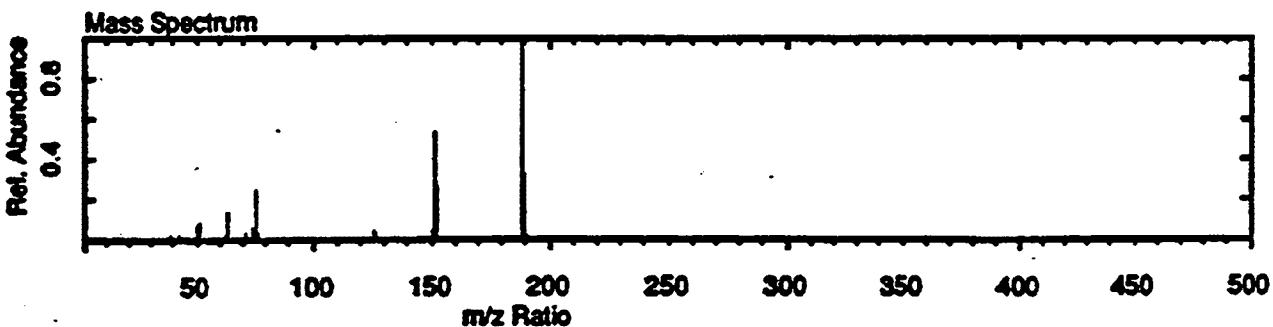
IUPAC Congener No. 2

3-CHLOROBIPHENYL

CAS No. 2051-61-8



cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
685.76	0.25	884.17	0.10	1101.72	0.11	1477.66	0.44		
698.68	0.52	1023.43	0.06	1108.58	0.08	1570.60	0.32		
756.92	1.00	1048.59	0.16	1409.08	0.21	1597.87	0.43		
791.23	0.27	1078.82	0.07	1455.45	0.08	3040.54	0.09		
799.97	0.31	1084.70	0.13	1464.45	0.25	3074.33	0.08		

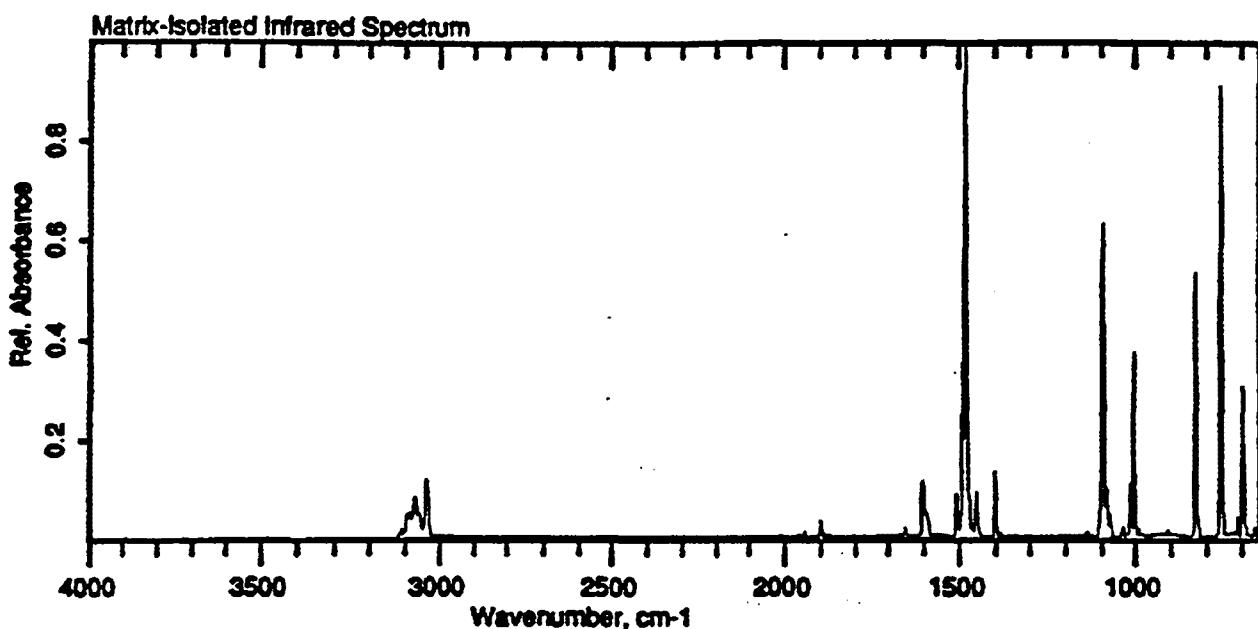
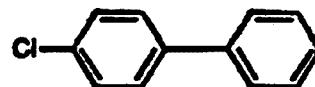


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.08	74.05	0.07	126.05	0.05	153.10	0.27		
51.10	0.09	75.05	0.12	150.10	0.06	188.10	1.00		
63.05	0.14	76.05	0.26	151.10	0.16	189.10	0.13		
71.05	0.05	76.95	0.05	152.10	0.54	190.10	0.33		

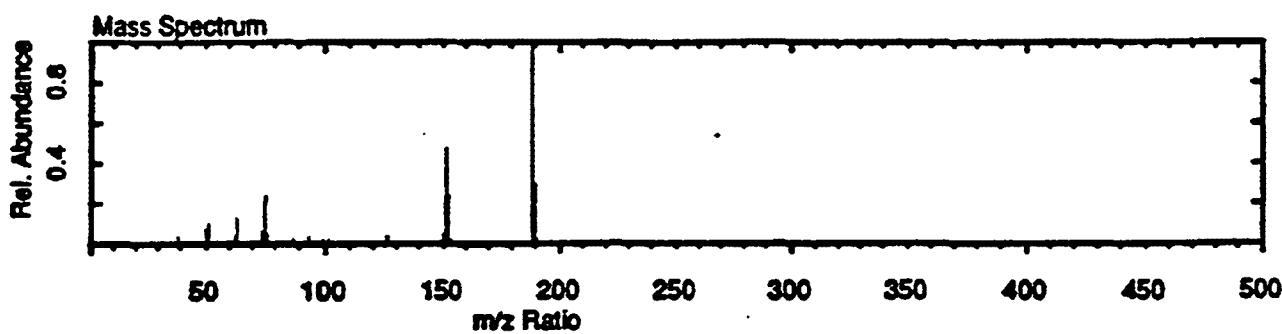
IUPAC Congener No. 3

4-CHLOROBIPHENYL

CAS No. 2051-62-9

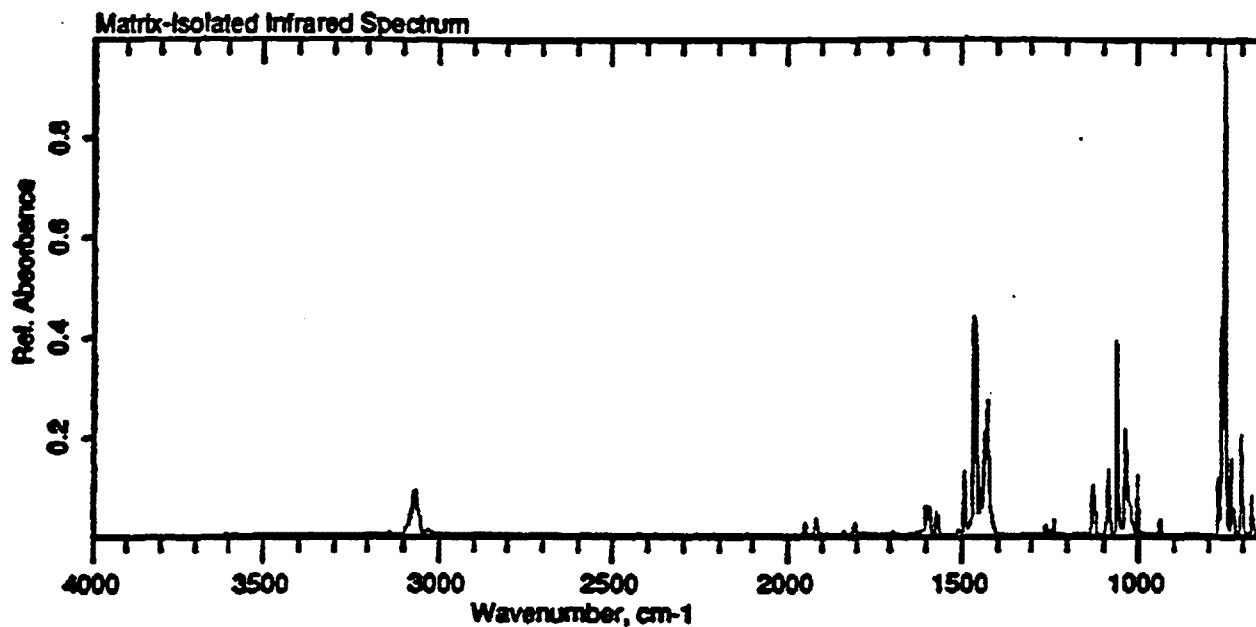
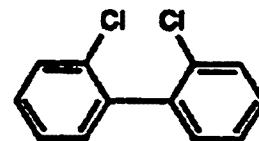


cm^{-1}	abs								
698.17	0.31	1019.19	0.11	1401.08	0.13	1508.57	0.09	3063.26	0.05
760.93	0.91	1078.61	0.05	1452.24	0.09	1597.20	0.05	3074.14	0.08
833.96	0.54	1087.03	0.10	1482.42	1.00	1606.02	0.11		
1009.39	0.38	1097.55	0.63	1490.42	0.36	3040.90	0.12		

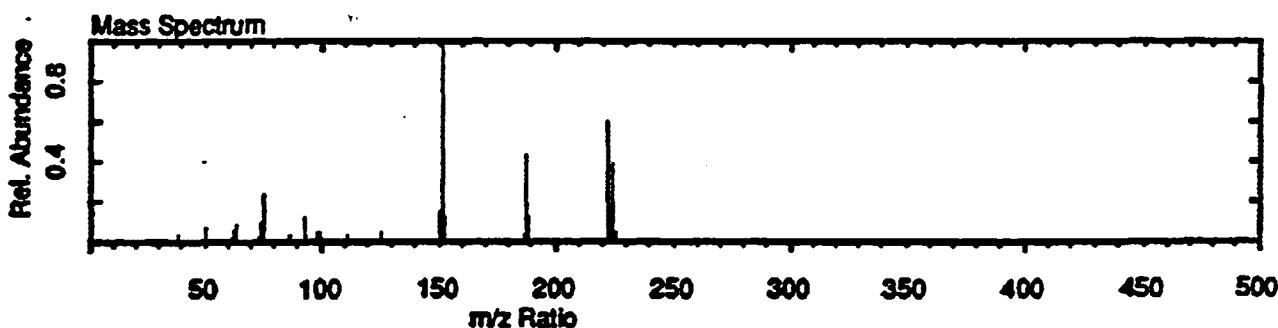


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
39.10	0.04	74.05	0.07	94.10	0.04	151.10	0.15	189.10	0.13
50.10	0.08	75.05	0.11	126.05	0.05	152.10	0.49	190.10	0.31
51.10	0.10	76.05	0.24	127.05	0.04	153.10	0.24		
63.05	0.13	77.05	0.05	150.10	0.06	188.10	1.00		

IUPAC Congener No. 4
2,2'-DICHLOROBIPHENYL
CAS No. 13029-08-8

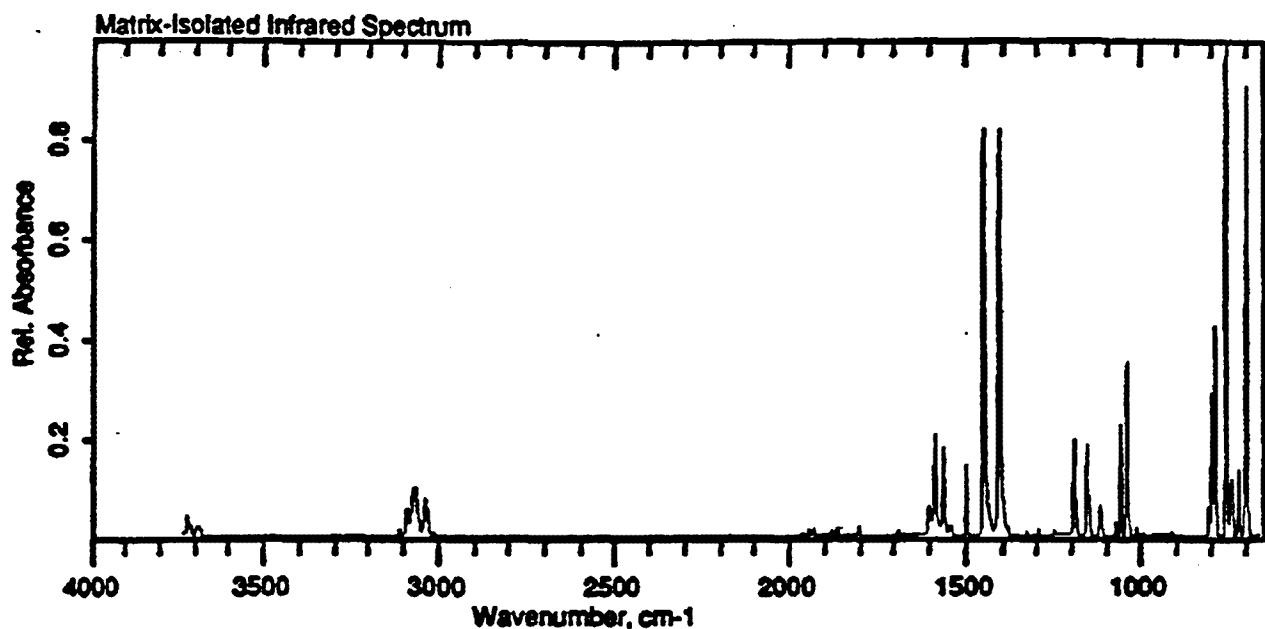
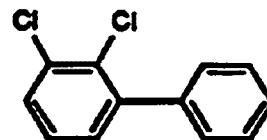


cm^{-1}	abs								
673.69	0.08	762.58	0.44	1084.63	0.39	1447.42	0.09	1593.60	0.06
705.00	0.20	774.46	0.11	1089.46	0.13	1462.12	0.42	1603.66	0.06
727.58	0.05	1008.37	0.12	1131.76	0.10	1467.07	0.44		
735.94	0.15	1032.49	0.10	1429.74	0.27	1493.88	0.13		
752.64	1.00	1041.38	0.21	1435.43	0.21	1575.00	0.05		

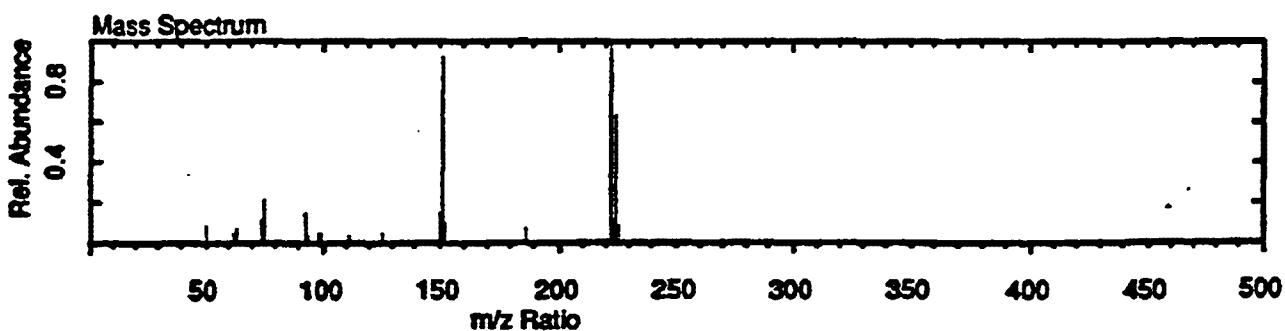


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.08	76.05	0.14	125.05	0.05	186.10	0.05	224.05	0.40
51.00	0.08	93.10	0.14	126.05	0.05	187.10	0.45	225.05	0.05
62.05	0.07	94.00	0.04	150.10	0.15	188.10	0.07	226.05	0.06
63.05	0.09	98.00	0.05	151.10	0.22	189.10	0.13		
74.05	0.11	99.00	0.06	152.10	1.00	222.05	0.61		
75.05	0.25	111.05	0.05	153.10	0.13	223.05	0.08		

IUPAC Congener No. 5
 2,3-DICHLOROBIPHENYL
 CAS No. 16605-91-7

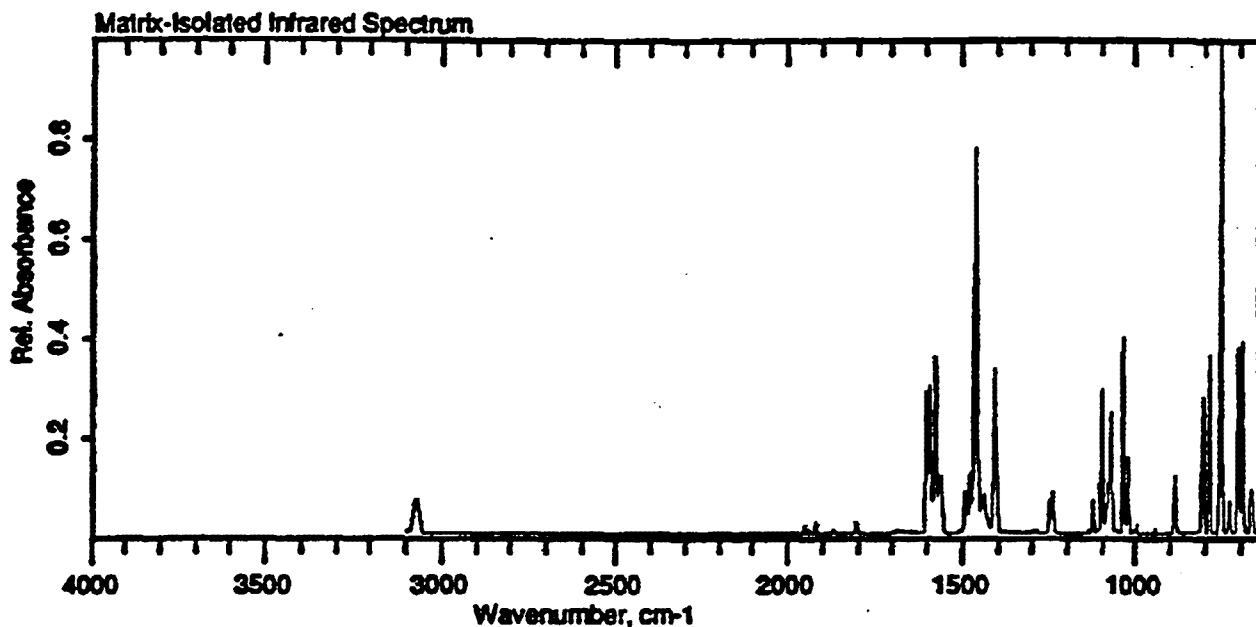
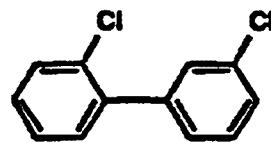


cm^{-1}	abs								
699.31	0.90	800.17	0.29	1152.86	0.08	1501.37	0.15	3069.96	0.10
721.38	0.14	808.83	0.06	1159.59	0.19	1563.01	0.18	3073.23	0.10
740.83	0.12	1044.86	0.36	1195.47	0.20	1587.28	0.21	3093.32	0.06
759.26	1.00	1062.45	0.23	1409.98	0.81	1603.07	0.06		
790.94	0.42	1120.88	0.07	1453.17	0.82	3040.03	0.06		

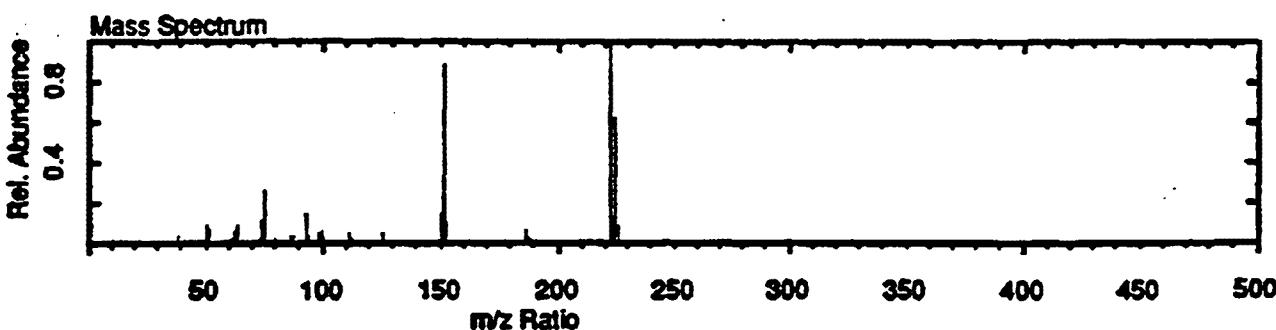


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.06	75.05	0.22	99.00	0.06	152.10	0.93	224.05	0.64
51.00	0.09	76.05	0.14	111.05	0.04	153.10	0.10	225.05	0.07
62.05	0.06	93.10	0.15	126.05	0.05	186.10	0.08	226.05	0.09
63.05	0.08	94.00	0.04	150.10	0.16	222.05	1.00		
74.05	0.11	98.00	0.05	151.10	0.23	223.05	0.12		

JUPAC Congener No. 6
2,3'-DICHLOROBIPHENYL
 CAS No. 25569-80-6

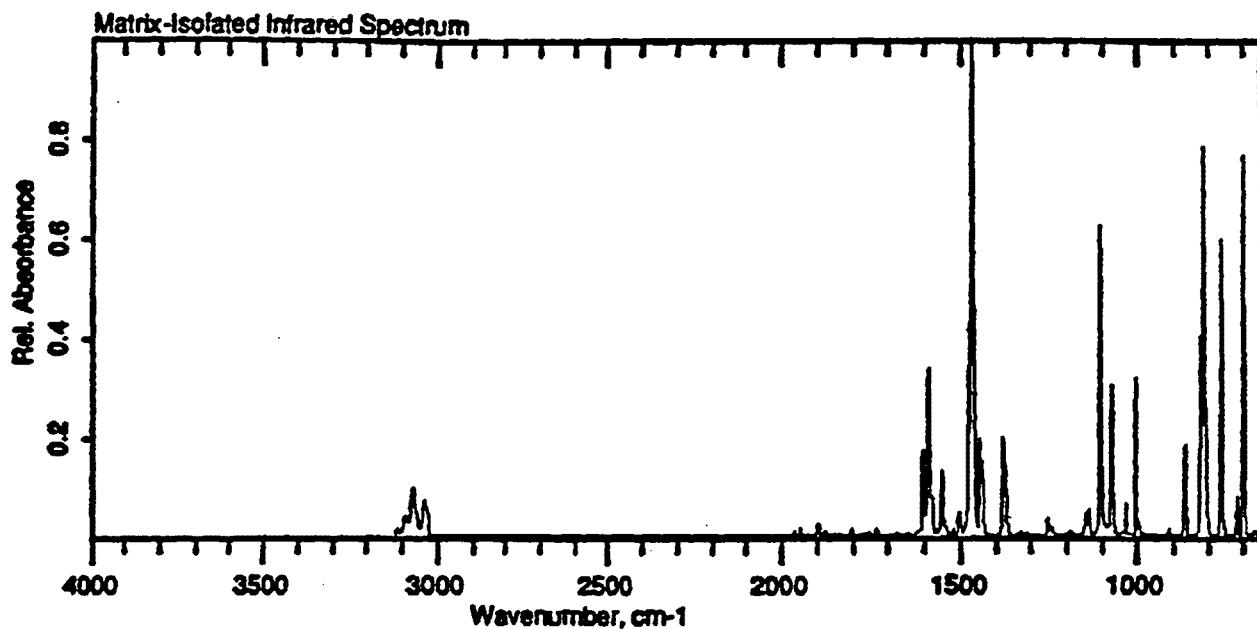
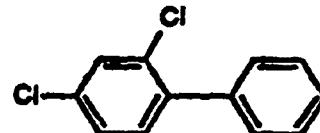


cm^{-1}	abs								
668.37	0.10	789.19	0.37	1082.58	0.11	1439.29	0.09	1562.19	0.12
673.28	0.10	807.17	0.28	1102.72	0.30	1445.62	0.08	1565.96	0.12
695.67	0.40	888.79	0.13	1129.45	0.08	1463.05	0.78	1577.89	0.36
706.39	0.39	1025.83	0.16	1244.15	0.09	1487.84	0.55	1594.70	0.30
733.45	0.08	1040.64	0.40	1251.80	0.07	1480.28	0.13	1604.69	0.29
756.30	1.00	1075.90	0.26	1410.41	0.34	1492.39	0.09		

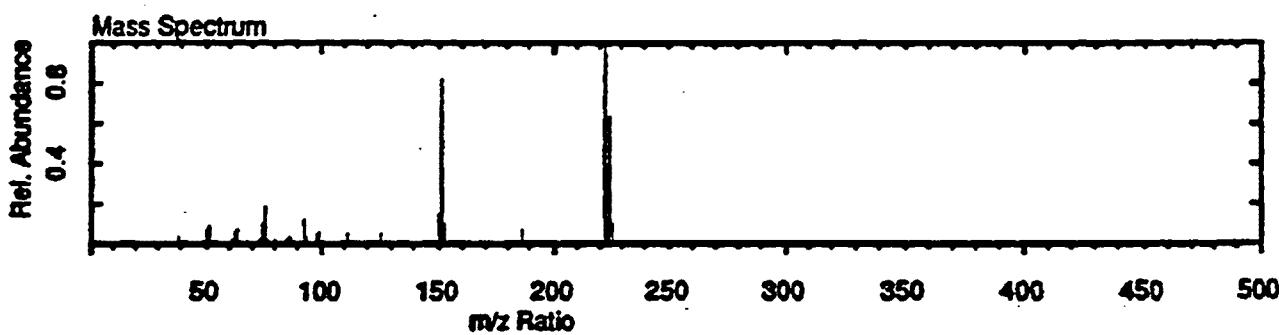


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
39.10	0.04	75.05	0.27	98.00	0.05	151.10	0.23	224.05	0.63
50.10	0.09	76.05	0.14	99.00	0.08	152.10	0.90	225.05	0.08
51.10	0.09	86.10	0.04	111.05	0.06	153.10	0.11	226.05	0.10
62.05	0.07	87.10	0.04	125.05	0.05	186.10	0.07		
63.05	0.10	93.10	0.15	126.05	0.06	222.05	1.00		
74.05	0.12	94.00	0.05	150.10	0.15	223.05	0.13		

IUPAC Congener No. 7
 2,4-DICHLOROBIPHENYL
 CAS No. 33284-50-3

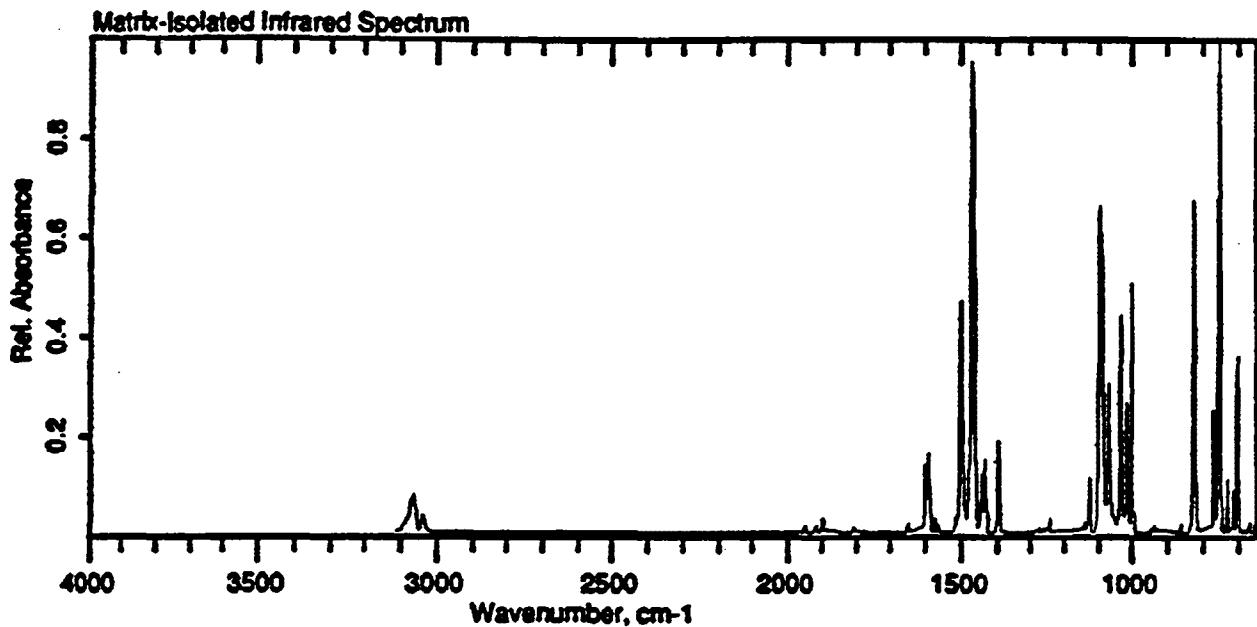
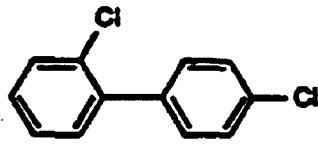


cm^{-1}	abs								
700.04	0.77	871.08	0.19	1138.83	0.06	1448.29	0.20	1582.91	0.08
718.98	0.08	1009.75	0.32	1147.85	0.05	1469.84	1.00	1592.11	0.34
765.00	0.60	1037.40	0.07	1375.63	0.15	1476.23	0.35	1607.67	0.17
817.38	0.80	1075.94	0.31	1381.63	0.20	1506.37	0.05	3040.27	0.08
825.15	0.41	1107.77	0.63	1441.04	0.15	1555.16	0.14		

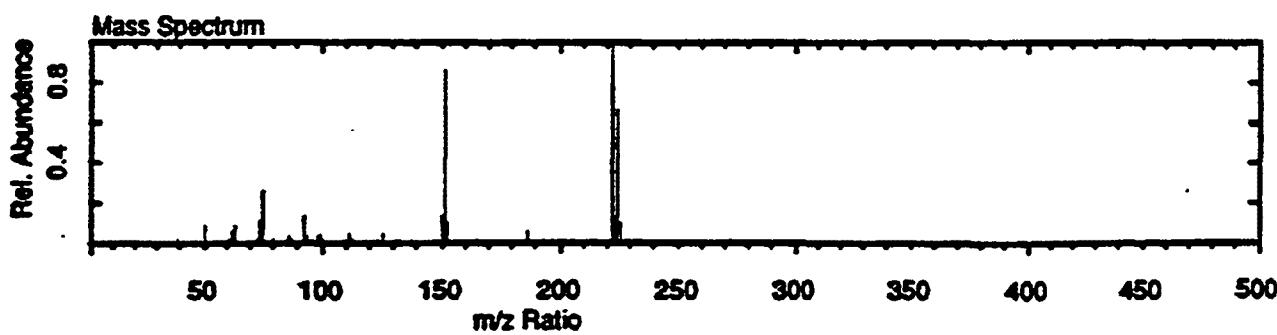


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
39.10	0.04	74.05	0.11	98.00	0.06	151.10	0.21	223.05	0.13
50.10	0.08	75.05	0.20	99.00	0.07	152.10	0.83	224.05	0.64
51.10	0.09	76.05	0.13	111.05	0.05	153.10	0.10	225.05	0.08
62.05	0.06	93.10	0.13	126.05	0.05	186.10	0.09	226.05	0.11
63.05	0.08	94.00	0.04	150.10	0.15	222.05	1.00		

IUPAC Congener No. 8
 2,4'-DICHLOROBIPHENYL
 CAS No. 34883-43-7

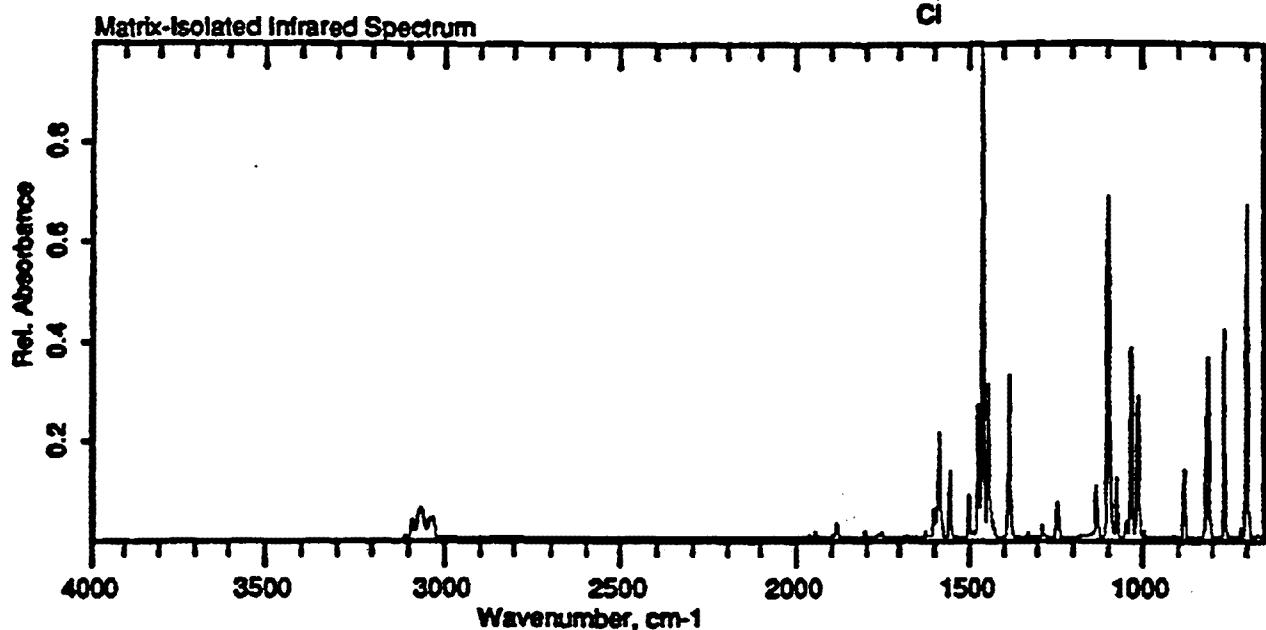
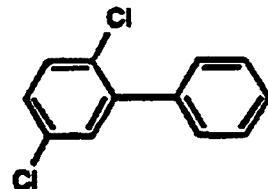


cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
704.72	0.36	830.65	0.66	1074.19	0.30	1445.18	0.12		
716.26	0.09	1002.21	0.05	1098.51	0.85	1471.09	0.93		
734.67	0.11	1007.93	0.50	1130.02	0.11	1503.35	0.46		
757.56	1.00	1021.90	0.26	1397.48	0.19	1595.68	0.16		
774.82	0.25	1039.76	0.43	1436.95	0.15	1604.47	0.14		

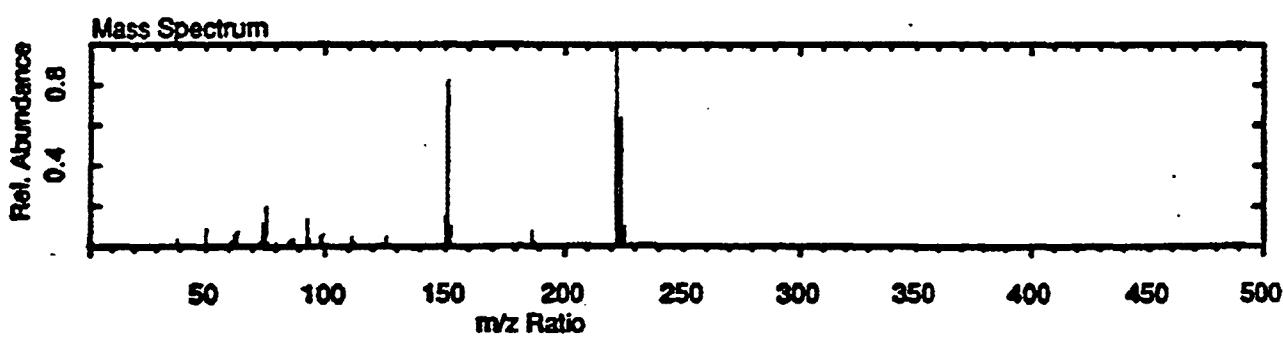


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.09	75.05	0.27	99.00	0.06	151.10	0.22	223.05	0.14
51.00	0.09	76.05	0.14	111.05	0.06	152.10	0.87	224.05	0.66
62.05	0.07	93.10	0.15	125.05	0.05	153.10	0.11	225.05	0.08
63.05	0.09	94.00	0.05	126.05	0.06	186.10	0.07	226.05	0.10
74.05	0.11	98.00	0.05	150.10	0.15	222.05	1.00		

IUPAC Congener No. 9
 2,5-DICHLOROBIPHENYL
 CAS No. 34883-39-1



cm^{-1}	abs								
699.65	0.68	1019.40	0.29	1136.34	0.11	1463.00	1.00	1590.70	0.22
766.35	0.43	1037.54	0.39	1246.95	0.07	1476.99	0.28	1603.94	0.06
815.53	0.37	1078.01	0.13	1384.24	0.34	1504.18	0.09	3036.20	0.05
886.91	0.14	1100.98	0.69	1447.85	0.31	1558.94	0.14		

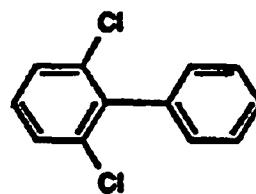


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
39.10	0.04	75.05	0.21	99.00	0.07	153.10	0.10	226.05	0.10
50.00	0.09	76.05	0.15	111.05	0.05	186.10	0.08		
51.00	0.10	86.00	0.04	126.05	0.06	222.05	1.00		
62.05	0.07	93.10	0.14	150.10	0.16	223.05	0.13		
63.05	0.09	94.00	0.05	151.10	0.21	224.05	0.64		
74.05	0.12	98.00	0.06	152.10	0.83	225.05	0.08		

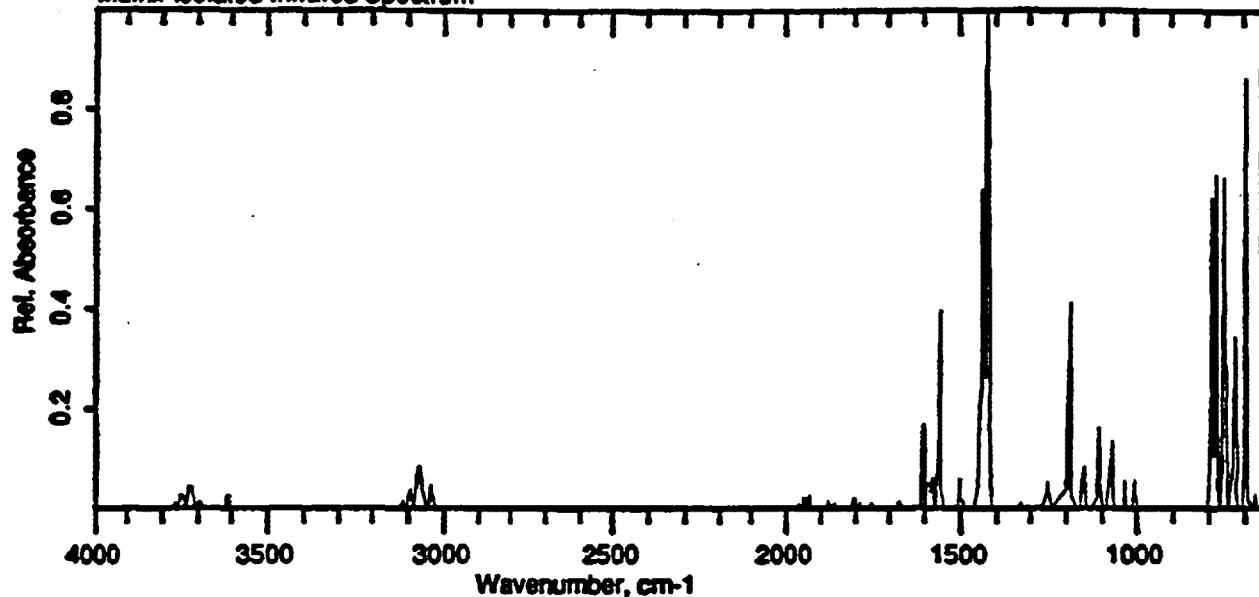
IUPAC Congener No. 10

2,6-DICHLOROBIPHENYL

CAS No. 33146-45-1

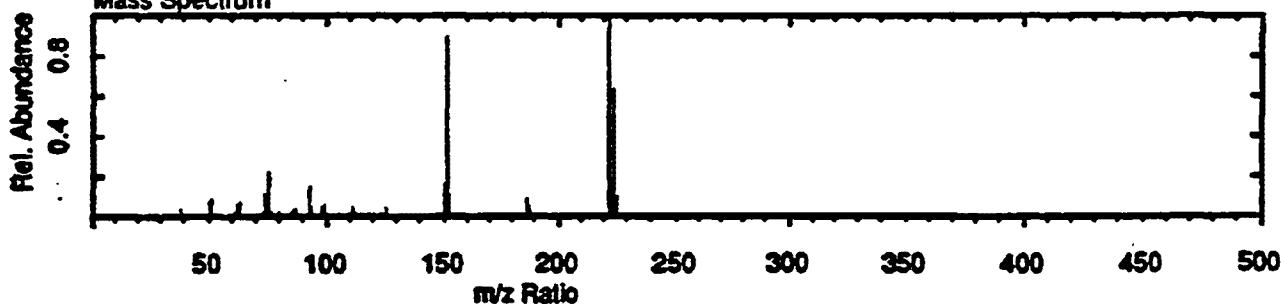


Matrix-Isolated Infrared Spectrum



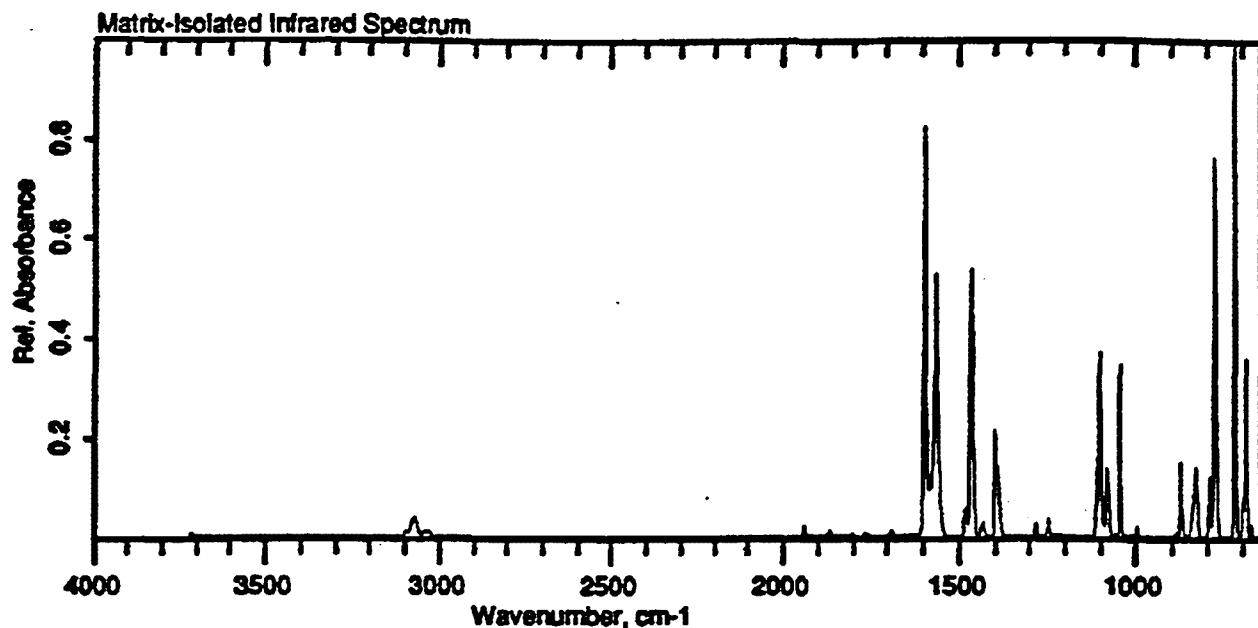
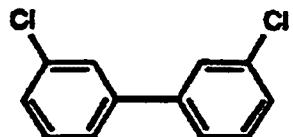
cm^{-1}	abs								
697.97	0.82	1010.05	0.06	1193.54	0.39	1502.62	0.06	1606.17	0.17
729.34	0.32	1037.08	0.06	1253.01	0.05	1562.23	0.38		
761.47	0.63	1075.55	0.13	1428.33	1.00	1580.39	0.06		
781.05	0.63	1113.08	0.15	1441.87	0.64	1593.41	0.05		
793.91	0.61	1153.98	0.08	1448.78	0.19	1595.84	0.05		

Mass Spectrum

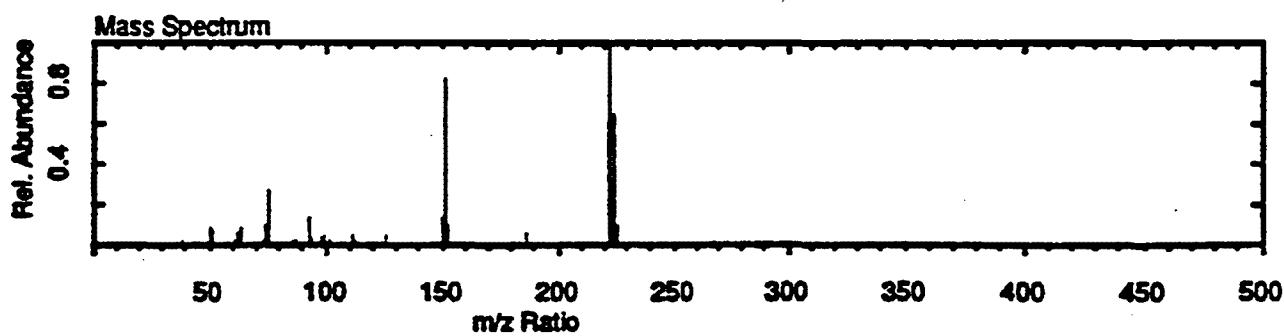


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
39.10	0.04	75.05	0.23	98.00	0.06	152.10	0.91	224.05	0.64
50.00	0.08	76.05	0.12	99.00	0.07	153.10	0.11	225.05	0.08
51.10	0.09	86.00	0.04	111.05	0.06	186.10	0.09	226.05	0.10
62.05	0.07	87.10	0.04	126.05	0.08	187.10	0.06		
63.05	0.08	93.10	0.16	150.10	0.17	222.05	1.00		
74.05	0.12	94.00	0.05	151.10	0.24	223.05	0.13		

IUPAC Congener No. 11
 3,3'-DICHLOROBIPHENYL
 CAS No. 2050-67-1

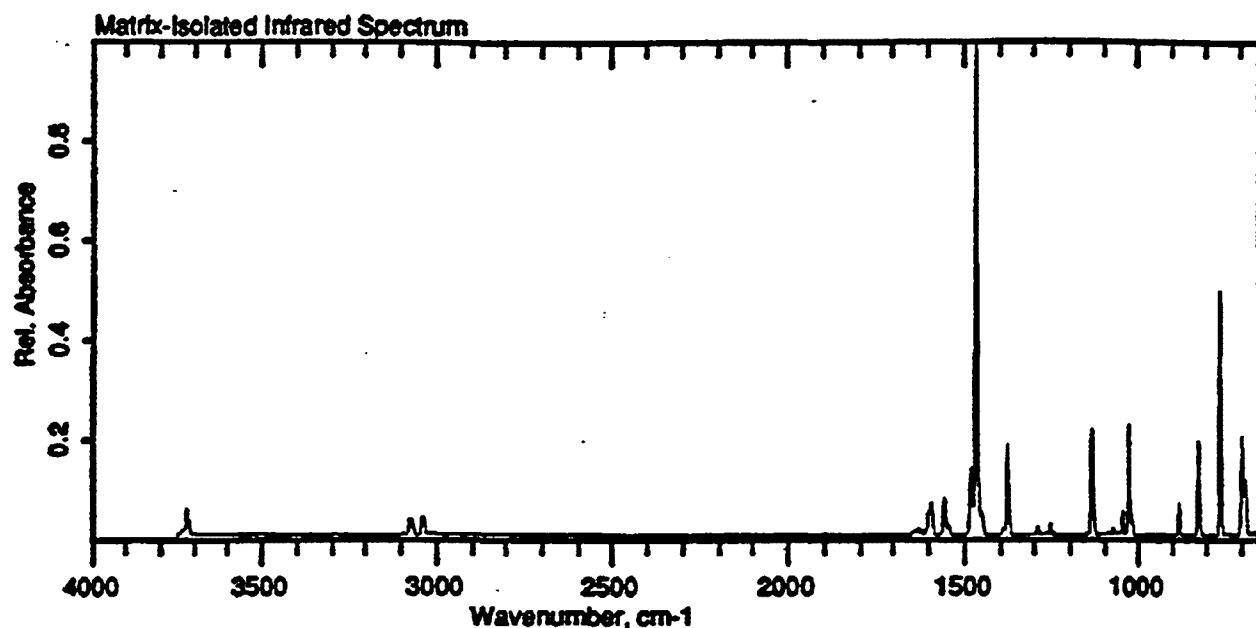
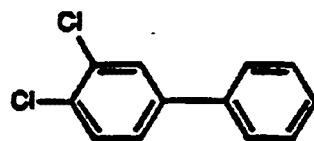


cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
690.15	0.37	795.55	0.12	1048.08	0.35	1468.03	0.54		
700.05	0.08	835.32	0.14	1083.95	0.14	1484.13	0.06		
722.45	1.00	841.12	0.09	1105.32	0.37	1566.36	0.53		
780.28	0.76	879.16	0.15	1400.52	0.21	1597.19	0.82		

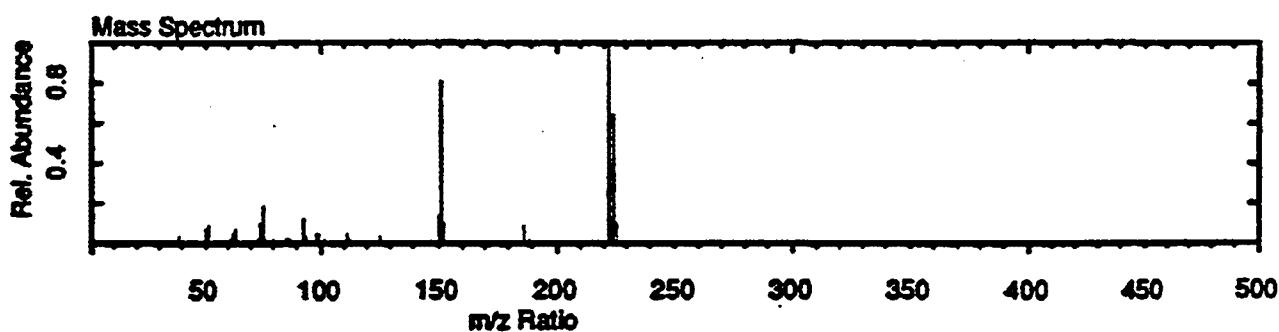


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.10	75.05	0.28	99.00	0.05	151.10	0.21	223.05	0.13
51.10	0.09	76.05	0.15	111.05	0.06	152.10	0.83	224.05	0.65
62.05	0.07	93.10	0.14	125.05	0.04	153.10	0.11	225.05	0.08
63.05	0.09	94.00	0.05	126.05	0.05	186.10	0.07	226.05	0.11
74.05	0.11	98.00	0.05	150.10	0.14	222.05	1.00		

IUPAC Congener No. 12
3,4-DICHLOROBIPHENYL
 CAS No. 2974-92-7

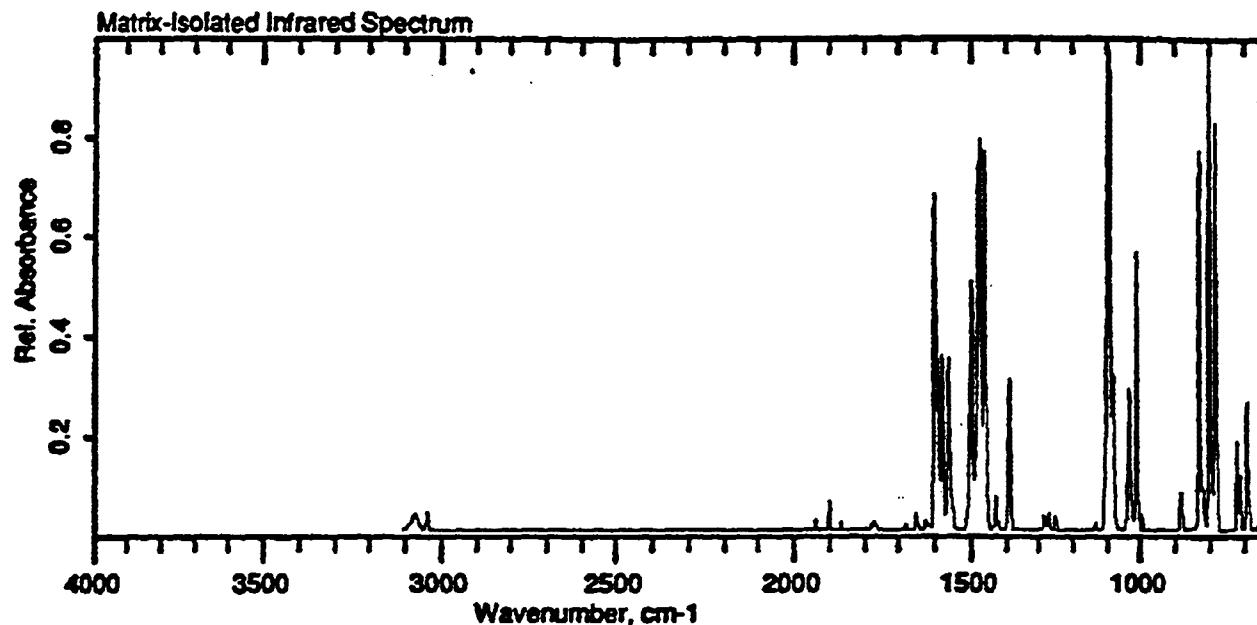
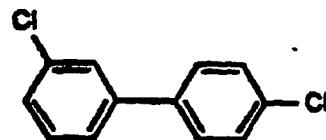


cm^{-1}	abs								
688.18	0.12	884.14	0.07	1138.34	0.22	1467.65	1.00	1603.20	0.05
699.29	0.20	1024.18	0.05	1139.52	0.21	1482.22	0.14		
761.38	0.50	1033.15	0.23	1379.43	0.19	1559.02	0.08		
825.69	0.19	1051.32	0.05	1452.74	0.05	1596.86	0.07		

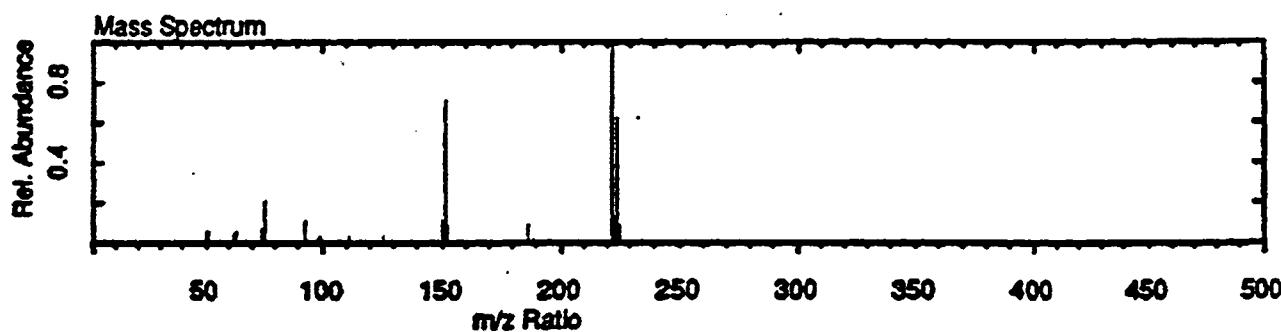


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
39.10	0.04	74.05	0.10	98.00	0.05	151.10	0.19	223.05	0.13
50.10	0.08	75.05	0.19	99.00	0.06	152.10	0.81	224.05	0.68
51.10	0.09	76.05	0.15	111.05	0.06	153.10	0.10	225.05	0.08
62.05	0.06	93.10	0.13	126.05	0.05	186.10	0.09	226.05	0.11
63.05	0.08	94.00	0.04	150.10	0.14	222.05	1.00		

IUPAC Congener No. 13
 3,4'-DICHLOROBIPHENYL
 CAS No. 2974-90-5

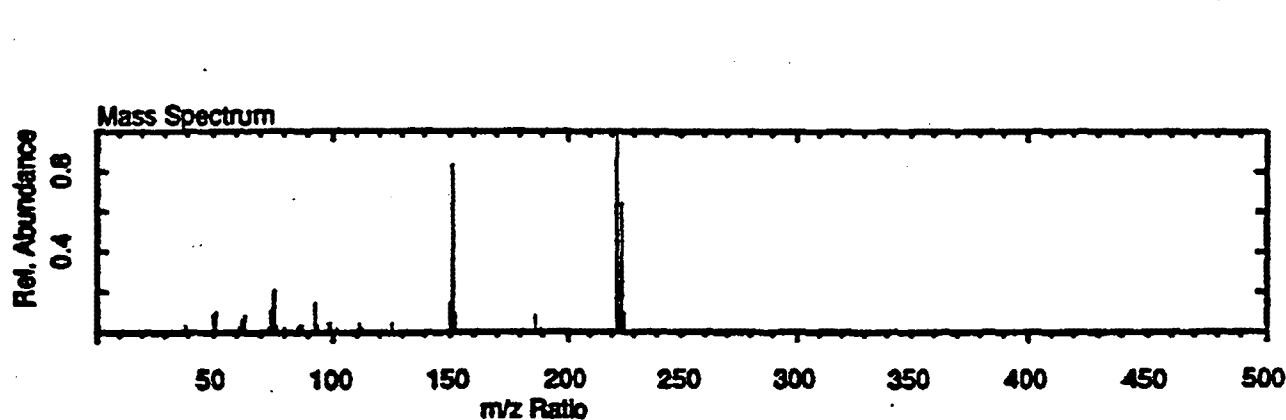
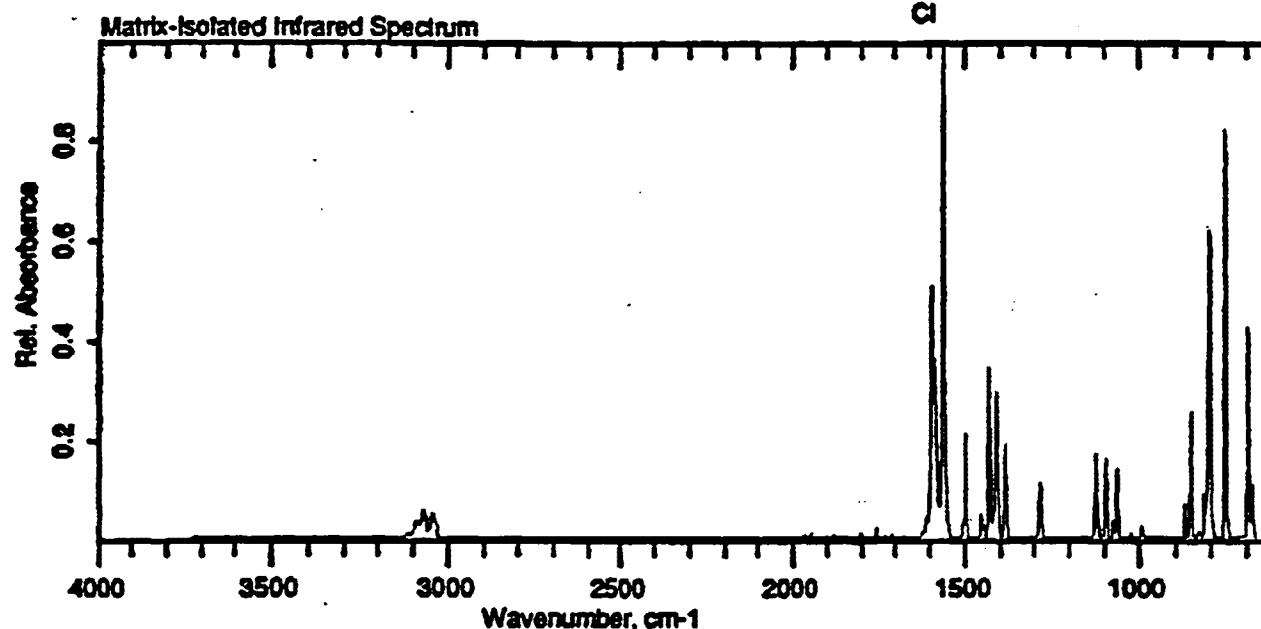
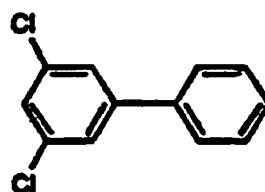


cm^{-1}	abs								
655.37	0.10	822.23	0.10	1083.62	0.32	1462.07	0.76	1582.60	0.36
693.33	0.27	825.89	0.10	1094.11	0.94	1475.66	0.79	1603.45	0.69
711.73	0.12	832.32	0.77	1098.25	1.00	1480.35	0.74	1902.69	0.07
722.55	0.19	886.67	0.09	1272.70	0.05	1501.04	0.51		
785.01	0.83	1015.58	0.57	1391.51	0.31	1551.98	0.06		
803.95	0.99	1037.60	0.29	1430.33	0.08	1565.09	0.35		

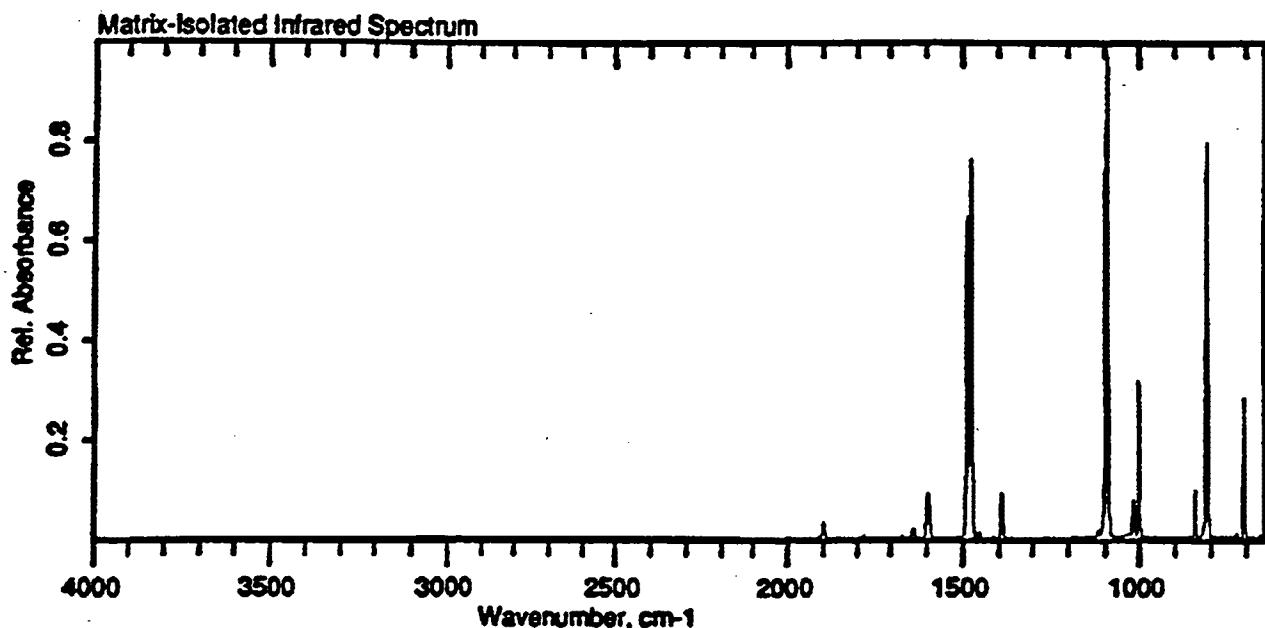
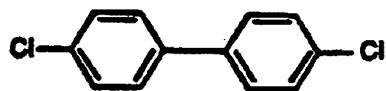


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.07	75.05	0.22	126.05	0.04	186.10	0.09	226.05	0.10
51.10	0.06	76.05	0.11	150.10	0.12	222.05	1.00		
62.05	0.05	83.10	0.12	151.10	0.19	223.05	0.13		
63.05	0.07	99.00	0.04	152.10	0.72	224.05	0.64		
74.05	0.09	111.05	0.05	153.10	0.09	225.05	0.08		

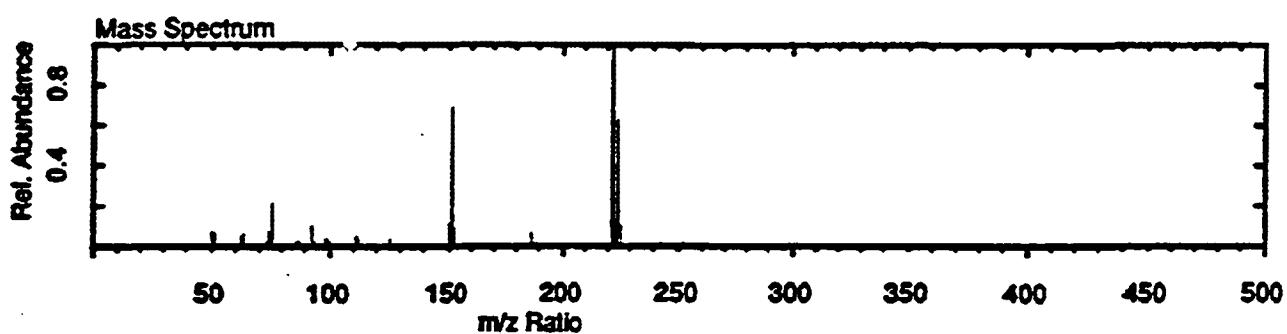
IUPAC Congener No. 14
3,5-DICHLOROBIPHENYL
 CAS No. 34883-41-5



IUPAC Congener No. 15
 4,4'-DICHLOROBIPHENYL
 CAS No. 2050-68-2

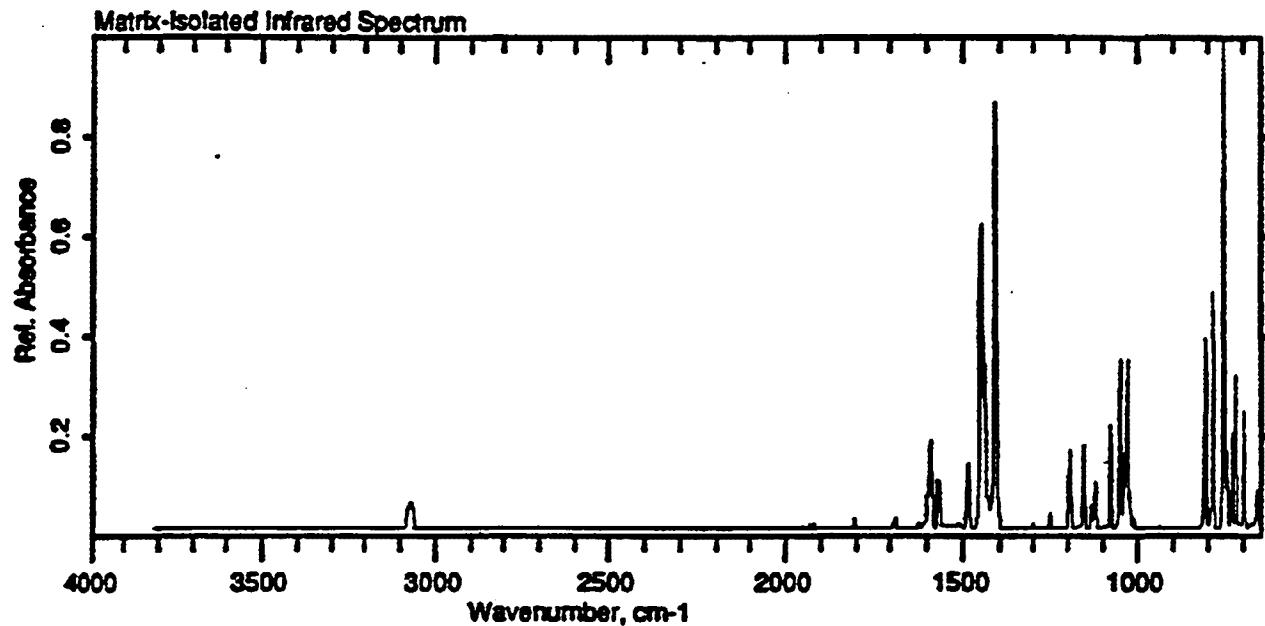
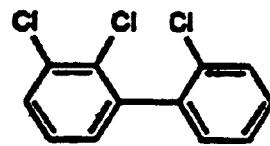


cm^{-1}	abs								
707.25	0.29	847.75	0.10	1022.36	0.08	1392.53	0.09	1488.41	0.65
815.05	0.79	1007.07	0.32	1097.41	1.00	1477.70	0.76		

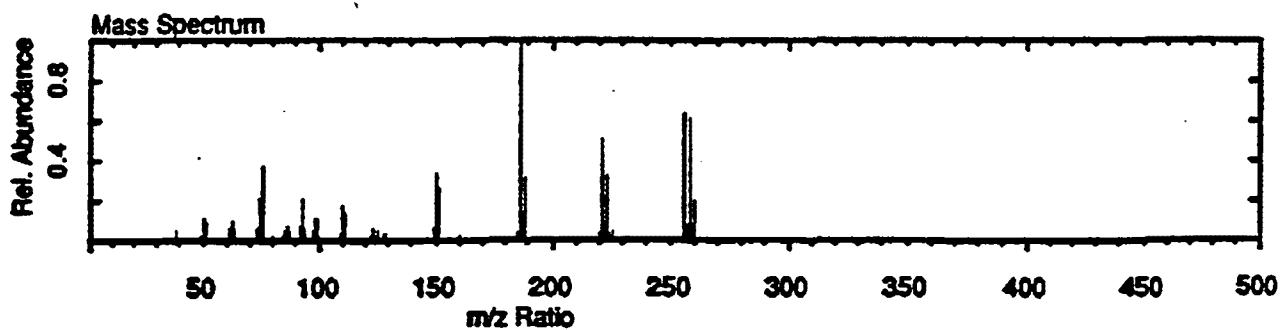


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.08	75.05	0.22	126.05	0.05	186.10	0.06	226.05	0.10
51.10	0.07	76.05	0.11	150.10	0.11	222.05	1.00		
62.05	0.05	93.10	0.11	151.10	0.18	223.05	0.13		
63.05	0.07	99.00	0.04	152.10	0.70	224.05	0.63		
74.05	0.09	111.05	0.06	153.10	0.09	225.05	0.08		

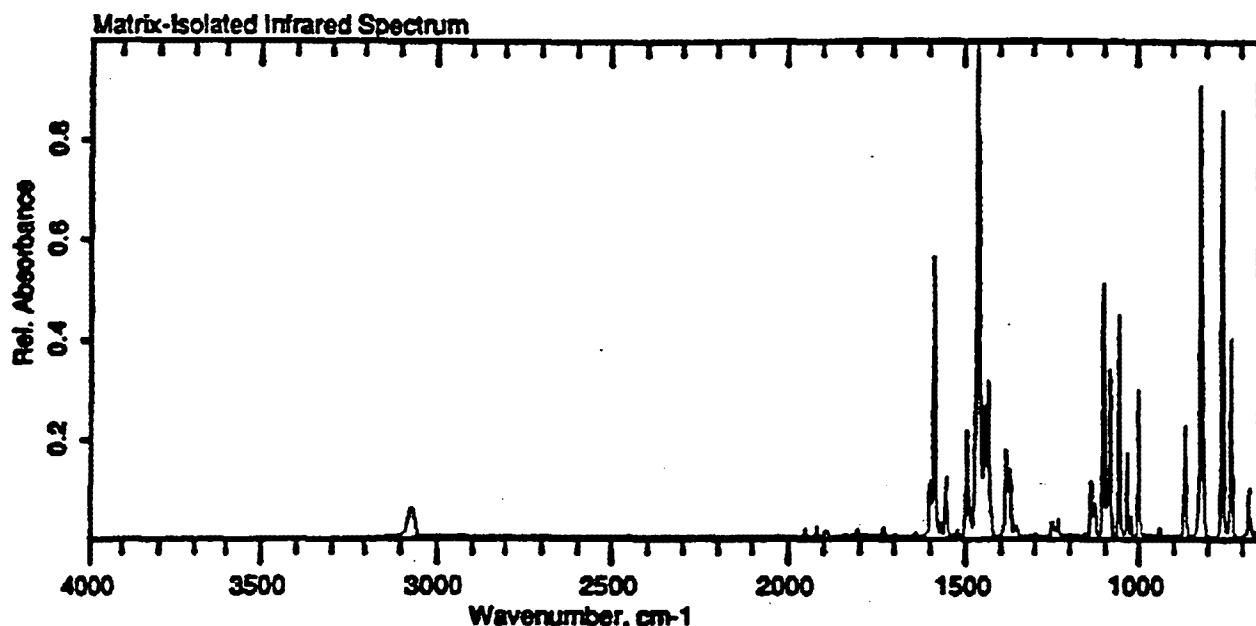
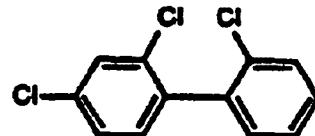
IUPAC Congener No. 16
2,2',3-TRICHLOROBIPHENYL
CAS No. 38444-78-9



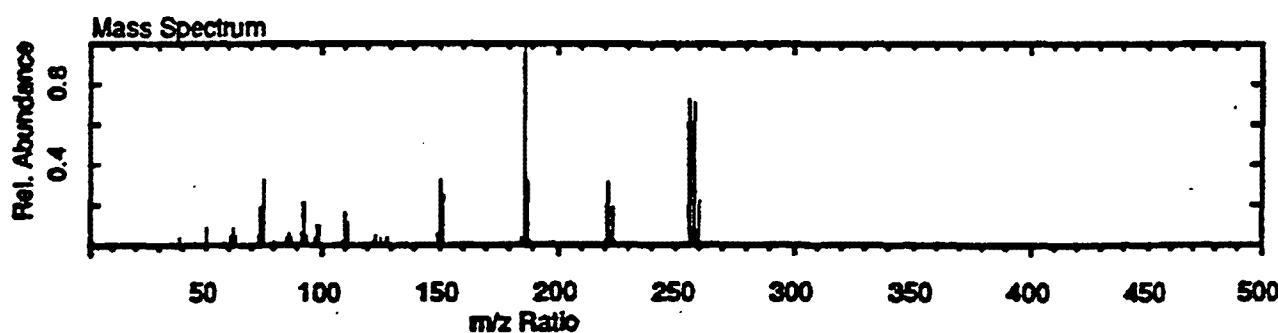
cm^{-1}	abs								
655.86	0.05	756.60	1.00	1055.39	0.35	1255.16	0.05	1566.86	0.10
661.54	0.09	787.65	0.48	1081.05	0.22	1411.82	0.85	1573.87	0.11
699.49	0.24	810.71	0.39	1123.15	0.11	1422.28	0.06	1585.74	0.08
722.93	0.32	1028.75	0.08	1135.06	0.06	1440.77	0.33	1591.56	0.19
732.18	0.20	1035.80	0.34	1156.76	0.18	1449.38	0.61	1600.46	0.08
746.76	0.17	1042.60	0.16	1196.24	0.17	1486.48	0.14		



IUPAC Congener No. 17
 2,2',4-TRICHLOROBIPHENYL
 CAS No. 37680-66-3



cm^{-1}	abs								
681.40	0.10	1007.56	0.30	1095.29	0.07	1385.08	0.18	1557.73	0.12
731.65	0.41	1028.14	0.05	1105.83	0.51	1435.65	0.32	1590.29	0.56
758.04	0.86	1040.22	0.18	1131.10	0.07	1444.62	0.27	1603.85	0.11
821.15	0.91	1062.88	0.44	1142.00	0.11	1463.88	1.00	3069.95	0.06
869.96	0.22	1088.17	0.34	1374.74	0.14	1496.43	0.22		

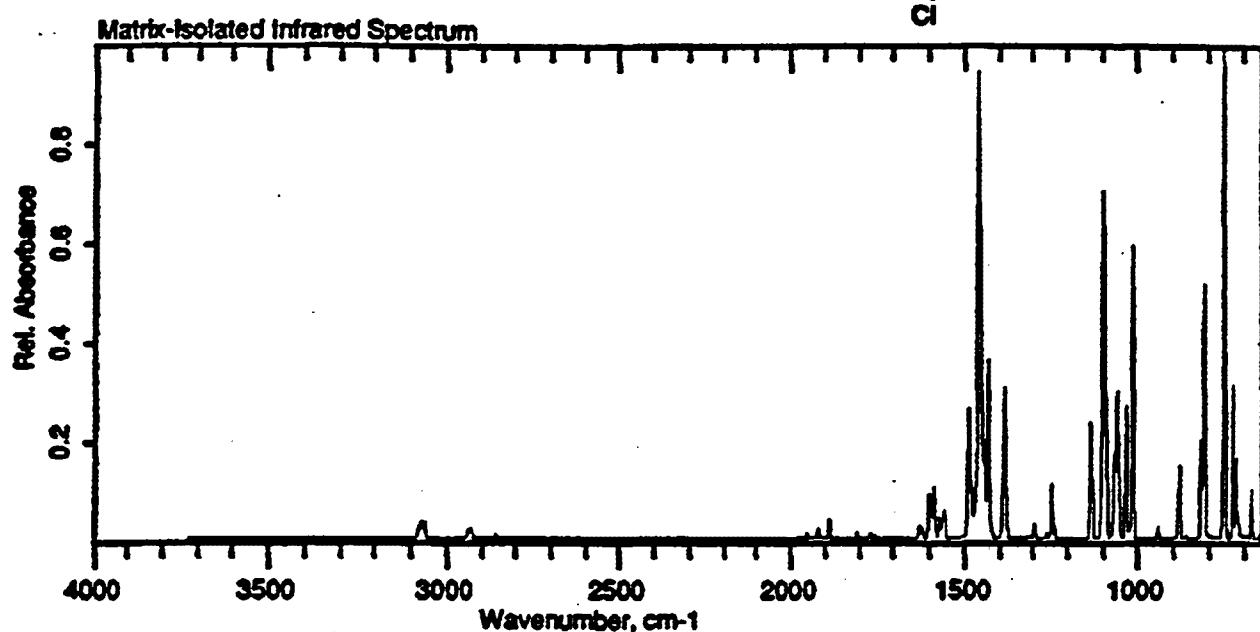
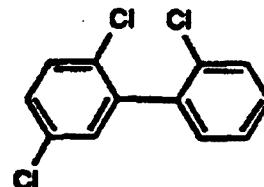


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.10	75.05	0.34	110.05	0.17	187.00	0.14	258.05	0.72
51.00	0.08	86.00	0.07	111.05	0.12	188.00	0.32	259.05	0.09
61.05	0.06	92.10	0.07	123.05	0.06	221.05	0.32	260.05	0.23
62.05	0.10	93.00	0.21	149.00	0.07	222.05	0.06		
63.05	0.08	94.00	0.06	150.00	0.33	223.05	0.20		
73.05	0.06	98.00	0.11	151.10	0.26	256.05	0.74		
74.05	0.20	99.00	0.11	186.00	1.00	257.05	0.10		

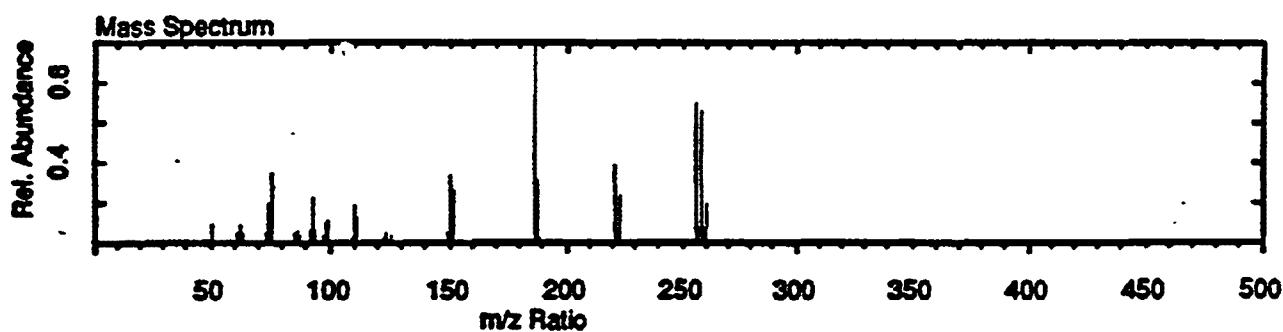
IUPAC Congener No. 18

2,2',5-TRICHLOROBIPHENYL

CAS No. 37680-65-2



cm^{-1}	abs								
680.46	0.11	826.68	0.21	1070.82	0.18	1387.01	0.31	1490.10	0.27
724.59	0.17	886.98	0.15	1100.97	0.71	1433.49	0.37	1559.78	0.06
735.49	0.33	1018.99	0.61	1131.88	0.13	1444.91	0.20	1575.08	0.05
758.90	1.00	1037.95	0.28	1137.88	0.24	1463.34	0.95	1590.43	0.11
816.47	0.53	1063.55	0.30	1248.72	0.12	1482.69	0.12		

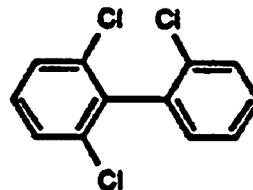


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.10	75.05	0.36	97.00	0.04	150.10	0.34	223.05	0.24
51.00	0.07	85.00	0.05	98.00	0.11	151.10	0.27	256.05	0.70
61.05	0.06	86.00	0.06	99.00	0.12	186.10	1.00	257.05	0.08
62.05	0.10	87.00	0.05	110.05	0.19	187.10	0.14	258.05	0.67
63.05	0.05	92.10	0.07	111.05	0.13	188.00	0.32	259.05	0.08
73.05	0.06	93.00	0.23	123.05	0.06	221.05	0.40	260.05	0.21
74.05	0.20	94.00	0.07	149.10	0.06	222.05	0.06		

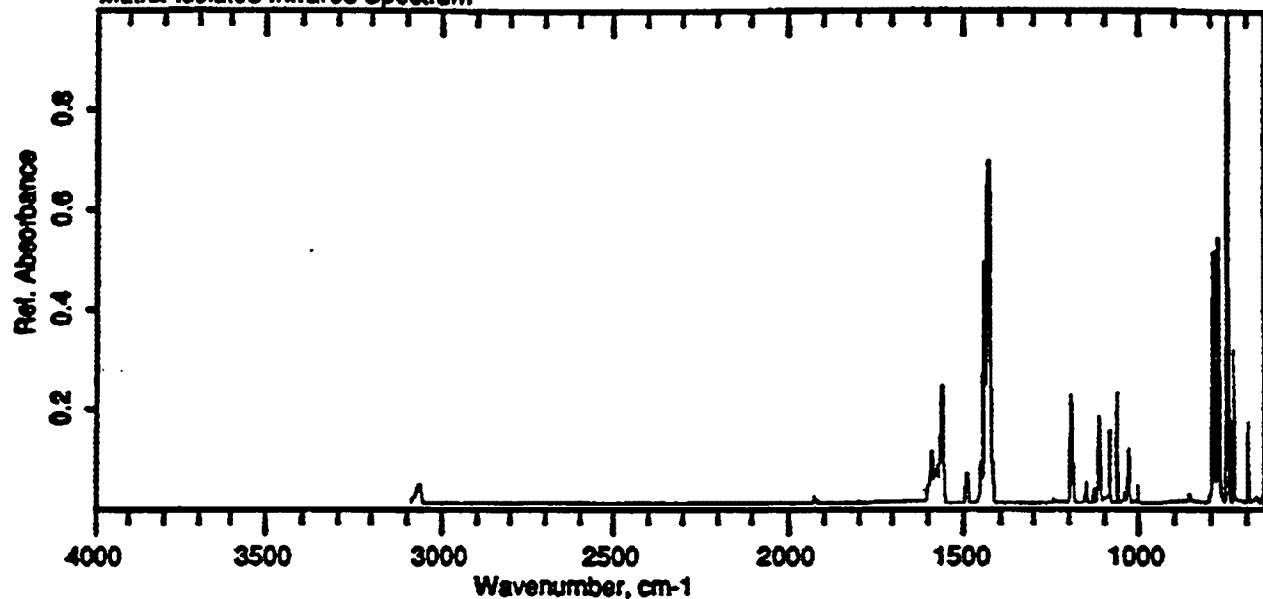
IUPAC Congener No. 19

2,2',6-TRICHLOROBIPHENYL

CAS No. 38444-73-4



Matrix-Isolated Infrared Spectrum



cm-1 abs

696.92 0.18
737.60 0.32
754.86 1.00
779.80 0.55
794.89 0.51

cm-1 abs

1007.55 0.05
1034.03 0.12
1066.82 0.23
1087.48 0.16
1116.39 0.18

cm-1 abs

1154.34 0.05
1196.75 0.23
1431.54 0.69
1443.96 0.49
1453.12 0.09

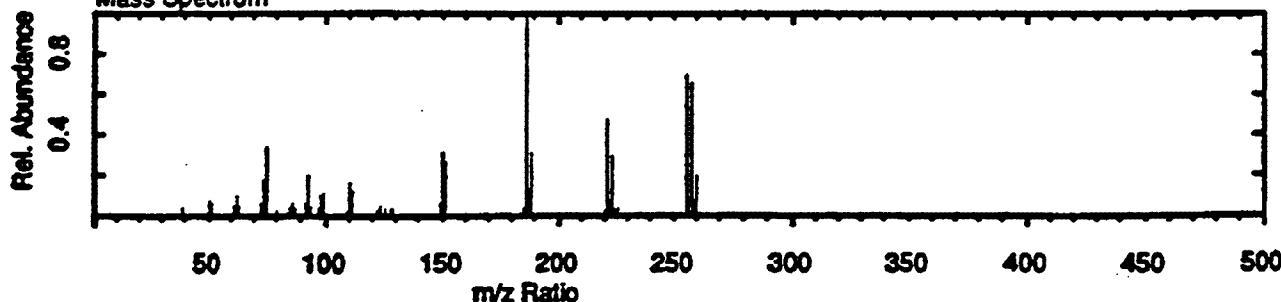
cm-1 abs

1492.83 0.07
1561.80 0.25
1575.04 0.09
1582.01 0.07
1592.30 0.11

cm-1 abs

1601.82 0.05

Mass Spectrum



m/z abun

50.00 0.09
51.10 0.07
61.15 0.06
62.05 0.10
63.05 0.06
73.05 0.06
74.05 0.19

m/z abun

75.05 0.34
86.10 0.07
92.20 0.07
93.00 0.21
93.90 0.06
98.00 0.11
99.00 0.11

m/z abun

110.05 0.17
111.05 0.13
123.05 0.06
149.10 0.06
150.10 0.32
151.10 0.26
186.10 1.00

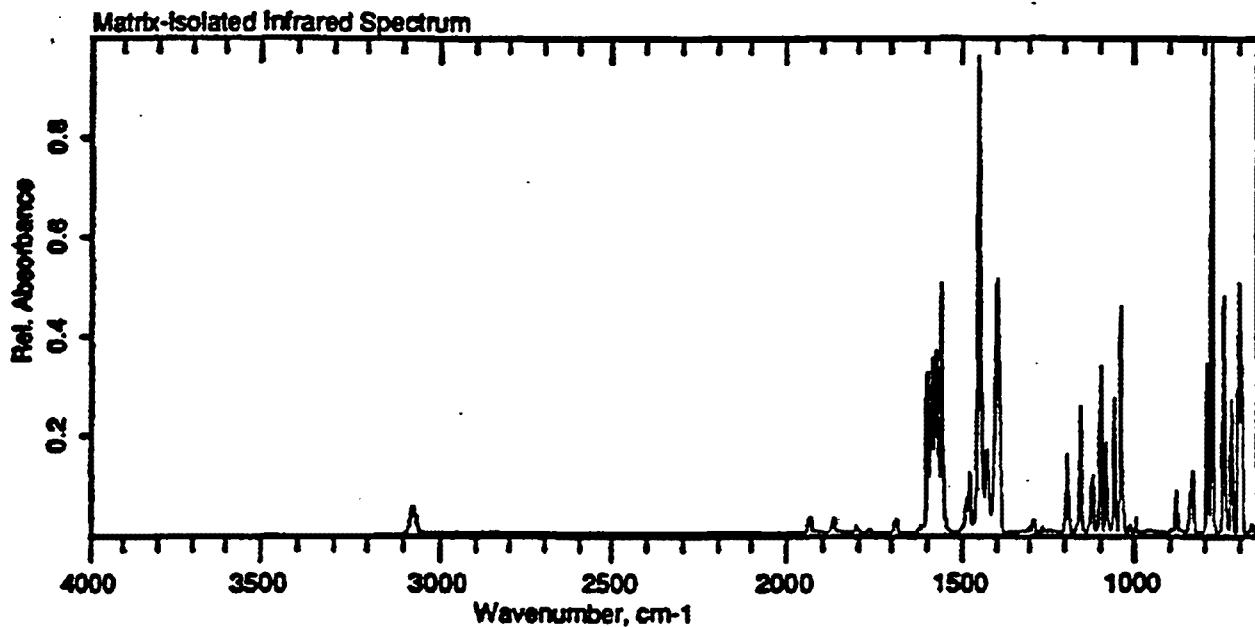
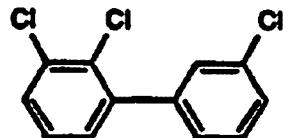
m/z abun

187.10 0.14
188.10 0.31
221.05 0.48
222.05 0.08
223.05 0.31
256.05 0.71
257.05 0.09

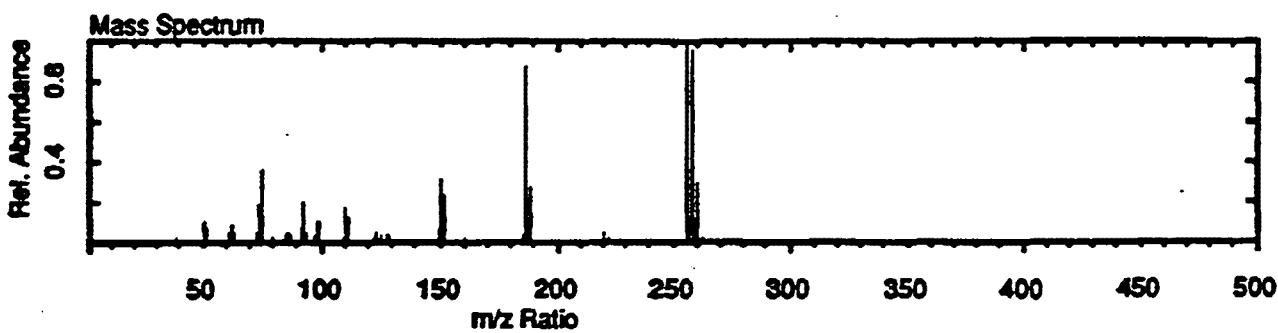
m/z abun

258.05 0.67
259.05 0.08
260.05 0.21

JUPAC Congener No. 20
2,3,3'-TRICHLOROBIPHENYL
CAS No. 38444-84-7



cm^{-1}	abs								
695.41	0.41	838.47	0.13	1124.57	0.12	1431.70	0.17	1586.69	0.35
702.01	0.51	886.72	0.09	1158.07	0.26	1451.77	0.97	1603.20	0.33
726.64	0.27	1044.30	0.46	1195.43	0.16	1481.59	0.13		
747.46	0.48	1062.57	0.28	1398.63	0.51	1490.53	0.07		
781.11	1.00	1086.25	0.19	1407.93	0.19	1561.22	0.51		
795.15	0.35	1100.70	0.34	1427.56	0.17	1577.46	0.37		

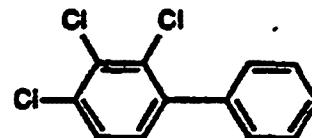


m/z	abun.	m/z	abun.	m/z	abun.	m/z	abun.	m/z	abun.
50.10	0.11	75.05	0.37	97.00	0.04	149.10	0.06	220.05	0.05
51.10	0.08	85.00	0.05	98.00	0.10	150.10	0.32	256.05	1.00
61.05	0.06	86.10	0.06	99.00	0.11	151.10	0.24	257.05	0.13
62.05	0.10	87.10	0.05	110.05	0.18	185.10	0.05	258.05	0.97
63.05	0.06	92.20	0.08	111.05	0.13	186.10	0.88	259.05	0.12
73.05	0.06	93.10	0.20	123.05	0.05	187.10	0.12	260.05	0.31
74.05	0.19	94.00	0.06	128.05	0.04	188.10	0.28		

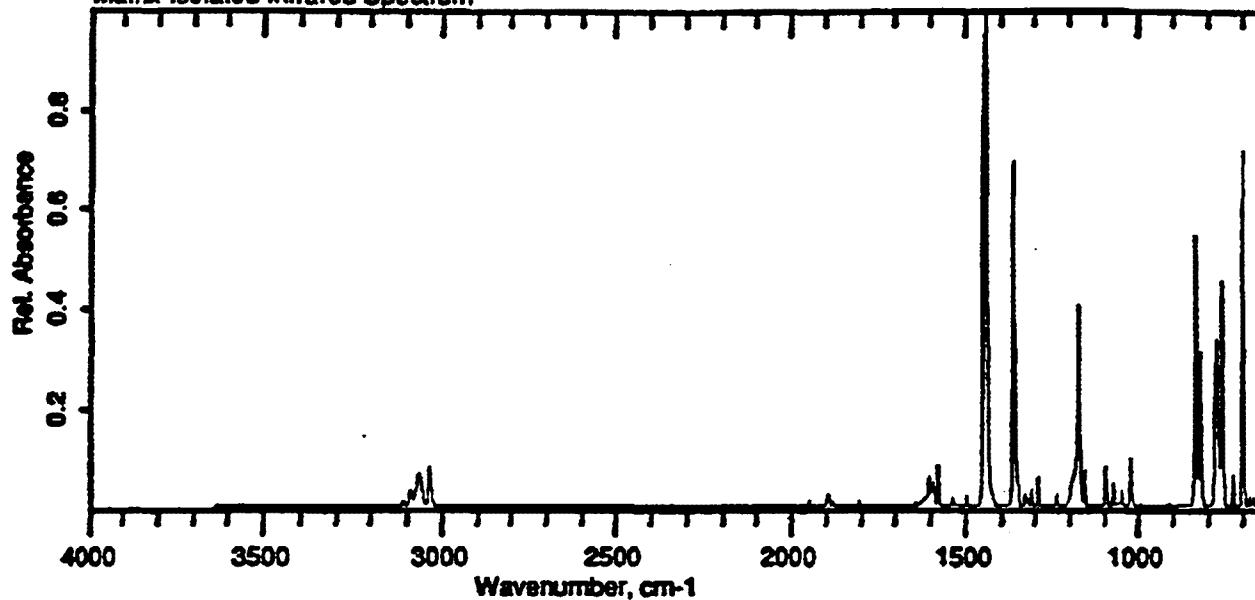
IUPAC Congener No. 21

2,3,4-TRICHLOROBIPHENYL

CAS No. 55702-46-0



Matrix-Isolated Infrared Spectrum



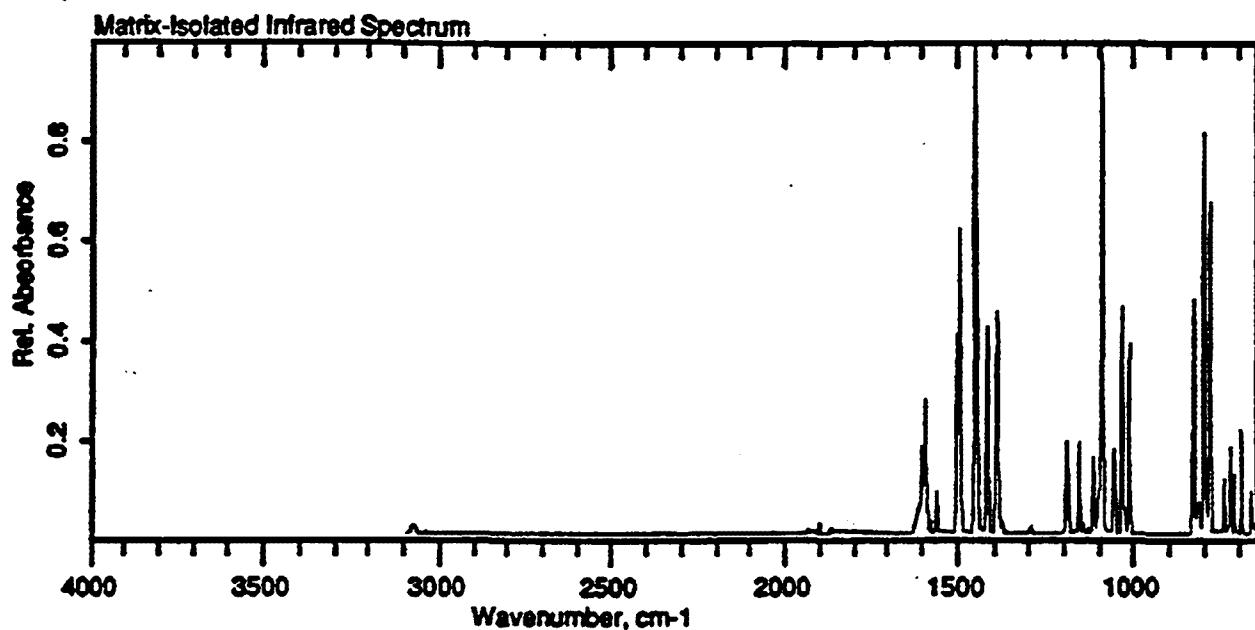
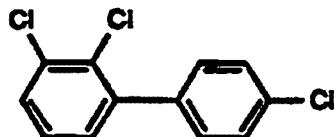
cm^{-1}	abs								
699.98	0.72	823.61	0.32	1098.49	0.09	1364.86	0.70	1596.48	0.05
730.07	0.07	837.18	0.55	1159.40	0.08	1444.52	1.00	1607.42	0.06
760.07	0.45	1026.75	0.11	1176.29	0.41	1450.05	0.81	3038.64	0.08
776.49	0.34	1076.65	0.05	1295.09	0.06	1582.03	0.09		

Mass Spectrum

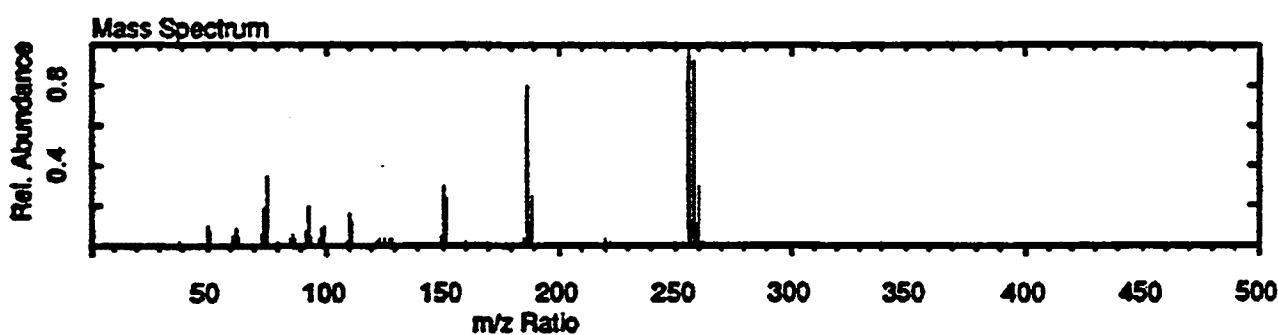


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
39.10	0.05	74.05	0.14	98.00	0.10	185.10	0.05	257.05	0.13
50.00	0.09	75.05	0.23	99.00	0.07	186.10	0.82	258.05	0.94
51.10	0.11	86.10	0.05	110.05	0.16	187.10	0.11	259.05	0.12
61.15	0.05	92.10	0.06	111.05	0.11	188.10	0.26	260.05	0.31
62.05	0.07	93.10	0.19	149.10	0.06	220.05	0.07		
63.05	0.05	94.00	0.06	150.10	0.30	222.05	0.04		
73.05	0.05	97.00	0.05	151.10	0.21	256.05	1.00		

IUPAC Congener No. 22
 2,3,4'-TRICHLOROBIPHENYL
 CAS No. 38444-85-8

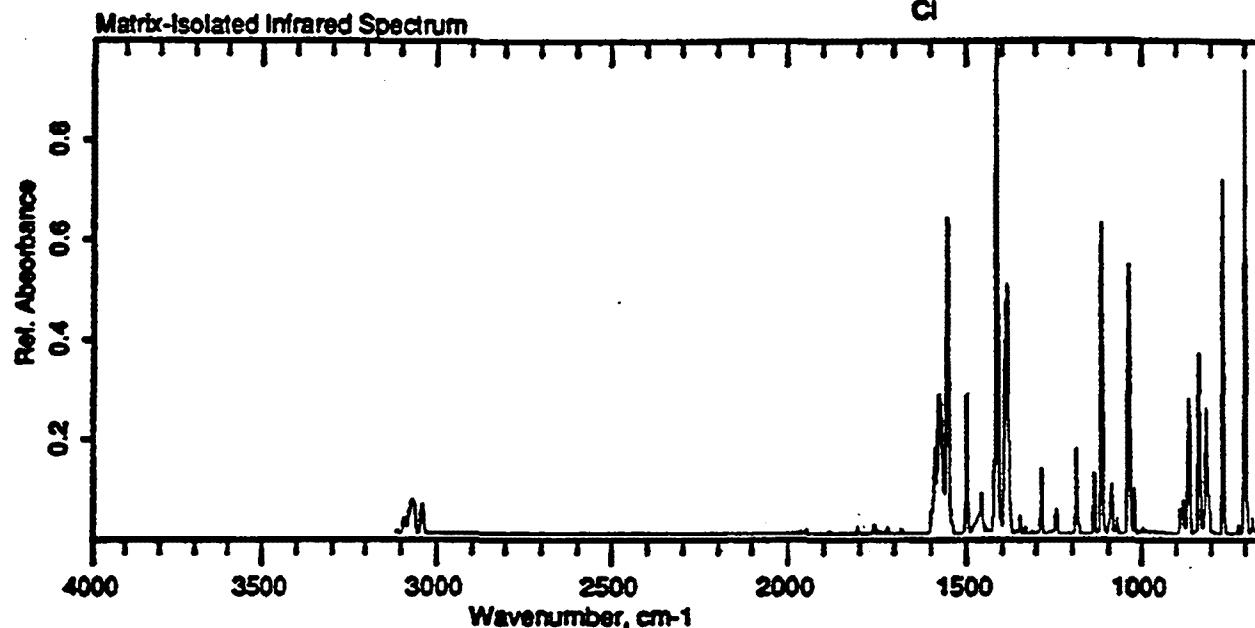
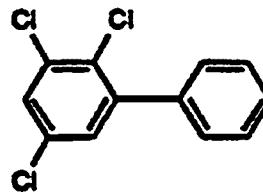


cm^{-1}	abs								
557.08	0.10	804.20	0.81	1032.94	0.06	1159.86	0.20	1501.95	0.41
894.49	0.22	818.23	0.06	1038.58	0.46	1195.47	0.20	1559.50	0.10
717.06	0.13	824.67	0.06	1059.62	0.18	1392.83	0.45	1585.92	0.06
727.15	0.19	833.71	0.49	1094.85	1.00	1419.91	0.43	1591.53	0.28
746.77	0.12	1016.77	0.40	1104.02	0.10	1452.38	0.99		
785.97	0.57	1030.36	0.06	1119.70	0.17	1494.24	0.63		

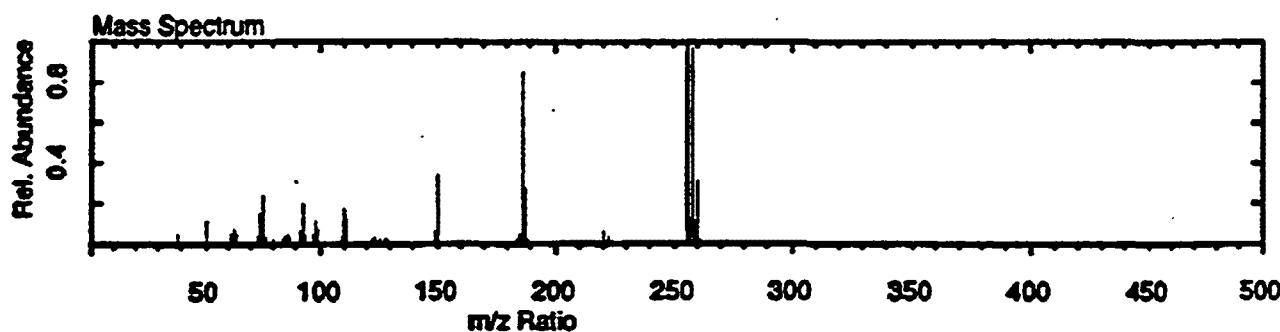


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.11	74.05	0.20	98.00	0.10	151.10	0.25	258.05	0.94
51.10	0.08	75.05	0.35	99.00	0.11	186.10	0.81	259.05	0.12
61.15	0.06	86.00	0.06	110.05	0.17	187.10	0.11	260.05	0.31
62.05	0.09	92.10	0.08	111.05	0.13	188.10	0.26		
63.05	0.06	93.10	0.20	149.10	0.06	256.05	1.00		
73.05	0.06	94.00	0.06	150.10	0.31	257.05	0.13		

IUPAC Congener No. 23
2,3,5-TRICHLOROBIPHENYL
 CAS No. 55720-44-0

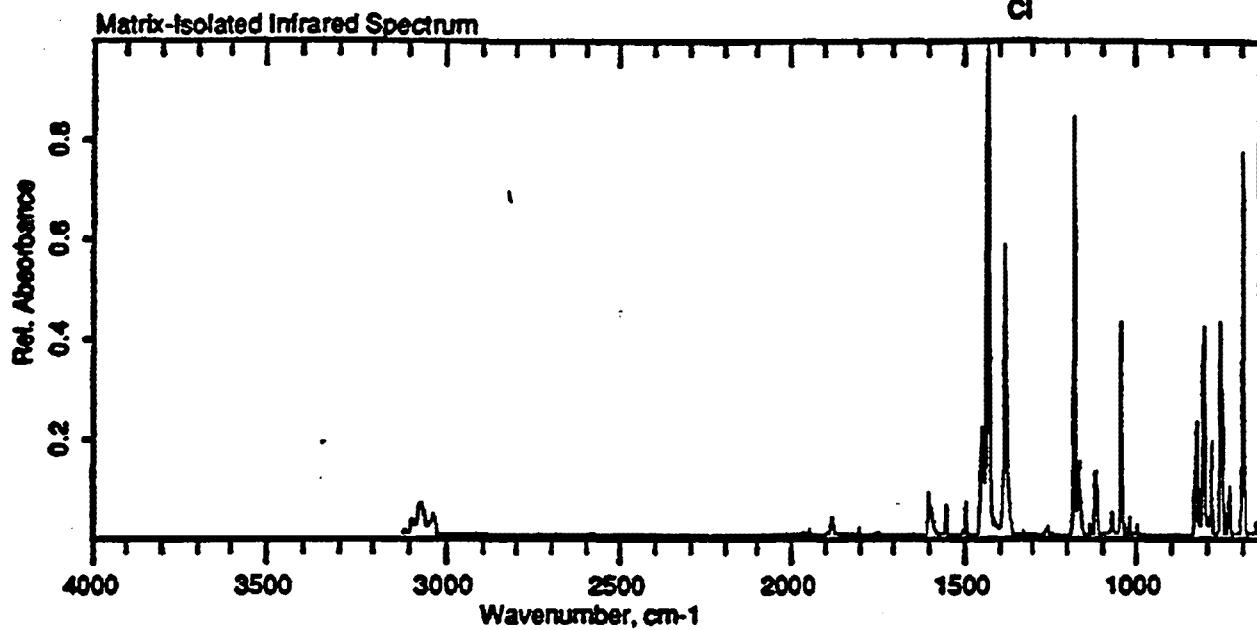
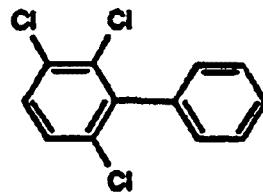


cm^{-1}	abs								
699.44	0.94	891.18	0.06	1191.40	0.18	1421.42	0.16	1601.11	0.06
766.15	0.73	1027.08	0.10	1247.16	0.06	1457.94	0.09	3042.57	0.07
815.77	0.26	1043.24	0.55	1288.64	0.14	1500.03	0.29		
836.82	0.37	1093.08	0.11	1384.91	0.50	1554.33	0.64		
865.05	0.28	1121.07	0.64	1388.79	0.47	1578.74	0.29		
883.59	0.08	1142.18	0.13	1414.08	1.00	1590.52	0.18		

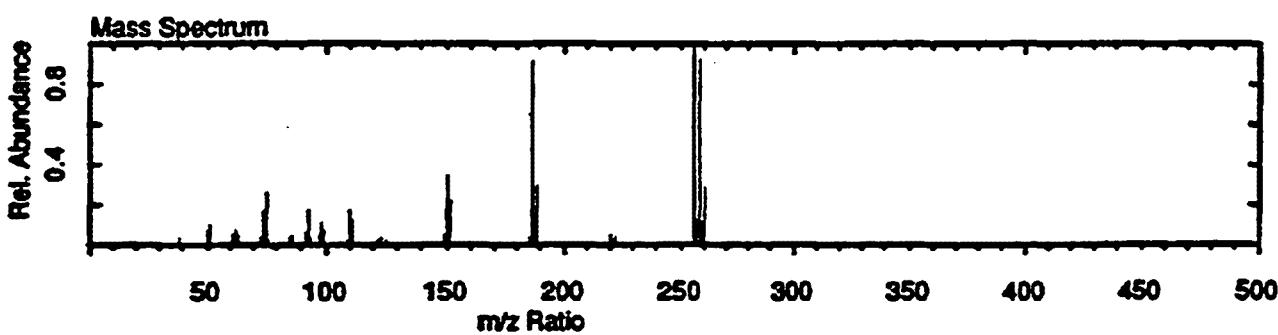


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
39.10	0.05	75.05	0.25	99.00	0.08	186.00	0.86	258.95	0.12
50.00	0.10	86.00	0.06	110.05	0.19	187.00	0.13	259.95	0.32
51.00	0.12	92.10	0.07	111.05	0.13	188.00	0.29		
61.05	0.05	93.00	0.20	149.00	0.06	219.95	0.07		
62.05	0.08	93.90	0.06	150.00	0.34	255.95	1.00		
63.05	0.06	97.00	0.05	151.00	0.22	256.95	0.13		
74.05	0.16	98.00	0.12	185.00	0.05	257.95	0.98		

IUPAC Congener No. 24
2,3,6-TRICHLOROBIPHENYL
 CAS No. 58702-45-9

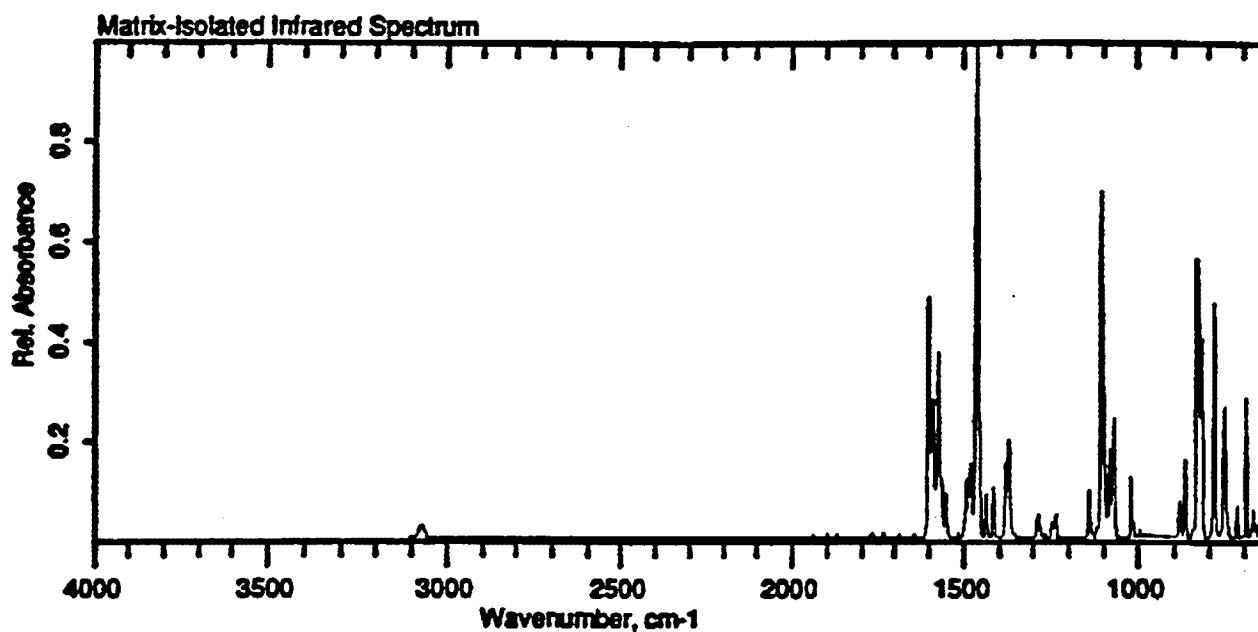
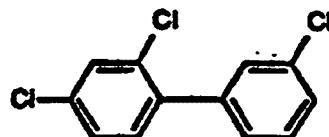


cm^{-1}	abs								
698.49	0.77	812.05	0.42	1121.08	0.14	1433.88	1.00	1599.31	0.06
737.55	0.11	831.72	0.24	1167.56	0.16	1451.77	0.22	1604.39	0.09
763.53	0.43	1048.53	0.43	1181.23	0.84	1499.04	0.08	3039.46	0.05
790.09	0.19	1075.77	0.05	1385.90	0.58	1555.21	0.07		

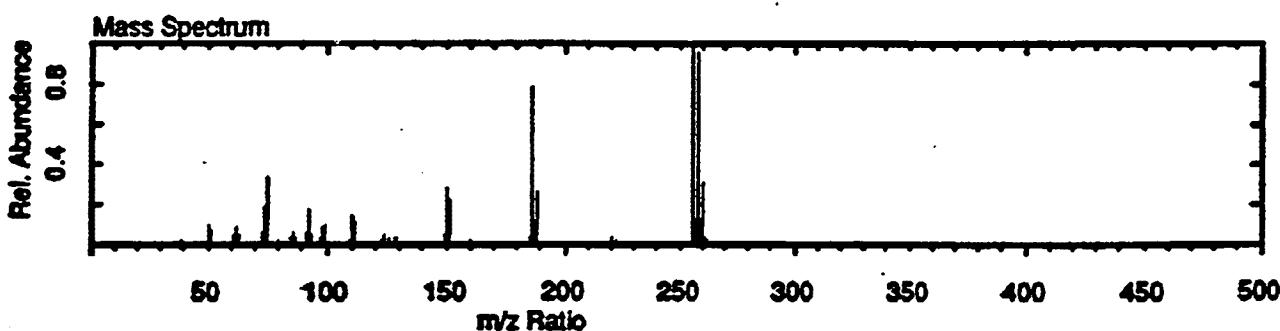


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
39.10	0.05	74.05	0.17	97.00	0.06	150.10	0.35	256.05	1.00
50.10	0.09	75.05	0.27	98.00	0.12	151.10	0.23	257.05	0.13
51.10	0.11	85.00	0.04	99.00	0.08	185.10	0.05	258.05	0.94
61.05	0.05	86.00	0.06	110.05	0.19	186.10	0.91	259.05	0.11
62.05	0.08	92.10	0.07	111.05	0.13	187.10	0.12	260.05	0.30
63.05	0.05	93.00	0.18	123.05	0.04	188.10	0.31		
73.05	0.05	94.00	0.05	149.10	0.06	220.05	0.06		

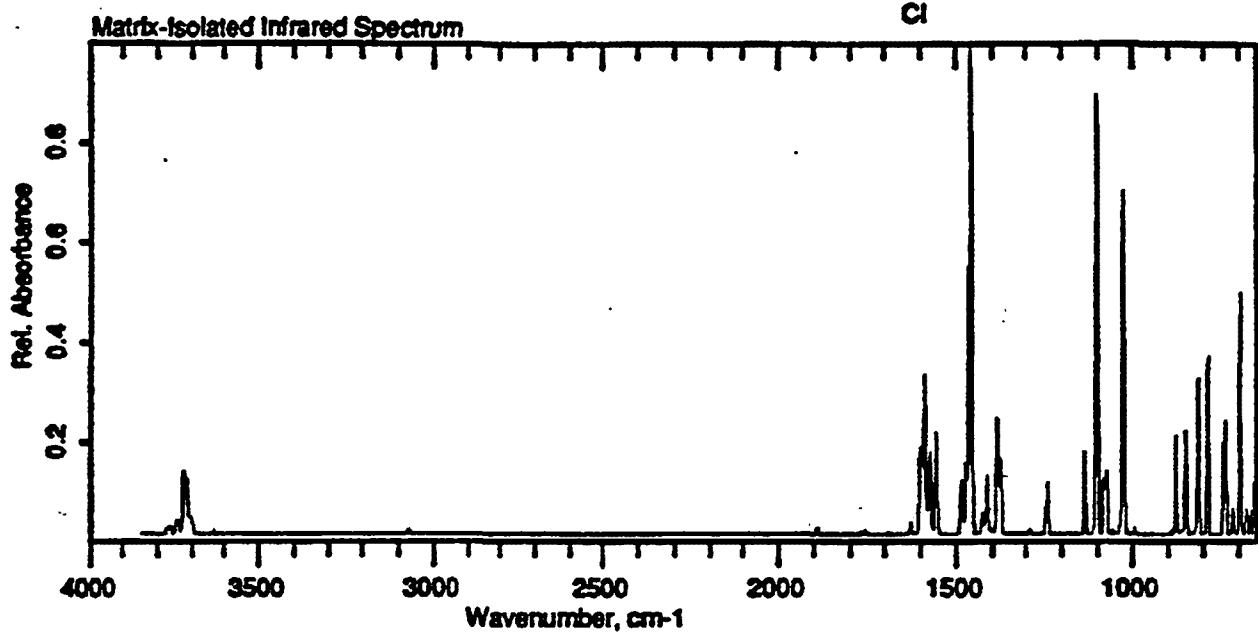
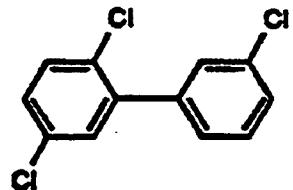
IUPAC Congener No. 25
 2,3',4-TRICHLOROBIPHENYL
 CAS No. 55712-37-3



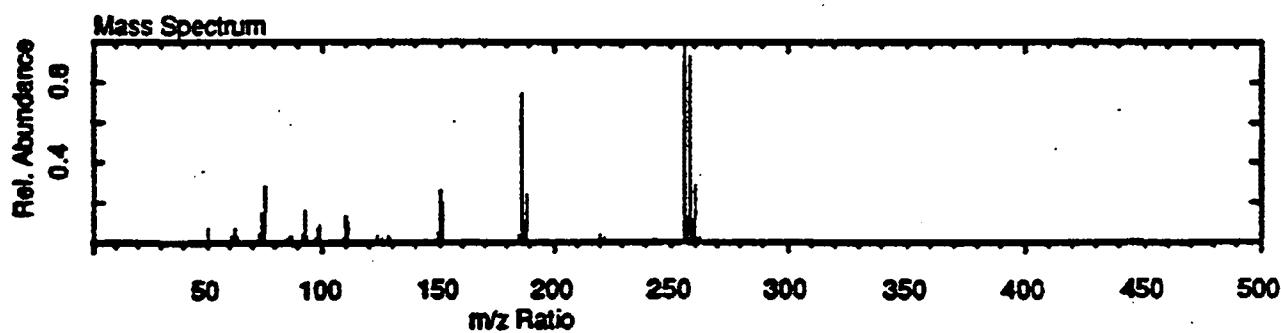
cm^{-1}	abs								
657.44	0.05	823.89	0.41	1085.59	0.18	1381.36	0.15	1554.25	0.09
675.30	0.06	838.89	0.56	1109.19	0.69	1417.09	0.11	1567.63	0.12
695.68	0.29	871.73	0.16	1144.52	0.10	1438.30	0.09	1575.84	0.38
722.58	0.07	888.64	0.08	1240.60	0.05	1463.33	1.00	1591.60	0.28
757.99	0.27	1025.81	0.13	1288.62	0.05	1482.94	0.15		
787.59	0.48	1073.99	0.25	1373.43	0.20	1491.86	0.12		



IUPAC Congener No. 26
 2,3',5-TRICHLOROBIPHENYL
 CAS No. 38444-81-4

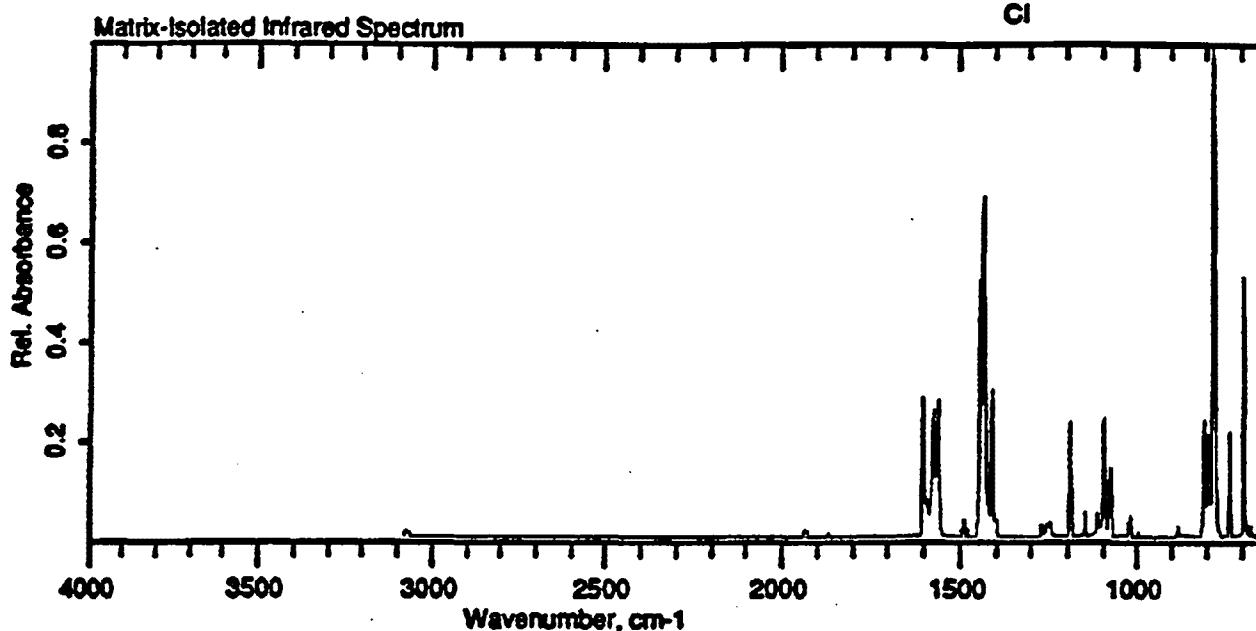
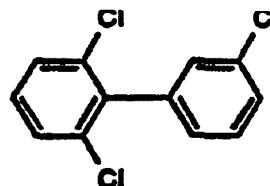


cm^{-1}	abs								
655.92	0.12	744.66	0.20	1086.46	0.13	1427.44	0.05	1590.28	0.32
665.90	0.06	789.48	0.37	1103.75	0.89	1458.74	1.00	1598.77	0.18
675.98	0.06	817.24	0.33	1137.66	0.18	1464.78	0.54	1603.05	0.19
680.45	0.06	853.40	0.22	1241.68	0.12	1473.23	0.16	3719.71	0.12
696.55	0.49	882.49	0.21	1375.48	0.16	1485.98	0.12		
718.44	0.06	1032.20	0.69	1385.09	0.24	1558.62	0.21		
739.24	0.24	1077.03	0.14	1414.34	0.13	1575.29	0.18		



m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.09	75.05	0.29	110.05	0.14	186.10	0.75	259.05	0.12
51.00	0.06	86.10	0.05	111.05	0.10	187.10	0.11	260.05	0.30
61.05	0.05	92.10	0.06	123.05	0.04	188.10	0.24		
62.05	0.08	93.10	0.17	149.10	0.05	220.05	0.04		
63.05	0.05	94.00	0.05	150.10	0.27	256.05	1.00		
73.05	0.05	98.00	0.08	151.10	0.21	257.05	0.13		
74.05	0.16	99.00	0.09	185.10	0.04	258.05	0.95		

IUPAC Congener No. 27
 2,3',6-TRICHLOROBIPHENYL
 CAS No. 38444-76-7

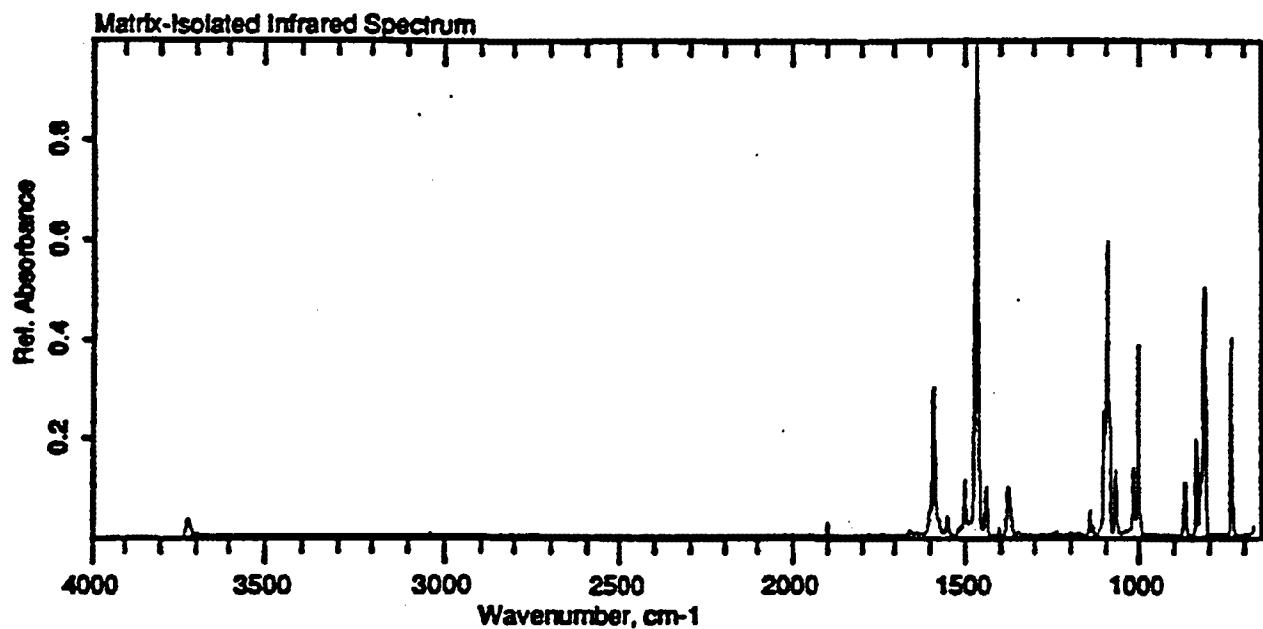
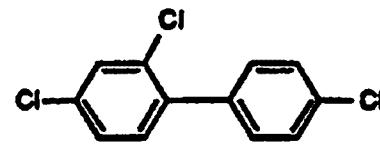


cm^{-1}	abs								
695.31	0.53	808.28	0.24	1118.87	0.05	1434.23	0.69	1591.56	0.08
736.25	0.23	1023.30	0.05	1153.93	0.06	1444.33	0.53	1594.37	0.08
782.99	1.00	1079.57	0.15	1194.82	0.24	1561.58	0.28		
797.21	0.22	1098.67	0.25	1412.29	0.31	1575.73	0.26		

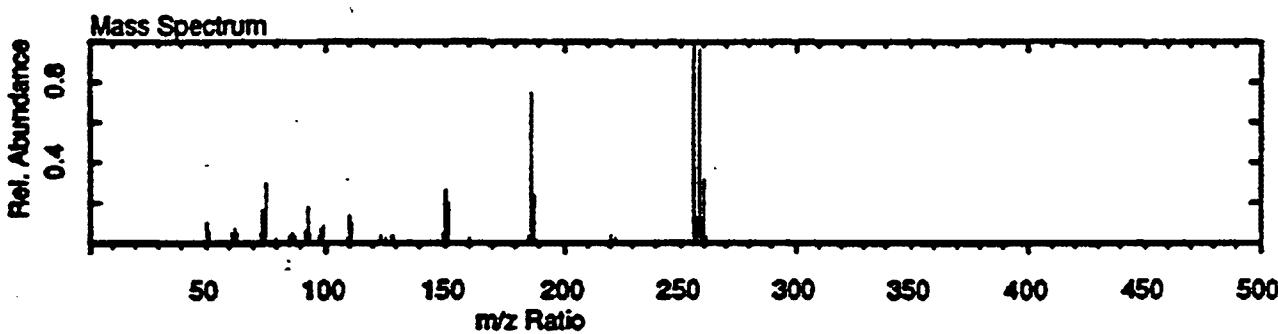


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.11	74.05	0.20	98.00	0.11	150.10	0.33	257.05	0.13
51.10	0.08	75.05	0.37	99.00	0.12	151.10	0.25	258.05	0.97
61.15	0.06	86.10	0.07	110.05	0.19	186.10	0.92	259.05	0.12
62.05	0.10	87.10	0.05	111.05	0.14	187.10	0.13	260.05	0.31
63.05	0.06	92.10	0.08	123.05	0.06	188.10	0.29		
73.05	0.07	93.10	0.18	149.10	0.07	258.05	1.00		

IUPAC Congener No. 28
 2,4,4'-TRICHLOROBIPHENYL
 CAS No. 7012-37-5

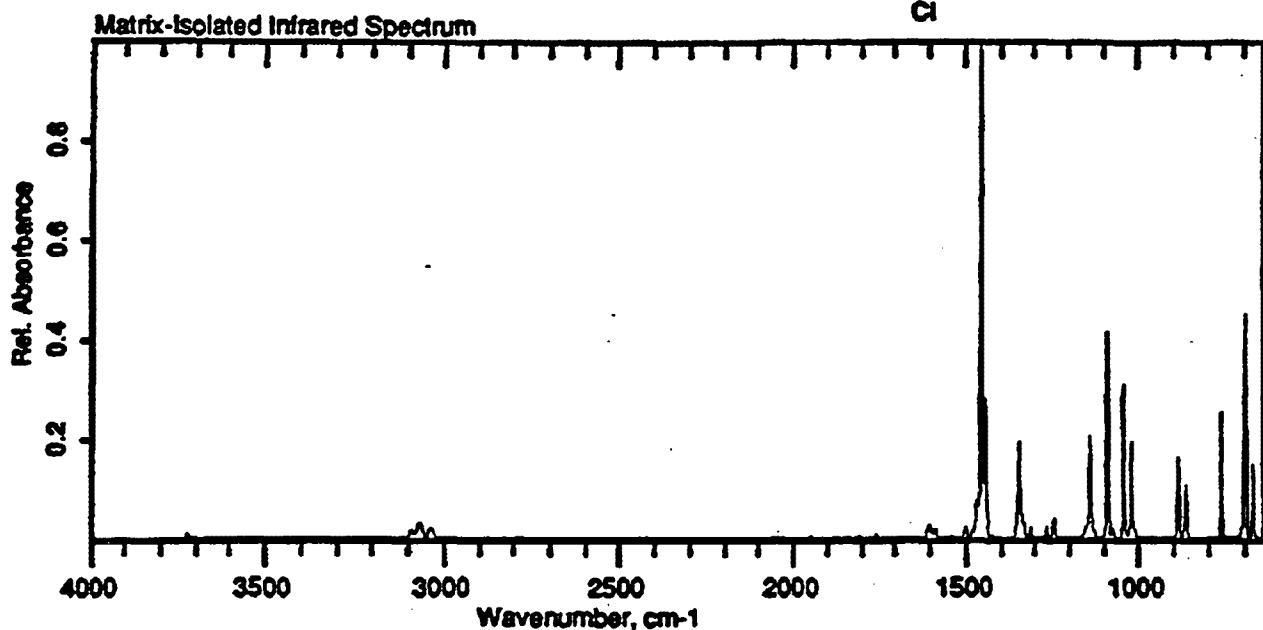
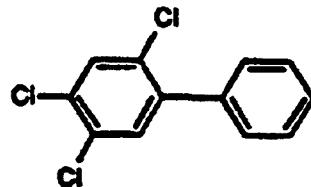


cm^{-1}	abs								
732.39	0.06	838.53	0.20	1073.90	0.13	1147.78	0.05	1503.53	0.11
738.55	0.40	872.27	0.11	1092.47	0.27	1378.60	0.10		
816.46	0.50	1006.72	0.38	1098.71	0.59	1441.27	0.10		
825.92	0.13	1022.18	0.14	1108.00	0.25	1469.08	1.00		

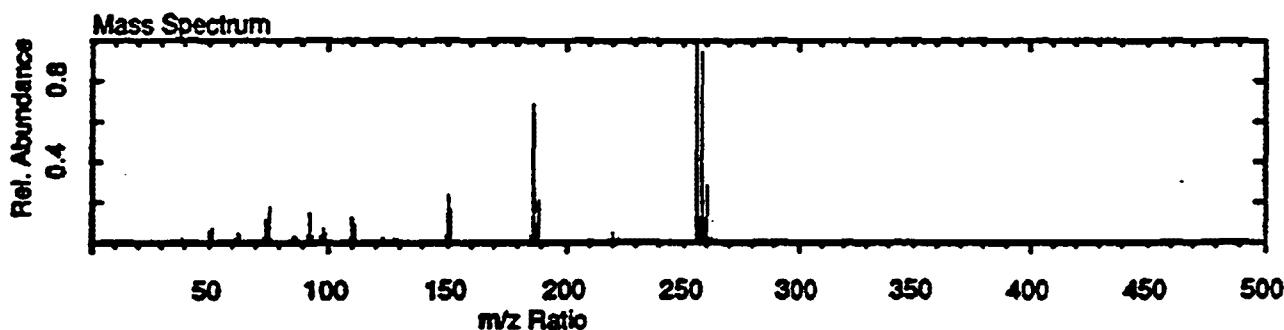


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.10	74.05	0.17	98.00	0.09	151.10	0.21	258.05	0.97
51.10	0.07	75.05	0.30	99.00	0.10	186.10	0.75	259.05	0.13
61.05	0.05	86.00	0.06	110.05	0.15	187.10	0.11	260.05	0.32
62.05	0.09	92.10	0.07	111.05	0.11	188.00	0.25		
63.05	0.05	93.00	0.18	149.00	0.06	256.05	1.00		
73.05	0.06	94.00	0.05	150.00	0.27	257.05	0.13		

IUPAC Congener No. 29
 2,4,5-TRICHLOROBIPHENYL
 CAS No. 15862-07-4

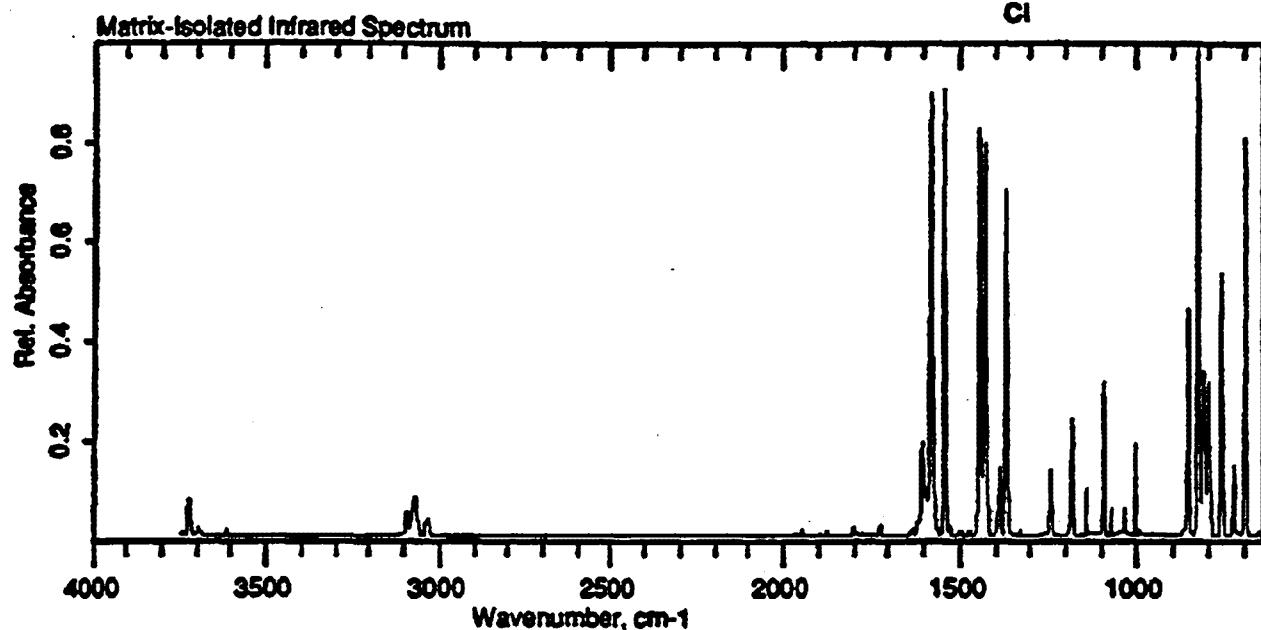
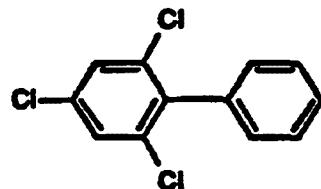


cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
679.23	0.15	869.09	0.11	1048.49	0.31	1349.26	0.19		
699.81	0.46	891.83	0.17	1092.65	0.41	1447.13	0.29		
767.20	0.26	1025.60	0.20	1142.85	0.20	1458.23	1.00		

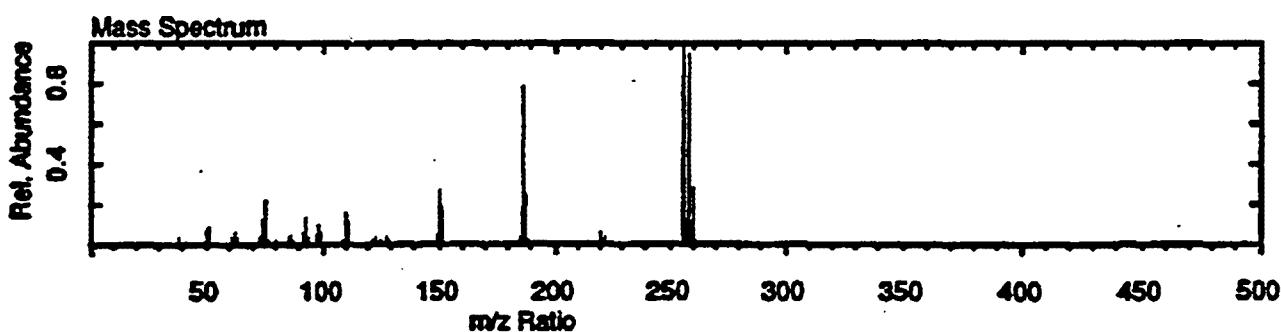


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.07	86.00	0.04	99.00	0.05	185.00	0.04	257.05	0.13
51.10	0.09	92.10	0.05	110.05	0.13	186.10	0.70	258.05	0.95
62.05	0.06	93.10	0.16	111.05	0.09	187.10	0.10	259.05	0.12
63.05	0.04	94.00	0.05	149.10	0.05	188.10	0.22	260.05	0.30
74.05	0.11	97.00	0.04	150.10	0.25	220.05	0.06		
75.05	0.18	98.00	0.08	151.10	0.17	258.05	1.00		

IUPAC Congener No. 30
2,4,6-TRICHLOROBIPHENYL
CAS No. 35693-92-6

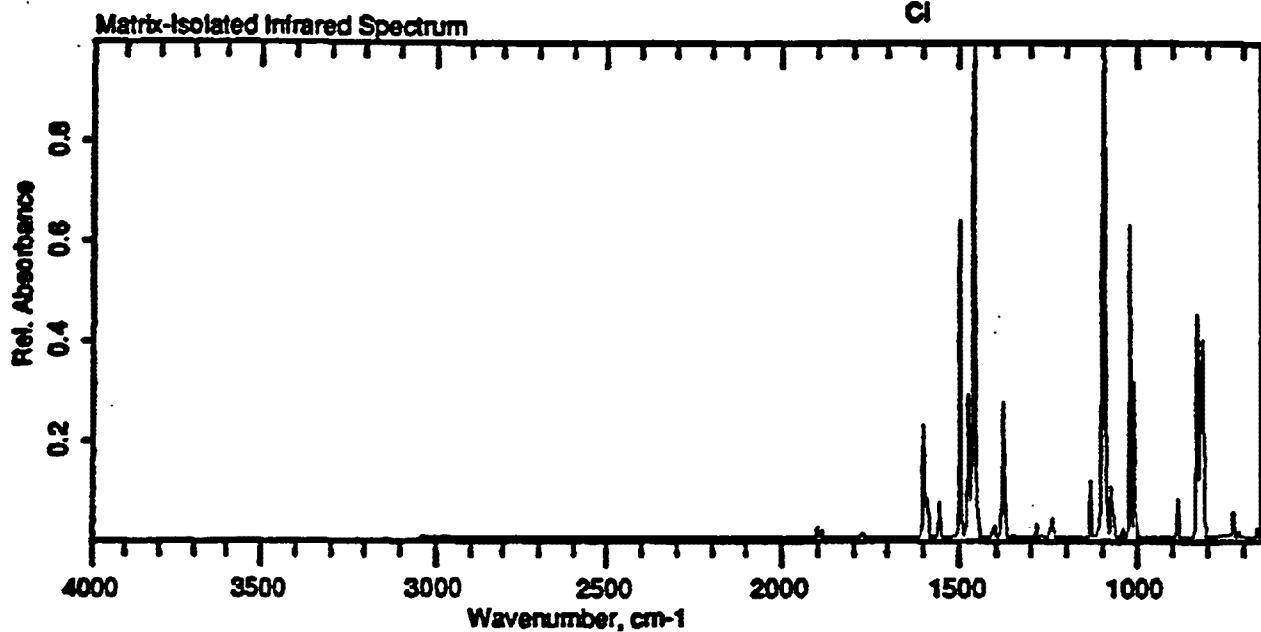
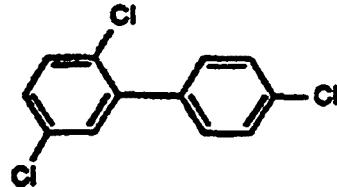


cm^{-1}	abs								
698.24	0.80	833.11	1.00	1095.80	0.32	1389.68	0.15	1597.86	0.10
730.36	0.15	860.07	0.46	1144.63	0.11	1429.78	0.80	1606.81	0.20
766.16	0.54	1008.39	0.20	1184.77	0.25	1446.49	0.82	3071.32	0.09
802.78	0.32	1038.48	0.07	1245.36	0.14	1544.74	0.91	3093.40	0.06
817.48	0.34	1075.38	0.07	1371.08	0.70	1581.21	0.90		

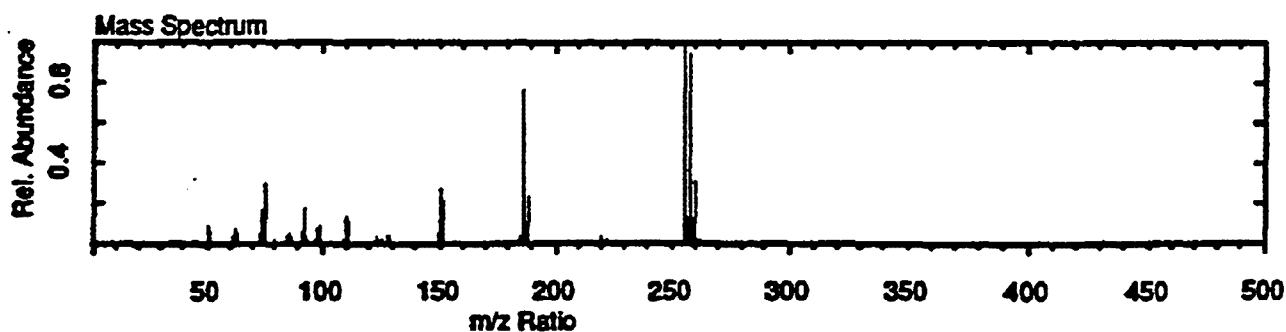


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
39.10	0.04	74.05	0.14	99.00	0.07	185.00	0.05	257.05	0.13
50.00	0.08	75.05	0.23	110.05	0.17	186.10	0.79	258.05	0.96
51.10	0.10	86.00	0.05	111.05	0.12	187.00	0.12	259.05	0.12
61.05	0.05	92.10	0.07	123.05	0.04	188.00	0.25	260.05	0.30
62.05	0.07	93.00	0.14	149.00	0.06	219.95	0.07		
63.05	0.04	97.00	0.05	150.10	0.28	221.95	0.04		
73.05	0.04	98.00	0.10	151.10	0.19	256.05	1.00		

IUPAC Congener No. 31
 2,4',5-TRICHLOROBIPHENYL
 CAS No. 16606-02-3

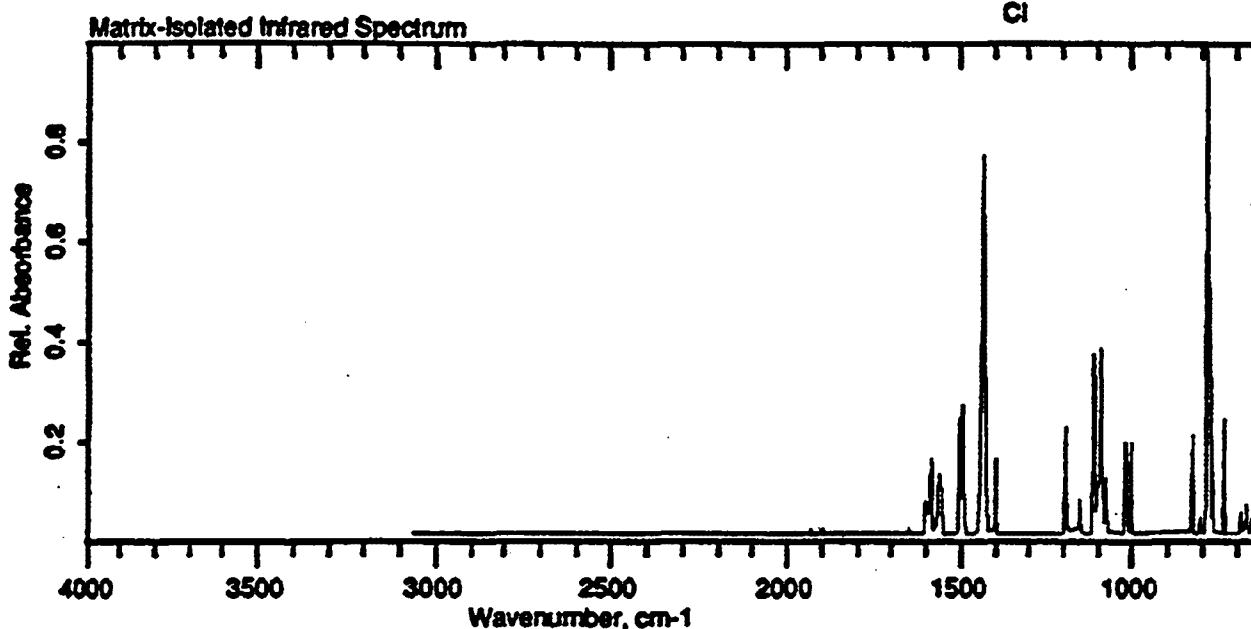
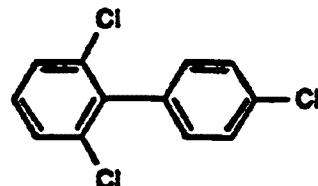


cm^{-1}	abs								
727.15	0.05	833.05	0.45	1078.08	0.11	1460.58	1.00	1591.64	0.08
732.28	0.06	889.45	0.08	1098.17	0.96	1477.36	0.29		
816.52	0.40	1015.46	0.31	1136.18	0.12	1499.59	0.63		
824.08	0.27	1027.04	0.82	1379.88	0.27	1557.42	0.08		

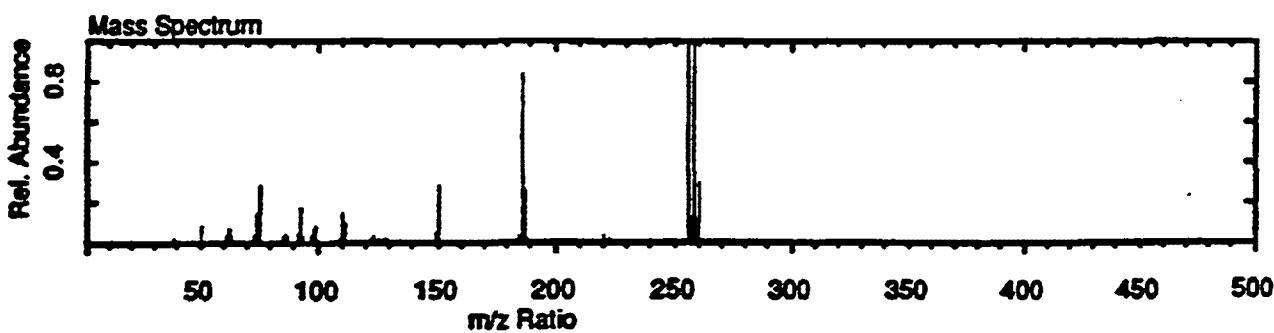


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.10	75.05	0.31	98.00	0.09	149.10	0.06	220.05	0.05
51.10	0.07	85.00	0.04	99.00	0.10	150.10	0.28	256.05	1.00
61.15	0.05	86.00	0.05	110.05	0.15	151.10	0.22	257.05	0.13
62.05	0.08	87.10	0.04	111.05	0.11	185.10	0.04	258.05	0.96
63.05	0.05	92.10	0.07	123.05	0.04	186.10	0.77	259.05	0.13
73.05	0.06	93.00	0.18	128.05	0.04	187.10	0.11	260.05	0.32
74.05	0.17	94.00	0.05	128.95	0.04	188.10	0.25		

IUPAC Congener No. 32
 2,4',6-TRICHLOROBIPHENYL
 CAS No. 38444-77-8

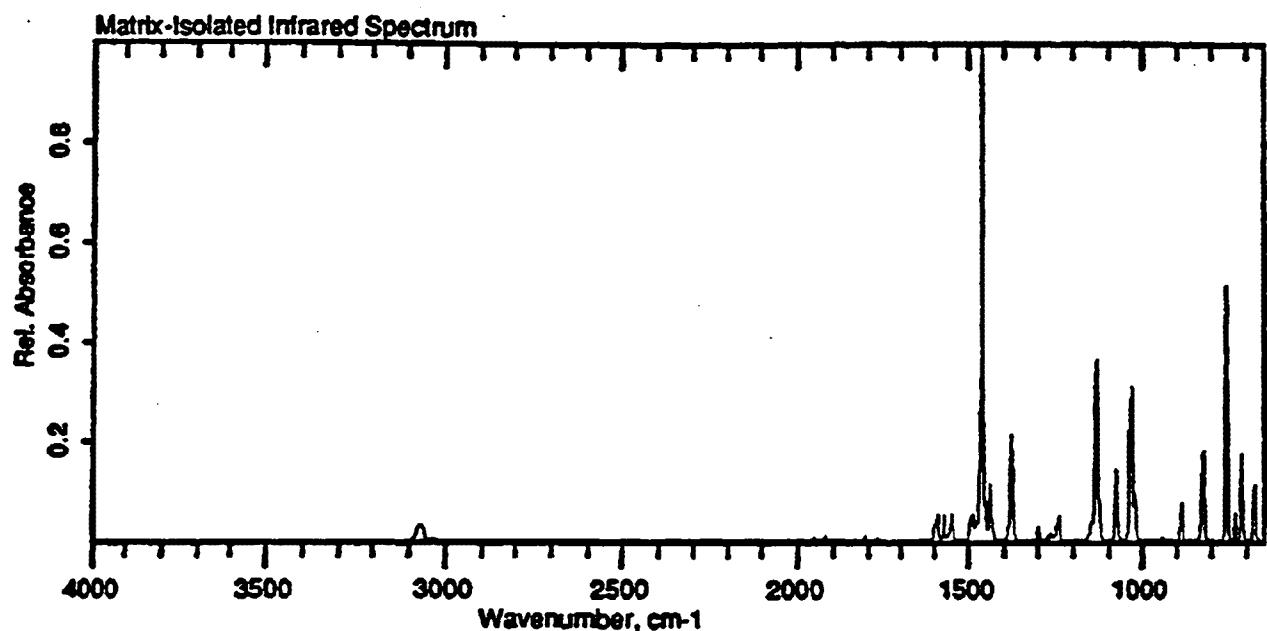
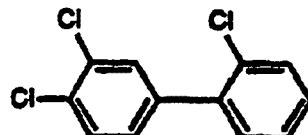


cm^{-1}	abs								
658.09	0.05	780.19	0.51	1079.41	0.13	1195.02	0.22	1504.90	0.25
671.40	0.07	787.66	1.00	1094.32	0.39	1399.64	0.17	1563.61	0.13
688.81	0.06	830.94	0.21	1102.46	0.11	1433.66	0.77	1586.26	0.16
738.82	0.25	1005.72	0.19	1114.49	0.37	1440.07	0.41		
772.07	0.15	1022.92	0.20	1154.22	0.08	1496.38	0.27		

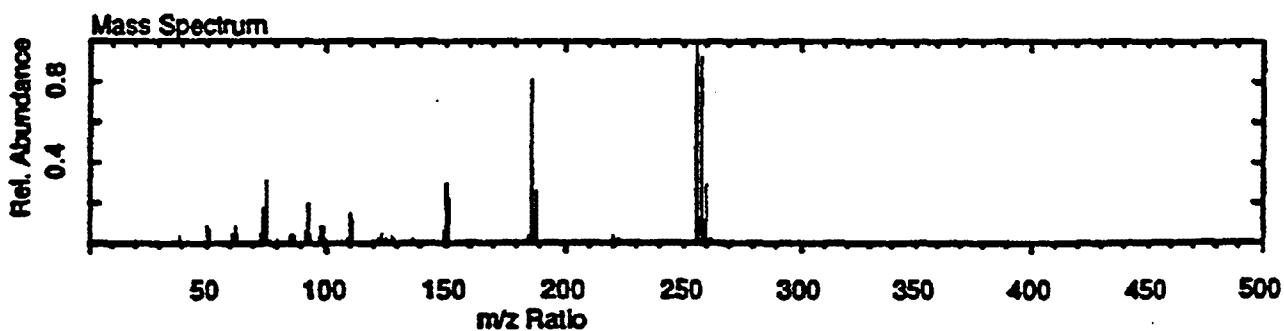


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.09	75.05	0.30	110.05	0.15	186.00	0.84	258.95	0.12
51.00	0.06	86.00	0.05	111.05	0.11	187.00	0.12	259.95	0.31
61.05	0.05	92.20	0.06	123.05	0.05	188.00	0.27		
62.05	0.08	93.00	0.18	149.00	0.06	219.95	0.05		
63.05	0.05	94.00	0.05	150.00	0.30	256.05	1.00		
73.05	0.05	98.00	0.08	151.00	0.22	257.05	0.13		
74.05	0.16	99.00	0.09	185.00	0.05	257.95	0.99		

IUPAC Congener No. 33
2',3,4-TRICHLOROBIPHENYL
 CAS No. 38444-86-9

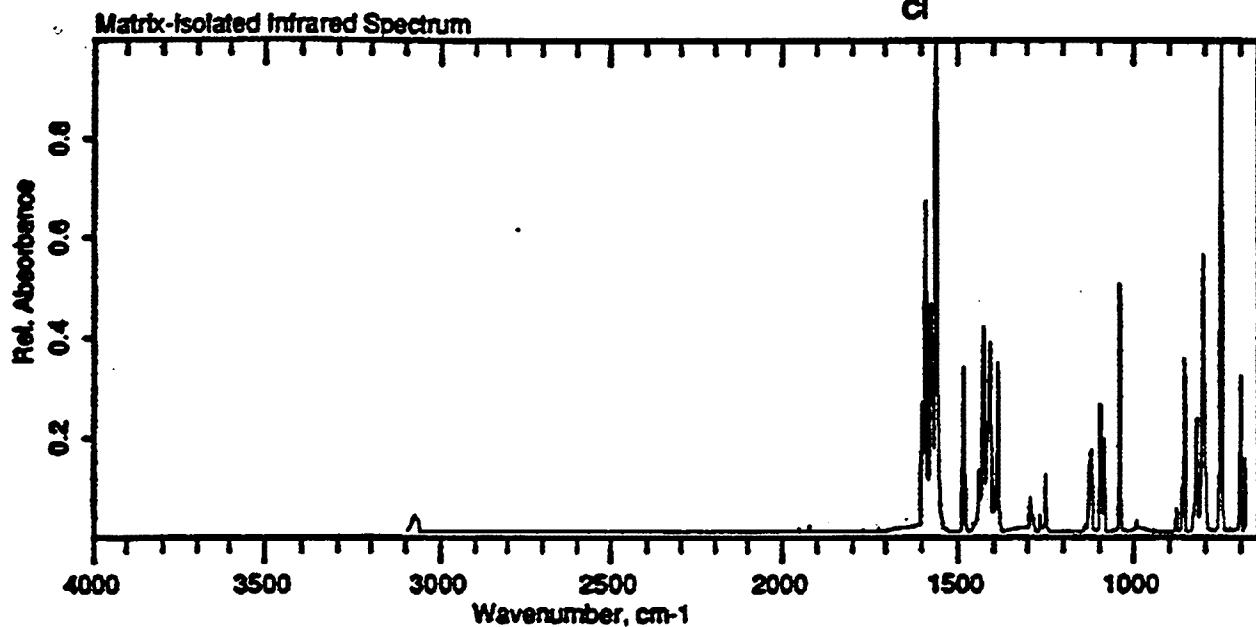
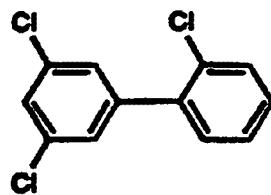


cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
876.74	0.11	824.76	0.18	1080.69	0.14	1461.93	1.00		
680.15	0.10	889.70	0.08	1136.40	0.36	1489.09	0.05		
715.48	0.17	1027.40	0.10	1244.28	0.05	1495.88	0.05		
735.03	0.06	1035.85	0.31	1378.80	0.21	1550.96	0.05		
758.45	0.52	1041.30	0.22	1440.47	0.12	1574.20	0.05		

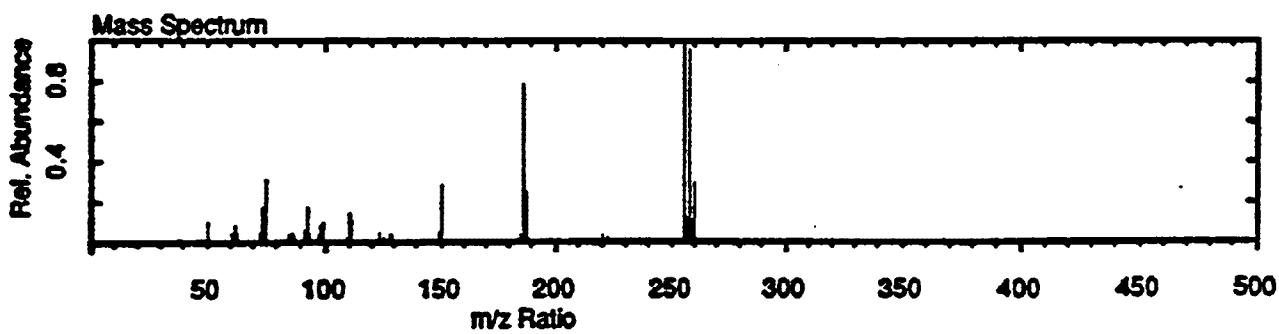


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.10	75.05	0.32	97.00	0.05	149.10	0.06	220.05	0.05
51.10	0.08	85.00	0.05	98.00	0.09	150.10	0.30	258.05	1.00
61.05	0.06	86.10	0.06	99.00	0.10	151.10	0.23	257.05	0.13
62.05	0.09	87.10	0.04	110.05	0.16	185.10	0.05	258.05	0.93
63.05	0.05	92.10	0.07	111.05	0.12	186.10	0.81	259.05	0.12
73.05	0.05	93.10	0.20	123.05	0.05	187.10	0.12	260.05	0.31
74.05	0.18	94.00	0.06	128.05	0.04	188.10	0.26		

IUPAC Congener No. 34
 2',3,5-TRICHLOROBIPHENYL
 CAS No. 37680-68-5

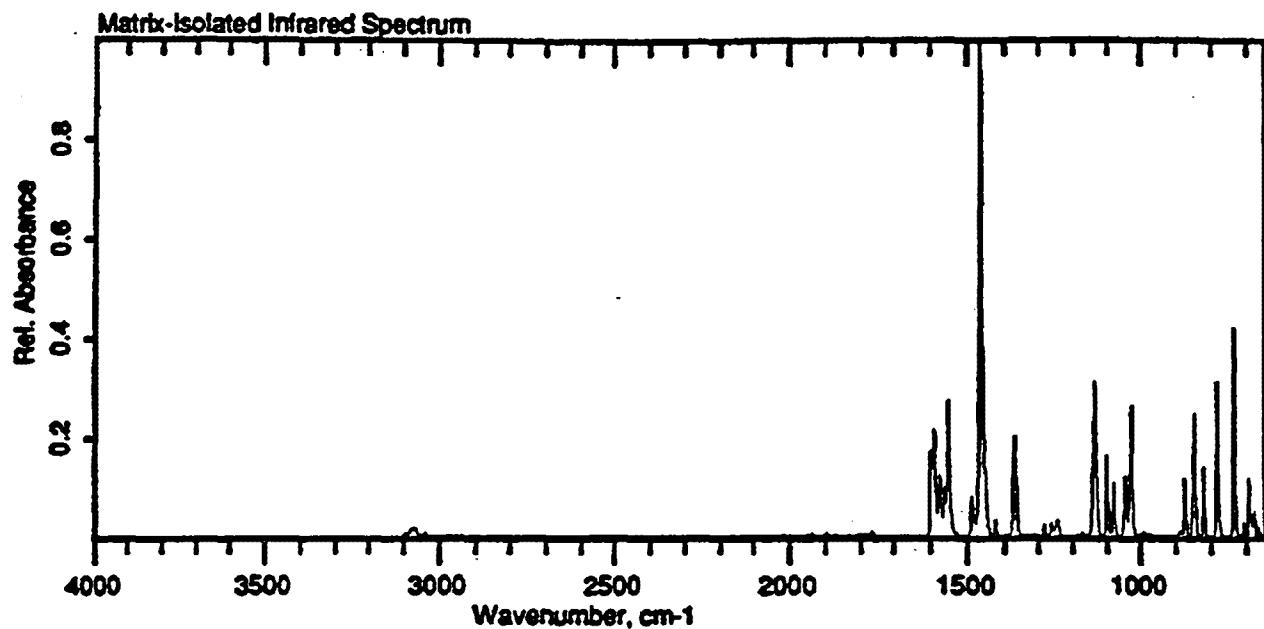
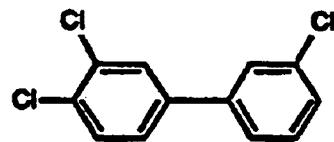


cm^{-1}	abs								
687.94	0.16	860.97	0.36	1099.28	0.26	1389.05	0.35	1485.08	0.34
701.40	0.32	868.72	0.10	1124.74	0.17	1398.13	0.10	1562.09	1.00
757.44	1.00	883.82	0.06	1252.23	0.13	1411.04	0.39	1576.77	0.46
809.02	0.56	1045.34	0.50	1269.16	0.05	1429.93	0.42	1590.93	0.68
828.17	0.24	1089.34	0.20	1297.15	0.08	1442.20	0.13		

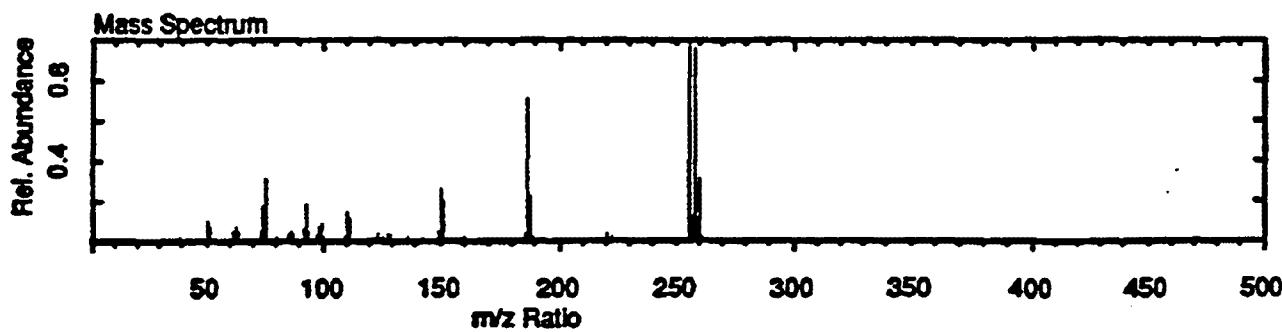


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.11	74.05	0.18	98.00	0.10	150.00	0.30	257.05	0.13
51.00	0.08	75.05	0.32	99.00	0.11	151.00	0.22	257.95	0.97
61.05	0.05	88.00	0.06	110.05	0.15	186.00	0.79	258.95	0.12
62.05	0.09	92.10	0.07	111.05	0.11	187.00	0.11	259.95	0.30
63.05	0.06	93.00	0.18	123.05	0.05	188.00	0.26		
73.05	0.06	94.00	0.05	149.00	0.06	256.05	1.00		

IUPAC Congener No. 35
 3,3',4-TRICHLOROBIPHENYL
 CAS No. 37680-69-6

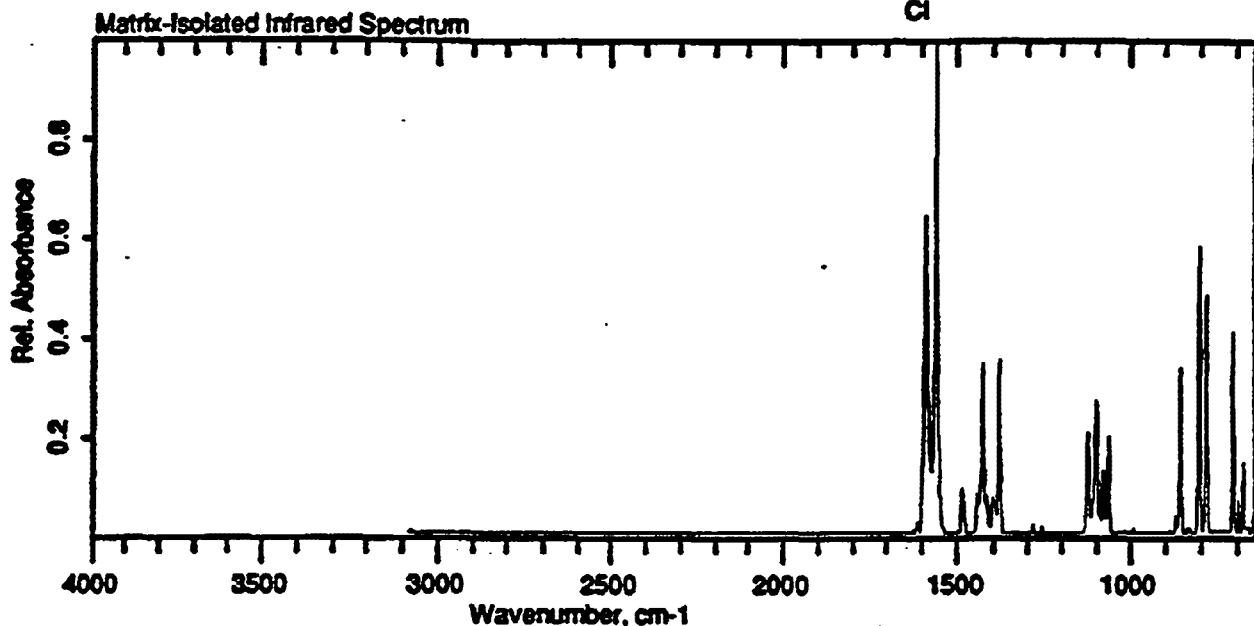
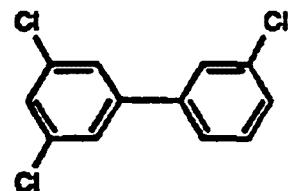


cm^{-1}	abs								
680.51	0.05	824.75	0.14	1052.43	0.12	1372.77	0.20	1563.12	0.10
695.04	0.12	851.75	0.25	1083.83	0.11	1465.82	1.00	1577.76	0.12
737.19	0.42	879.42	0.12	1103.00	0.17	1490.85	0.08	1593.29	0.22
786.45	0.32	1033.02	0.26	1138.42	0.31	1553.57	0.28		

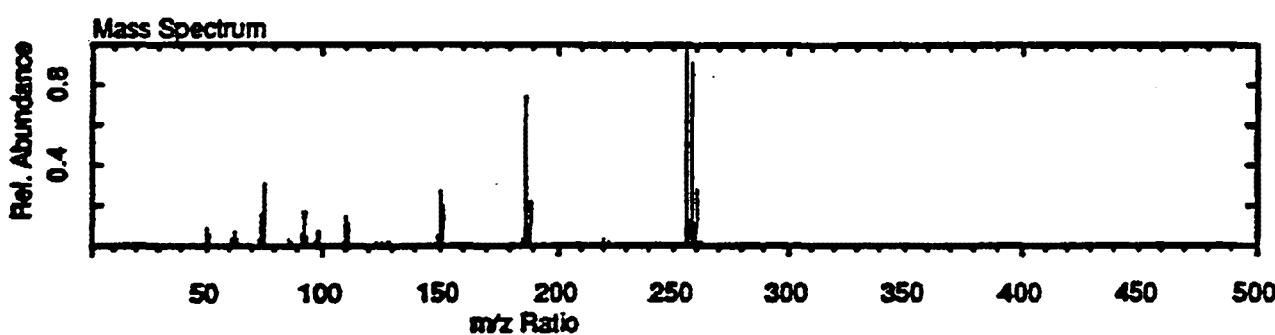


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.11	74.05	0.18	98.00	0.08	151.10	0.21	258.05	0.97
51.10	0.08	75.05	0.32	99.00	0.09	186.10	0.72	259.05	0.12
61.05	0.05	86.00	0.05	110.05	0.15	187.10	0.11	260.05	0.31
62.05	0.08	92.10	0.07	111.05	0.12	188.00	0.24		
63.05	0.05	93.00	0.19	149.00	0.06	256.05	1.00		
73.05	0.06	94.00	0.06	150.00	0.27	257.05	0.13		

JUPAC Congener No. 36
 3,3',5-TRICHLOROBIPHENYL
 CAS No. 38444-87-0

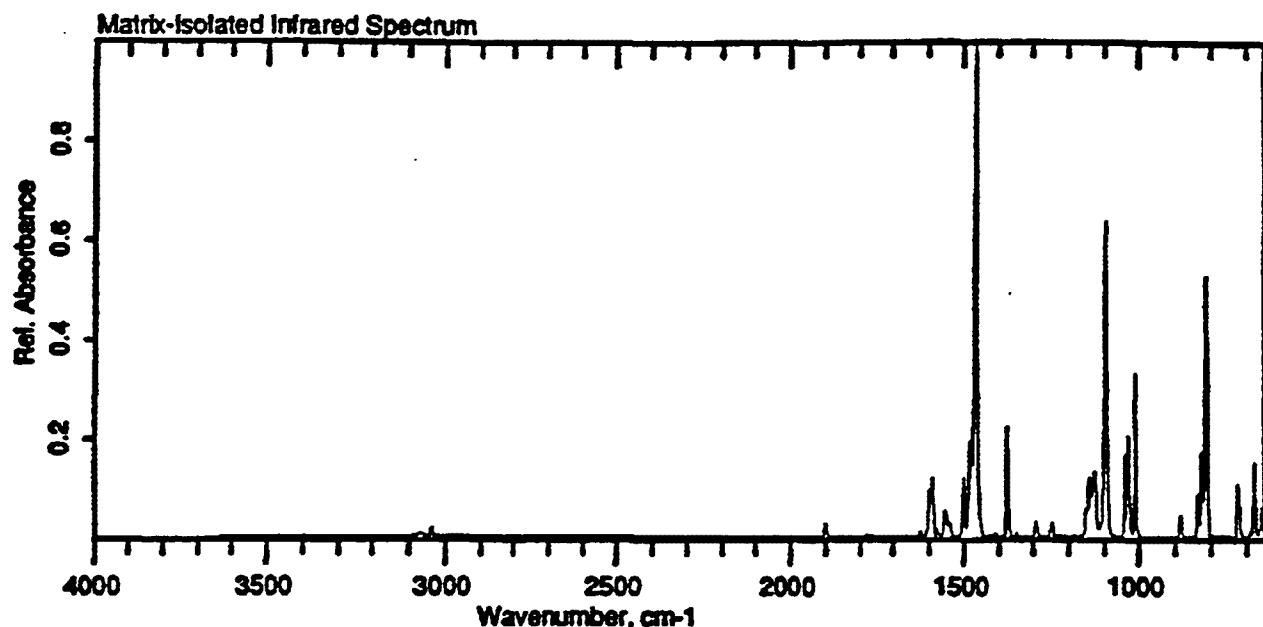
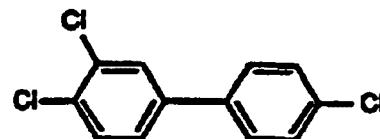


cm^{-1}	abs								
683.23	0.16	859.98	0.34	1104.06	0.27	1418.65	0.09	1561.37	1.00
695.84	0.08	873.46	0.05	1128.39	0.21	1430.46	0.35		
712.10	0.42	1069.50	0.20	1383.96	0.35	1442.70	0.09		
786.21	0.49	1083.77	0.13	1396.20	0.07	1480.43	0.07		
807.72	0.60	1094.32	0.05	1401.89	0.08	1485.83	0.10		

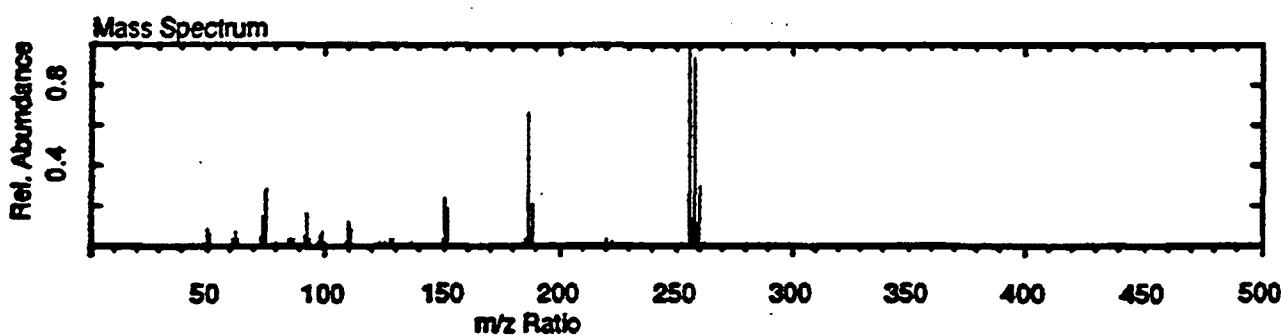


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.10	74.05	0.17	98.00	0.08	151.10	0.21	256.05	1.00
51.10	0.06	75.05	0.32	99.00	0.08	185.10	0.04	257.05	0.13
61.05	0.05	86.00	0.05	110.05	0.15	186.10	0.75	258.05	0.92
62.05	0.08	92.10	0.07	111.05	0.11	187.10	0.10	259.05	0.12
63.05	0.05	93.10	0.18	149.10	0.05	188.10	0.23	260.05	0.29
73.05	0.05	94.00	0.05	150.10	0.29	220.05	0.04		

IUPAC Congener No. 37
 3,4,4'-TRICHLOROBIPHENYL
 CAS No. 38444-90-5

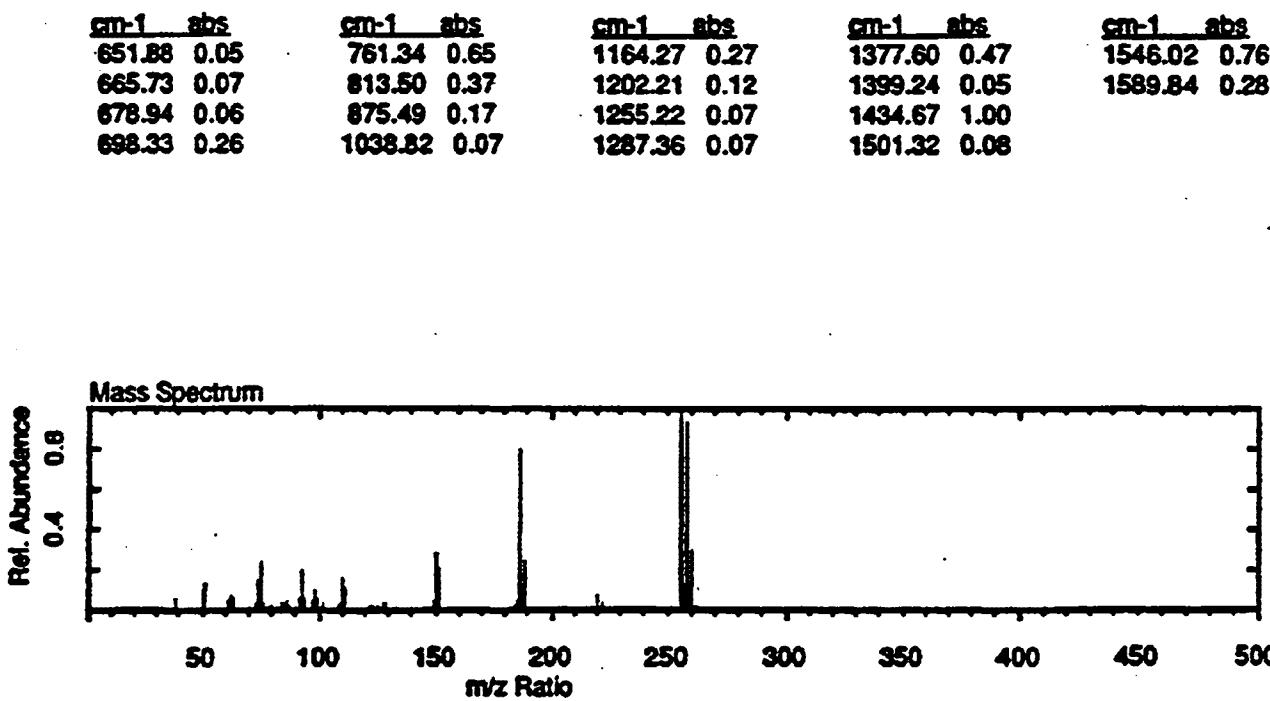
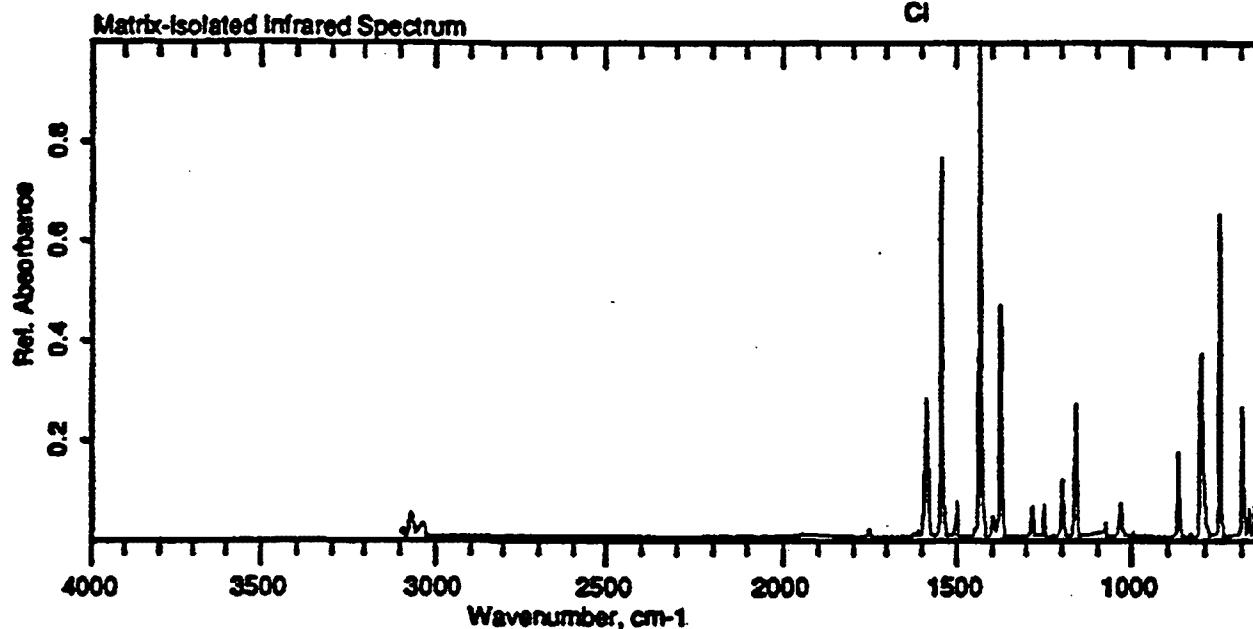
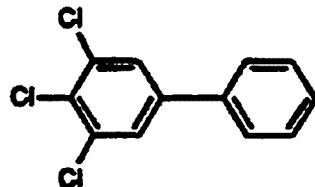


cm^{-1}	abs								
658.51	0.06	828.71	0.17	1040.91	0.17	1376.48	0.23	1592.11	0.12
677.89	0.15	839.61	0.09	1097.92	0.64	1465.94	1.00		
721.13	0.07	887.91	0.05	1128.82	0.13	1480.76	0.20		
725.93	0.11	1015.20	0.34	1143.81	0.12	1501.66	0.12		
815.22	0.53	1033.41	0.21	1151.91	0.06	1557.16	0.06		

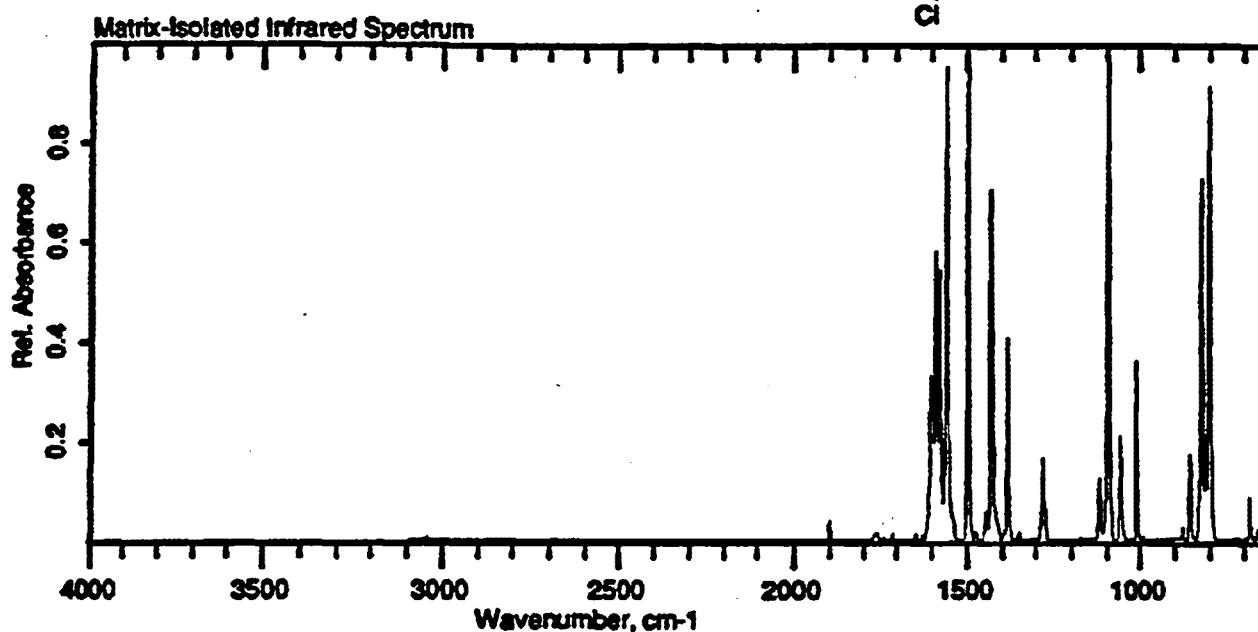
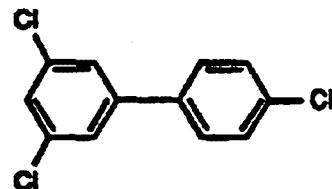


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.10	75.05	0.29	110.05	0.13	185.10	0.04	258.05	0.94
51.10	0.07	86.10	0.05	111.05	0.10	186.10	0.67	259.05	0.12
61.05	0.04	92.20	0.06	128.05	0.05	187.10	0.10	260.05	0.31
62.05	0.08	93.00	0.17	129.05	0.05	188.10	0.21		
63.05	0.05	94.00	0.05	149.10	0.05	220.05	0.04		
73.05	0.05	98.00	0.07	150.10	0.24	256.05	1.00		
74.05	0.16	99.00	0.08	151.10	0.19	257.05	0.13		

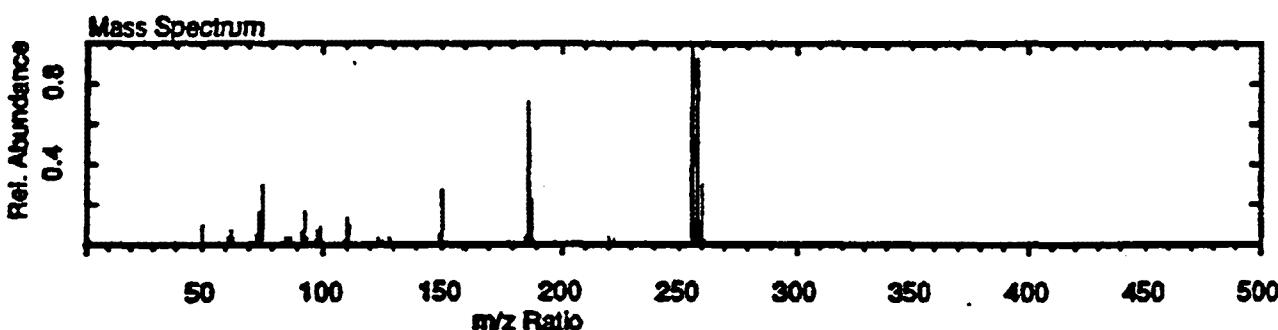
IUPAC Congener No. 38
 3,4,5-TRICHLOROBIPHENYL
 CAS No. 53555-66-1



IUPAC Congener No. 39
 3,4',5-TRICHLOROBIPHENYL
 CAS No. 38444-88-1

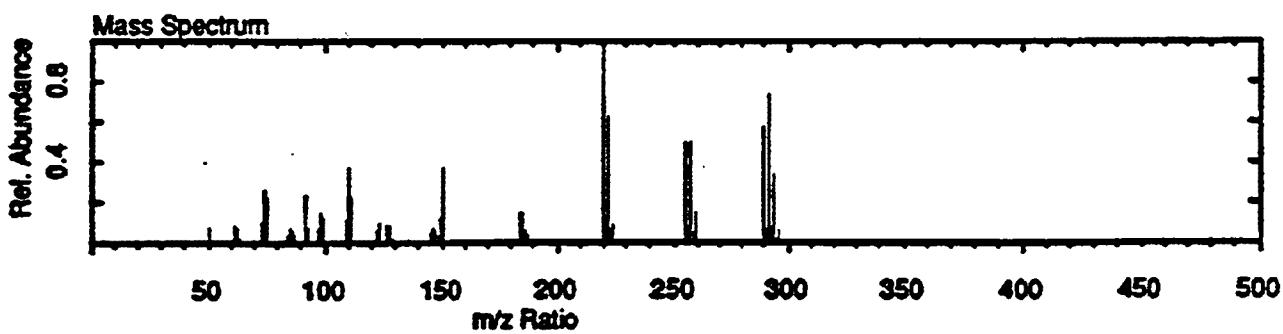
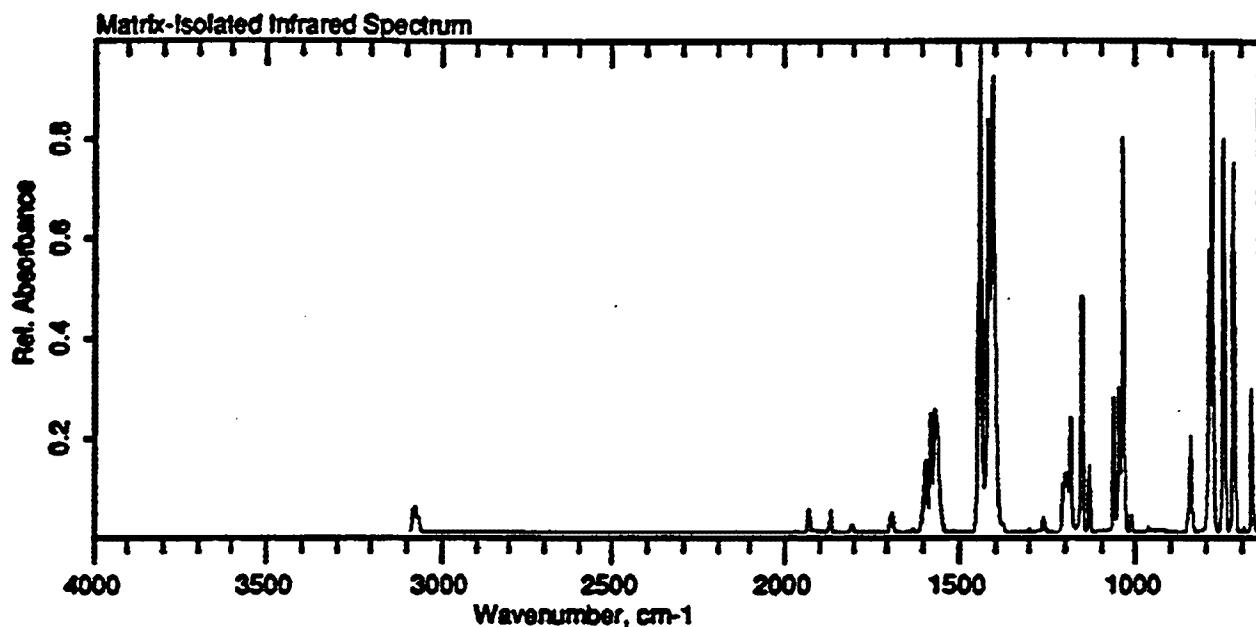
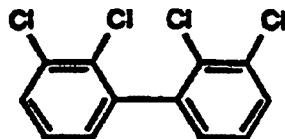


cm^{-1}	abs								
686.34	0.09	861.16	0.17	1124.54	0.13	1446.24	0.06	1590.67	0.58
804.49	0.90	1016.24	0.36	1284.21	0.17	1498.87	0.99	1600.56	0.27
817.02	0.21	1081.81	0.21	1385.39	0.41	1559.23	0.94		
827.85	0.73	1096.96	1.00	1432.74	0.71	1579.90	0.54		

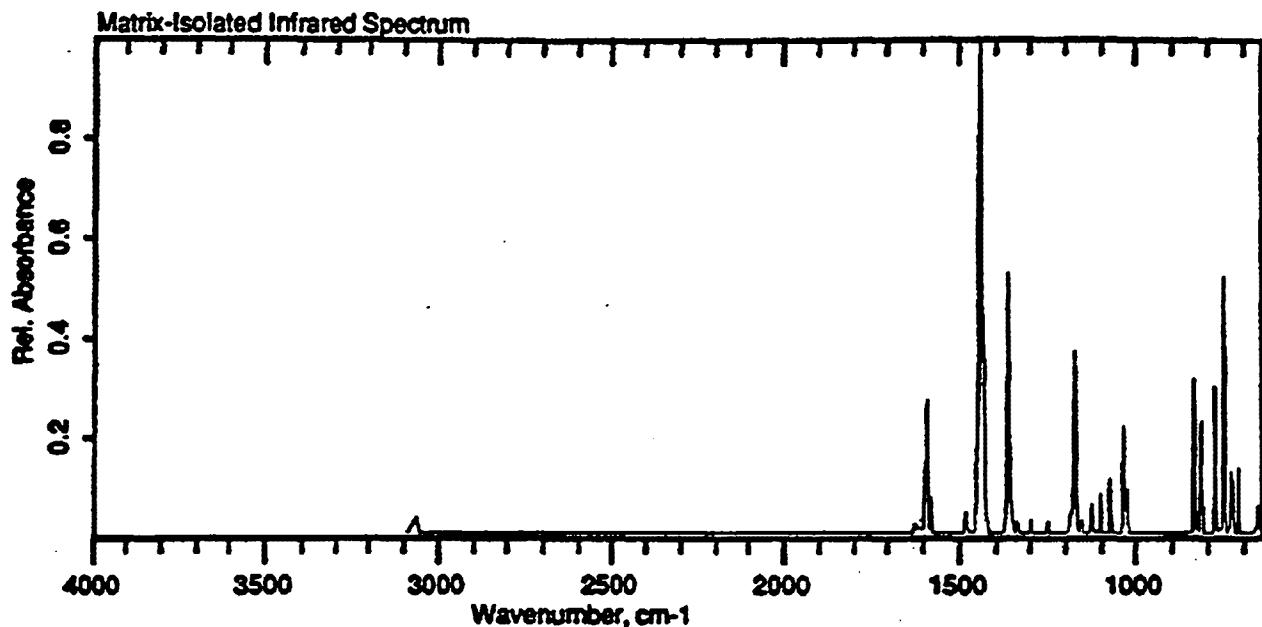
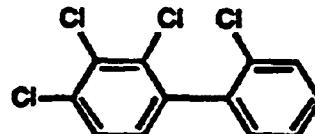


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.10	75.05	0.31	98.00	0.08	185.00	0.04	257.95	0.93
51.00	0.07	85.00	0.04	99.00	0.09	186.00	0.71	258.95	0.12
61.05	0.05	86.00	0.05	110.05	0.15	187.00	0.10	259.95	0.30
62.05	0.08	87.00	0.04	111.05	0.11	188.00	0.23		
63.05	0.05	92.10	0.07	149.00	0.06	219.95	0.05		
73.05	0.05	93.00	0.17	150.00	0.28	258.05	1.00		
74.05	0.17	94.00	0.05	151.00	0.21	257.05	0.13		

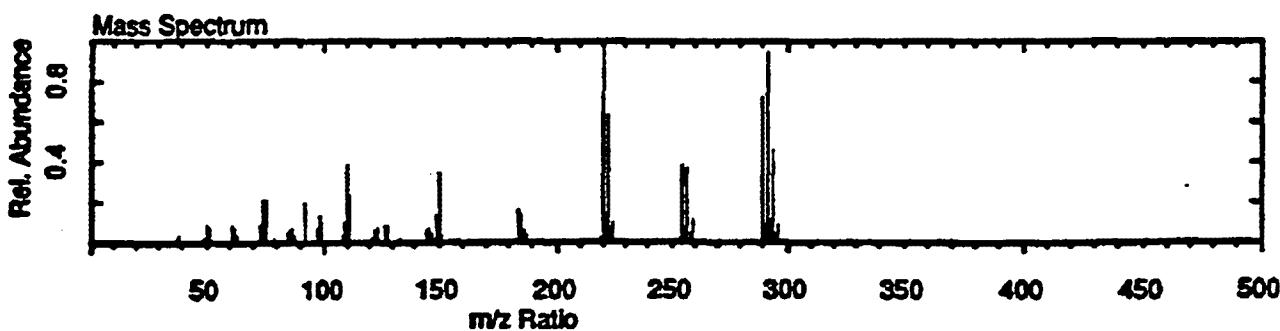
IUPAC Congener No. 40
 2,2',3,3'-TETRACHLOROBIPHENYL
 CAS No. 38444-93-8



IUPAC Congener No. 41
 2,2',3,4-TETRACHLOROBIPHENYL
 CAS No. 52663-59-9

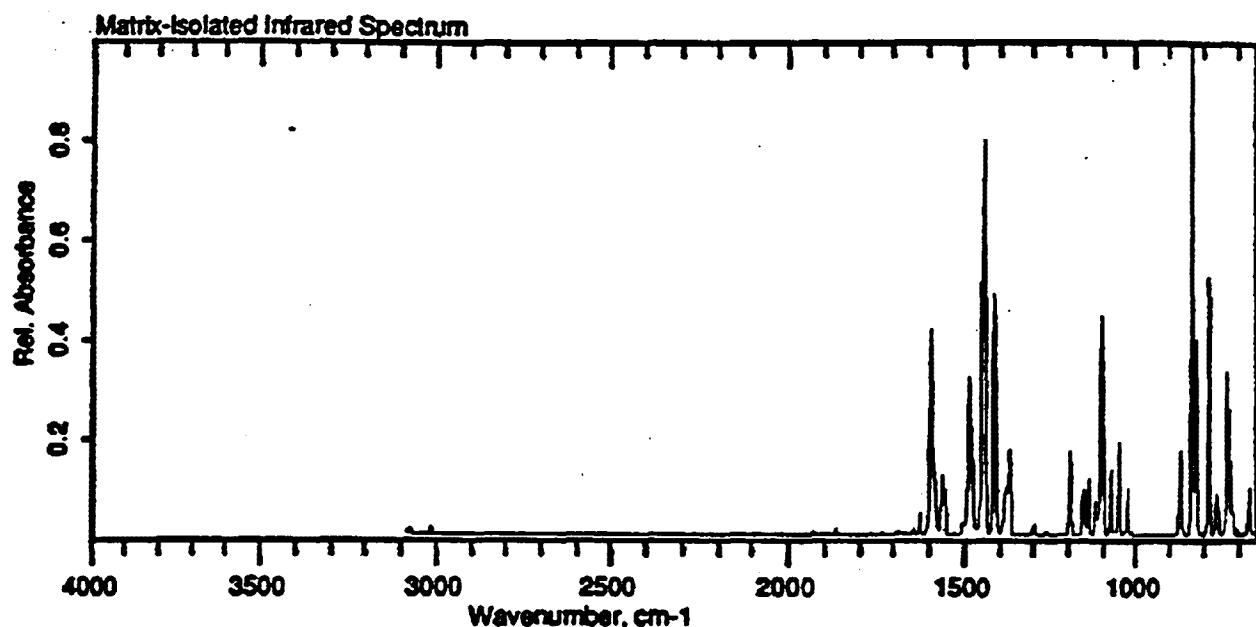
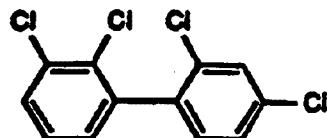


cm^{-1}	abs								
662.46	0.06	756.98	0.51	1030.02	0.09	1131.29	0.06	1444.11	1.00
716.59	0.14	782.77	0.30	1039.76	0.22	1177.58	0.37	1484.92	0.05
732.44	0.11	820.67	0.23	1078.95	0.12	1365.89	0.53	1582.29	0.08
737.39	0.13	841.90	0.31	1104.47	0.08	1436.32	0.46		

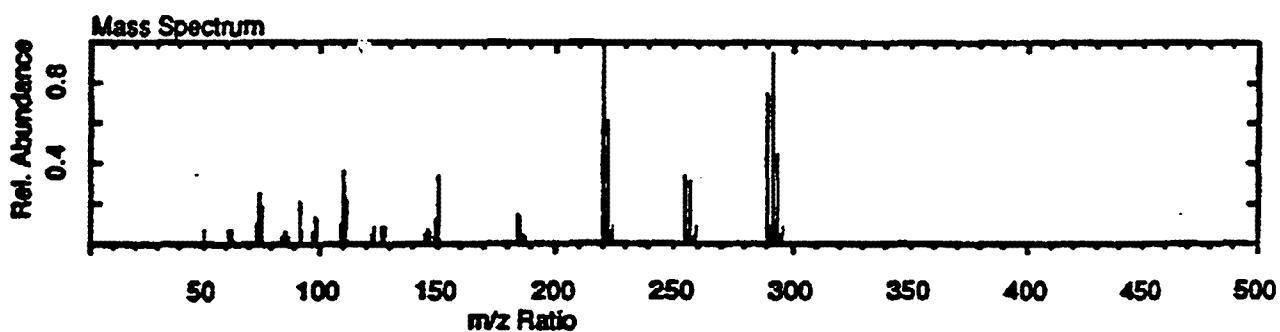


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.10	99.00	0.11	150.10	0.36	255.05	0.40	294.00	0.47
61.05	0.09	109.05	0.11	184.10	0.17	257.05	0.38	296.00	0.10
73.05	0.10	110.05	0.39	185.10	0.15	259.05	0.12		
74.05	0.22	111.05	0.24	220.05	1.00	290.00	0.73		
75.05	0.22	127.05	0.10	221.05	0.14	291.00	0.10		
92.10	0.20	128.05	0.10	222.05	0.65	292.00	0.95		
98.00	0.14	149.10	0.14	224.05	0.10	293.00	0.12		

IUPAC Congener No. 42
 2,2',3,4'-TETRACHLOROBIPHENYL
 CAS No. 36559-22-5



cm^{-1}	abs								
669.47	0.10	822.94	0.40	1108.55	0.45	1382.31	0.10	1566.41	0.13
719.55	0.07	837.23	1.00	1125.57	0.08	1417.26	0.49	1585.13	0.12
727.61	0.26	870.40	0.18	1143.17	0.12	1444.49	0.80	1597.75	0.42
735.40	0.34	1028.11	0.10	1158.71	0.10	1451.97	0.52		
765.04	0.09	1055.08	0.19	1196.93	0.17	1487.80	0.33		
786.99	0.53	1079.17	0.14	1372.20	0.18	1557.70	0.10		

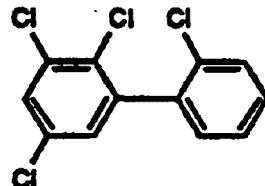


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.08	99.00	0.13	149.10	0.12	224.05	0.09	293.00	0.12
61.05	0.08	109.05	0.11	150.10	0.34	255.05	0.35	294.00	0.45
73.05	0.10	110.05	0.37	184.10	0.16	257.05	0.32	296.00	0.09
74.05	0.25	111.05	0.24	185.10	0.14	259.05	0.10		
75.05	0.20	123.05	0.09	220.05	1.00	290.00	0.75		
92.10	0.22	127.05	0.09	221.05	0.14	291.00	0.09		
98.00	0.14	128.05	0.09	222.05	0.62	292.00	0.96		

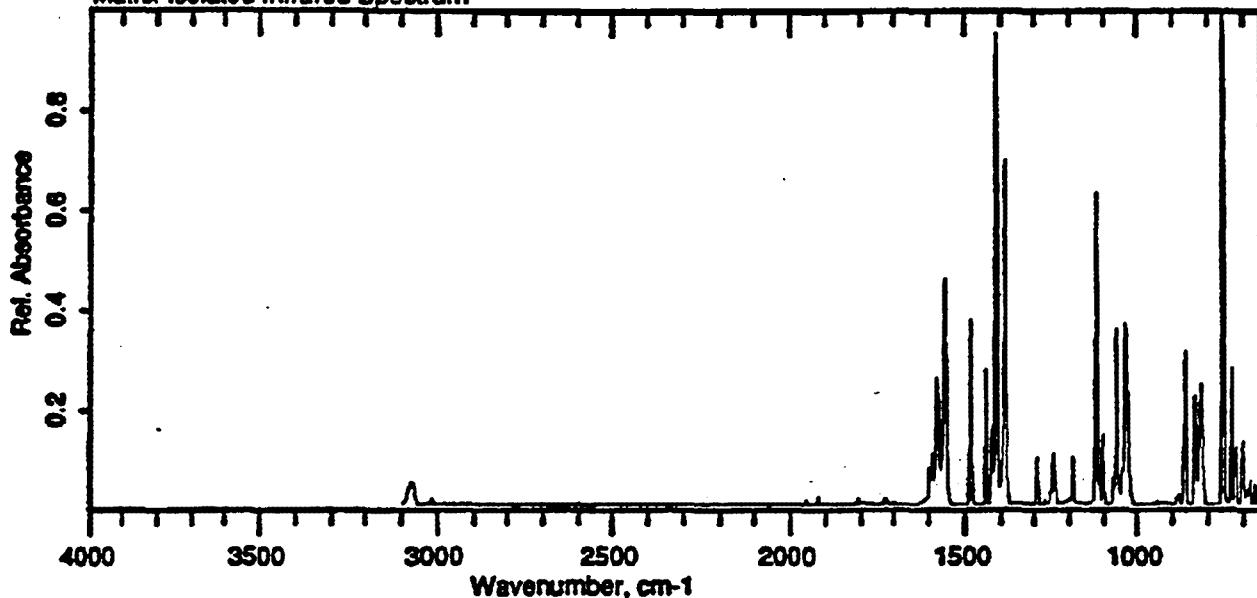
IUPAC Congener No. 43

2,2',3,5-TETRACHLOROBIPHENYL

CAS No. 70362-46-8

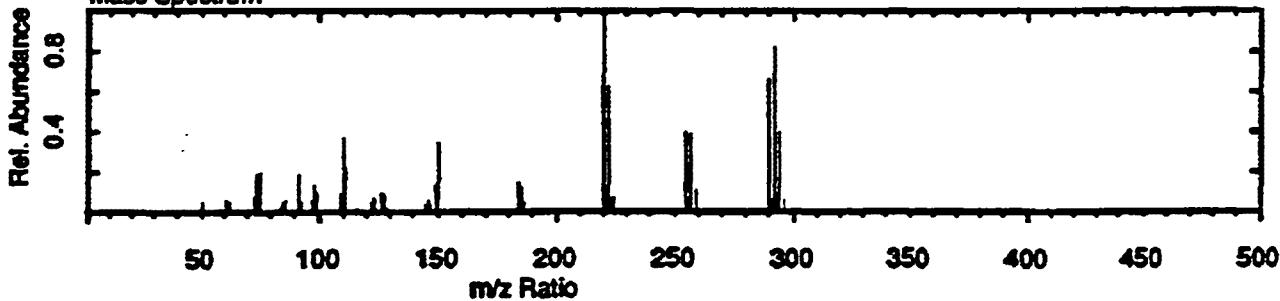


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
662.68	0.05	821.48	0.25	1074.76	0.06	1388.11	0.70	1590.66	0.11
668.72	0.05	840.47	0.23	1105.34	0.15	1412.71	0.95	1600.71	0.08
681.82	0.06	866.72	0.32	1115.34	0.05	1425.55	0.17	3069.08	0.05
703.10	0.14	1032.06	0.23	1123.47	0.63	1443.20	0.28		
722.04	0.13	1037.77	0.37	1191.94	0.11	1484.98	0.38		
734.95	0.28	1047.24	0.08	1248.05	0.11	1557.63	0.46		
758.93	1.00	1064.85	0.36	1294.84	0.10	1579.25	0.26		

Mass Spectrum

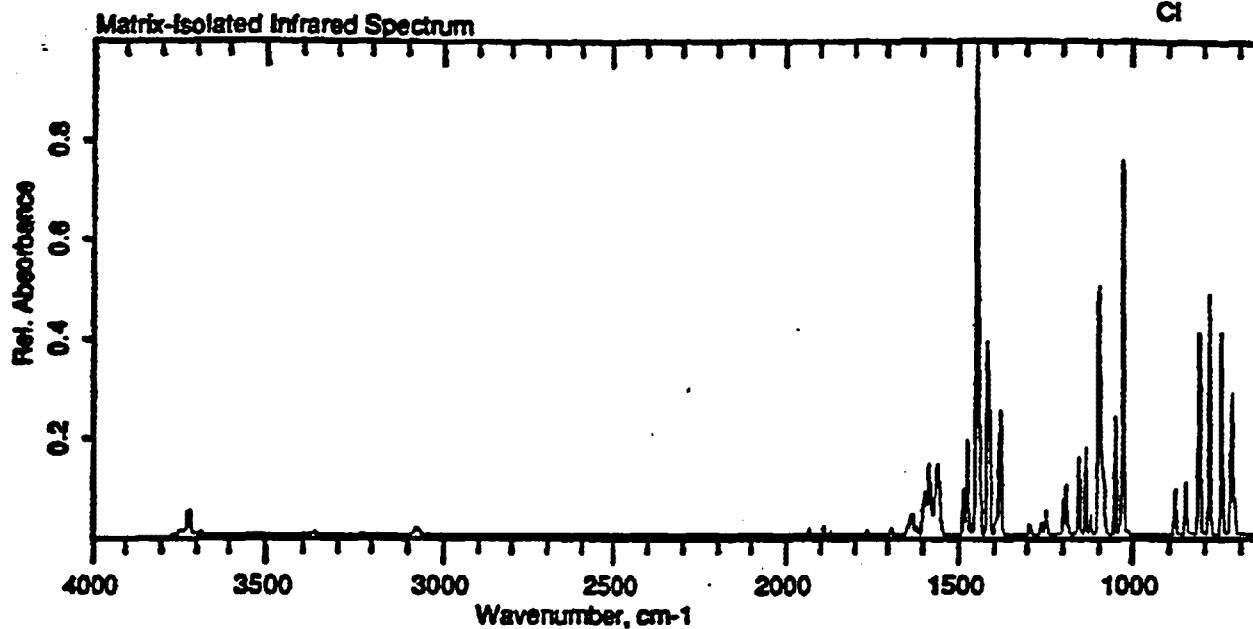
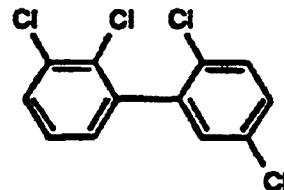


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.07	109.05	0.10	150.10	0.36	223.95	0.08	293.00	0.10
73.05	0.08	110.05	0.38	184.00	0.16	255.05	0.40	294.00	0.40
74.05	0.20	111.05	0.24	185.10	0.13	257.05	0.40		
75.05	0.21	123.05	0.08	220.05	1.00	259.05	0.11		
92.10	0.20	127.05	0.10	221.05	0.13	290.00	0.67		
98.00	0.15	127.95	0.10	222.05	0.63	291.00	0.07		
99.00	0.11	149.00	0.14	223.05	0.07	292.00	0.83		

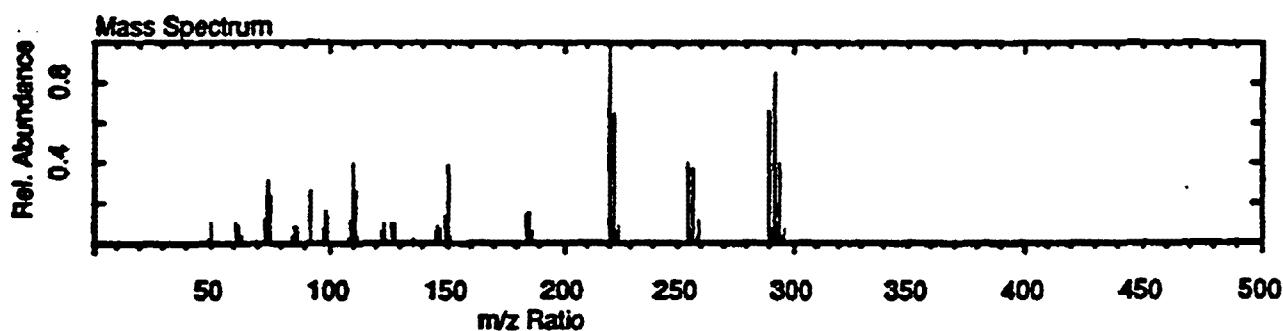
IUPAC Congener No. 44

2,2',3,5'-TETRACHLOROBIPHENYL

CAS No. 41464-39-5



cm^{-1}	abs								
717.18	0.08	856.29	0.11	1139.58	0.18	1420.37	0.39	1597.05	0.09
723.98	0.29	885.64	0.10	1158.90	0.16	1450.19	1.00	1633.05	0.05
729.41	0.17	1033.50	0.77	1195.23	0.10	1477.39	0.19	3719.48	0.06
755.27	0.41	1054.51	0.25	1249.51	0.05	1486.76	0.10		
788.49	0.50	1102.01	0.50	1381.47	0.25	1560.50	0.15		
817.46	0.41	1124.23	0.05	1413.83	0.26	1584.24	0.15		

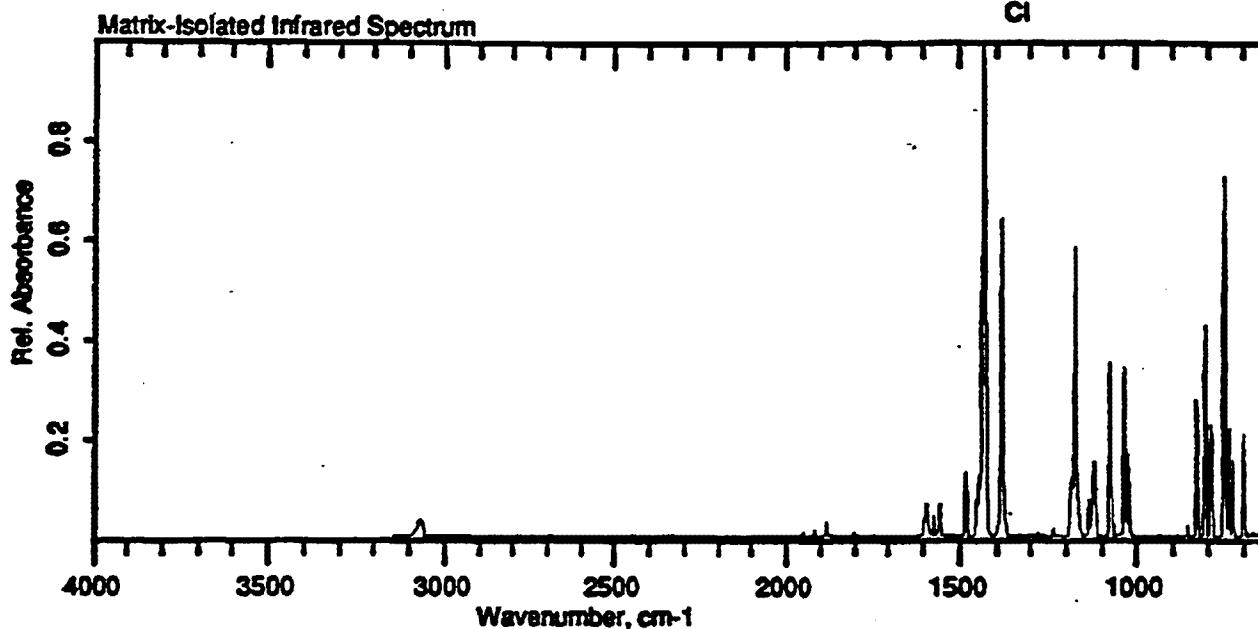
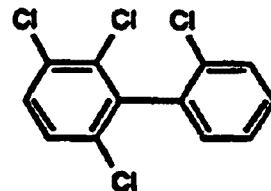


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.10	92.10	0.27	127.05	0.11	221.05	0.14	292.00	0.85
61.05	0.11	98.00	0.17	128.05	0.10	222.05	0.66	293.00	0.11
73.05	0.13	99.00	0.15	149.10	0.14	224.05	0.10	294.00	0.41
74.05	0.31	109.05	0.12	150.10	0.40	255.05	0.41		
75.05	0.24	110.05	0.41	184.10	0.16	257.05	0.38		
85.00	0.09	111.05	0.27	185.10	0.15	259.05	0.12		
86.00	0.09	123.05	0.11	220.05	1.00	290.00	0.67		

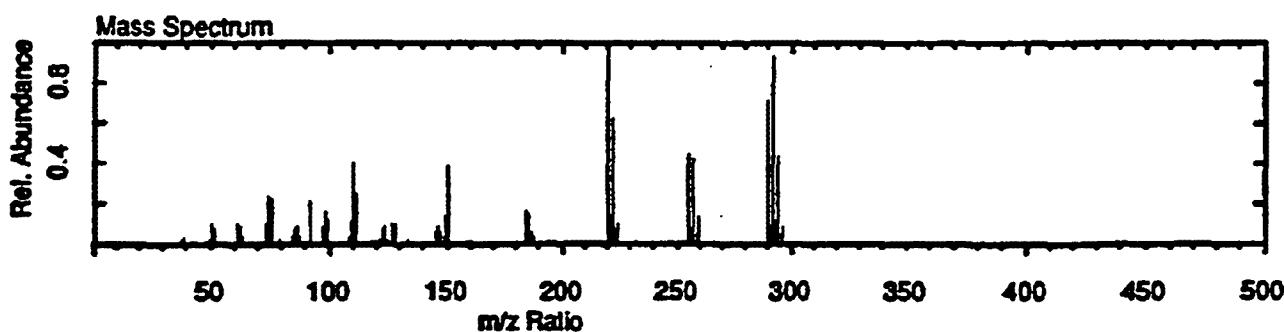
IUPAC Congener No. 45

2,2',3,6-TETRACHLOROBIPHENYL

CAS No. 70362-45-7

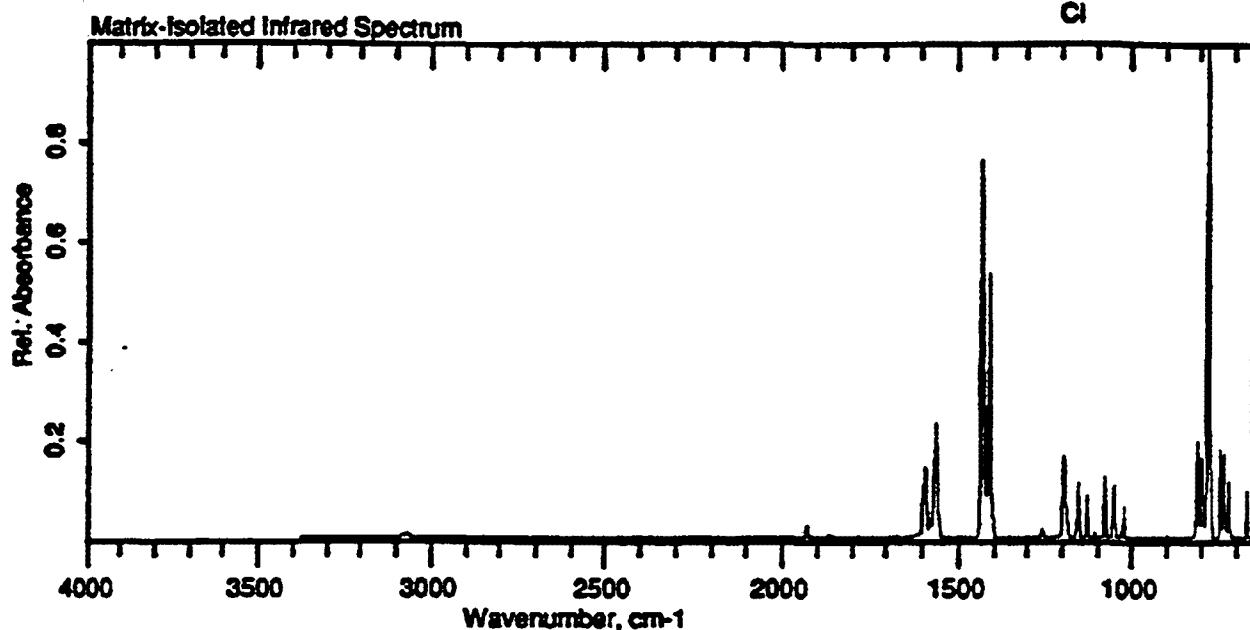
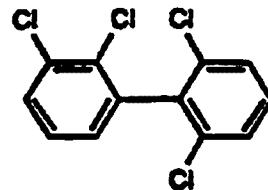


cm^{-1}	abs								
702.83	0.21	812.19	0.43	1123.00	0.18	1434.72	1.00	1557.06	0.07
733.11	0.16	837.11	0.28	1139.99	0.08	1440.48	0.57	1574.55	0.05
743.66	0.22	1027.08	0.17	1177.64	0.58	1449.55	0.13		
756.99	0.73	1039.56	0.34	1187.25	0.12	1456.94	0.08		
795.03	0.23	1080.39	0.35	1386.64	0.64	1486.45	0.13		

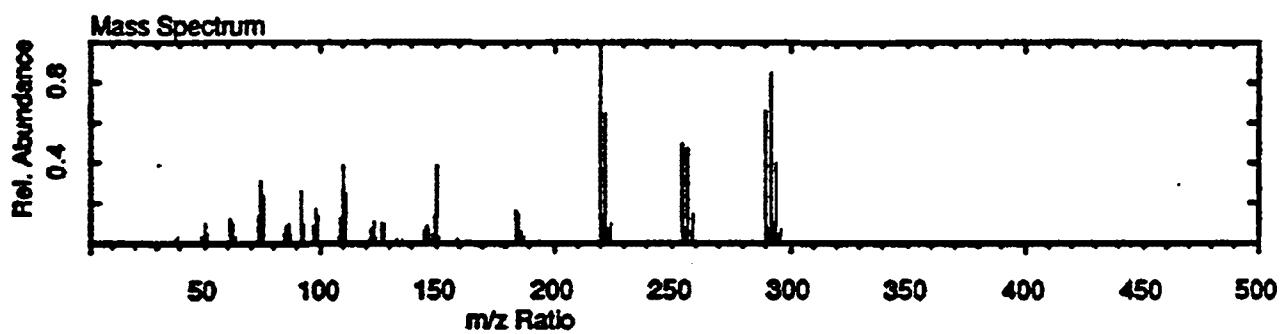


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.11	98.00	0.17	127.05	0.10	221.05	0.14	290.00	0.72
81.05	0.10	99.00	0.13	149.00	0.15	221.95	0.64	292.00	0.94
73.05	0.11	109.05	0.12	150.00	0.39	223.95	0.10	293.00	0.12
74.05	0.24	110.05	0.41	184.00	0.16	255.05	0.45	293.90	0.44
75.05	0.23	111.05	0.26	185.00	0.15	257.05	0.43		
92.10	0.22	127.05	0.10	220.05	1.00	258.95	0.14		

IUPAC Congener No. 46
 2,2',3,6'-TETRACHLOROBIPHENYL
 CAS No. 41464-47-5



cm^{-1}	abs								
668.92	0.10	779.70	1.00	1056.03	0.11	1197.29	0.17	1563.58	0.23
721.10	0.12	799.38	0.17	1081.60	0.13	1412.93	0.54	1569.81	0.13
735.61	0.17	811.67	0.20	1131.68	0.09	1421.74	0.09		
746.13	0.18	1027.83	0.07	1155.63	0.12	1435.46	0.77		

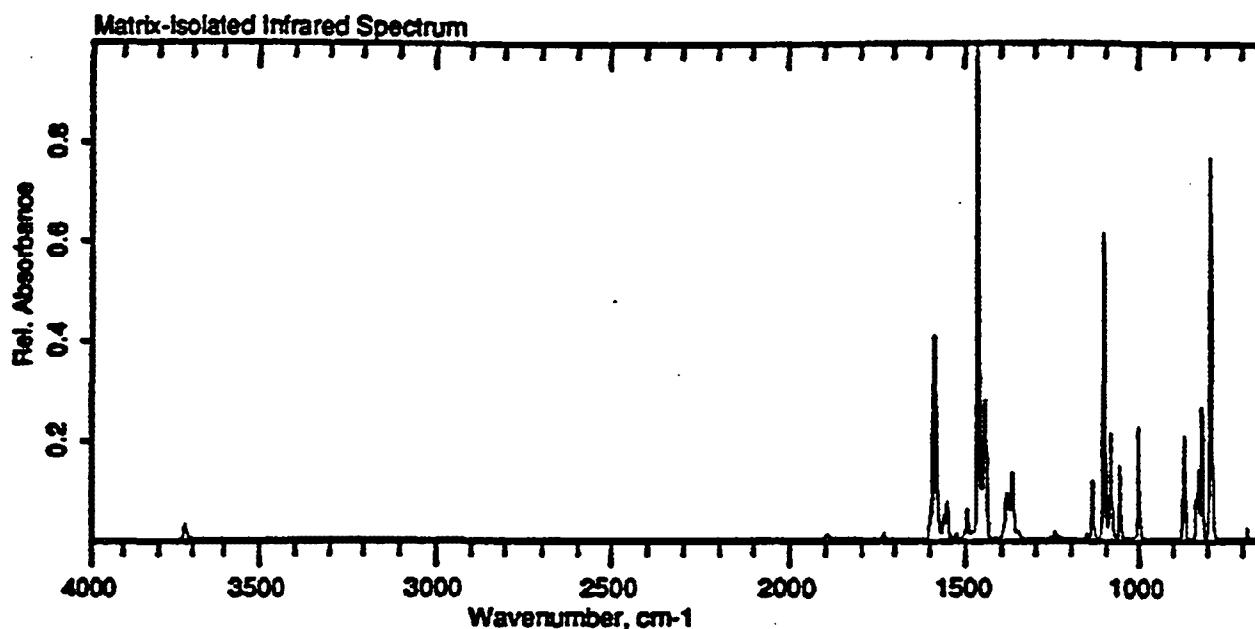
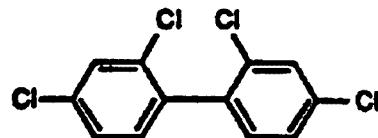


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.10	86.10	0.10	111.05	0.25	184.10	0.16	257.05	0.48
61.05	0.13	92.10	0.27	123.05	0.12	185.10	0.16	259.05	0.15
62.05	0.11	92.70	0.10	127.05	0.11	220.05	1.00	290.00	0.67
73.05	0.14	98.00	0.18	128.05	0.10	221.05	0.14	292.00	0.85
74.05	0.32	99.00	0.15	146.00	0.09	222.05	0.66	293.00	0.11
75.05	0.24	109.05	0.13	149.10	0.15	224.05	0.10	294.00	0.41
85.00	0.10	110.05	0.39	150.10	0.40	255.05	0.51		

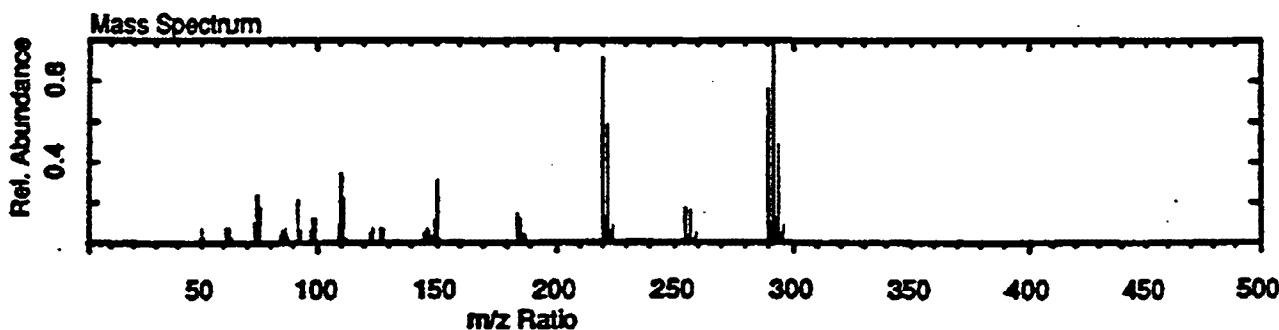
IUPAC Congener No. 47

2,2',4,4'-TETRACHLOROBIPHENYL

CAS No. 2437-79-8



cm^{-1}	abs								
791.92	0.76	870.82	0.21	1107.37	0.61	1445.50	0.28	1561.85	0.05
817.79	0.26	1006.17	0.23	1141.50	0.12	1465.72	1.00		
829.18	0.14	1061.41	0.15	1369.70	0.13	1495.76	0.06		
834.97	0.08	1087.47	0.22	1385.54	0.09	1552.56	0.08		

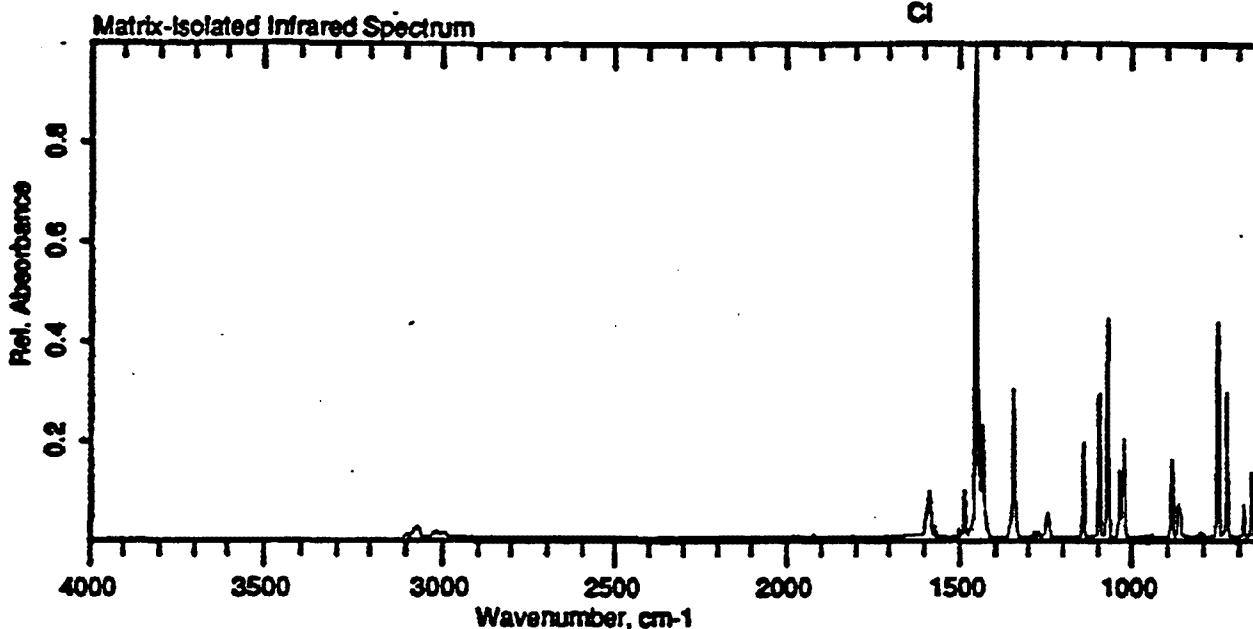
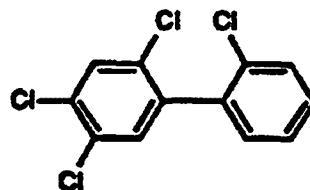


m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.09	99.00	0.13	149.10	0.12	224.05	0.09
61.05	0.09	109.05	0.10	150.10	0.31	255.05	0.18
73.05	0.11	110.05	0.35	184.10	0.15	257.05	0.17
74.05	0.24	111.05	0.23	185.10	0.14	290.00	0.77
75.05	0.18	123.05	0.08	220.05	0.91	291.00	0.10
92.10	0.22	127.05	0.08	221.05	0.13	292.00	1.00
98.00	0.14	128.05	0.08	222.05	0.59	293.00	0.13

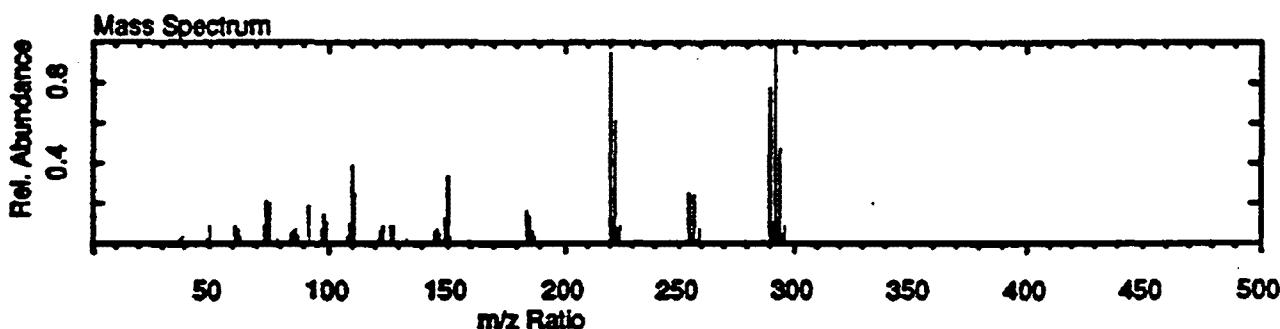
IUPAC Congener No. 48

2,2',4,5-TETRACHLOROBIPHENYL

CAS No. 70362-47-9



cm^{-1}	abs								
664.97	0.14	869.33	0.08	1041.18	0.14	1247.37	0.05	1456.97	1.00
688.06	0.07	874.26	0.07	1075.20	0.44	1251.03	0.05	1488.33	0.10
735.82	0.29	892.02	0.16	1098.80	0.29	1347.46	0.30		
760.08	0.44	1027.29	0.20	1144.14	0.20	1436.29	0.23		

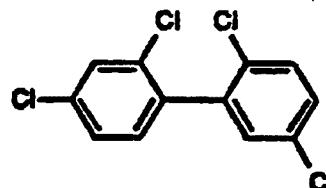


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.10	92.10	0.19	123.05	0.09	185.10	0.14	290.00	0.78
61.05	0.09	97.00	0.08	127.05	0.09	220.05	0.96	291.00	0.10
62.05	0.09	98.00	0.15	127.95	0.09	221.05	0.14	292.00	1.00
73.05	0.09	99.00	0.12	148.00	0.09	222.05	0.62	293.00	0.13
74.05	0.22	109.05	0.11	149.10	0.13	223.95	0.10	294.00	0.48
75.05	0.21	110.05	0.40	150.10	0.34	255.05	0.26	296.00	0.10
86.00	0.08	111.05	0.25	184.00	0.17	257.05	0.25		

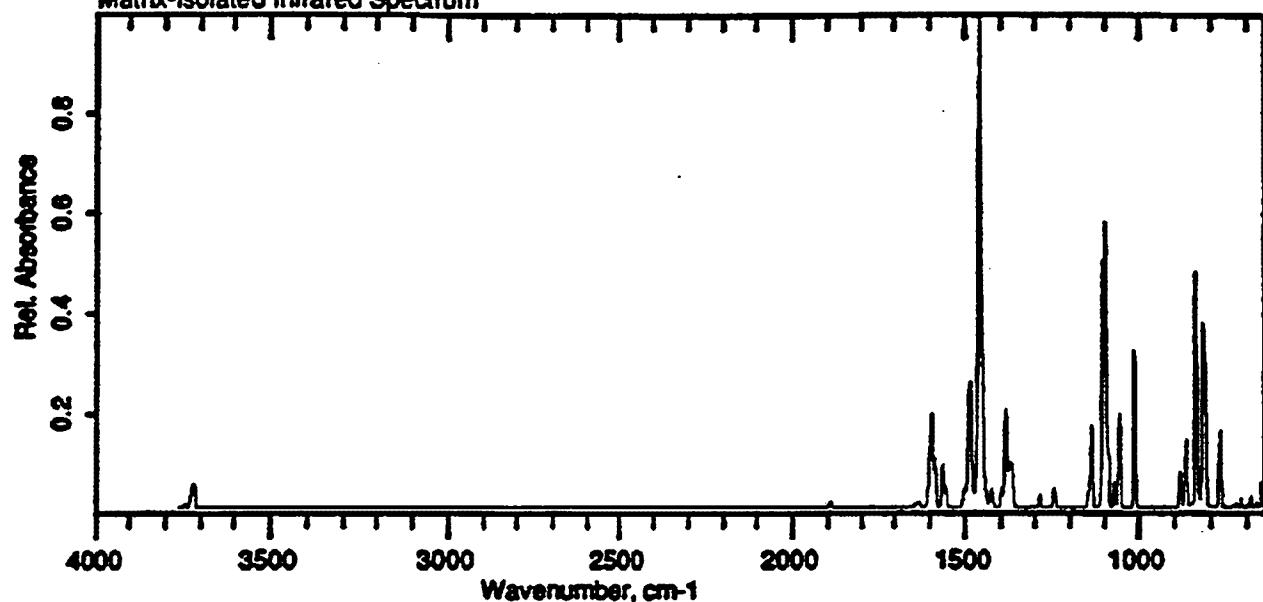
IUPAC Congener No. 49

2,2',4,5'-TETRACHLOROBIPHENYL

CAS No. 41464-40-8



Matrix-isolated Infrared Spectrum



cm-1 abs

658.83	0.06
775.14	0.16
822.33	0.38
843.74	0.48
870.67	0.15
887.39	0.08

cm-1 abs

1018.27	0.33
1059.49	0.20
1075.55	0.06
1092.18	0.12
1100.10	0.58
1106.88	0.51

cm-1 abs

1138.00	0.18
1248.18	0.05
1369.68	0.10
1373.30	0.10
1386.25	0.21
1398.44	0.05

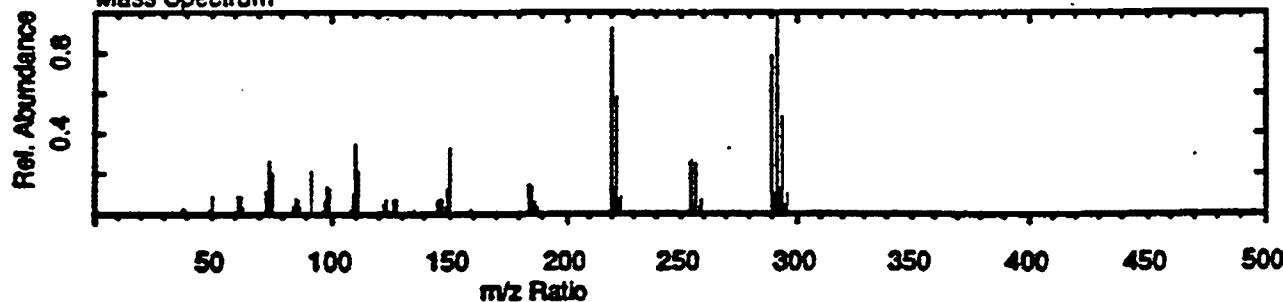
cm-1 abs

1424.96	0.05
1459.97	1.00
1486.25	0.26
1555.65	0.05
1565.05	0.10
1587.08	0.11

cm-1 abs

1596.67	0.20
1602.50	0.13
3720.85	0.06

Mass Spectrum



m/z abun

50.00	0.10
61.05	0.09
73.05	0.11
74.05	0.26
75.05	0.20
92.10	0.22

m/z abun

98.00	0.14
99.00	0.13
109.05	0.11
110.05	0.35
111.05	0.22
149.00	0.13

m/z abun

150.10	0.33
184.00	0.16
185.10	0.14
220.05	0.93
221.05	0.13
222.05	0.59

m/z abun

224.05	0.10
255.05	0.27
257.05	0.26
290.00	0.80
291.00	0.10
292.00	1.00

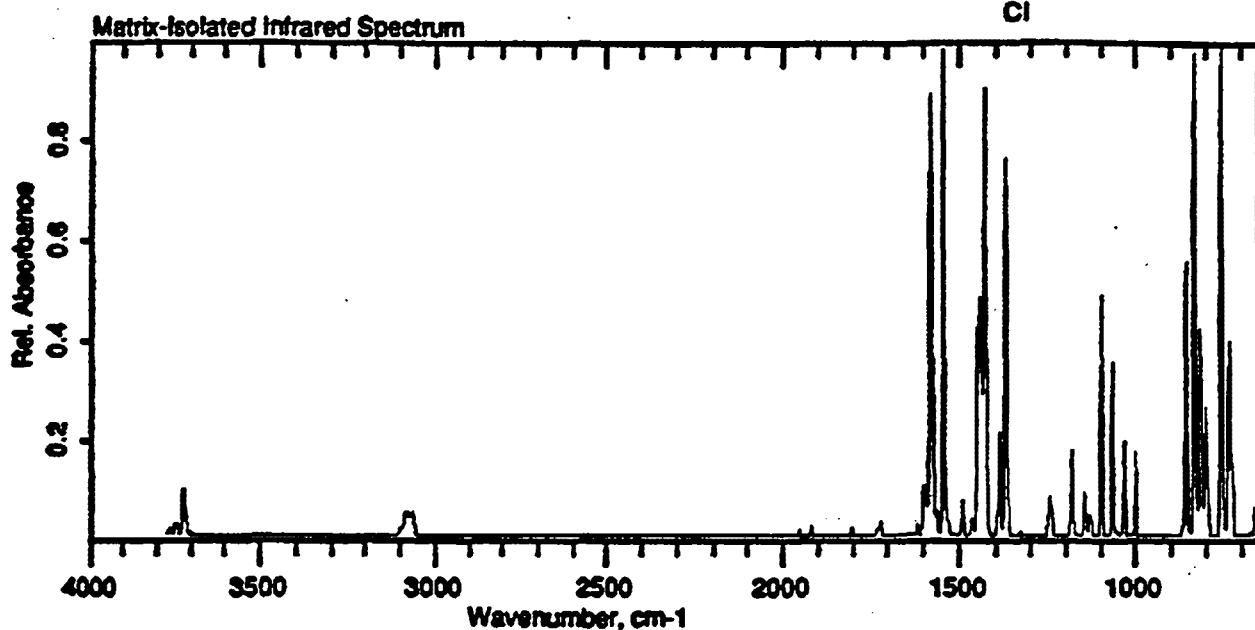
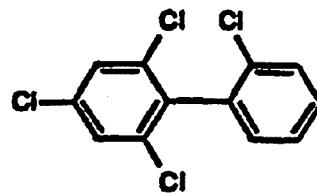
m/z abun

293.00	0.13
294.00	0.49
296.00	0.10

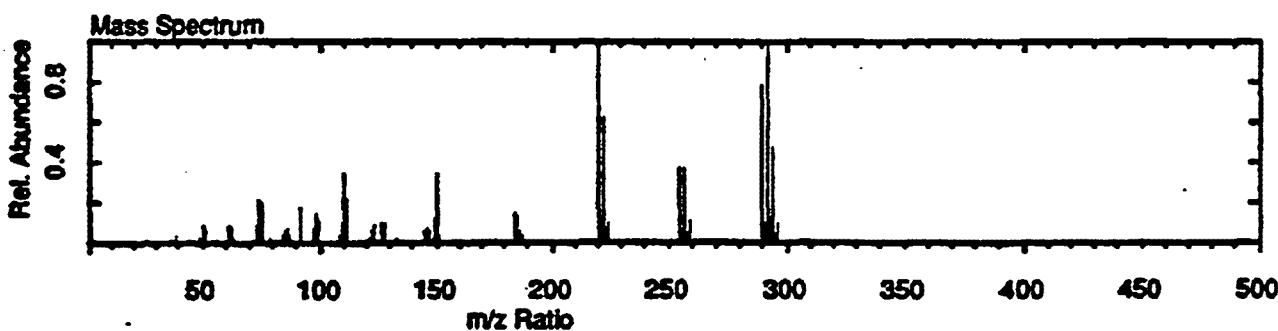
IUPAC Congener No. 50

2,2',4,6-TETRACHLOROBIPHENYL

CAS No. 62796-65-8



cm^{-1}	abs								
652.57	0.07	835.44	0.98	1149.61	0.09	1449.50	0.42	3068.24	0.05
664.44	0.07	859.30	0.56	1186.57	0.18	1492.21	0.08	3078.70	0.05
732.98	0.40	1004.69	0.18	1249.25	0.08	1546.85	0.98	3086.07	0.06
739.17	0.38	1036.73	0.20	1373.66	0.77	1565.84	0.06		
757.81	1.00	1070.36	0.35	1389.49	0.21	1582.48	0.89		
803.68	0.27	1101.08	0.49	1429.85	0.91	1597.87	0.11		
818.28	0.42	1134.33	0.05	1444.21	0.49	1602.71	0.11		

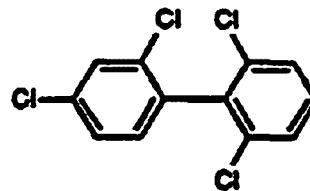


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.09	98.00	0.15	128.05	0.10	221.05	0.14	291.00	0.10
61.15	0.09	99.00	0.12	146.00	0.09	222.05	0.64	292.00	1.00
62.05	0.08	109.05	0.11	149.10	0.13	224.05	0.10	293.00	0.13
73.05	0.09	110.05	0.36	150.10	0.38	255.05	0.39	294.00	0.48
74.05	0.22	111.05	0.23	184.10	0.16	257.05	0.38	296.00	0.10
75.05	0.21	123.05	0.09	185.10	0.15	259.05	0.12		
92.10	0.19	127.05	0.10	220.05	0.99	290.00	0.79		

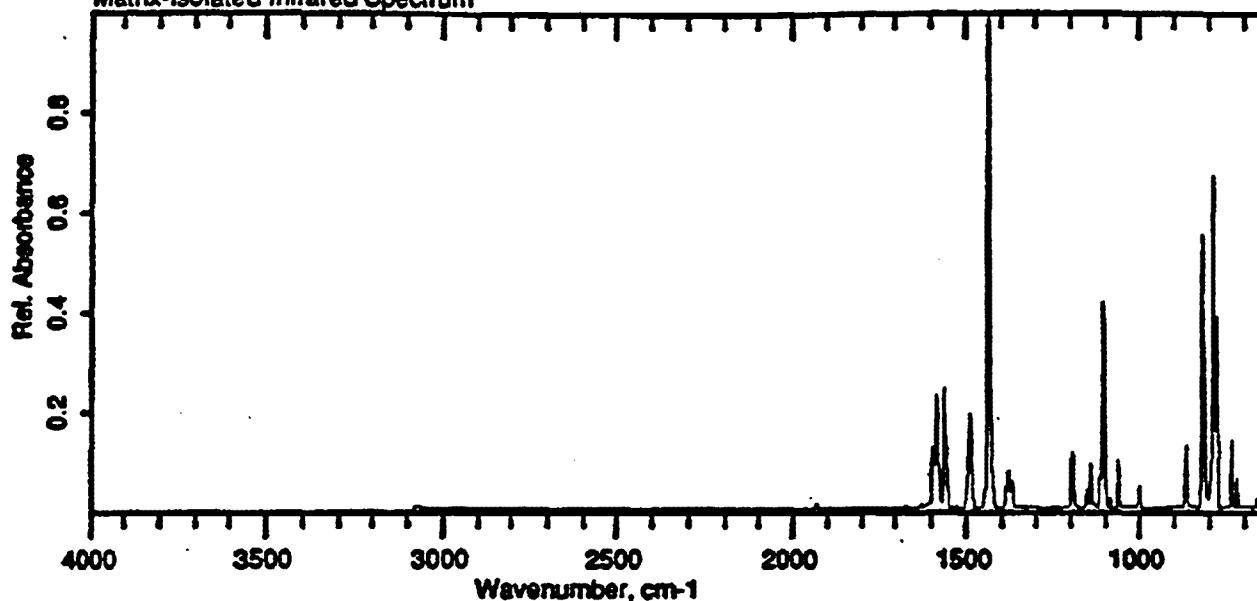
IUPAC Congener No. 31

2,2',4,6'-TETRACHLOROBIPHENYL

CAS No. 65194-04-7

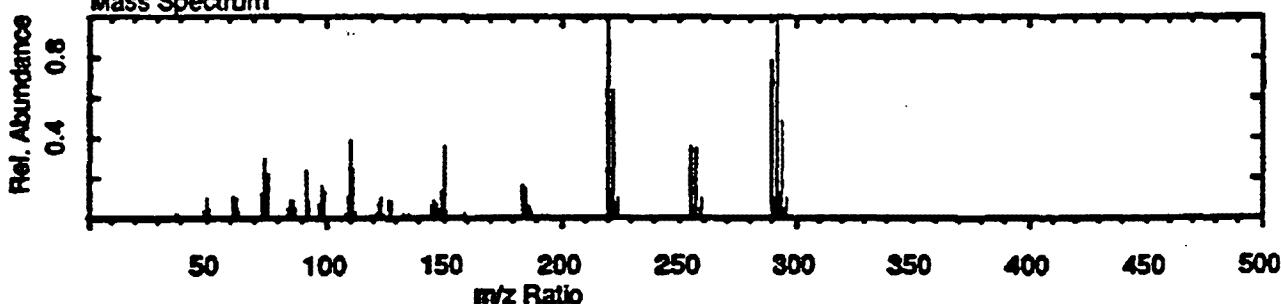


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
723.77	0.07	868.87	0.13	1143.34	0.10	1387.87	0.05		
739.63	0.14	1004.49	0.05	1154.68	0.05	1435.48	1.00		
780.26	0.39	1065.49	0.10	1197.01	0.12	1489.99	0.19		
790.38	0.67	1107.24	0.41	1370.50	0.06	1565.18	0.24		
820.20	0.55	1116.70	0.07	1380.15	0.08	1586.29	0.23		

Mass Spectrum

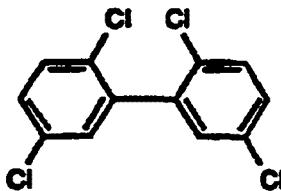


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.10	98.00	0.17	150.10	0.37	255.05	0.37	294.00	0.49
61.05	0.11	99.00	0.15	184.10	0.16	257.05	0.36	296.00	0.10
62.05	0.10	109.05	0.12	185.10	0.16	259.05	0.11		
73.05	0.13	110.05	0.40	220.05	1.00	290.00	0.80		
74.05	0.31	111.05	0.25	221.05	0.14	291.00	0.11		
75.05	0.23	123.05	0.11	222.05	0.65	292.00	1.00		
82.10	0.25	149.10	0.14	224.05	0.11	293.00	0.13		

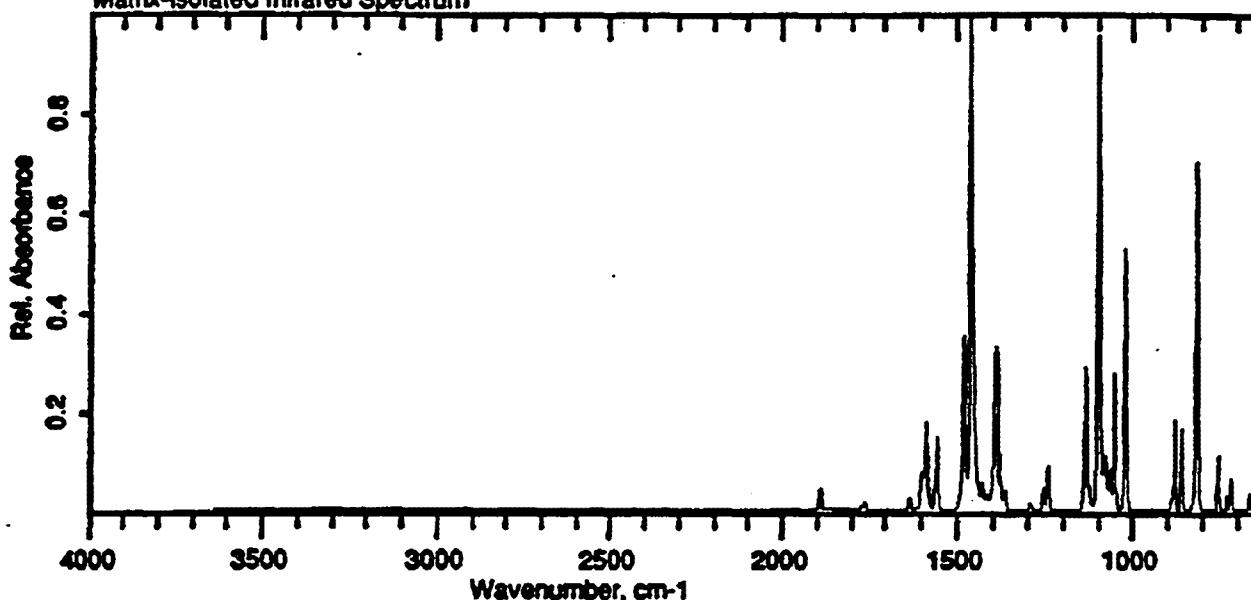
IUPAC Congener No. 52

2,2',5,5'-TETRACHLOROBIPHENYL

CAS No. 35693-99-3

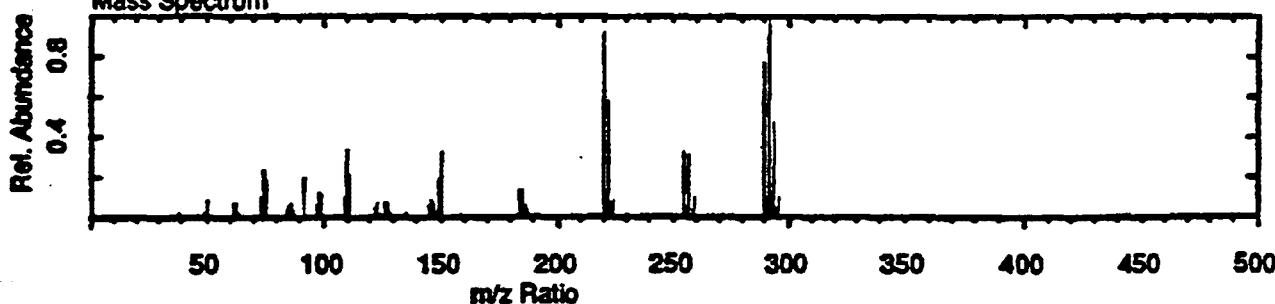


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
718.64	0.07	1057.45	0.28	1245.61	0.09	1429.79	0.06	1597.79	0.08
755.44	0.11	1067.82	0.09	1257.13	0.05	1458.62	0.52		
817.95	0.69	1082.84	0.11	1365.73	0.05	1463.50	1.00		
863.20	0.16	1102.22	0.93	1380.05	0.12	1482.18	0.35		
882.91	0.19	1129.36	0.05	1389.06	0.33	1559.01	0.15		
1026.85	0.52	1138.88	0.29	1394.11	0.31	1587.33	0.18		

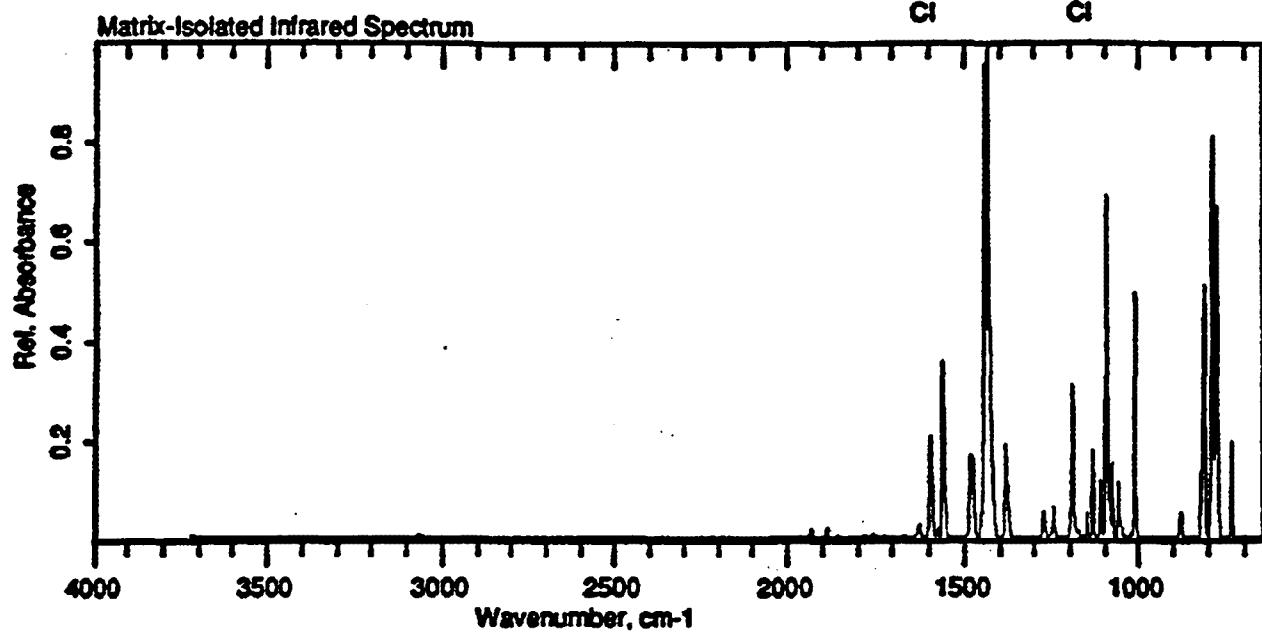
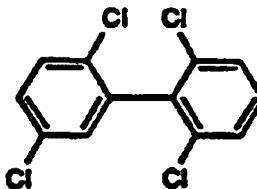
Mass Spectrum



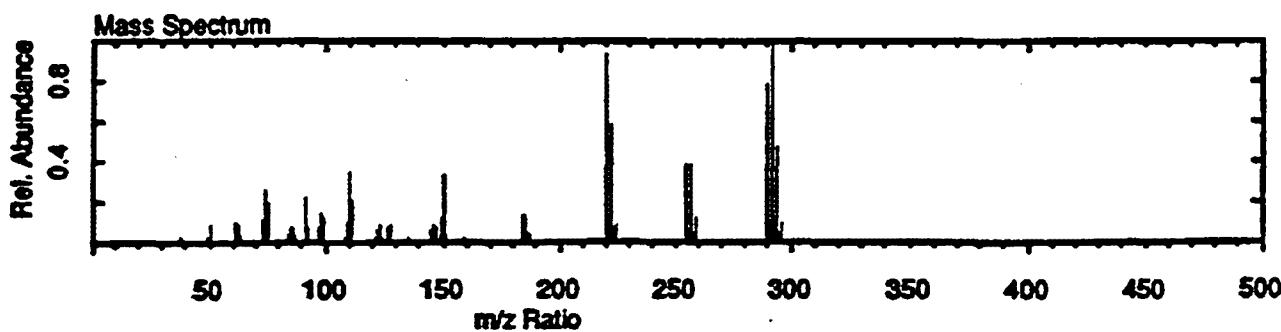
IUPAC Congener No. 53

2,2',5,6'-TETRACHLOROBIPHENYL

CAS No. 41464-41-9

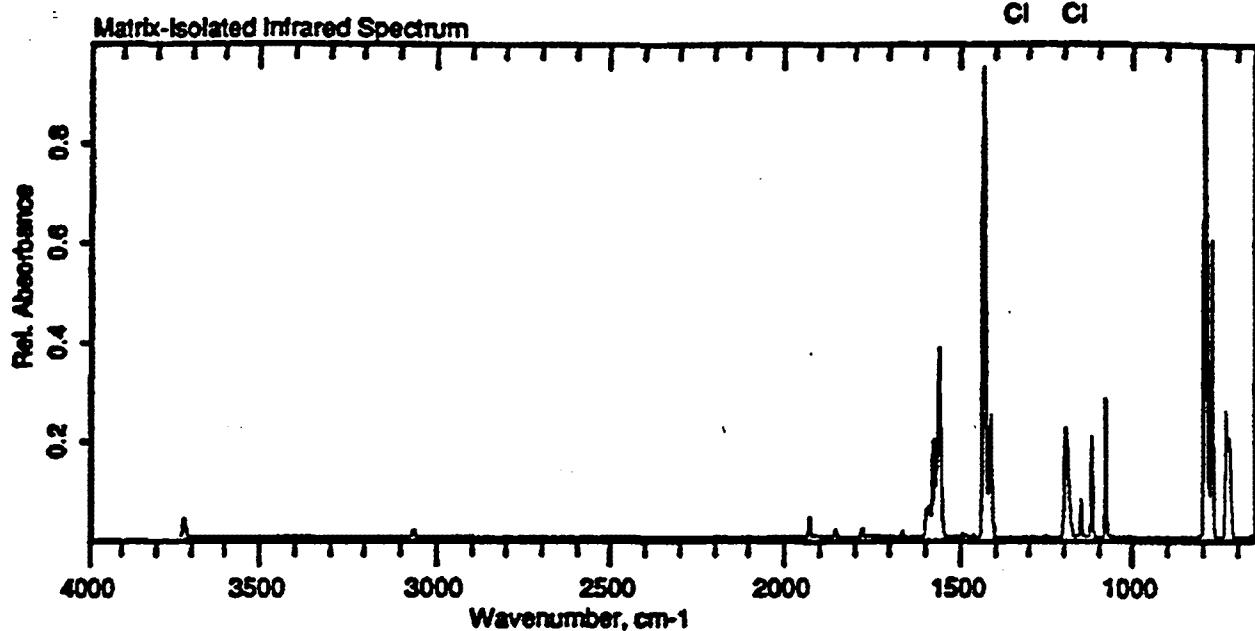
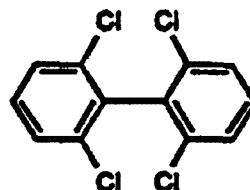


cm^{-1}	abs								
739.68	0.20	883.81	0.06	1089.43	0.68	1250.44	0.07	1444.15	0.95
780.47	0.66	1018.03	0.51	1116.09	0.12	1280.42	0.06	1477.81	0.17
793.67	0.80	1064.45	0.11	1139.41	0.18	1380.13	0.11	1486.43	0.17
816.55	0.51	1082.31	0.15	1155.69	0.05	1385.45	0.19	1565.91	0.36
826.00	0.14	1091.01	0.15	1198.19	0.31	1434.44	1.00		

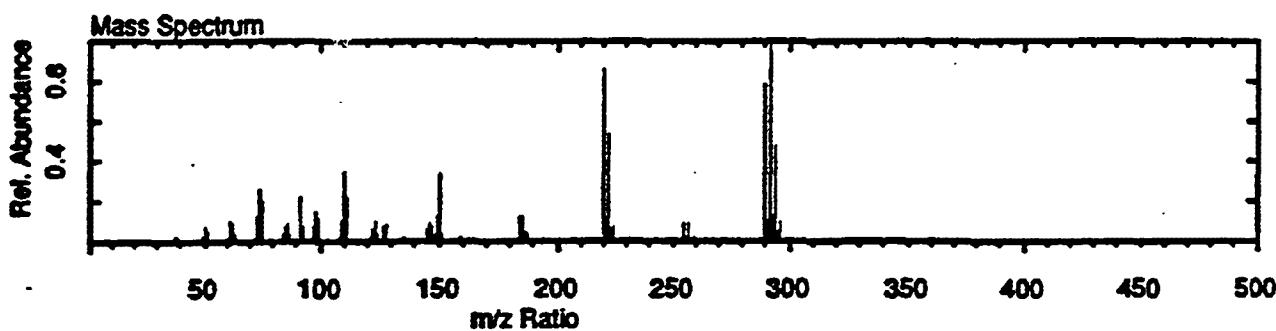


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.10	99.00	0.13	150.00	0.34	254.95	0.39	293.90	0.48
62.05	0.09	109.05	0.11	184.00	0.14	256.95	0.39	295.90	0.10
73.05	0.12	110.05	0.36	185.00	0.15	258.95	0.13		
74.05	0.27	111.05	0.22	219.95	0.94	290.00	0.80		
75.05	0.21	123.05	0.10	221.05	0.13	291.00	0.10		
92.10	0.23	146.00	0.09	221.95	0.60	291.90	1.00		
98.00	0.16	149.00	0.13	223.95	0.10	293.00	0.13		

IUPAC Congener No. 54
 2,2',6,6'-TETRACHLOROBIPHENYL
 CAS No. 15968-05-5



cm^{-1}	abs								
726.37	0.21	798.52	1.00	1154.65	0.08	1434.15	0.95	1593.23	0.07
737.05	0.26	1084.16	0.29	1200.59	0.23	1564.34	0.39	1598.65	0.06
777.59	0.61	1124.49	0.21	1414.53	0.25	1580.72	0.20		

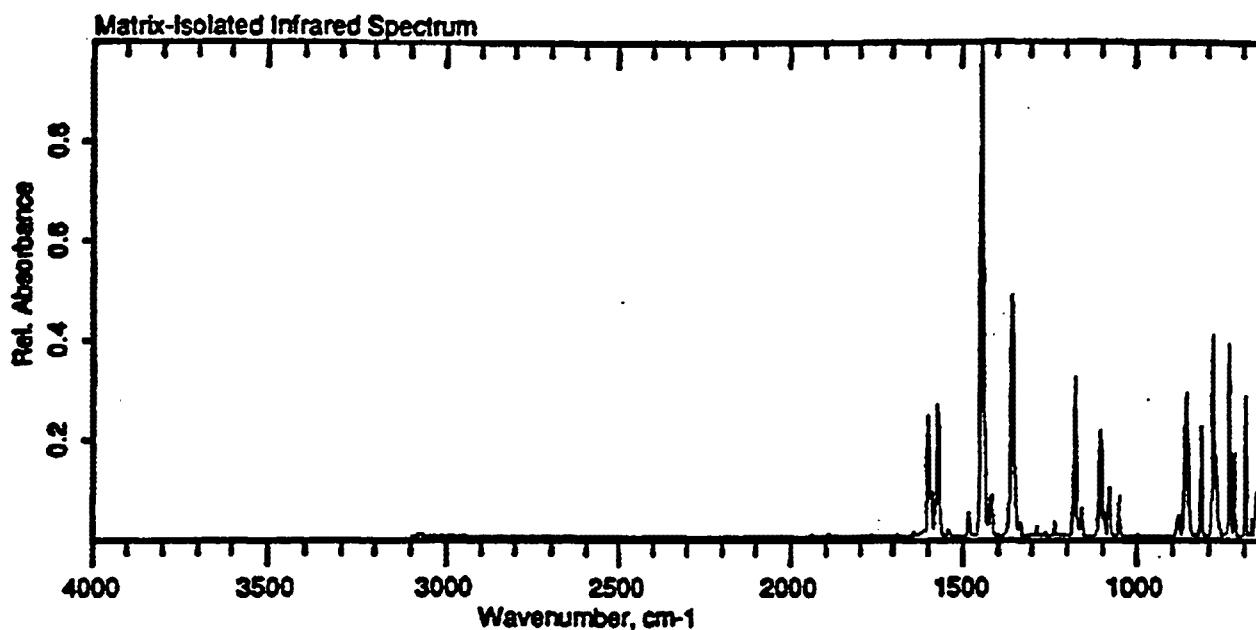
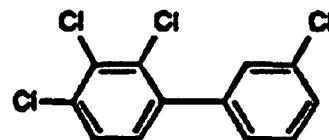


m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.15	0.10	98.00	0.16	146.00	0.10	221.05	0.12
73.05	0.13	99.00	0.12	149.10	0.13	222.05	0.54
74.05	0.27	109.05	0.11	150.10	0.34	255.05	0.10
75.05	0.20	110.05	0.35	184.10	0.13	257.05	0.09
86.10	0.09	111.05	0.23	185.10	0.13	290.00	0.79
92.10	0.23	123.05	0.11	220.05	0.86	291.00	0.10

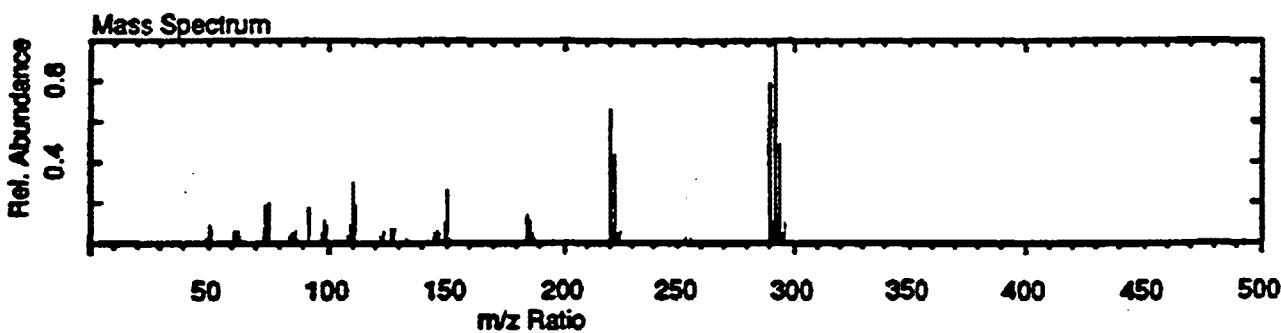
IUPAC Congener No. 55

2,3,3',4-TETRACHLOROBIPHENYL

CAS No. 74338-24-2

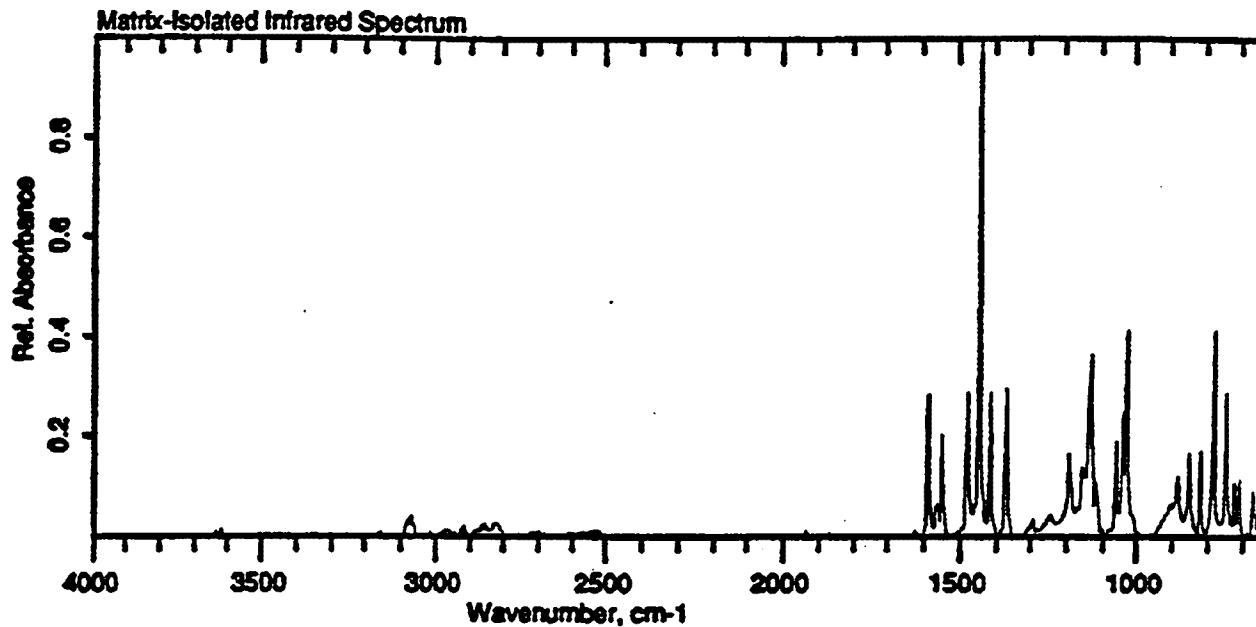
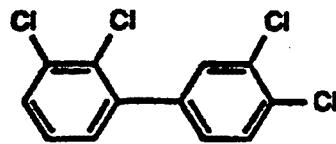


cm^{-1}	abs								
662.99	0.06	782.28	0.17	1055.55	0.09	1178.29	0.32	1574.55	0.27
666.30	0.10	789.52	0.41	1084.07	0.10	1359.25	0.49	1591.48	0.09
696.21	0.29	822.62	0.23	1099.16	0.06	1418.15	0.09		
728.50	0.18	882.57	0.29	1108.29	0.22	1446.45	1.00		
743.04	0.40	887.17	0.05	1160.68	0.06	1484.69	0.05		

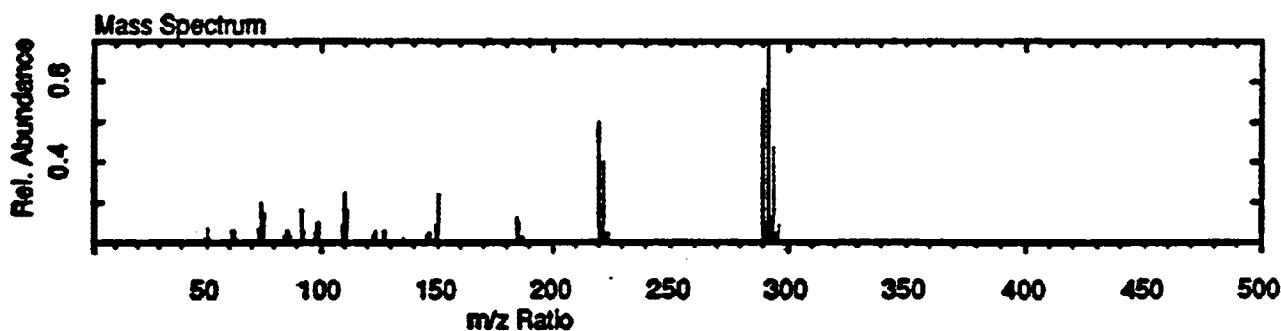


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.10	86.00	0.06	111.05	0.19	184.10	0.14	291.00	0.10
51.10	0.07	92.10	0.18	123.05	0.06	185.10	0.11	292.00	1.00
61.15	0.07	97.00	0.06	127.05	0.08	220.05	0.67	293.00	0.13
62.05	0.07	98.00	0.12	128.05	0.08	221.05	0.10	294.00	0.49
73.05	0.08	99.00	0.09	146.00	0.07	222.05	0.44	295.00	0.06
74.05	0.19	108.05	0.09	149.10	0.10	224.05	0.07	296.00	0.10
75.05	0.20	110.05	0.30	150.10	0.27	290.00	0.79		

IUPAC Congener No. 56
 2,3,3',4'-TETRACHLOROBIPHENYL
 CAS No. 41464-43-1

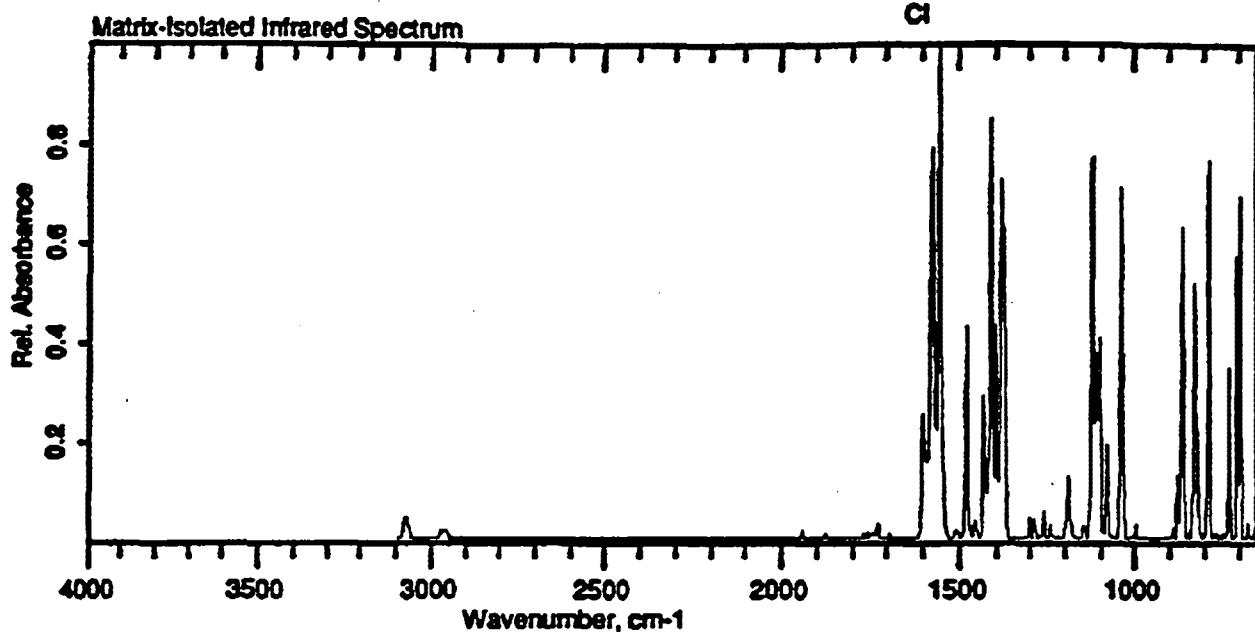
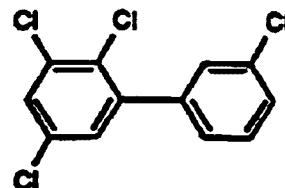


cm^{-1}	abs								
657.53	0.09	787.16	0.42	1064.56	0.18	1373.46	0.28	3719.21	0.10
666.32	0.05	825.29	0.16	1121.56	0.11	1418.49	0.28	3753.37	0.12
674.47	0.09	856.10	0.16	1136.33	0.35	1449.31	1.00		
714.30	0.12	887.34	0.12	1150.16	0.11	1480.48	0.27		
725.58	0.11	907.65	0.06	1160.03	0.13	1552.52	0.19		
730.13	0.10	1036.24	0.43	1176.55	0.05	1563.39	0.06		
752.19	0.28	1045.13	0.23	1195.88	0.16	1590.65	0.27		

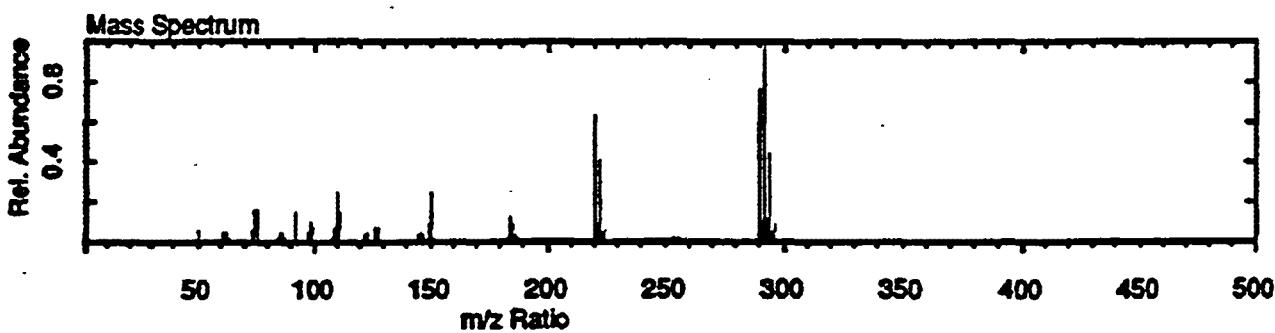


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.08	86.00	0.06	111.05	0.17	184.00	0.13	291.00	0.10
61.05	0.07	92.00	0.17	123.05	0.06	185.00	0.10	292.00	1.00
62.05	0.06	92.70	0.06	127.05	0.07	220.05	0.61	293.00	0.13
73.05	0.08	98.00	0.11	127.95	0.07	221.05	0.09	294.00	0.48
74.05	0.21	99.00	0.11	146.00	0.06	221.95	0.40	296.00	0.10
75.05	0.16	109.05	0.09	149.00	0.09	223.95	0.06		
85.00	0.07	110.05	0.25	150.00	0.24	290.00	0.76		

IUPAC Congener No. 57
 2,3,3',5-TETRACHLOROBIPHENYL
 CAS No. 70424-67-8



cm^{-1}	abs								
696.96	0.70	880.88	0.13	1125.85	0.77	1401.53	0.44	1590.12	0.16
707.37	0.58	1042.11	0.72	1192.23	0.13	1414.36	0.86	1597.32	0.18
728.75	0.35	1083.77	0.20	1263.07	0.06	1436.10	0.29	1602.81	0.25
789.26	0.77	1092.87	0.05	1291.82	0.05	1482.87	0.44		
829.60	0.52	1104.66	0.41	1304.33	0.05	1555.30	1.00		
865.64	0.64	1115.10	0.38	1385.23	0.72	1576.81	0.79		

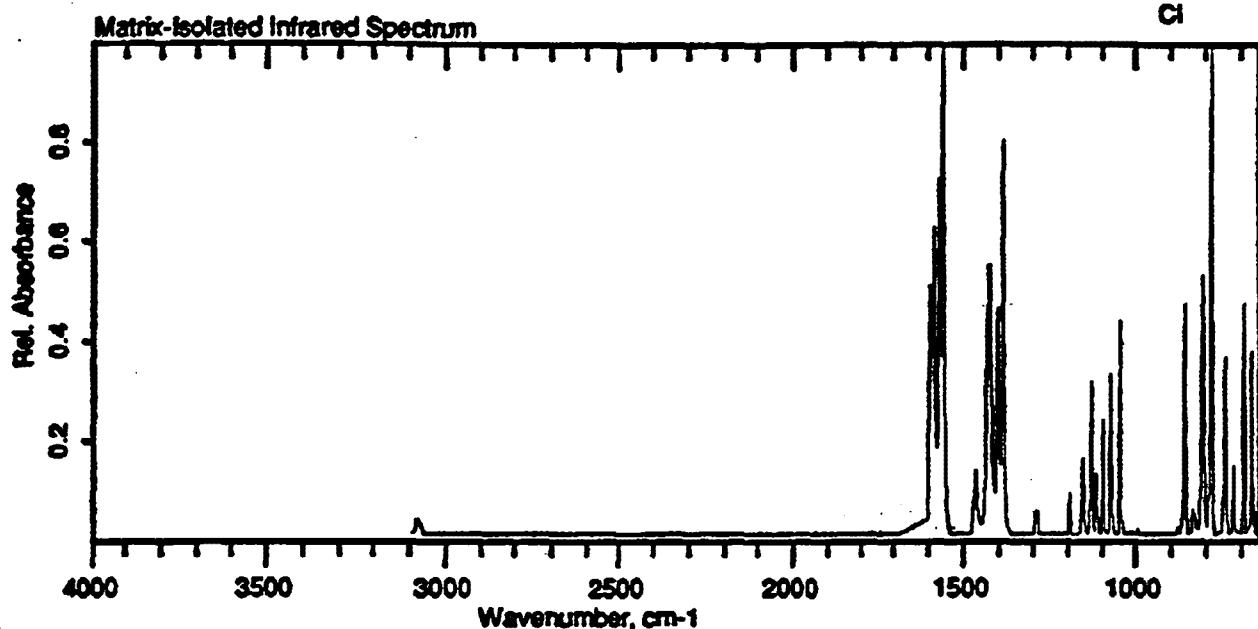
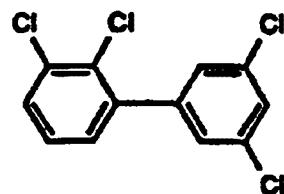


m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.07	98.00	0.11	127.95	0.08	221.05	0.09
73.05	0.07	99.00	0.08	149.10	0.09	222.05	0.41
74.05	0.17	109.05	0.08	150.10	0.26	224.05	0.06
75.05	0.17	110.05	0.25	184.00	0.13	290.00	0.77
86.00	0.06	111.05	0.16	185.10	0.10	291.00	0.10
92.10	0.15	127.05	0.08	220.05	0.64	292.00	1.00

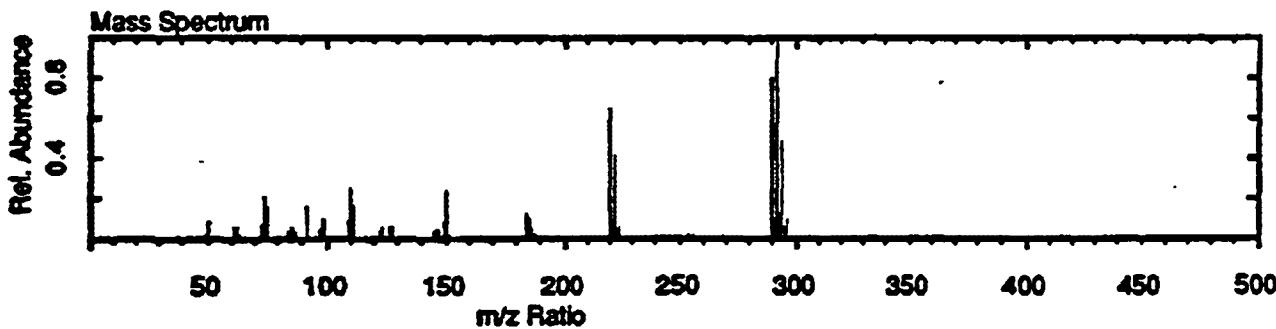
IUPAC Congener No. 58

2,3,3',5'-TETRACHLOROBIPHENYL

CAS No. 41464-49-7



cm^{-1}	abs								
655.55	0.06	810.96	0.53	1118.55	0.14	1387.56	0.81	1585.27	0.63
670.55	0.39	838.35	0.06	1132.84	0.32	1402.87	0.47	1590.98	0.41
692.33	0.48	862.47	0.48	1159.80	0.17	1426.76	0.56		
722.63	0.15	1050.73	0.45	1197.20	0.10	1464.88	0.14		
747.23	0.37	1077.82	0.34	1290.37	0.06	1560.09	0.99		
785.22	1.00	1099.54	0.24	1295.73	0.06	1570.43	0.73		

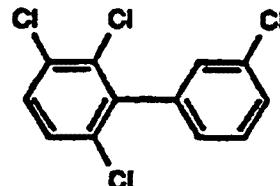


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.09	86.00	0.06	123.05	0.07	220.05	0.66	293.00	0.13
61.05	0.07	92.10	0.17	127.05	0.07	221.05	0.10	294.00	0.49
62.05	0.07	98.00	0.11	127.95	0.07	222.05	0.42	295.00	0.06
73.05	0.09	99.00	0.11	149.10	0.10	224.05	0.07	296.00	0.11
74.05	0.22	109.05	0.09	150.10	0.24	290.00	0.80		
75.05	0.17	110.05	0.25	184.10	0.13	291.00	0.11		
85.00	0.07	111.05	0.16	185.10	0.11	292.00	1.00		

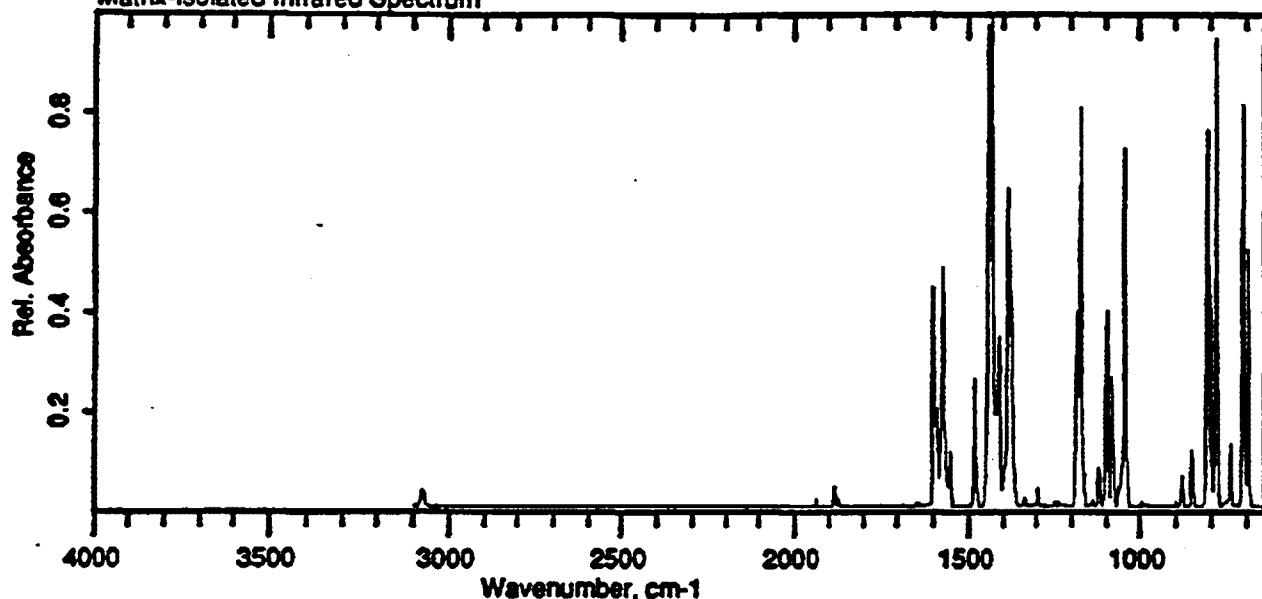
IUPAC Congener No. 59

2,3,3',6-TETRACHLOROBIPHENYL

CAS No. 74472-33-6



Matrix-Isolated Infrared Spectrum



cm-1 abs

695.57	0.53
709.54	0.82
745.60	0.13
786.59	0.96
807.71	0.46
812.64	0.78

cm-1 abs

857.65	0.12
886.07	0.07
1048.17	0.73
1055.89	0.09
1064.86	0.05
1084.87	0.27

cm-1 abs

1098.18	0.41
1123.65	0.08
1174.57	0.81
1185.55	0.40
1300.64	0.05
1384.52	0.65

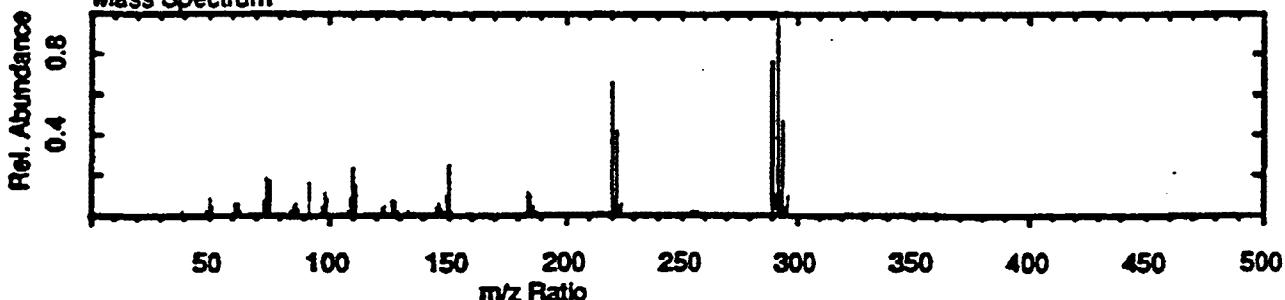
cm-1 abs

1412.31	0.36
1420.37	0.21
1434.09	1.00
1442.71	0.98
1484.21	0.27
1554.84	0.12

cm-1 abs

1575.10	0.49
1591.48	0.21
1603.19	0.45

Mass Spectrum



m/z abun

50.00	0.09
51.10	0.06
61.05	0.07
62.05	0.07
73.05	0.09
74.05	0.19
75.05	0.18

m/z abun

85.00	0.06
86.00	0.07
92.10	0.17
98.00	0.12
99.00	0.09
109.05	0.09
110.05	0.24

m/z abun

111.05	0.16
123.05	0.06
127.05	0.08
127.95	0.08
146.00	0.06
149.00	0.10
150.10	0.26

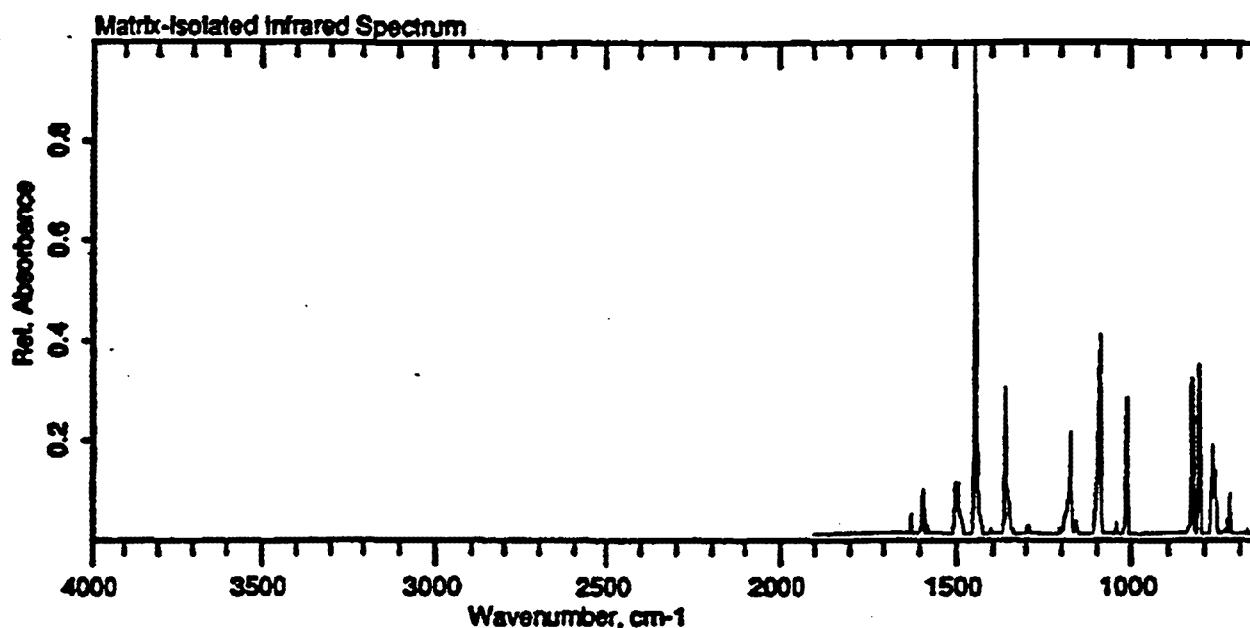
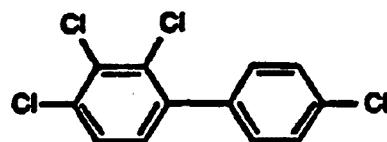
m/z abun

184.00	0.12
185.10	0.10
220.05	0.67
221.05	0.10
222.05	0.44
223.95	0.07
290.00	0.77

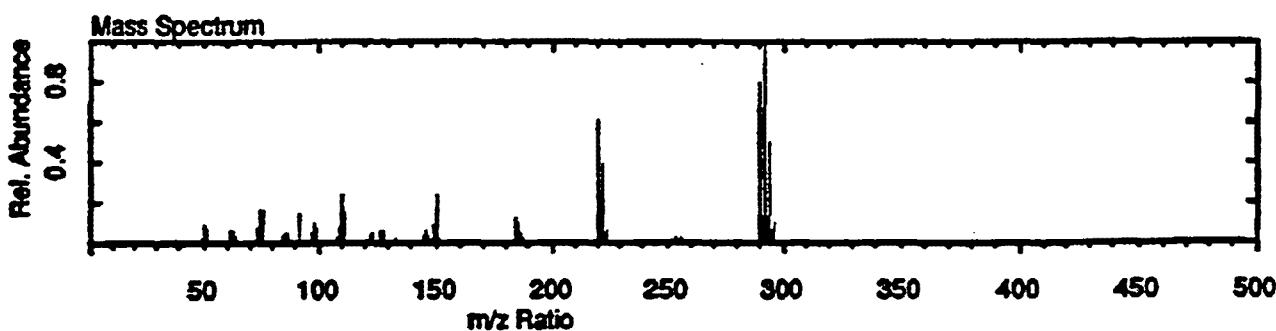
m/z abun

291.00	0.10
292.00	1.00
293.00	0.13
294.00	0.48
296.00	0.10

IUPAC Congener No. 60
 2,3,4,4'-TETRACHLOROBIPHENYL
 CAS No. 33025-41-1

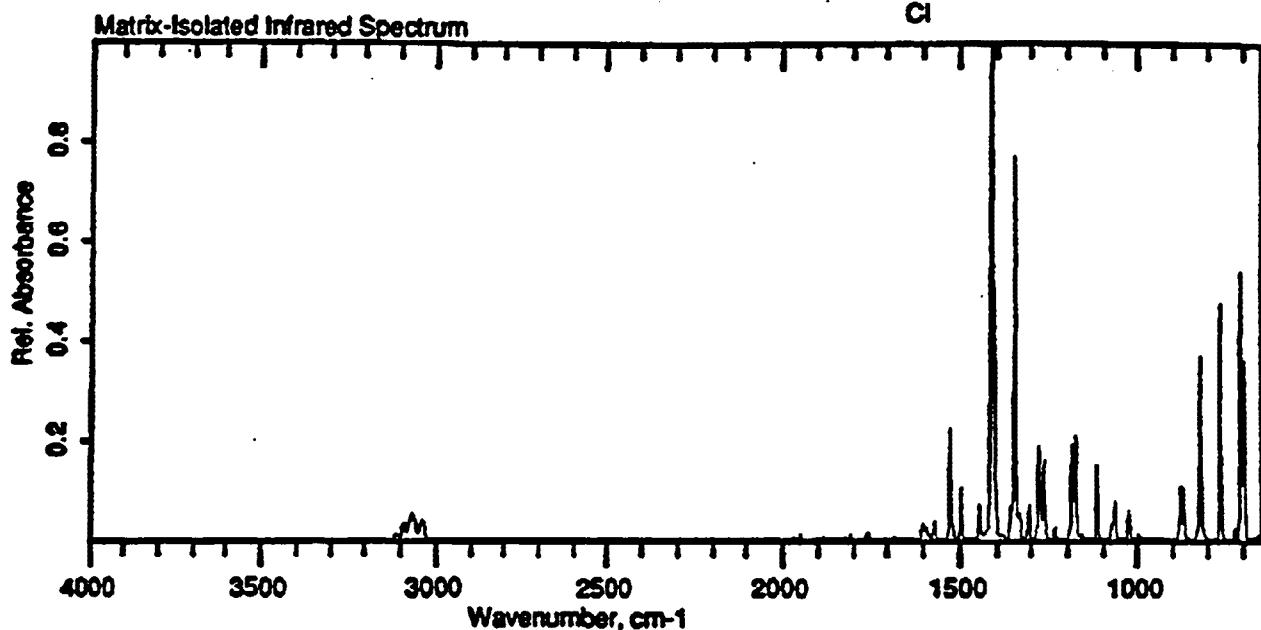
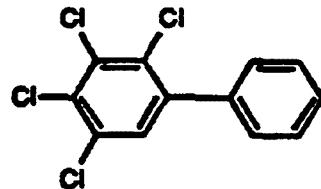


cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
662.62	0.05	816.06	0.35	1099.78	0.21	1495.80	0.11		
727.54	0.09	836.21	0.32	1175.73	0.21	1503.16	0.11		
770.92	0.14	1018.62	0.28	1363.38	0.30	1591.40	0.10		
779.20	0.19	1093.11	0.41	1447.23	1.00	1626.35	0.05		

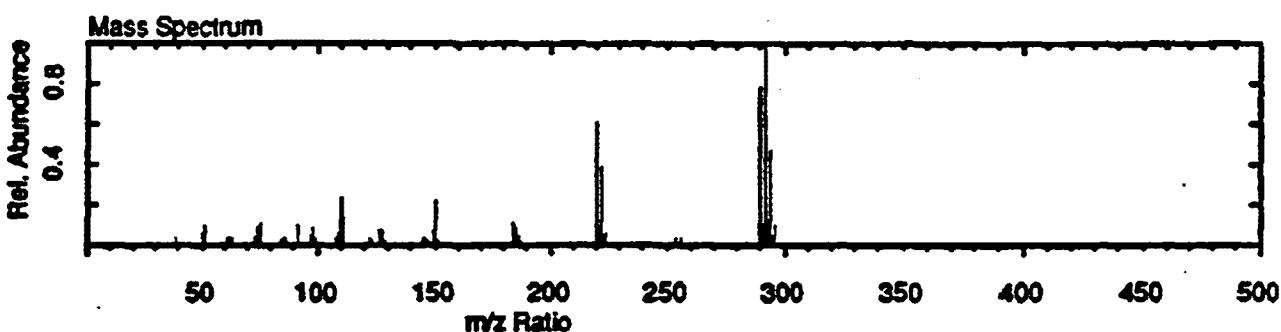


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.09	86.10	0.06	127.05	0.07	220.05	0.61	293.00	0.13
51.10	0.06	92.10	0.15	128.05	0.07	221.05	0.09	294.00	0.50
61.05	0.07	98.00	0.11	146.00	0.06	222.05	0.40	295.00	0.06
62.05	0.07	99.00	0.08	149.10	0.09	224.05	0.06	296.00	0.11
73.05	0.08	109.05	0.08	150.10	0.24	290.00	0.80		
74.05	0.17	110.05	0.25	184.10	0.13	291.00	0.10		
75.05	0.17	111.05	0.16	185.10	0.11	292.00	1.00		

IUPAC Congener No. 61
 2,3,4,5-TETRACHLOROBIPHENYL
 CAS No. 33284-53-6



cm^{-1}	abs								
698.96	0.36	882.63	0.11	1189.86	0.19	1350.39	0.77	1529.42	0.22
708.36	0.55	1031.48	0.06	1267.87	0.16	1361.53	0.07		
766.49	0.48	1069.59	0.08	1282.80	0.19	1414.90	1.00		
824.52	0.37	1120.15	0.15	1309.64	0.07	1449.56	0.07		
873.49	0.11	1180.57	0.21	1336.41	0.05	1499.77	0.11		

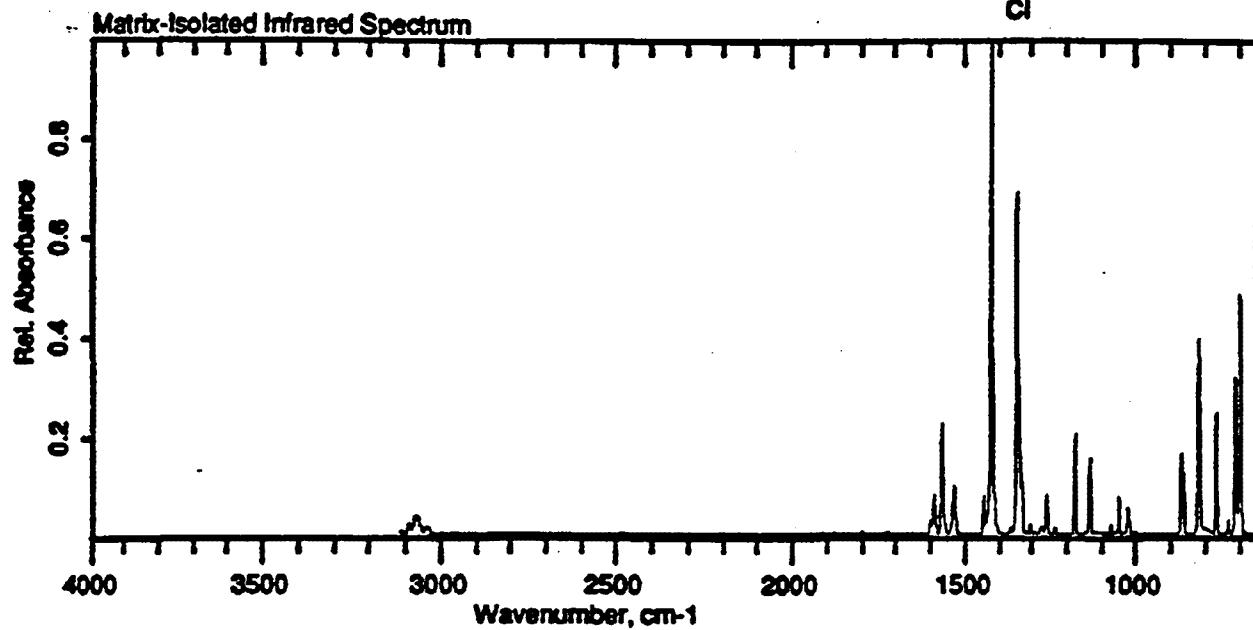
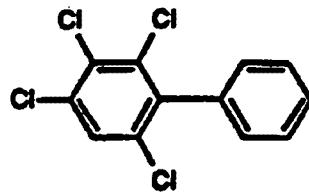


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.07	98.00	0.09	149.00	0.08	221.05	0.09	292.00	1.00
51.10	0.10	109.05	0.07	150.10	0.24	222.05	0.39	293.00	0.13
74.05	0.09	110.05	0.25	184.00	0.12	223.05	0.05	294.00	0.48
75.05	0.11	111.05	0.14	185.10	0.09	224.05	0.06	295.00	0.06
92.10	0.11	127.05	0.08	186.00	0.05	290.00	0.80	296.00	0.10
97.00	0.05	127.95	0.08	220.05	0.62	291.00	0.11		

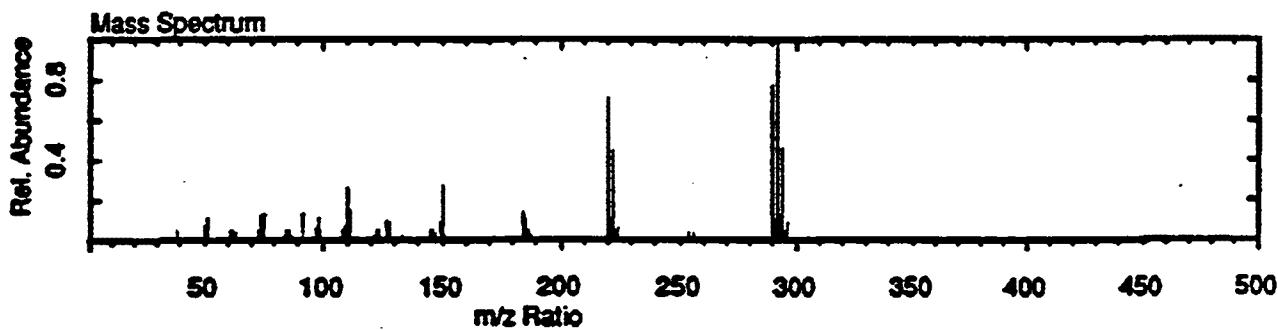
IUPAC Congener No. 62

2,3,4,6-TETRACHLOROBIPHENYL

CAS No. 54230-23-7

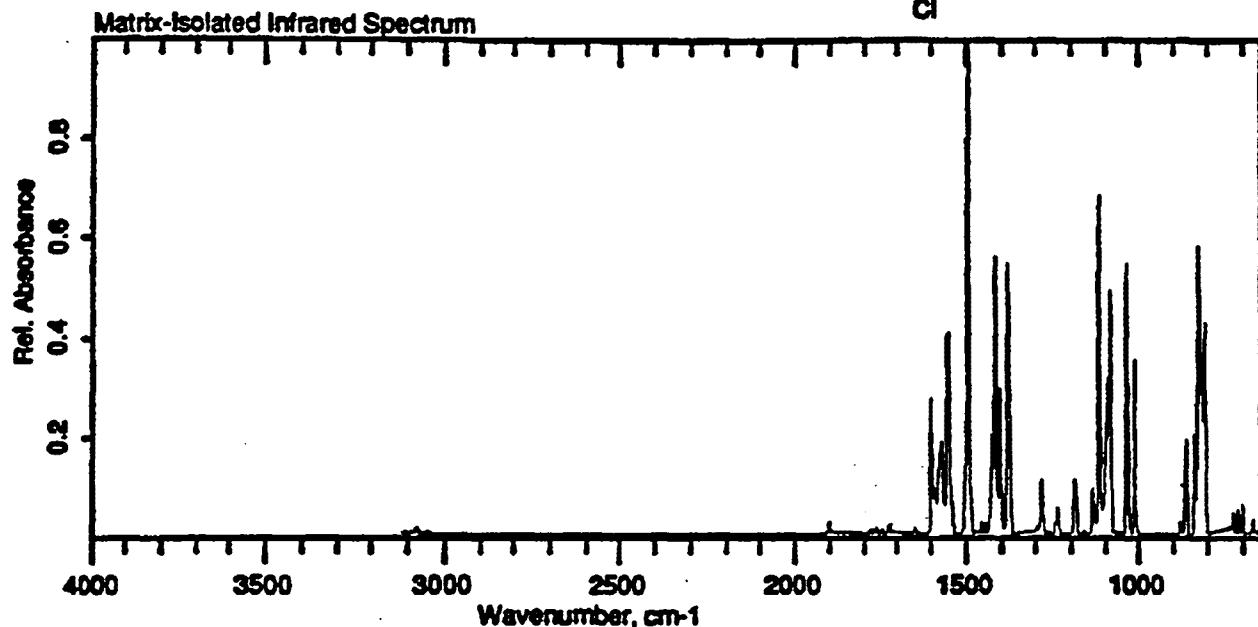
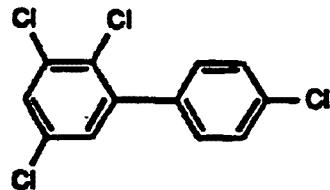


cm^{-1}	abs								
697.91	0.49	866.27	0.13	1138.42	0.16	1345.49	0.68	1568.52	0.23
713.36	0.32	871.01	0.17	1178.95	0.21	1422.84	1.00		
770.35	0.25	1026.78	0.06	1259.40	0.08	1447.99	0.08		
819.86	0.39	1053.18	0.08	1332.34	0.11	1531.82	0.10		

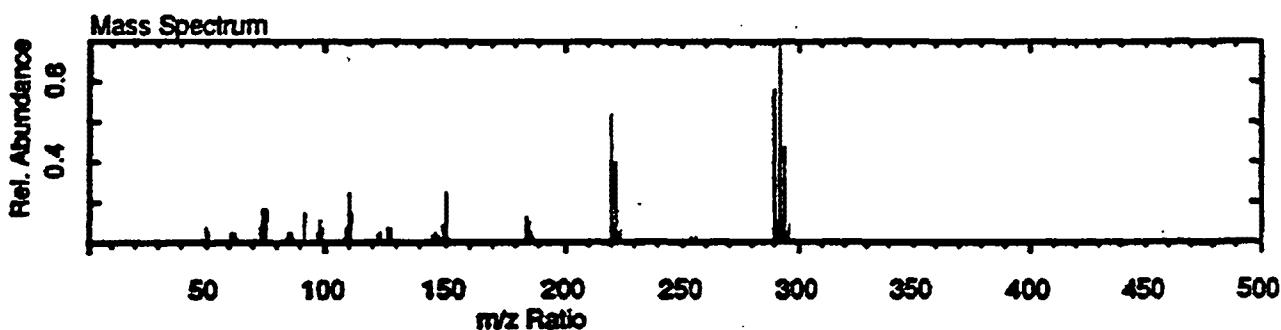


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.08	97.00	0.07	127.05	0.10	185.10	0.10	291.00	0.10
51.10	0.11	98.00	0.12	128.05	0.10	220.05	0.71	292.00	1.00
61.05	0.06	99.00	0.06	146.00	0.06	221.05	0.10	293.00	0.13
74.05	0.13	109.05	0.09	149.10	0.10	222.05	0.45	294.00	0.46
75.05	0.15	110.05	0.27	150.10	0.28	224.05	0.07	296.00	0.10
92.10	0.15	111.05	0.15	184.10	0.15	290.00	0.78		

IUPAC Congener No. 63
 2,3,4',5-TETRACHLOROBIPHENYL
 CAS No. 74472-35-8



cm^{-1}	abs								
702.16	0.06	841.22	0.20	1100.96	0.23	1381.84	0.54	1572.28	0.19
715.28	0.05	866.21	0.19	1121.03	0.68	1404.19	0.29	1590.95	0.09
730.82	0.05	1017.52	0.35	1140.30	0.09	1416.59	0.55		
812.23	0.42	1040.21	0.55	1191.77	0.11	1426.92	0.20		
819.98	0.36	1087.74	0.49	1242.15	0.06	1495.18	1.00		
830.16	0.58	1094.49	0.32	1287.19	0.11	1553.92	0.41		

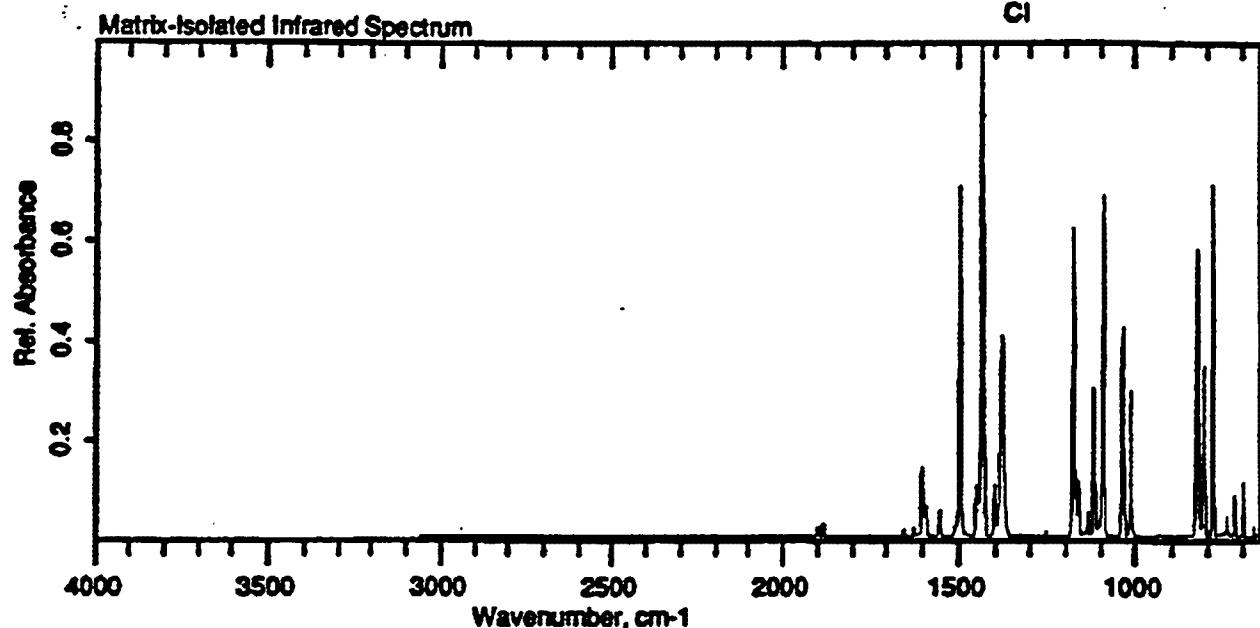
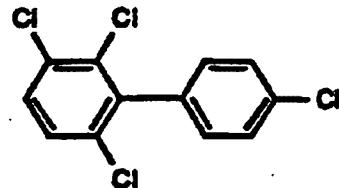


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.08	92.10	0.16	127.95	0.08	221.05	0.09	294.00	0.48
61.05	0.06	98.00	0.11	146.00	0.06	222.05	0.41	296.00	0.10
62.05	0.06	99.00	0.09	149.10	0.10	224.05	0.06		
73.05	0.08	109.05	0.08	150.10	0.25	290.00	0.77		
74.05	0.17	110.05	0.25	184.10	0.13	291.00	0.11		
75.05	0.17	111.05	0.16	185.10	0.10	292.00	1.00		
86.00	0.06	127.05	0.08	220.05	0.64	293.00	0.13		

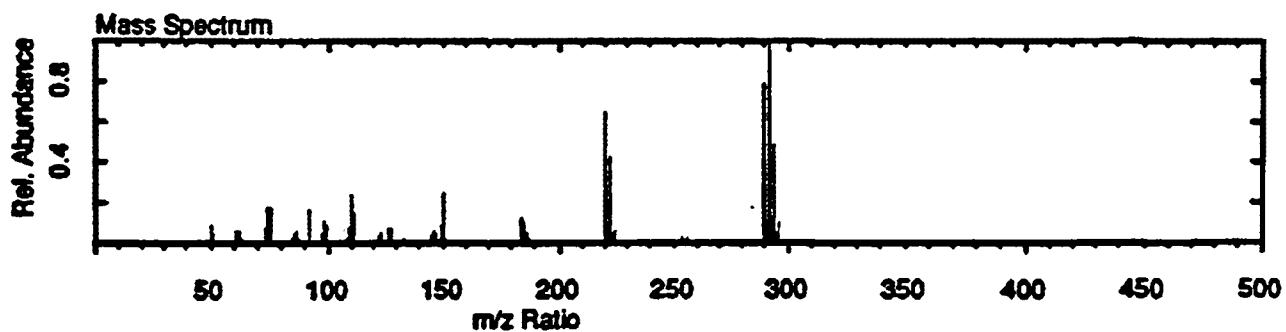
IUPAC Congener No. 64

2,3,4',6-TETRACHLOROBIPHENYL

CAS No. 52663-58-8

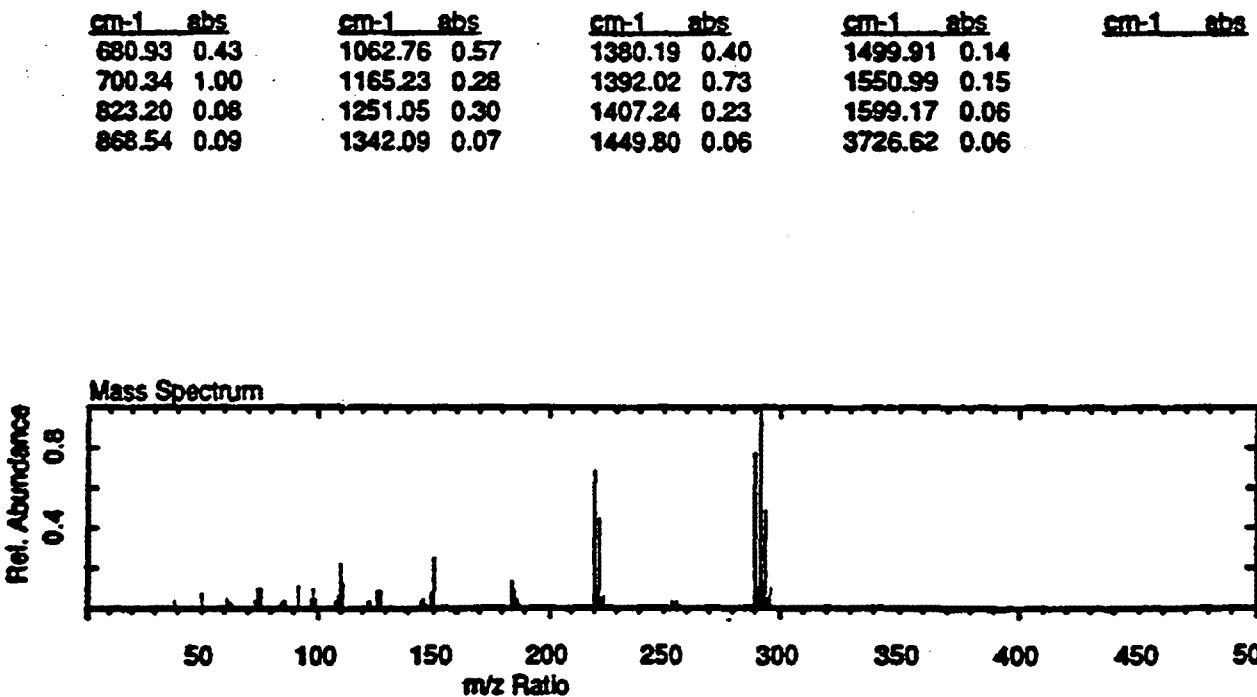
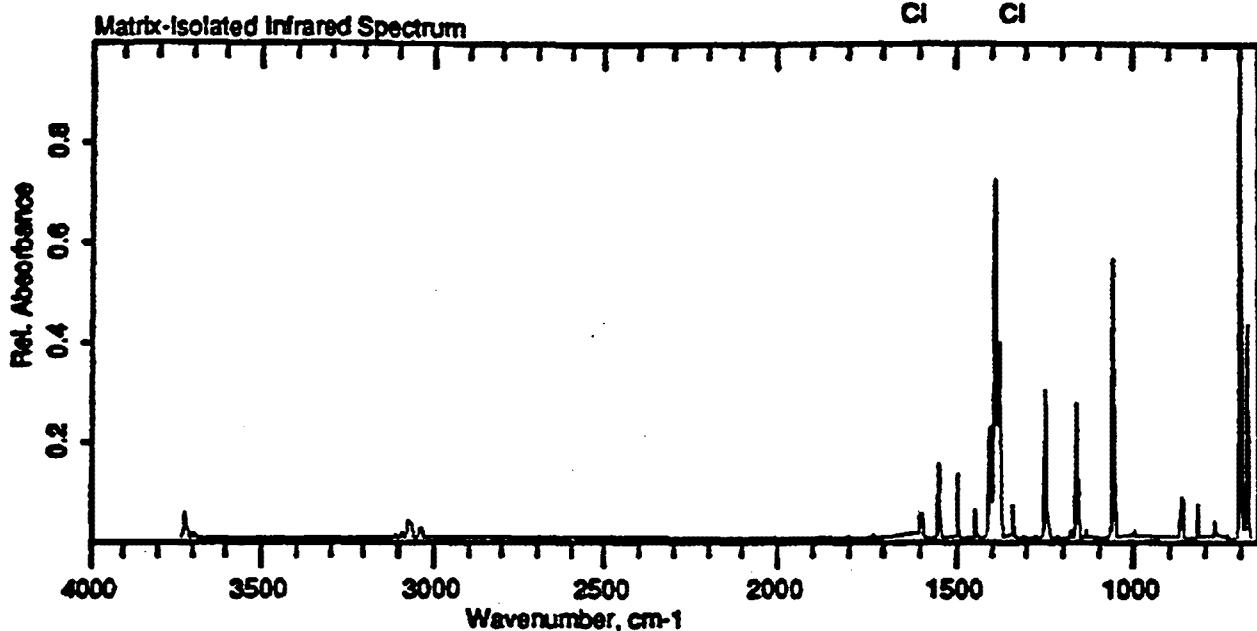
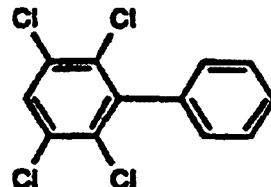


cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
699.39	0.12	832.33	0.58	1139.14	0.05	1437.10	1.00		
723.91	0.09	1017.33	0.30	1165.31	0.12	1451.30	0.11		
746.10	0.05	1040.67	0.42	1181.37	0.62	1497.97	0.71		
787.70	0.72	1094.69	0.69	1382.48	0.41	1553.81	0.06		
812.90	0.35	1123.02	0.31	1402.06	0.11	1591.70	0.07		



m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.09	92.10	0.17	127.95	0.08	221.05	0.10	294.00	0.50
61.05	0.07	98.00	0.12	146.00	0.07	222.05	0.44	295.00	0.06
62.05	0.07	99.00	0.10	149.10	0.10	224.05	0.07	296.00	0.10
73.05	0.08	109.05	0.08	150.10	0.26	290.00	0.79		
74.05	0.19	110.05	0.24	184.10	0.14	291.00	0.11		
75.05	0.18	111.05	0.16	185.10	0.11	292.00	1.00		
86.00	0.06	127.05	0.08	220.05	0.66	293.00	0.13		

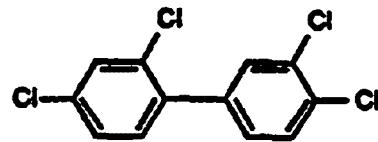
IUPAC Congener No. 65
 2,3,5,6-TETRACHLOROBIPHENYL
 CAS No. 33284-54-7



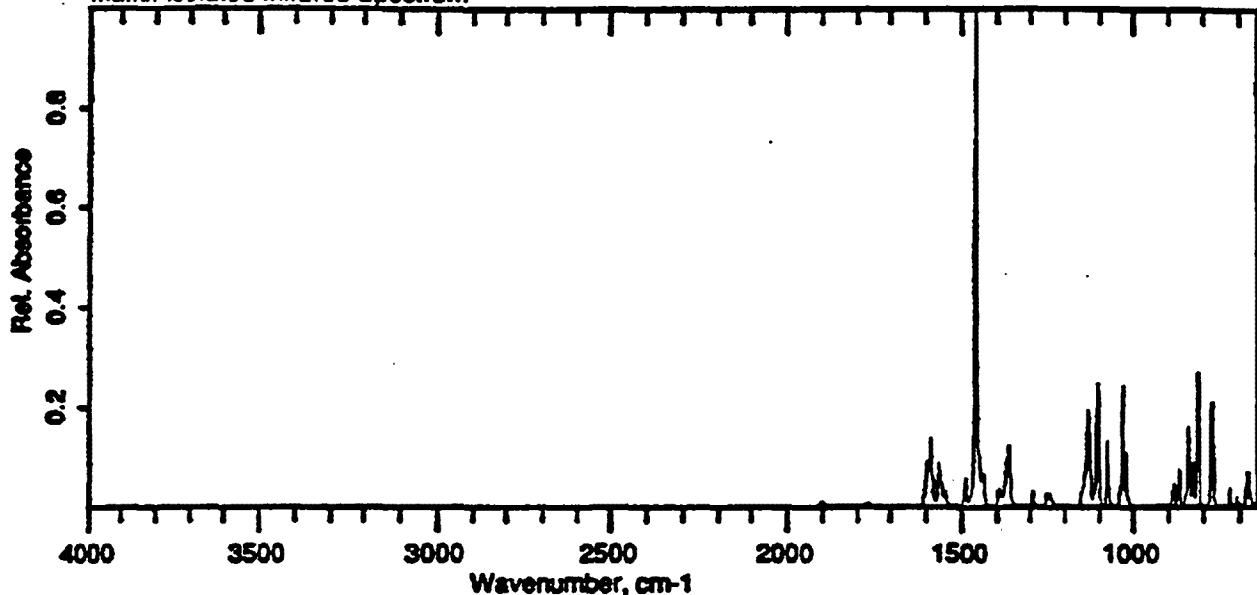
IUPAC Congener No. 66

2,3',4,4'-TETRACHLOROBIPHENYL

CAS No. 32598-10-0

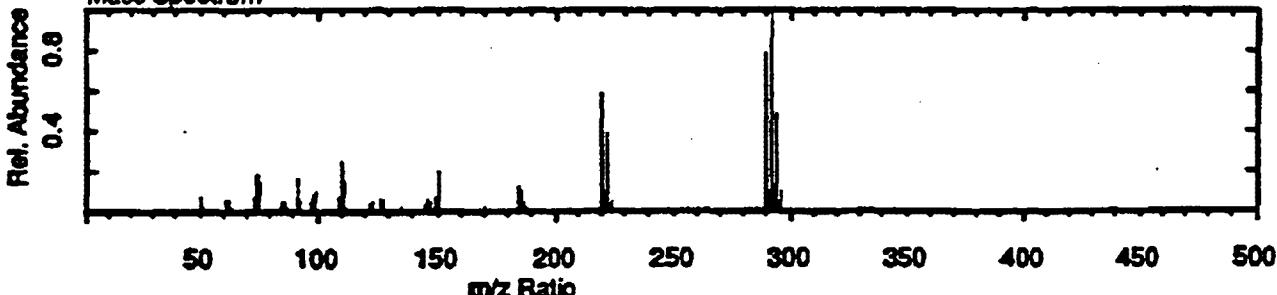


Matrix-Isolated Infrared Spectrum



cm ⁻¹	abs	cm ⁻¹	abs						
678.65	0.07	872.63	0.07	1134.80	0.19	1463.43	1.00		
777.73	0.21	1026.05	0.11	1146.34	0.07	1490.92	0.05		
817.89	0.26	1036.05	0.24	1365.16	0.12	1560.76	0.05		
831.57	0.09	1079.45	0.13	1371.59	0.09	1567.25	0.08		
844.94	0.15	1107.87	0.24	1439.73	0.06	1589.86	0.13		

Mass Spectrum

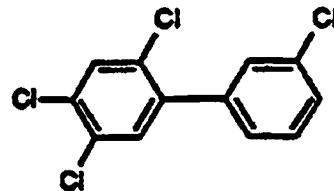


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.08	92.10	0.17	127.05	0.07	220.05	0.60	293.00	0.13
61.05	0.06	92.70	0.06	128.05	0.07	221.05	0.09	294.00	0.49
62.05	0.07	98.00	0.10	146.00	0.06	222.05	0.40	296.00	0.10
73.05	0.08	99.00	0.10	149.10	0.09	224.05	0.06		
74.05	0.20	109.05	0.08	150.10	0.21	290.00	0.80		
75.05	0.15	110.05	0.26	184.10	0.13	291.00	0.10		
85.00	0.06	111.05	0.16	185.10	0.10	292.00	1.00		

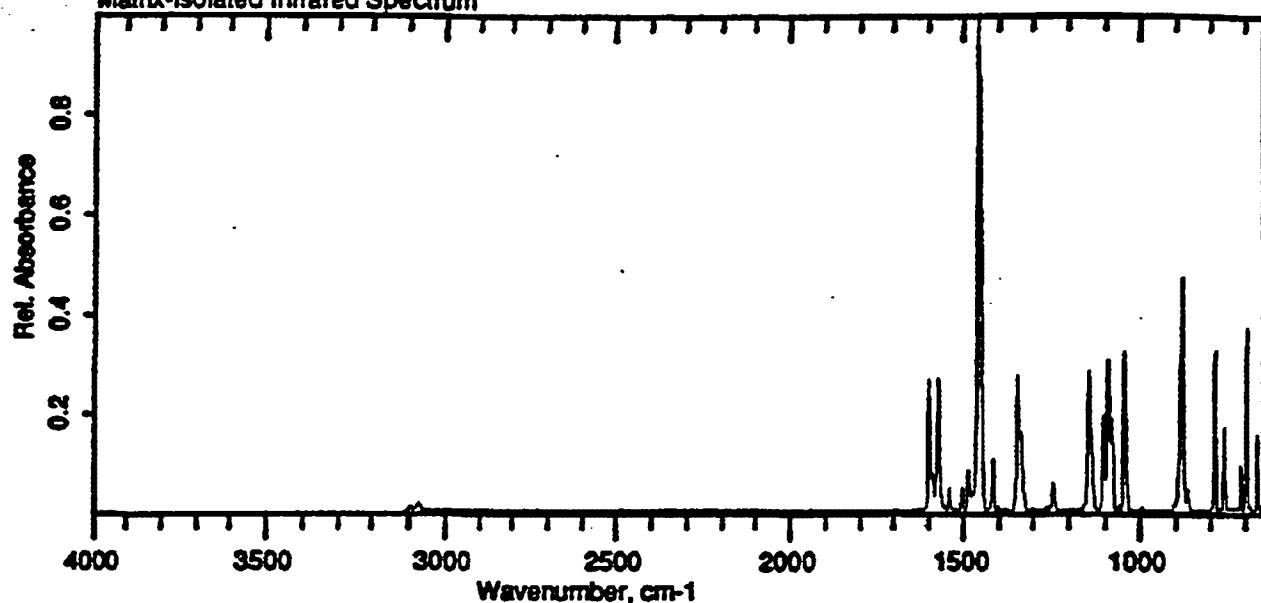
IUPAC Congener No. 67

2,3',4,5-TETRACHLOROBIPHENYL

CAS No. 73575-53-8

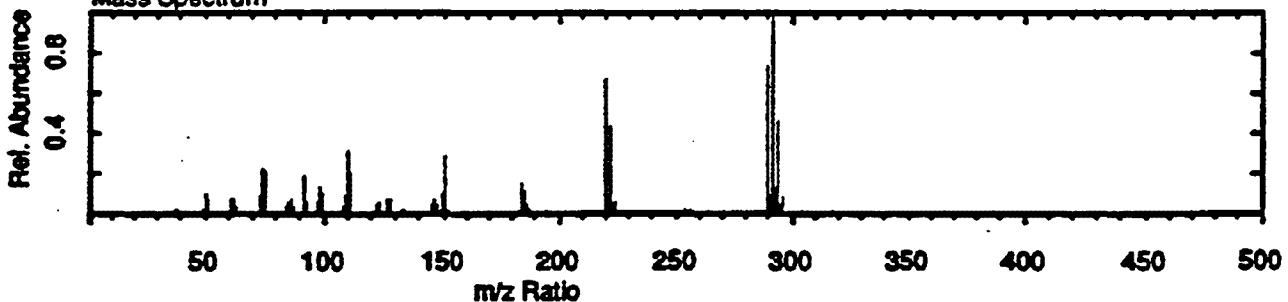


Matrix-Isolated Infrared Spectrum



<u>cm-1</u>	<u>abs</u>								
667.38	0.16	870.00	0.05	1105.65	0.20	1415.88	0.11	1541.26	0.05
697.24	0.37	886.45	0.47	1146.77	0.28	1453.60	0.88	1574.32	0.27
713.95	0.09	1049.89	0.33	1246.47	0.06	1459.09	1.00	1591.26	0.08
763.08	0.17	1082.24	0.19	1338.01	0.18	1487.30	0.08		
789.56	0.33	1093.82	0.31	1348.29	0.27	1504.28	0.05		

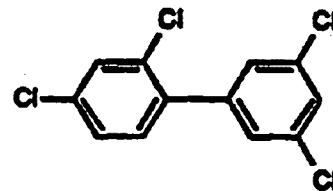
Mass Spectrum



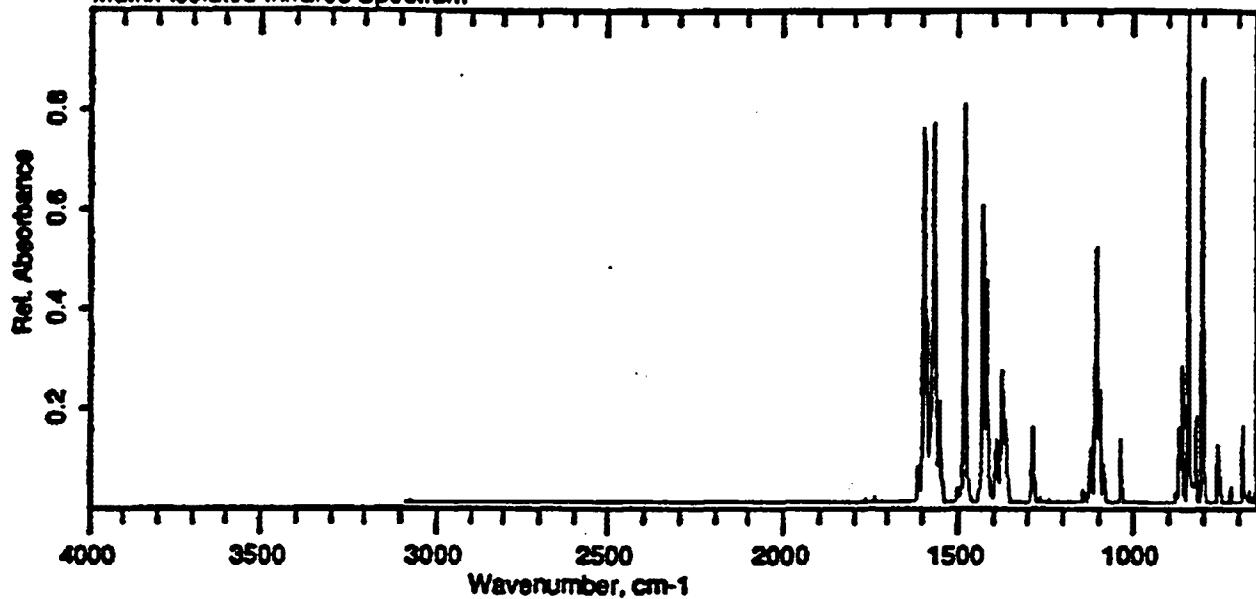
<u>m/z</u>	<u>abun</u>								
50.00	0.11	86.00	0.08	110.05	0.32	184.00	0.16	292.00	1.00
51.10	0.08	92.10	0.19	111.05	0.21	185.00	0.12	293.00	0.13
61.05	0.09	92.70	0.07	127.05	0.08	220.05	0.68	294.00	0.47
62.05	0.09	97.00	0.07	127.95	0.08	221.05	0.10	296.00	0.10
73.05	0.09	98.00	0.14	146.00	0.08	222.05	0.44		
74.05	0.23	99.00	0.11	149.00	0.11	290.00	0.75		
75.05	0.22	109.05	0.10	150.10	0.29	291.00	0.10		

IUPAC Congener No. 68

2,3',4,5'-TETRACHLOROBIPHENYL
CAS No. 73575-52-7

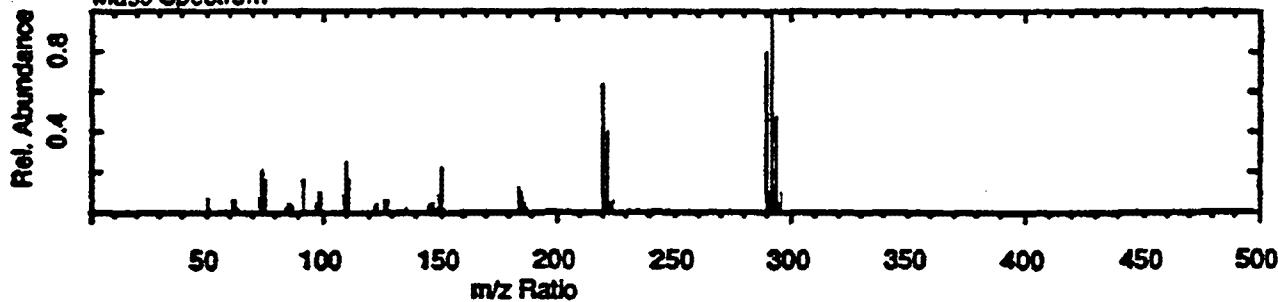


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
688.86	0.17	847.53	1.00	1098.90	0.24	1376.30	0.27	1554.10	0.21
760.91	0.12	863.93	0.28	1110.42	0.52	1392.70	0.14	1569.20	0.77
805.67	0.87	872.42	0.16	1123.15	0.12	1419.06	0.46	1596.97	0.76
824.26	0.18	1041.12	0.14	1288.41	0.16	1431.06	0.60		
834.50	0.05	1088.93	0.09	1366.91	0.17	1482.61	0.81		

Mass Spectrum

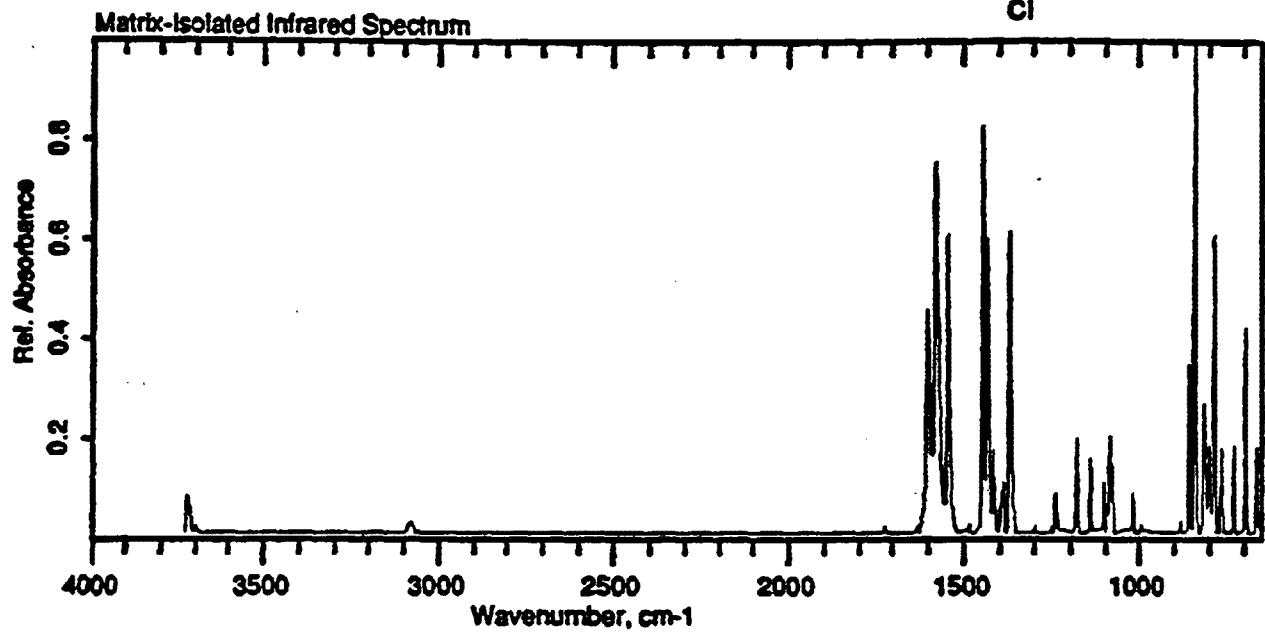
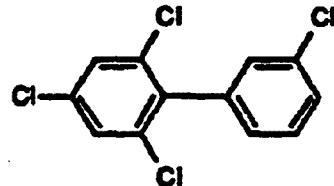


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.09	92.10	0.17	127.05	0.07	220.05	0.65	293.00	0.13
61.05	0.07	98.00	0.11	127.95	0.07	221.05	0.10	294.00	0.48
62.05	0.07	99.00	0.11	146.00	0.06	222.05	0.41	295.00	0.06
73.05	0.08	109.05	0.09	149.10	0.09	224.05	0.07	296.00	0.11
74.05	0.21	110.05	0.26	150.10	0.24	290.00	0.80		
75.05	0.16	111.05	0.17	184.10	0.13	291.00	0.10		
85.10	0.06	123.05	0.06	185.10	0.11	292.00	1.00		

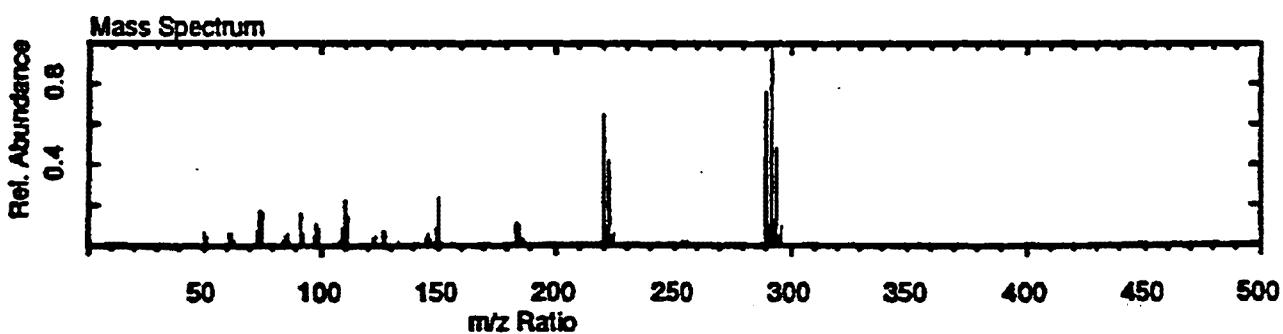
IUPAC Congener No. 69

2,3',4,6-TETRACHLOROBIPHENYL

CAS No. 60233-24-1



cm^{-1}	abs								
665.41	0.18	817.49	0.27	1097.66	0.07	1390.13	0.11	1603.02	0.45
696.95	0.42	845.32	1.00	1107.49	0.11	1417.69	0.17	3719.06	0.06
731.33	0.18	860.68	0.35	1146.18	0.16	1433.33	0.59		
767.96	0.18	1023.41	0.09	1185.49	0.20	1446.76	0.81		
787.74	0.60	1082.35	0.14	1244.55	0.09	1546.29	0.61		
803.47	0.18	1089.55	0.20	1372.14	0.61	1580.67	0.74		

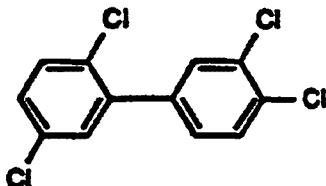


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.08	92.10	0.16	127.05	0.08	220.05	0.66	293.00	0.13
61.05	0.07	92.70	0.06	128.05	0.08	221.05	0.10	294.00	0.49
62.05	0.07	98.00	0.12	146.00	0.06	222.05	0.43	296.00	0.10
73.05	0.08	99.00	0.10	149.00	0.10	223.95	0.07		
74.05	0.18	109.05	0.09	150.10	0.25	290.00	0.77		
75.05	0.17	110.05	0.24	184.00	0.12	291.00	0.10		
86.00	0.06	111.05	0.15	185.10	0.10	292.00	1.00		

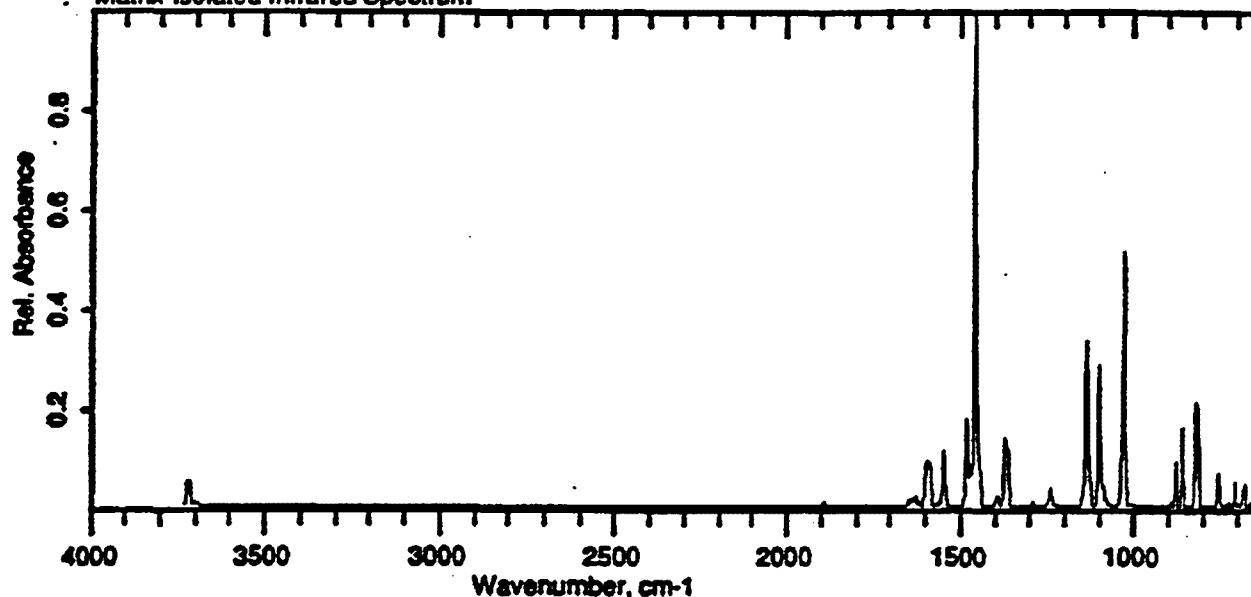
IUPAC Congener No. 70

2,3',4',5-TETRACHLOROBIPHENYL

CAS No. 32598-11-1

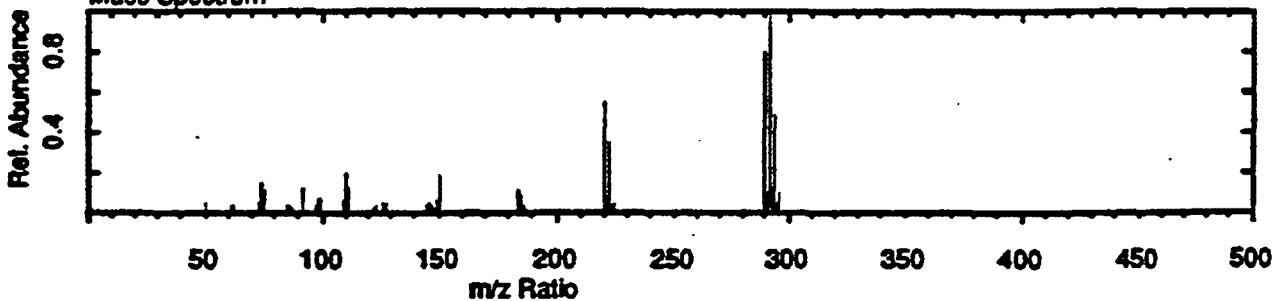


Matrix-Isolated Infrared Spectrum



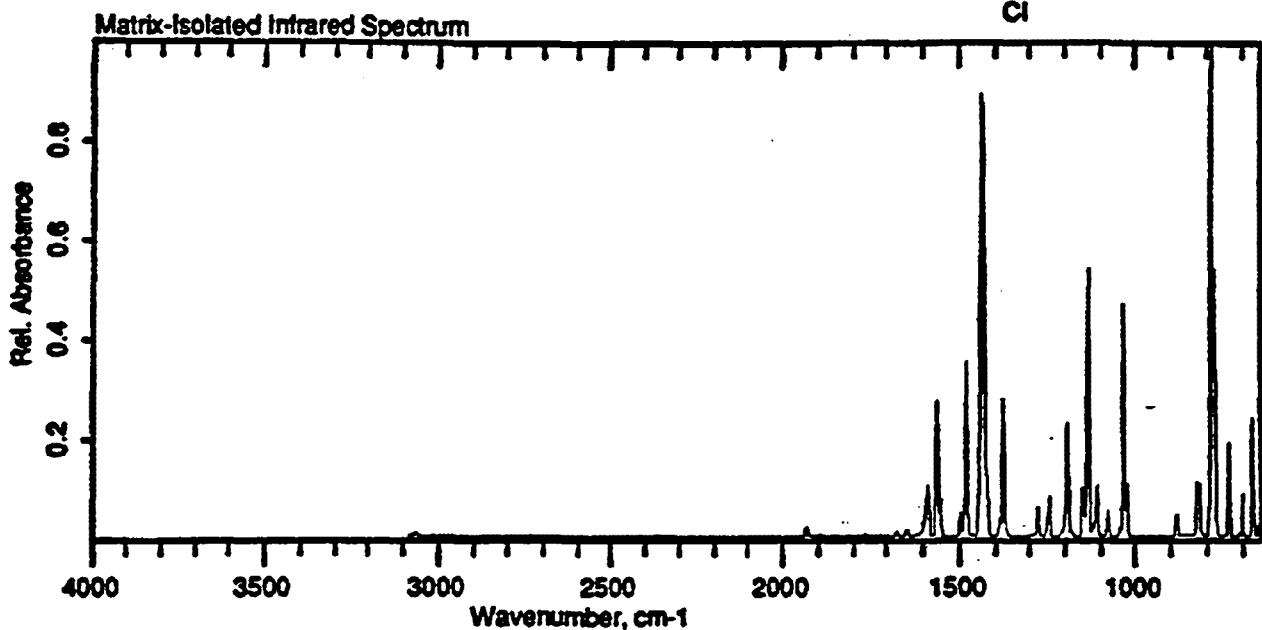
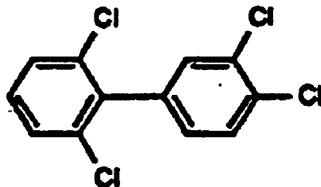
cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
679.18	0.05	863.55	0.17	1139.80	0.34	1485.45	0.18		
709.04	0.05	882.63	0.10	1365.80	0.12	1552.24	0.12		
759.18	0.07	1033.81	0.51	1373.56	0.14	1590.42	0.09		
817.89	0.21	1092.58	0.05	1460.40	1.00	1599.11	0.10		
824.20	0.22	1105.15	0.29	1475.01	0.09	3719.69	0.06		

Mass Spectrum

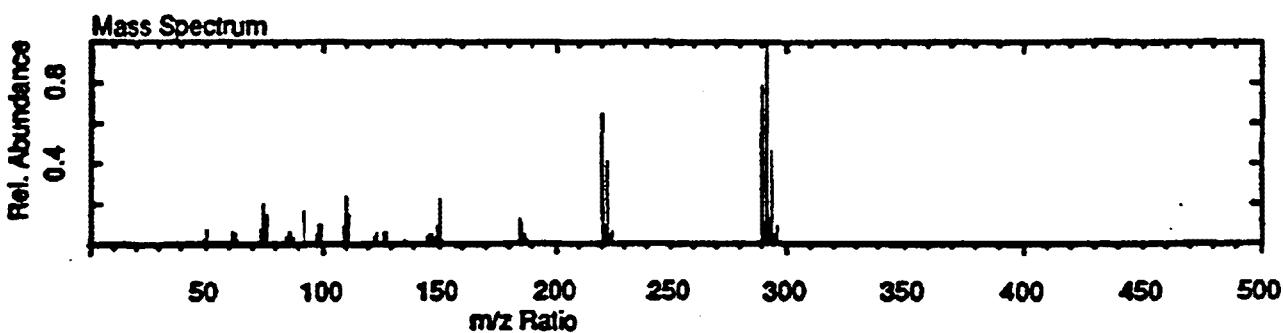


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.05	99.00	0.06	146.00	0.06	220.95	0.08	293.00	0.13
73.05	0.06	109.05	0.07	149.00	0.07	221.95	0.35	293.90	0.49
74.05	0.15	110.05	0.21	150.00	0.19	223.95	0.06	294.90	0.06
75.05	0.12	111.05	0.13	184.00	0.12	290.00	0.81	295.90	0.10
92.10	0.13	127.05	0.05	185.00	0.09	291.00	0.11		
98.00	0.08	127.95	0.05	219.95	0.55	292.00	1.00		

IUPAC Congener No. 71
 2,3',4',6-TETRACHLOROBIPHENYL
 CAS No. 41464-46-4



cm^{-1}	abs								
688.85	0.06	824.32	0.11	1112.37	0.11	1378.89	0.28	1563.61	0.27
673.89	0.25	832.40	0.11	1136.20	0.54	1434.96	0.87		
701.40	0.09	886.44	0.05	1154.03	0.10	1439.49	0.90		
739.57	0.19	1027.18	0.11	1194.76	0.23	1482.64	0.36		
781.08	0.54	1038.01	0.47	1246.98	0.09	1498.12	0.05		
789.73	1.00	1061.86	0.06	1280.10	0.06	1554.14	0.08		

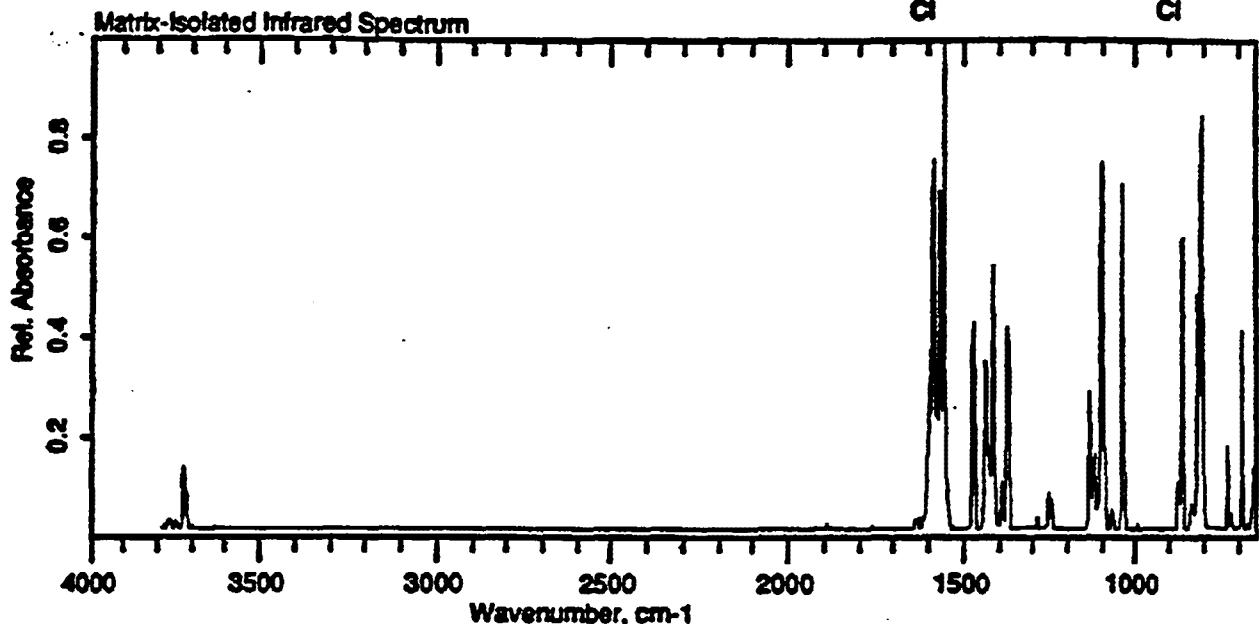
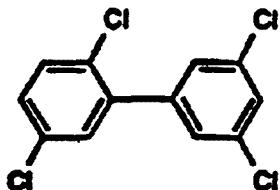


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.08	86.00	0.06	123.05	0.07	220.05	0.66	293.00	0.13
61.05	0.07	92.00	0.17	127.05	0.07	221.05	0.10	294.00	0.47
62.05	0.07	98.00	0.11	128.05	0.07	221.95	0.41	295.90	0.10
73.05	0.09	99.00	0.11	149.00	0.10	223.95	0.07		
74.05	0.20	109.05	0.09	150.00	0.23	290.00	0.79		
75.05	0.15	110.05	0.24	184.00	0.13	291.00	0.11		
85.00	0.06	111.05	0.15	185.00	0.10	292.00	1.00		

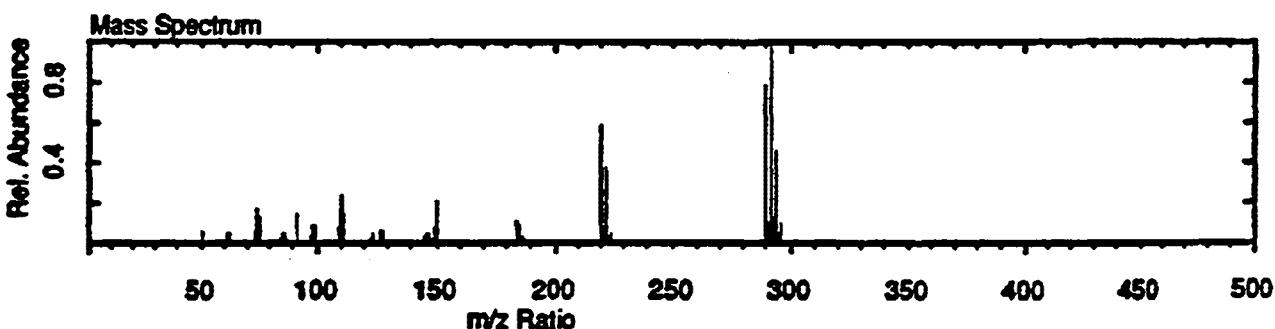
IUPAC Congener No. 72

2,3',5,5'-TETRACHLOROBIPHENYL

CAS No. 41464-42-0

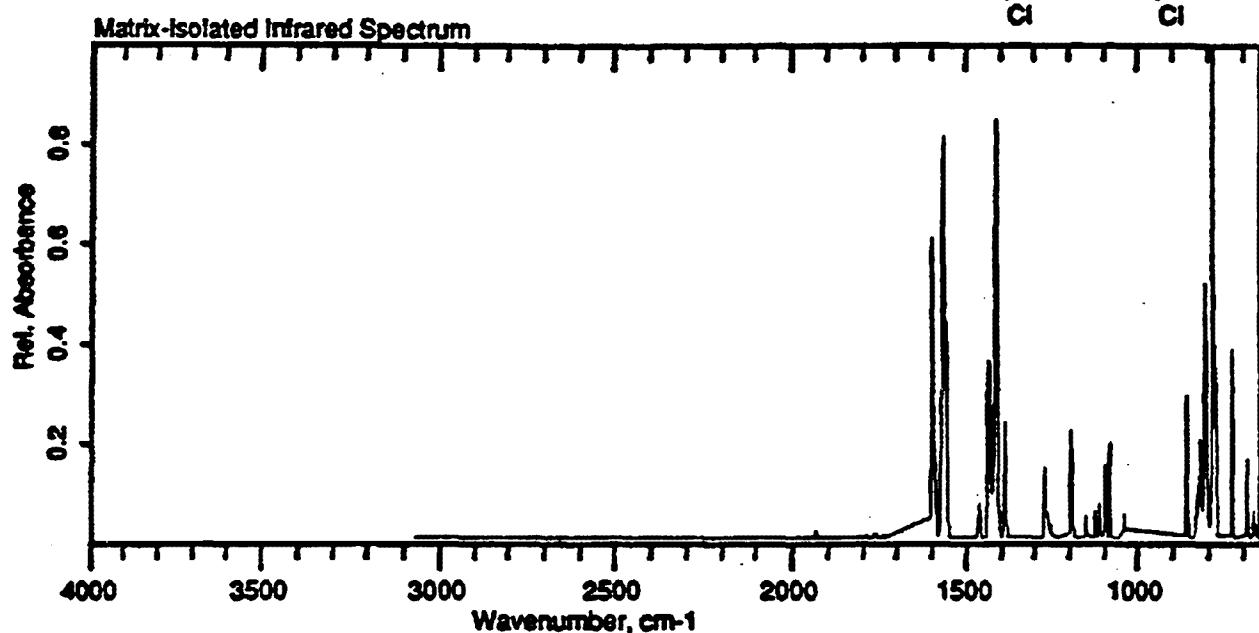
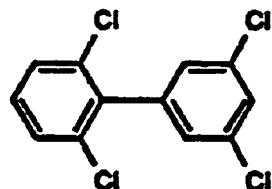


cm^{-1}	abs								
657.43	0.14	863.59	0.60	1124.72	0.17	1430.31	0.17	1587.91	0.76
690.10	0.42	873.86	0.09	1138.84	0.29	1438.79	0.35	1598.22	0.32
721.73	0.05	878.34	0.11	1246.67	0.08	1472.26	0.43	3722.00	0.12
733.41	0.19	1043.46	0.70	1255.41	0.08	1476.30	0.39		
808.53	0.85	1073.81	0.05	1376.78	0.42	1558.26	1.00		
818.10	0.49	1095.48	0.18	1393.37	0.11	1569.89	0.69		
837.99	0.06	1103.95	0.74	1417.09	0.55	1578.55	0.26		

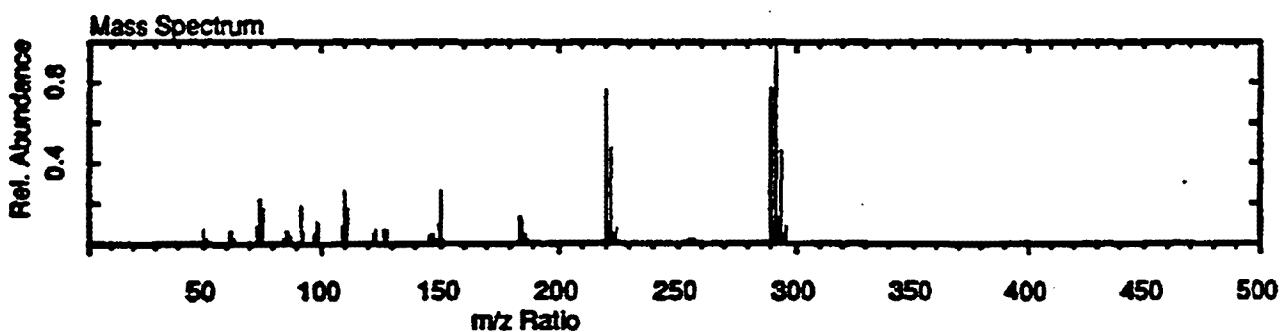


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.07	86.00	0.05	123.05	0.06	184.00	0.12	291.00	0.10
61.05	0.06	92.10	0.16	127.05	0.07	185.00	0.10	292.00	1.00
62.05	0.06	98.00	0.09	127.95	0.07	220.05	0.60	293.00	0.13
73.05	0.07	99.00	0.09	146.00	0.06	221.05	0.09	294.00	0.47
74.05	0.19	109.05	0.06	147.00	0.05	222.05	0.38	295.00	0.06
75.05	0.15	110.05	0.24	149.00	0.08	223.95	0.06	295.90	0.10
85.00	0.05	111.05	0.15	150.00	0.21	290.00	0.80		

IUPAC Congener No. 73
 2,3',5',6-TETRACHLOROBIPHENYL
 CAS No. 74338-23-1



cm^{-1}	abs								
651.56	0.06	811.13	0.52	1099.14	0.16	1273.35	0.15	1568.47	0.82
670.28	0.06	825.75	0.21	1116.25	0.08	1389.83	0.24		
688.85	0.17	831.10	0.09	1128.64	0.06	1413.68	0.84		
733.88	0.38	863.38	0.30	1155.36	0.05	1436.78	0.37		
780.96	0.35	1043.45	0.06	1197.24	0.22	1463.07	0.08		
789.73	1.00	1086.75	0.20	1265.58	0.06	1562.58	0.45		

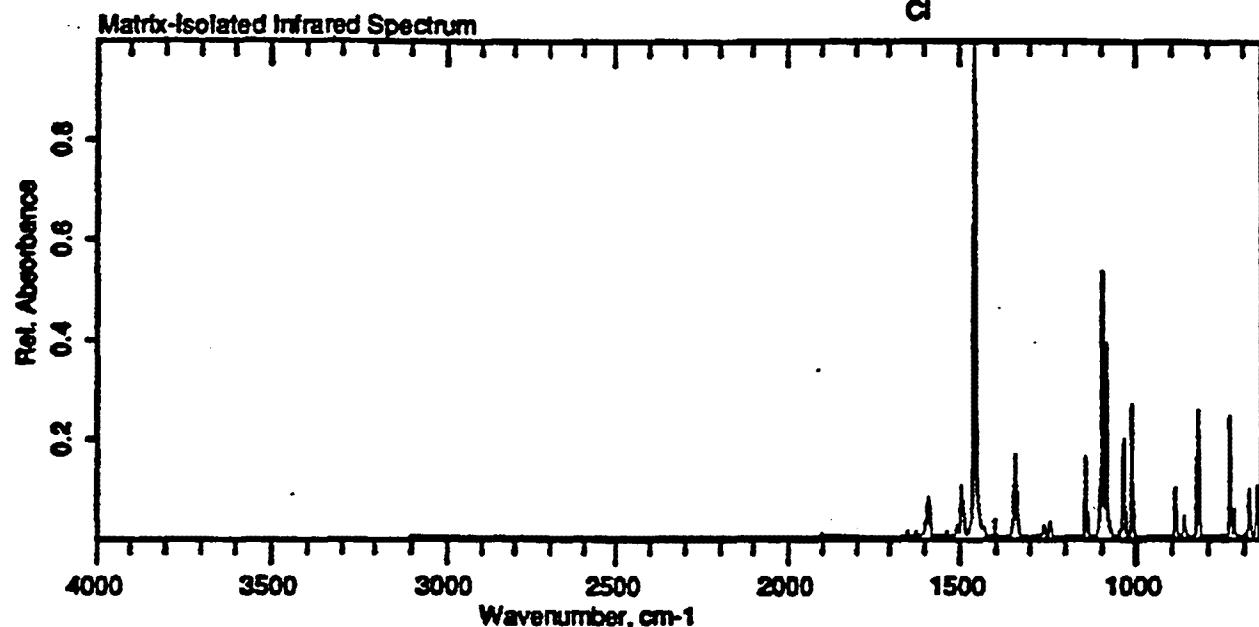
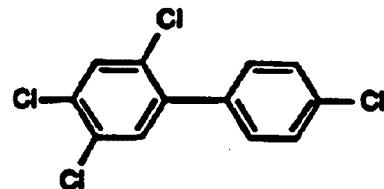


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.08	98.00	0.12	127.05	0.08	220.05	0.77	292.00	1.00
61.15	0.07	99.00	0.11	127.95	0.08	221.05	0.11	293.00	0.13
73.05	0.09	109.05	0.10	149.10	0.11	222.05	0.49	294.00	0.47
74.05	0.23	110.05	0.27	150.10	0.27	224.05	0.08	296.00	0.10
75.05	0.18	111.05	0.18	184.10	0.14	290.00	0.78		
92.10	0.19	123.05	0.08	185.10	0.11	291.00	0.10		

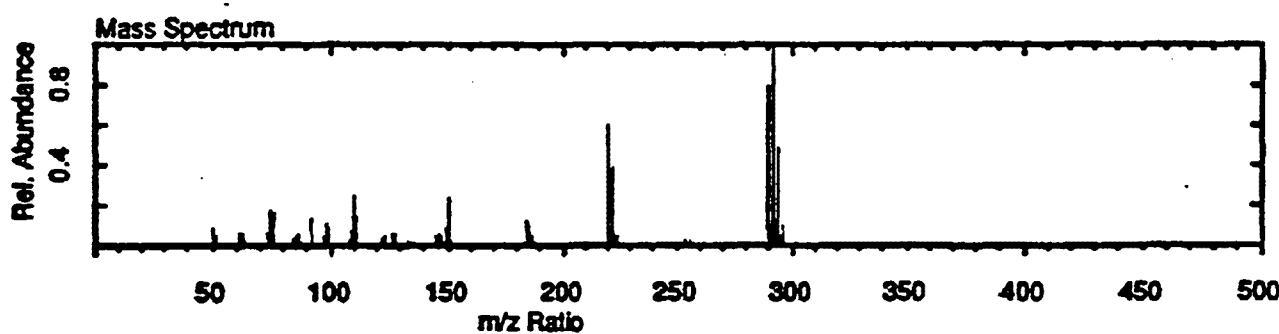
IUPAC Congener No. 74

2,4,4',5-TETRACHLOROBIPHENYL

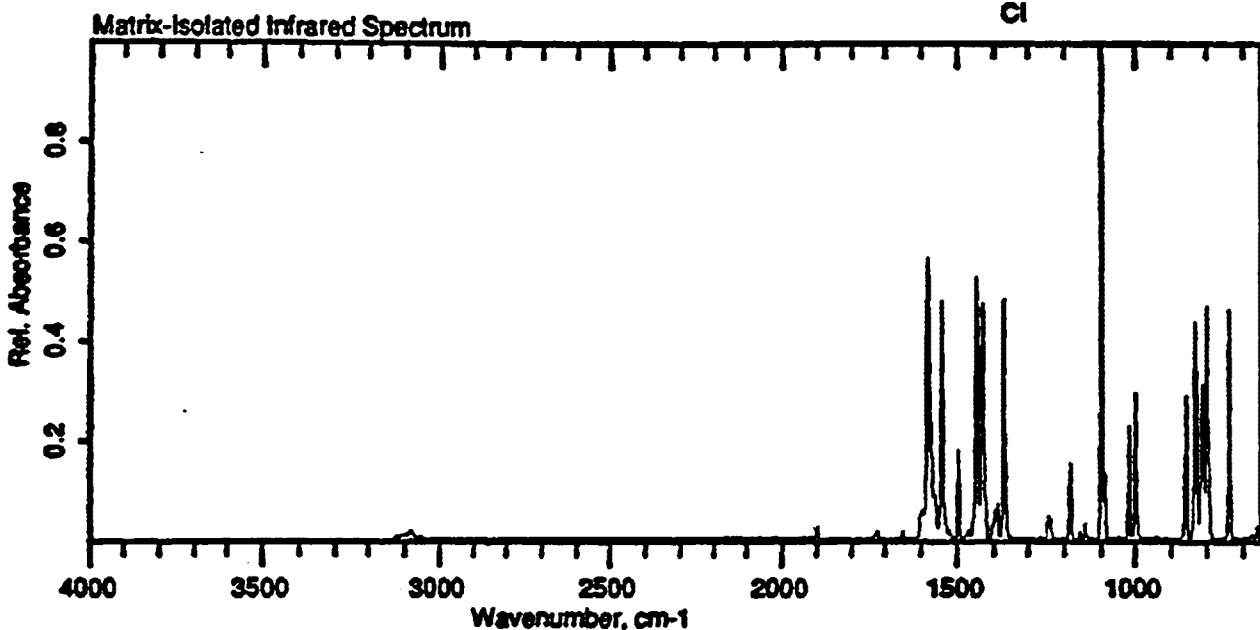
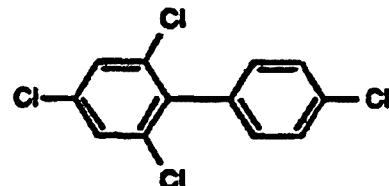
CAS No. 32690-93-0



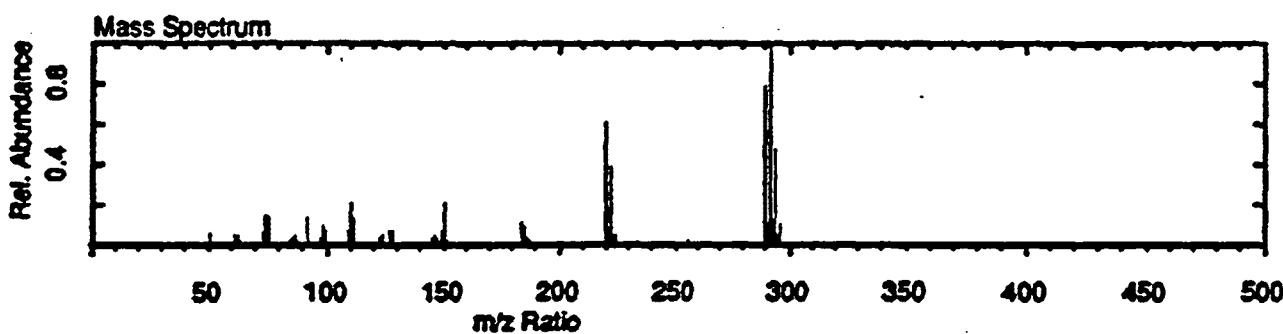
cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
662.92	0.11	830.81	0.26	1088.83	0.39	1458.94	1.00		
685.50	0.10	894.10	0.10	1099.09	0.54	1492.68	0.06		
728.30	0.06	1016.87	0.27	1145.74	0.16	1497.54	0.11		
741.10	0.25	1040.33	0.20	1345.83	0.17	1590.70	0.08		



IUPAC Congener No. 75
 2,4,4',6-TETRACHLOROBIPHENYL
 CAS No. 32598-12-2

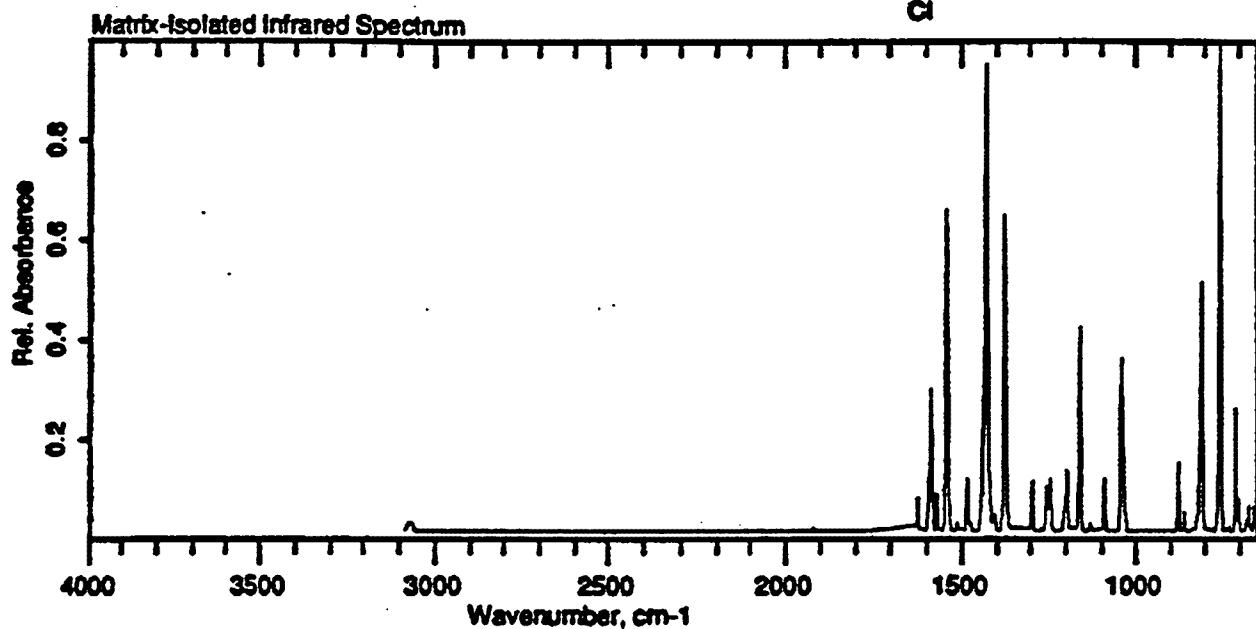
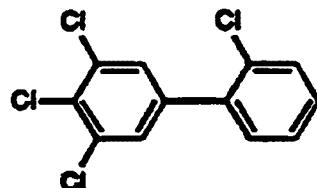


cm^{-1}	abs								
740.46	0.46	1004.84	0.29	1246.21	0.05	1447.45	0.53	1597.83	0.06
801.70	0.47	1023.26	0.23	1371.97	0.49	1497.96	0.18		
815.72	0.31	1090.90	0.13	1389.81	0.07	1544.39	0.48		
835.18	0.43	1099.23	1.00	1396.25	0.06	1564.86	0.09		
860.99	0.29	1185.84	0.16	1430.45	0.47	1583.17	0.57		

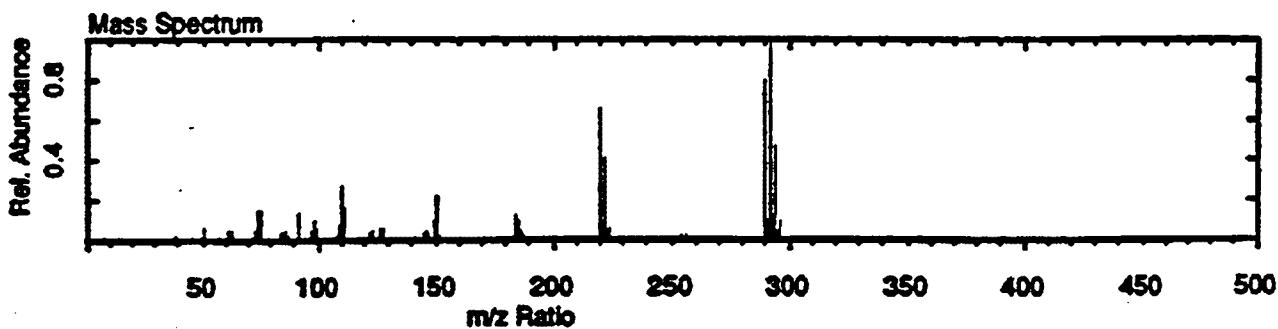


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.07	92.10	0.15	127.05	0.08	220.05	0.61	292.00	1.00
61.05	0.06	98.00	0.10	127.95	0.08	221.05	0.09	293.00	0.13
62.05	0.06	99.00	0.08	146.00	0.06	222.05	0.39	294.00	0.48
73.05	0.07	109.05	0.08	149.00	0.09	223.05	0.05	295.00	0.06
74.05	0.16	110.05	0.22	150.10	0.22	223.95	0.06	296.00	0.10
75.05	0.15	111.05	0.14	184.10	0.11	290.00	0.80		
86.00	0.05	123.05	0.05	185.10	0.10	291.00	0.10		

IUPAC Congener No. 76
2',3,4,5-TETRACHLOROBIPHENYL
CAS No. 70362-48-0



cm^{-1}	abs								
659.26	0.07	812.85	0.51	1163.40	0.42	1377.97	0.65	1544.82	0.66
674.62	0.07	864.16	0.06	1199.67	0.14	1406.57	0.05	1573.42	0.09
704.16	0.08	881.79	0.16	1247.11	0.12	1430.21	0.95	1590.65	0.30
713.24	0.27	1047.20	0.36	1257.58	0.10	1440.04	0.28		
757.80	1.00	1084.38	0.12	1298.30	0.11	1485.48	0.12		

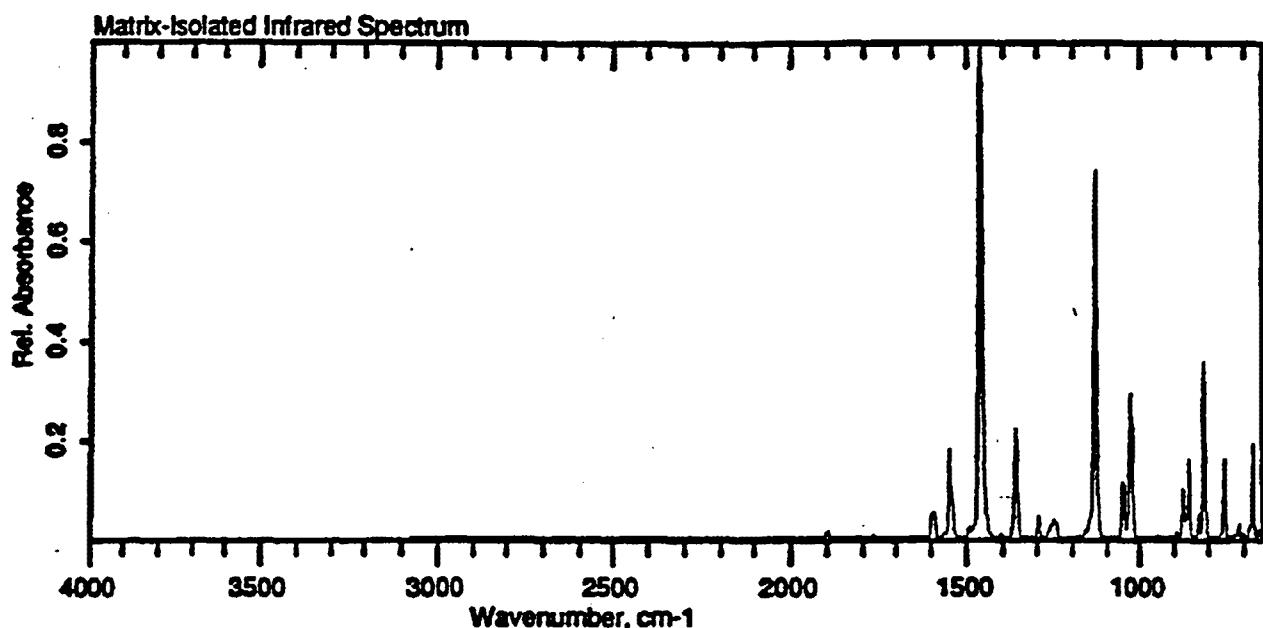
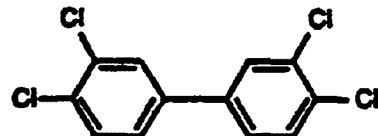


m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.07	92.10	0.14	127.05	0.07	221.05	0.09
51.00	0.06	98.00	0.10	127.95	0.07	222.05	0.41
61.05	0.06	99.00	0.07	149.00	0.10	224.05	0.07
62.05	0.06	109.05	0.08	150.10	0.23	290.00	0.80
73.05	0.06	110.05	0.28	184.10	0.13	291.00	0.10
74.05	0.15	111.05	0.17	185.10	0.11	292.00	1.00
75.05	0.16	123.05	0.06	220.05	0.57	293.00	0.13

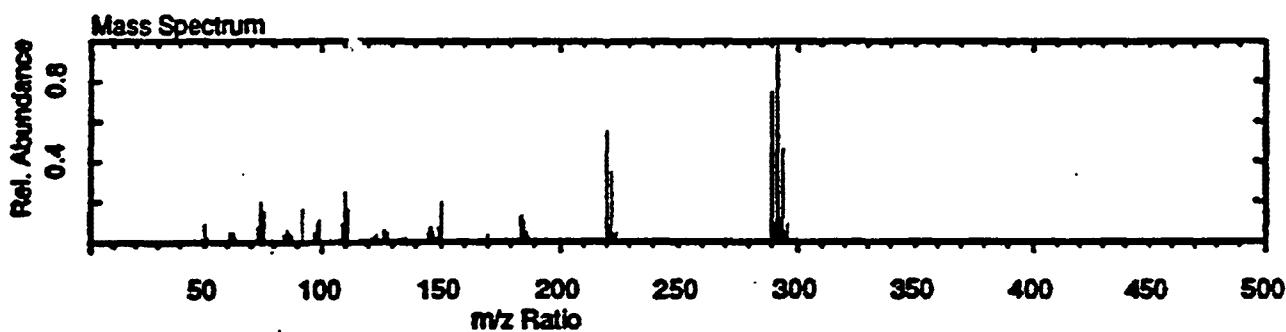
IUPAC Congener No. 77

3,3',4,4'-TETRACHLOROBIPHENYL

CAS No. 32598-13-3



cm^{-1}	abs								
675.89	0.19	860.97	0.16	1052.58	0.11	1362.97	0.22	1597.32	0.06
756.30	0.18	869.23	0.05	1057.07	0.11	1464.28	1.00		
816.78	0.36	879.40	0.10	1137.11	0.74	1550.09	0.18		
832.02	0.05	1033.56	0.29	1299.53	0.05	1592.39	0.05		

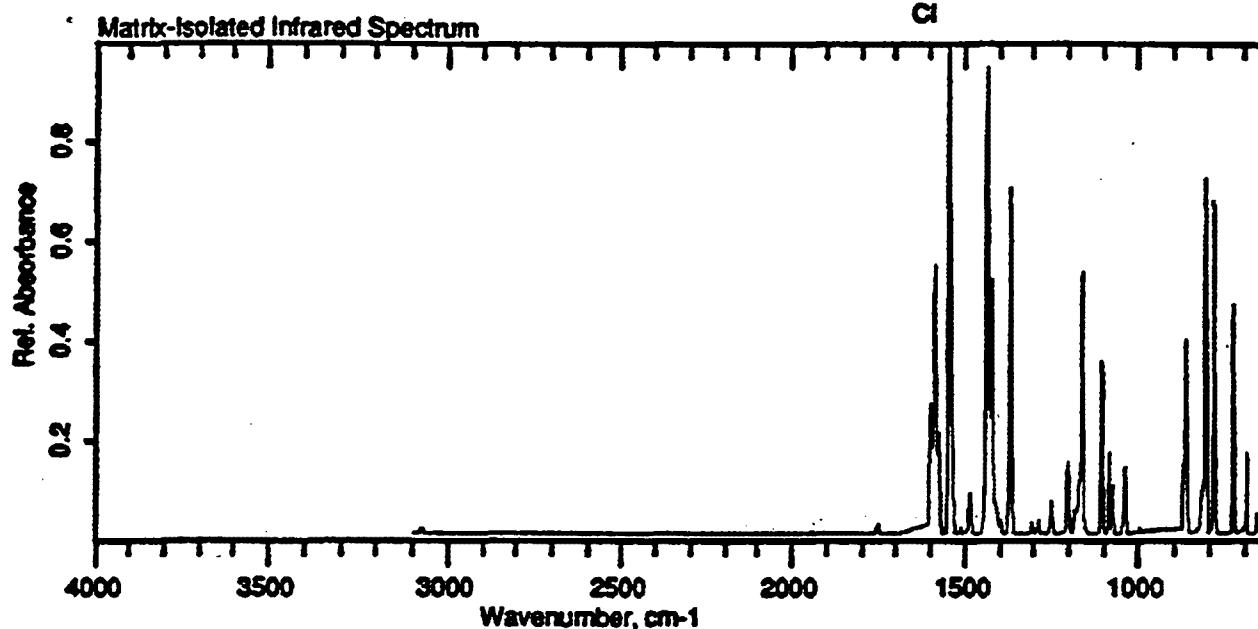
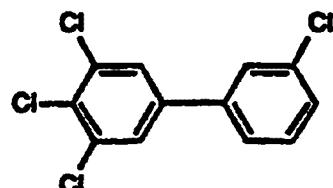


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.09	85.00	0.07	111.05	0.17	184.00	0.13	291.00	0.10
61.05	0.06	92.00	0.17	127.05	0.06	185.00	0.10	292.00	1.00
62.05	0.06	98.00	0.10	127.95	0.06	220.05	0.55	293.00	0.12
73.05	0.08	99.00	0.12	146.00	0.08	221.05	0.08	294.00	0.47
74.05	0.21	109.05	0.10	149.00	0.08	221.95	0.36	295.90	0.10
75.05	0.16	110.05	0.26	150.00	0.20	290.00	0.76		

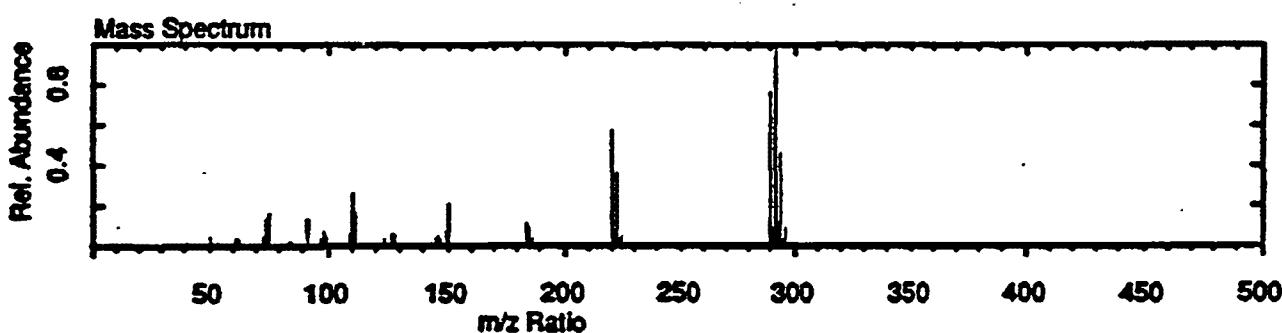
IUPAC Congener No. 78

3,3',4,5-TETRACHLOROBIPHENYL

CAS No. 70362-49-1

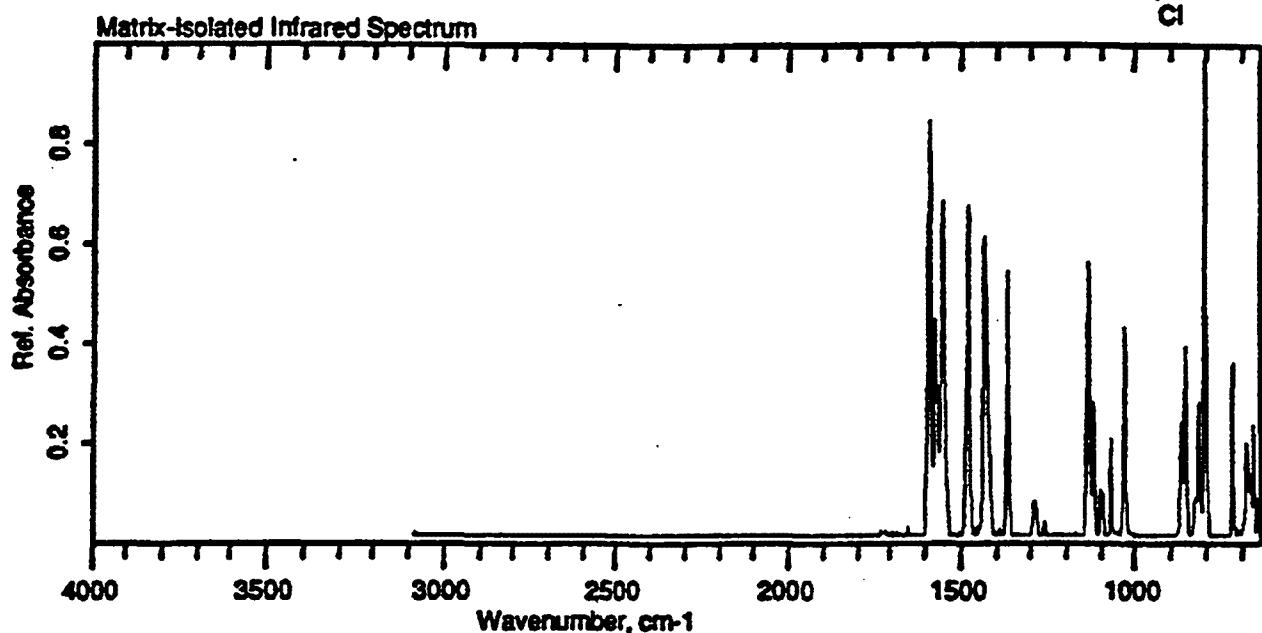
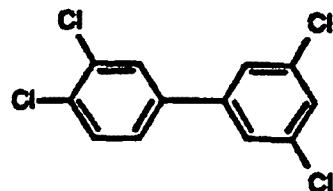


cm^{-1}	abs								
649.70	0.05	811.72	0.73	1106.93	0.36	1413.48	0.07	1587.70	0.55
656.58	0.09	869.97	0.40	1163.71	0.54	1424.04	0.53		
667.44	0.05	876.88	0.15	1183.96	0.06	1436.94	0.95		
694.27	0.18	1040.88	0.15	1204.62	0.15	1486.49	0.10		
731.45	0.48	1075.19	0.11	1249.84	0.08	1546.90	1.00		
786.64	0.69	1085.58	0.18	1369.94	0.72	1577.41	0.22		

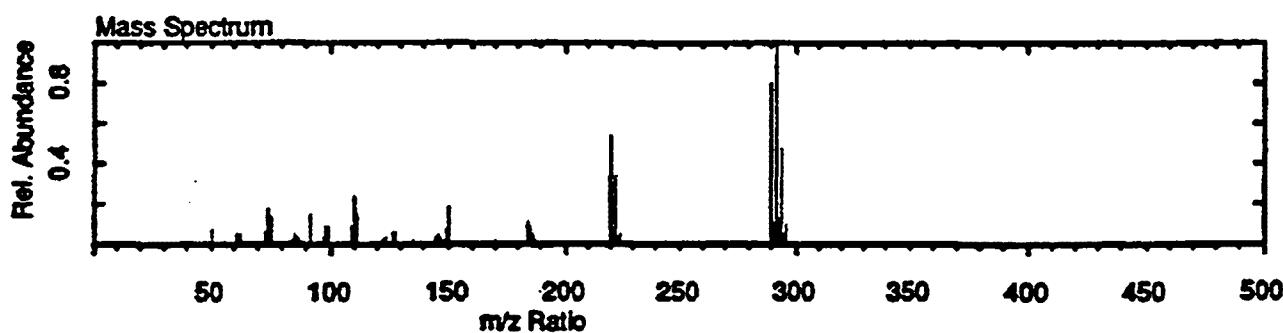


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
51.00	0.05	97.00	0.04	127.05	0.07	184.10	0.12	291.00	0.09
61.05	0.05	98.00	0.09	128.05	0.07	185.10	0.09	292.00	1.00
62.05	0.04	99.00	0.06	145.00	0.04	220.05	0.58	293.00	0.12
73.05	0.05	109.05	0.07	146.00	0.05	221.05	0.08	294.00	0.47
74.05	0.15	110.05	0.27	147.00	0.04	222.05	0.36	295.00	0.05
75.05	0.16	111.05	0.17	149.10	0.08	224.05	0.05	296.00	0.09
92.10	0.15	123.05	0.04	150.10	0.22	290.00	0.77		

IUPAC Congener No. 79
 3,3',4,5'-TETRACHLOROBIPHENYL
 CAS No. 41464-48-6



cm^{-1}	abs								
658.72	0.09	823.71	0.28	1074.11	0.21	1294.90	0.09	1575.54	0.45
668.35	0.23	832.24	0.09	1097.34	0.10	1368.24	0.55		
675.53	0.14	836.00	0.09	1105.02	0.11	1434.07	0.61		
688.20	0.21	861.62	0.40	1123.32	0.28	1481.11	0.68		
728.56	0.36	871.66	0.24	1138.15	0.56	1552.92	0.69		
806.37	1.00	1034.03	0.43	1290.53	0.08	1566.66	0.32		

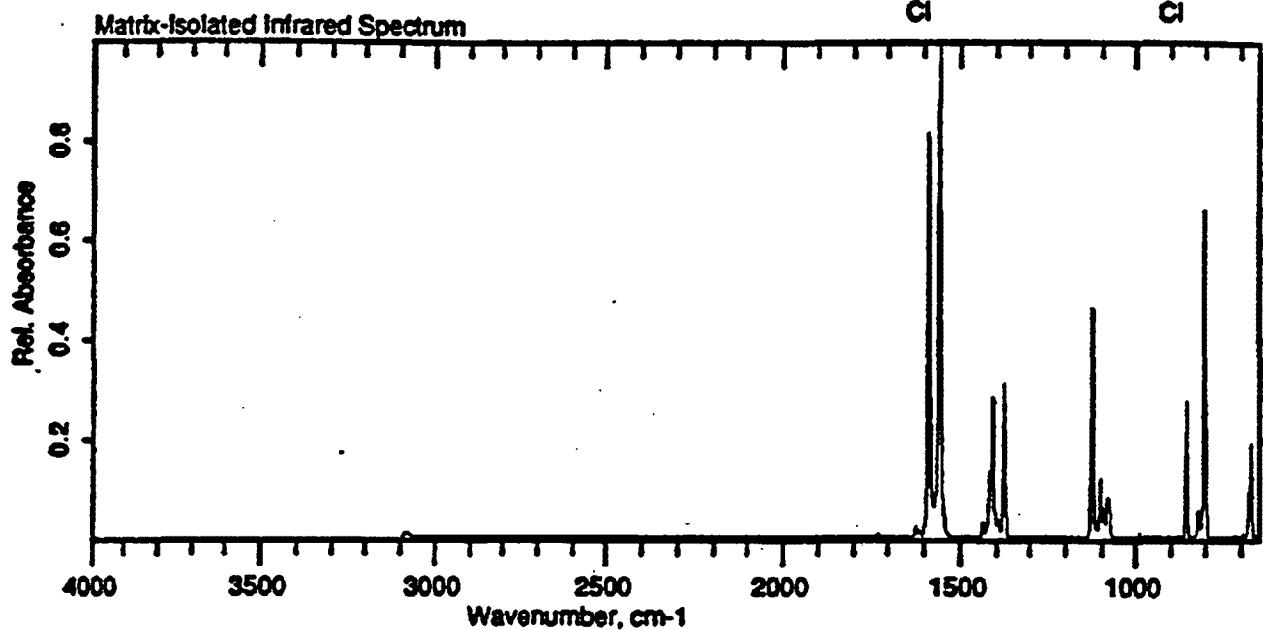
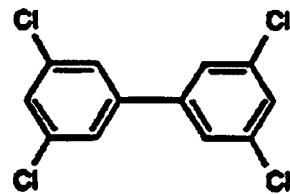


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.08	92.10	0.15	127.95	0.07	220.05	0.55	293.00	0.13
61.05	0.05	98.00	0.09	146.00	0.06	221.05	0.08	294.00	0.48
62.05	0.06	99.00	0.10	149.00	0.08	222.05	0.35	295.00	0.06
73.05	0.07	109.05	0.09	150.10	0.19	223.95	0.06	296.00	0.10
74.05	0.18	110.05	0.24	184.00	0.12	290.00	0.80		
75.05	0.15	111.05	0.15	185.00	0.10	291.00	0.10		
85.00	0.06	127.05	0.07	186.00	0.05	292.00	1.00		

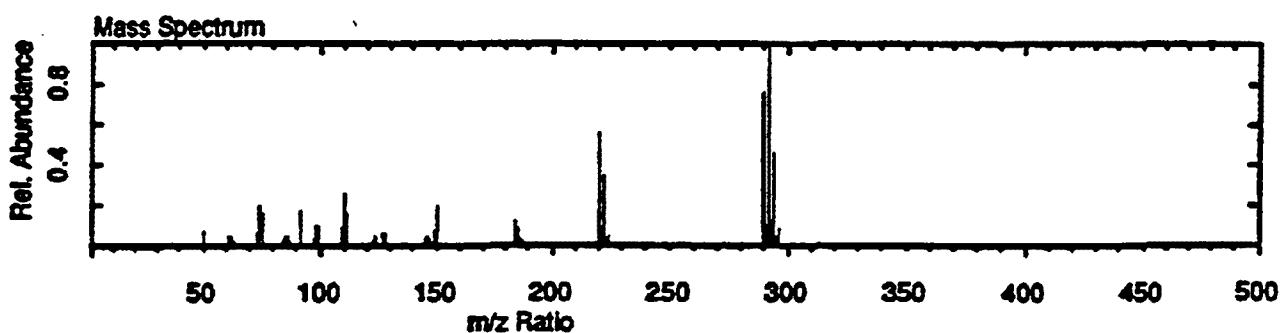
IUPAC Congener No. 80

3,3',5,5'-TETRACHLOROBIPHENYL

CAS No. 33284-52-5



cm^{-1}	abs								
672.41	0.19	824.23	0.06	1086.84	0.08	1129.88	0.47	1419.46	0.14
679.49	0.10	858.28	0.28	1098.21	0.06	1378.61	0.31	1559.64	1.00
805.81	0.67	1081.81	0.08	1106.36	0.12	1411.96	0.28		

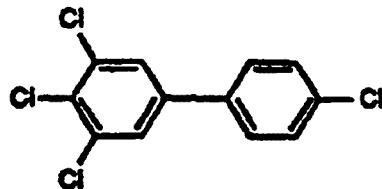


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.08	86.00	0.05	123.05	0.05	185.10	0.10	292.00	1.00
61.05	0.06	92.10	0.18	127.05	0.07	220.05	0.57	293.00	0.13
62.05	0.06	98.00	0.10	127.95	0.07	221.05	0.08	294.00	0.47
73.05	0.07	99.00	0.10	146.00	0.06	222.05	0.36	295.00	0.05
74.05	0.21	109.05	0.09	149.10	0.09	224.05	0.05	296.00	0.10
75.05	0.16	110.05	0.27	150.10	0.21	290.00	0.77		
85.00	0.06	111.05	0.17	184.10	0.13	291.00	0.10		

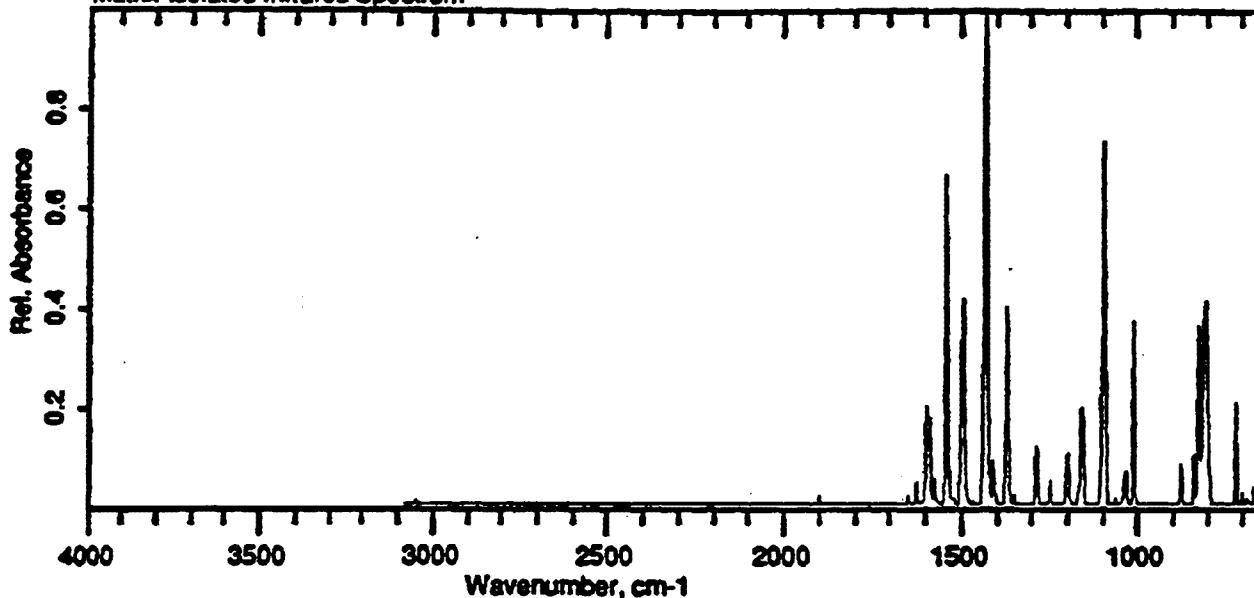
IUPAC Congener No. 81

3,4,4',5-TETRACHLOROBIPHENYL

CAS No. 70362-50-4



Matrix-Isolated Infrared Spectrum



cm ⁻¹	abs								
719.24	0.21	880.86	0.09	1202.67	0.11	1433.32	1.00	1591.61	0.18
808.70	0.42	1016.08	0.38	1251.49	0.06	1496.31	0.43	1599.49	0.20
813.86	0.38	1038.14	0.08	1289.65	0.12	1503.08	0.34		
830.51	0.36	1098.80	0.74	1373.26	0.40	1543.80	0.67		
844.28	0.11	1163.83	0.20	1413.42	0.10	1578.61	0.06		

Mass Spectrum

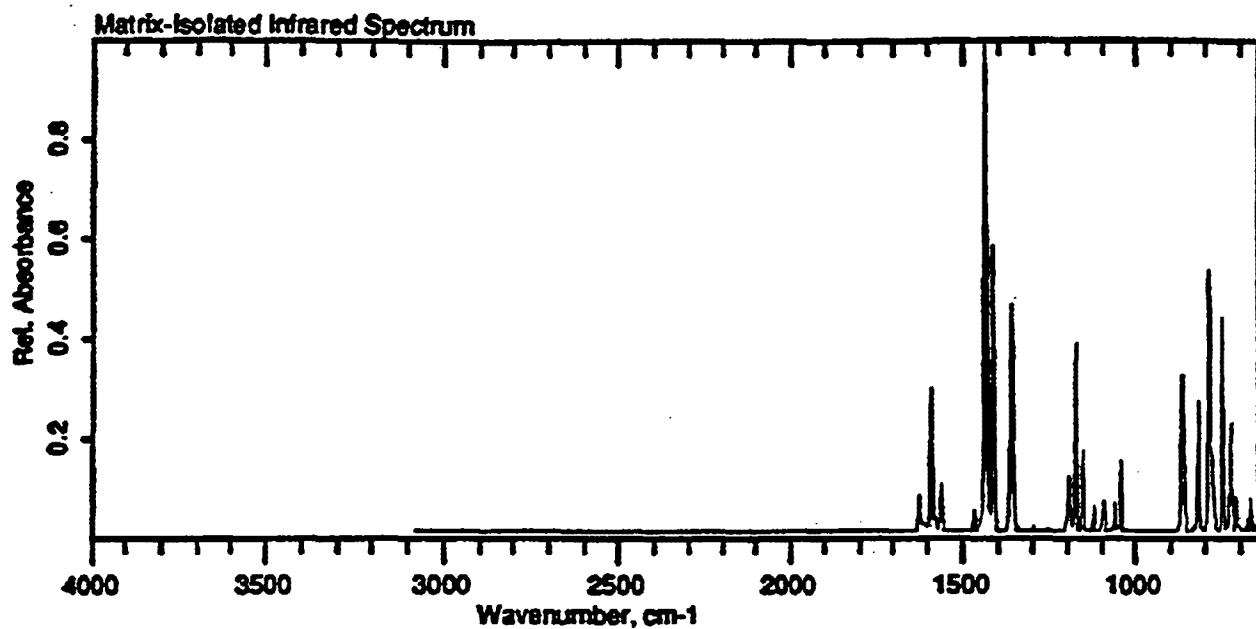
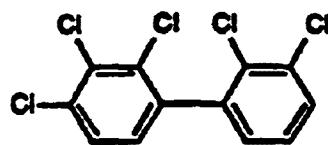


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.07	92.10	0.14	127.05	0.07	185.10	0.10	292.00	1.00
51.10	0.06	93.00	0.05	128.05	0.07	220.05	0.57	293.00	0.13
61.05	0.05	98.00	0.09	145.00	0.05	221.05	0.08	294.00	0.48
62.05	0.06	99.00	0.06	148.00	0.06	222.05	0.36	295.00	0.06
73.05	0.06	109.05	0.07	149.10	0.08	224.05	0.05	296.00	0.10
74.05	0.15	110.05	0.24	150.10	0.22	290.00	0.78		
75.05	0.16	111.05	0.15	184.10	0.13	291.00	0.10		

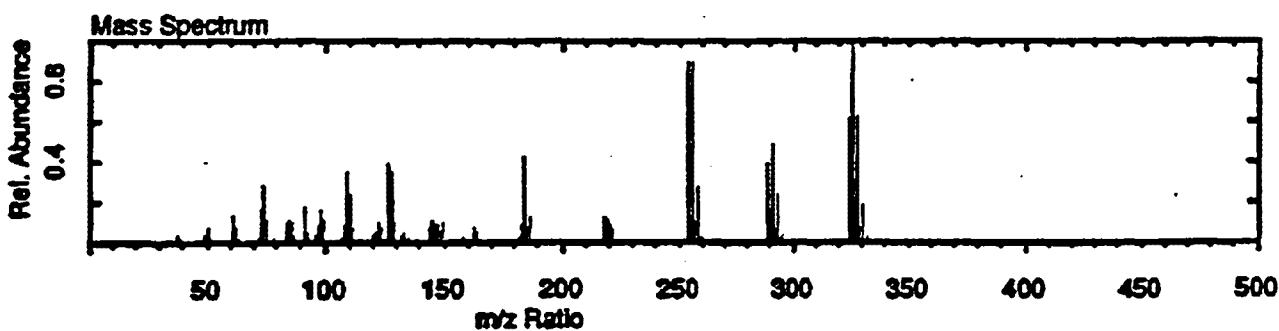
IUPAC Congener No. 82

2,2',3,3',4-PENTACHLOROBIPHENYL

CAS No. 52663-62-4



cm^{-1}	abs								
672.83	0.08	784.94	0.18	1065.37	0.07	1199.70	0.12	1563.95	0.11
713.69	0.08	791.03	0.54	1096.52	0.07	1363.27	0.46	1591.36	0.30
728.49	0.23	821.54	0.27	1127.49	0.07	1415.76	0.58		
735.03	0.09	870.13	0.32	1159.17	0.17	1439.22	1.00		
753.93	0.44	1047.49	0.16	1179.18	0.39	1470.13	0.06		

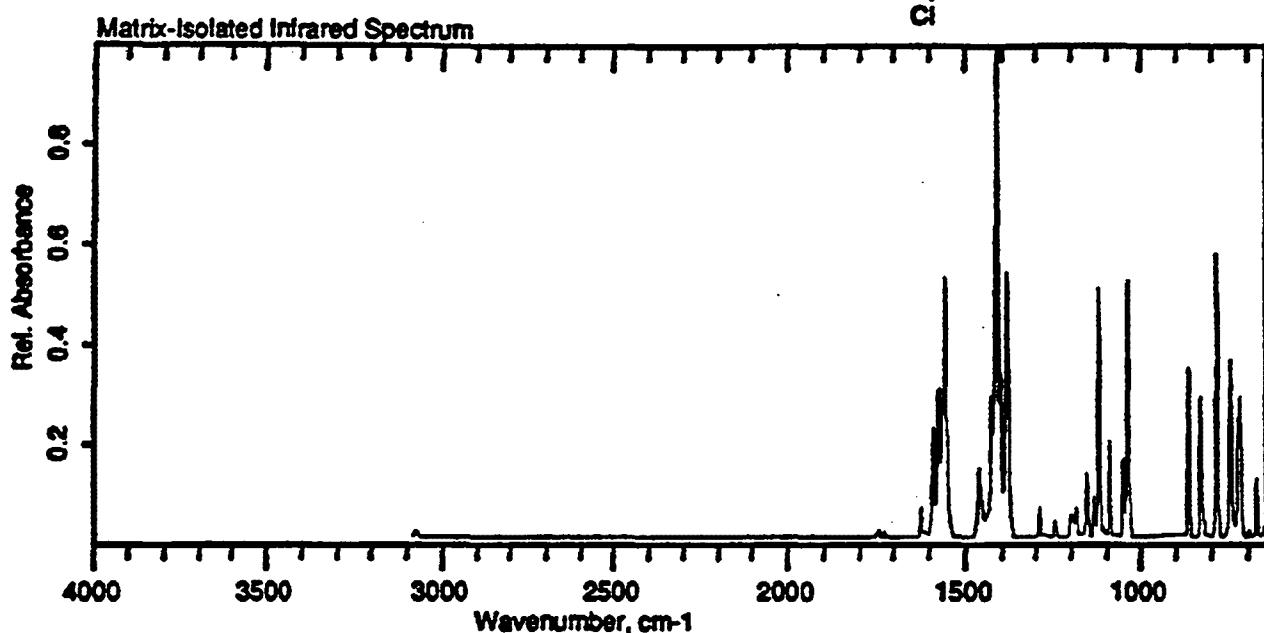
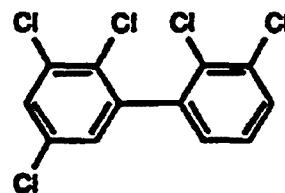


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.14	99.00	0.12	184.10	0.44	258.05	0.28	328.00	0.63
73.05	0.17	109.05	0.36	186.10	0.13	289.00	0.40	330.00	0.20
74.05	0.29	110.05	0.25	218.05	0.13	291.00	0.49		
75.05	0.12	126.95	0.40	219.05	0.12	293.00	0.24		
85.00	0.12	127.95	0.35	254.05	0.91	323.95	0.62		
92.00	0.18	128.95	0.11	255.05	0.13	326.00	1.00		
98.00	0.17	145.00	0.12	256.05	0.91	327.00	0.13		

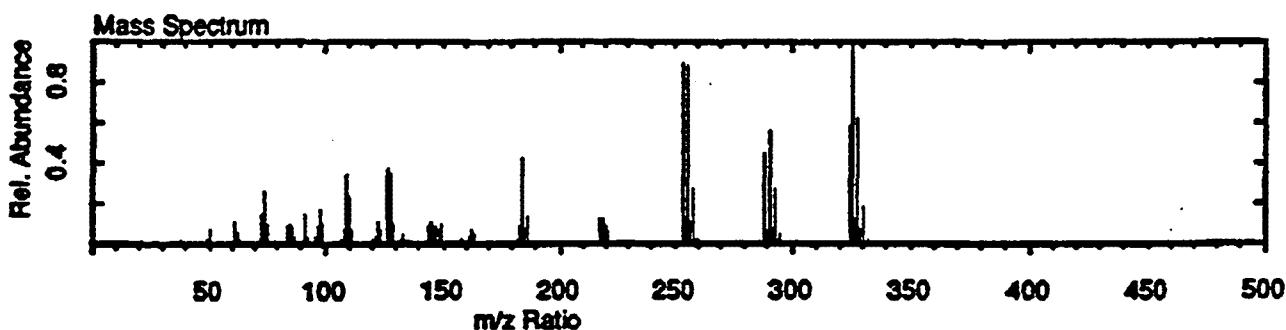
IUPAC Congener No. 83

2,2',3,3',5-PENTACHLOROBIPHENYL

CAS No. 60145-20-2

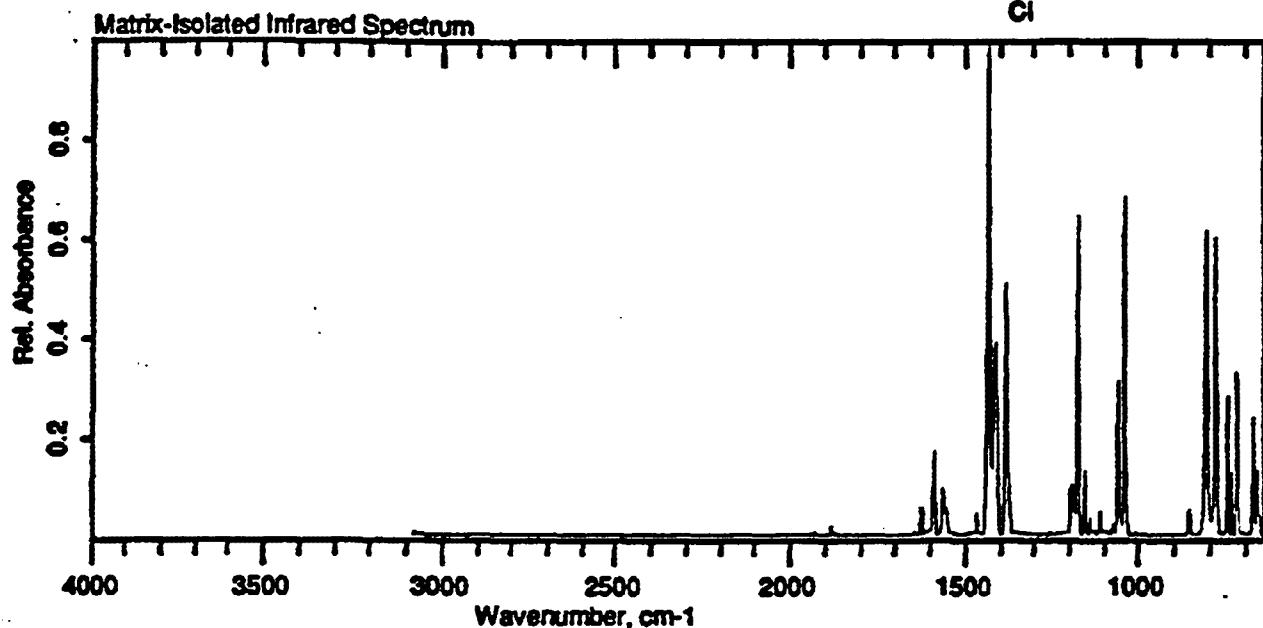
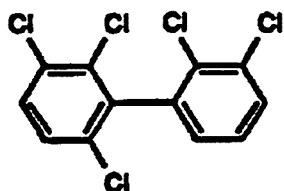


cm^{-1}	abs								
677.25	0.13	867.80	0.35	1158.30	0.14	1404.35	0.33	1558.34	0.53
722.49	0.29	1040.95	0.53	1188.21	0.07	1413.32	1.00	1565.61	0.29
726.89	0.25	1055.89	0.17	1197.18	0.05	1419.55	0.50	1576.23	0.31
749.51	0.36	1094.64	0.20	1203.10	0.05	1429.03	0.29	1590.91	0.23
787.60	0.58	1123.58	0.50	1293.44	0.07	1444.69	0.06		
834.28	0.29	1139.03	0.09	1386.01	0.53	1464.43	0.15		

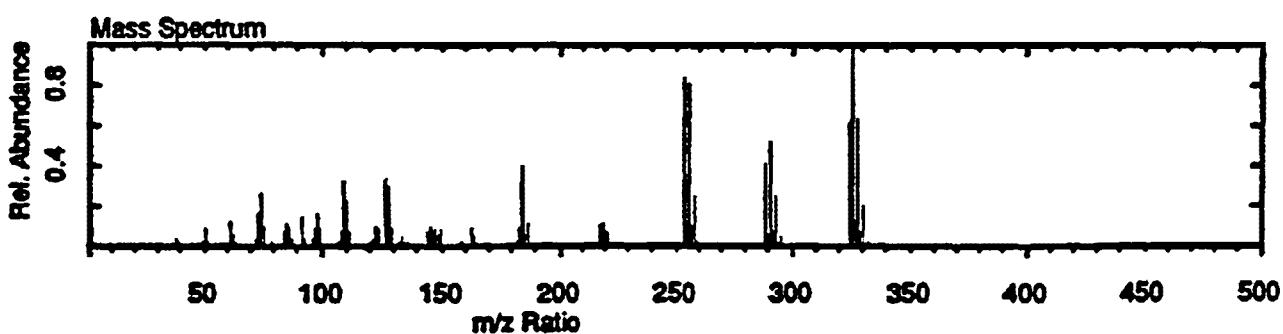


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.12	99.00	0.11	145.00	0.12	254.95	0.13	323.95	0.60
73.05	0.15	109.05	0.36	149.00	0.11	255.95	0.89	326.00	1.00
74.05	0.27	110.05	0.24	184.00	0.44	256.95	0.11	326.90	0.13
75.05	0.11	122.05	0.11	186.00	0.14	257.95	0.28	327.90	0.63
85.00	0.11	126.95	0.39	217.95	0.13	288.90	0.46	329.90	0.19
92.00	0.16	127.95	0.35	218.95	0.13	290.90	0.57		
98.00	0.18	128.95	0.11	253.95	0.91	292.90	0.29		

IUPAC Congener No. 84
2,2',3,3',6-PENTACHLOROBIPHENYL
CAS No. 52663-60-2



cm^{-1}	abs								
663.71	0.05	751.54	0.29	1050.02	0.05	1196.96	0.11	1557.56	0.06
669.37	0.14	785.30	0.60	1062.98	0.32	1385.73	0.51	1566.93	0.10
679.63	0.25	812.36	0.62	1113.81	0.06	1414.84	0.39	1591.54	0.17
725.21	0.33	861.87	0.06	1158.14	0.14	1434.23	1.00		
741.34	0.14	1044.59	0.68	1178.49	0.64	1469.46	0.05		

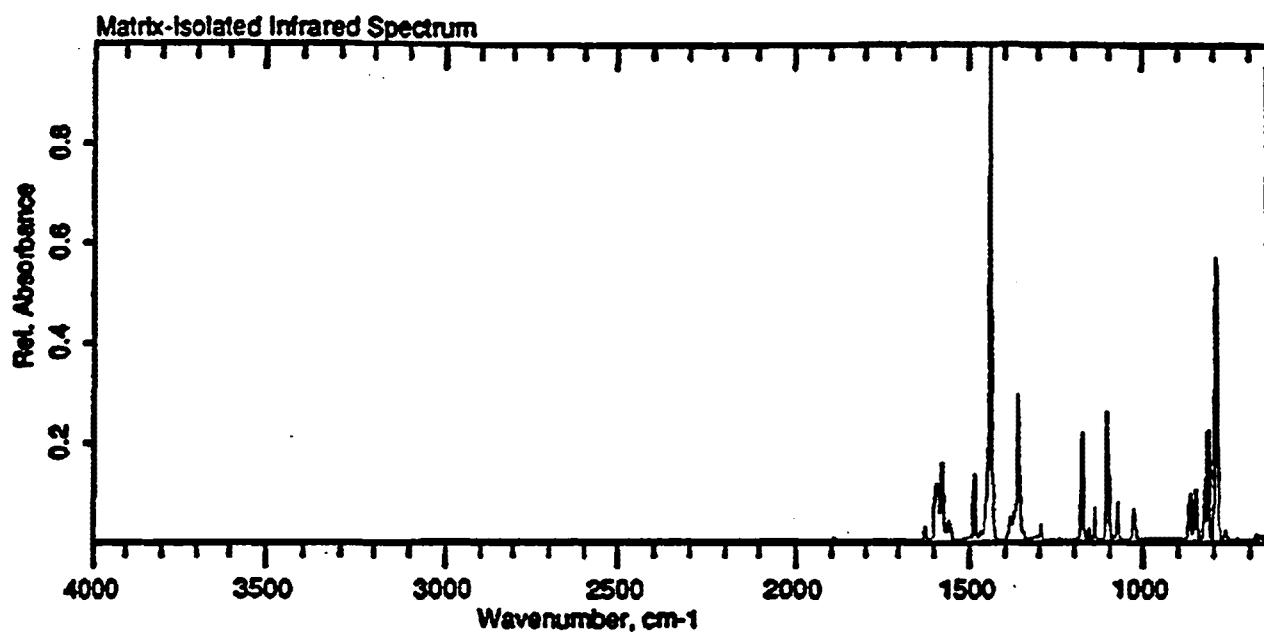
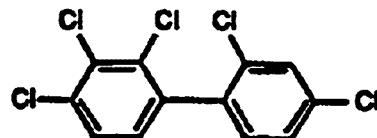


m/z	abun.	m/z	abun.	m/z	abun.	m/z	abun.	m/z	abun.
61.05	0.13	98.00	0.17	128.95	0.10	254.05	0.85	293.00	0.26
73.05	0.17	99.00	0.10	145.00	0.10	255.05	0.12	323.95	0.62
74.05	0.27	109.05	0.33	149.10	0.10	256.05	0.82	326.00	1.00
75.05	0.10	110.05	0.23	184.10	0.40	257.05	0.11	327.00	0.13
85.00	0.12	122.05	0.11	186.10	0.12	258.05	0.26	328.00	0.64
86.00	0.10	127.05	0.34	218.05	0.11	289.00	0.42	330.00	0.20
92.00	0.15	127.95	0.30	219.05	0.12	291.00	0.54		

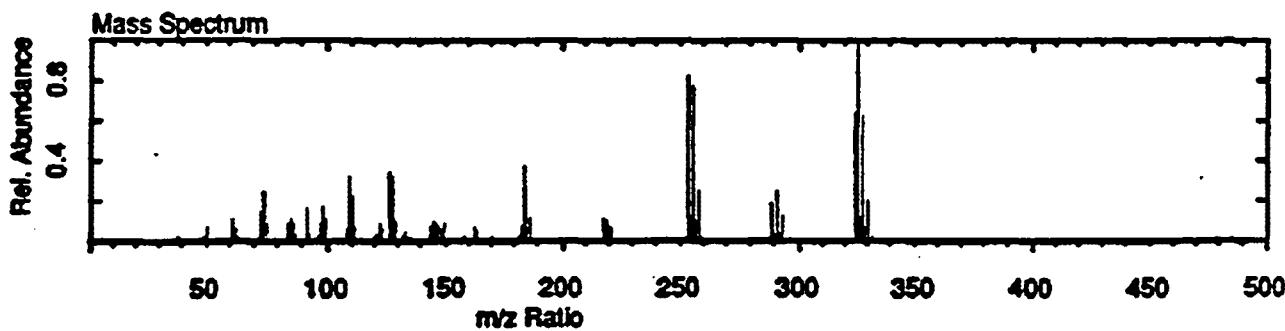
IUPAC Congener No. 85

2,2',3,4,4'-PENTACHLOROBIPHENYL

CAS No. 65510-45-4

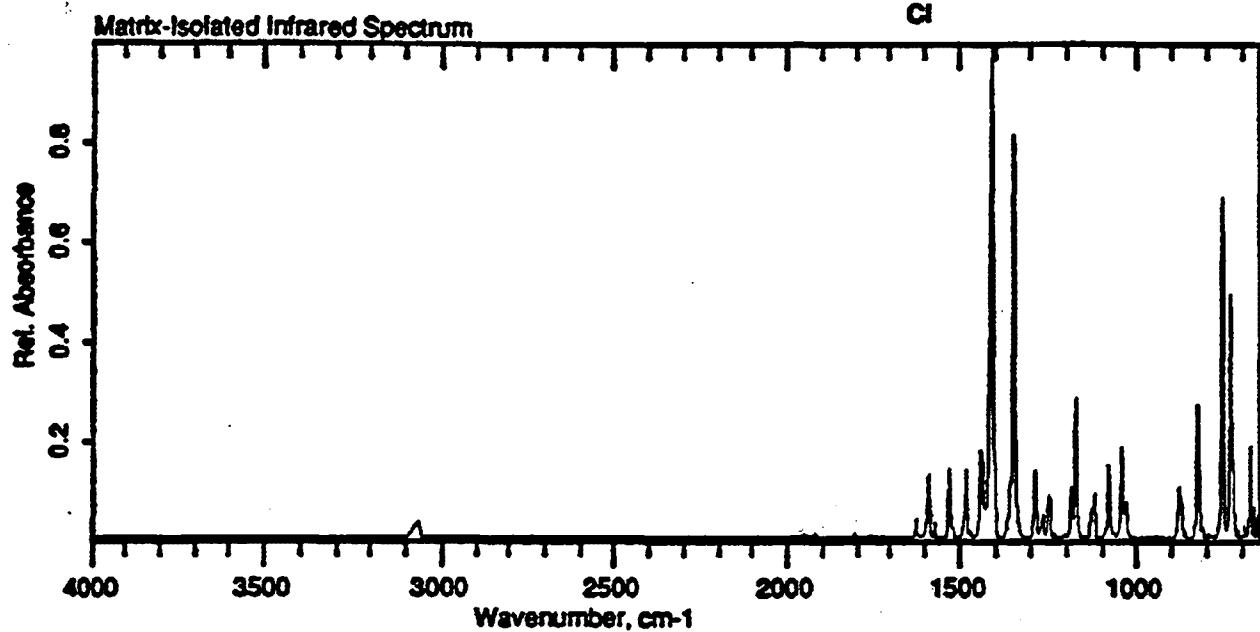
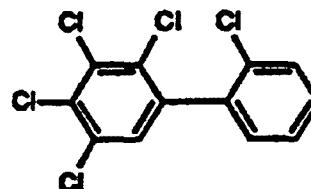


cm^{-1}	abs								
794.71	0.57	871.00	0.10	1108.78	0.26	1372.94	0.06	1579.67	0.16
817.24	0.23	1031.18	0.07	1143.08	0.07	1385.47	0.05	1590.79	0.12
827.48	0.13	1077.53	0.08	1179.02	0.22	1440.94	1.00		
853.93	0.10	1103.75	0.13	1362.46	0.30	1487.55	0.14		

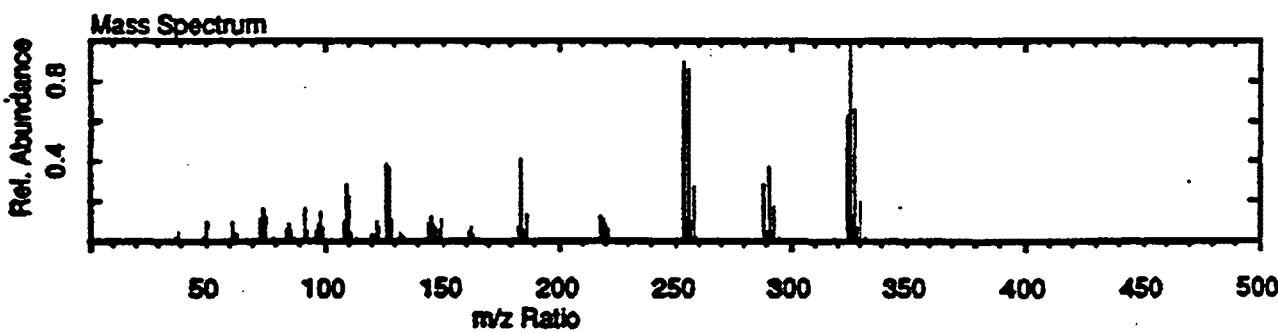


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.12	109.05	0.32	186.10	0.11	258.05	0.25	328.00	0.63
73.05	0.16	110.05	0.23	218.05	0.11	289.00	0.20	330.00	0.21
74.05	0.26	127.05	0.35	219.05	0.11	291.00	0.26		
85.00	0.12	127.95	0.33	254.05	0.83	293.00	0.13		
92.00	0.16	128.95	0.11	255.05	0.11	323.95	0.64		
98.00	0.18	145.00	0.11	256.05	0.79	326.00	1.00		
99.00	0.12	184.10	0.38	257.05	0.10	327.00	0.12		

IUPAC Congener No. 86
 2,2',3,4,5-PENTACHLOROBIPHENYL
 CAS No. 55312-69-1



cm^{-1}	abs								
657.45	0.05	829.52	0.27	1132.64	0.06	1293.71	0.14	1443.10	0.18
667.05	0.07	882.20	0.11	1178.54	0.28	1350.22	0.81	1484.57	0.14
678.02	0.19	1036.89	0.08	1190.34	0.11	1359.70	0.13	1532.45	0.14
731.11	0.24	1049.71	0.19	1250.65	0.09	1409.74	1.00		
736.93	0.49	1085.25	0.15	1255.15	0.09	1430.46	0.07		
759.31	0.69	1124.89	0.10	1269.92	0.05	1439.91	0.17		

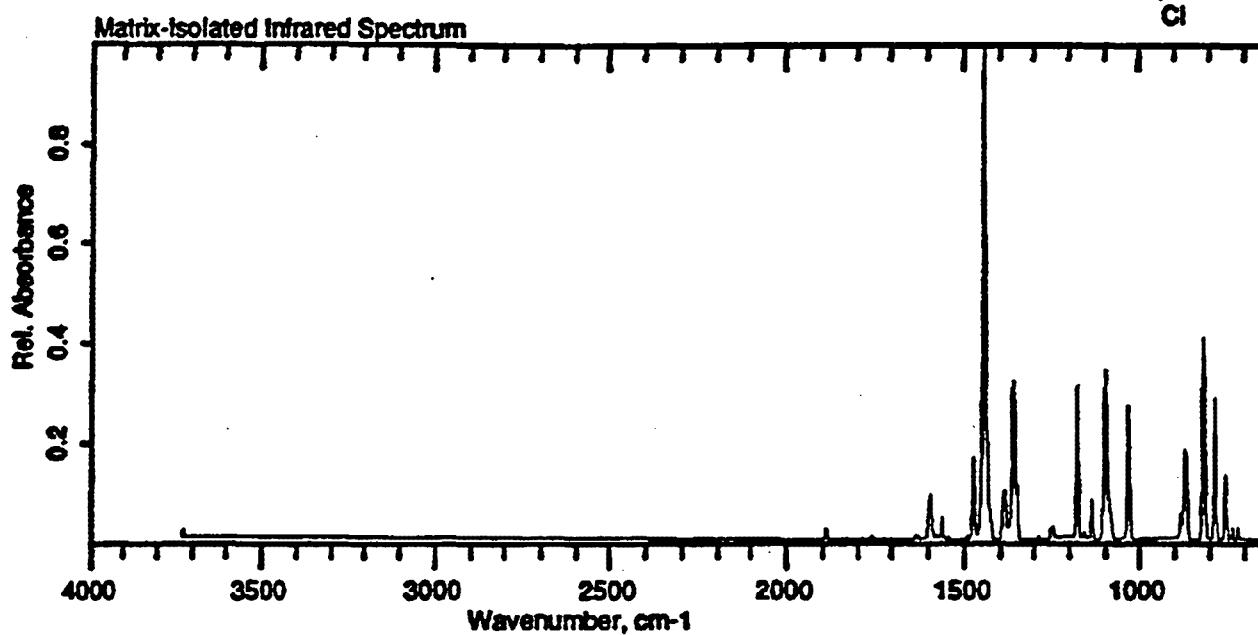
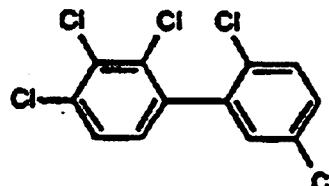


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.11	108.00	0.11	145.00	0.13	255.05	0.12	323.95	0.63
61.05	0.11	109.05	0.29	149.00	0.12	256.05	0.86	326.00	1.00
73.05	0.12	110.05	0.24	184.00	0.42	257.05	0.11	327.00	0.13
74.05	0.17	122.05	0.11	186.00	0.14	257.95	0.29	328.00	0.66
75.05	0.13	126.95	0.40	218.05	0.14	289.00	0.29	330.00	0.20
92.00	0.17	127.95	0.38	219.05	0.11	291.00	0.38		
98.00	0.15	128.95	0.12	254.05	0.90	293.00	0.18		

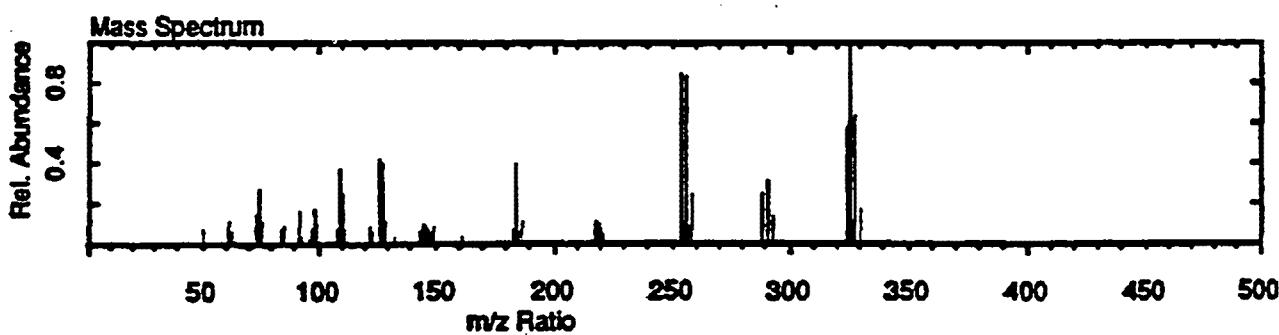
IUPAC Congener No. 87

2,2',3,4,5'-PENTACHLOROBIPHENYL

CAS No. 38380-02-8



cm ⁻¹	abs	cm ⁻¹	abs						
754.30	0.05	873.53	0.18	1138.32	0.09	1387.19	0.10		
759.32	0.14	885.86	0.06	1179.69	0.32	1444.81	1.00		
788.19	0.29	1037.32	0.28	1354.03	0.12	1476.25	0.17		
819.28	0.41	1101.17	0.34	1363.65	0.32	1564.51	0.05		

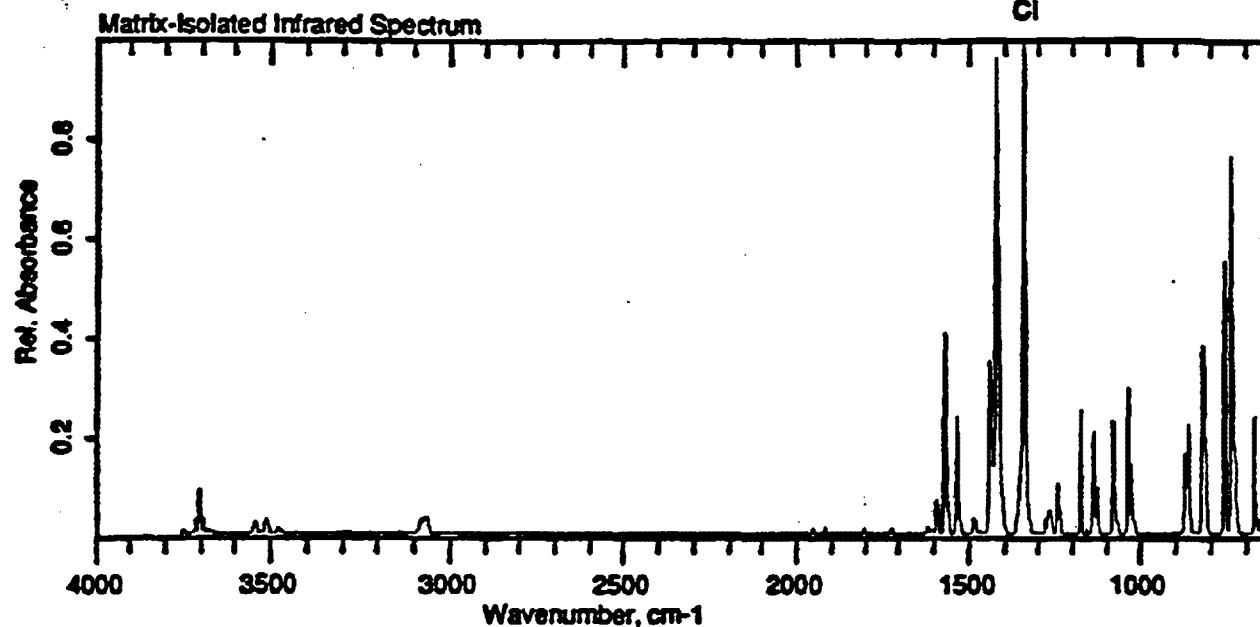
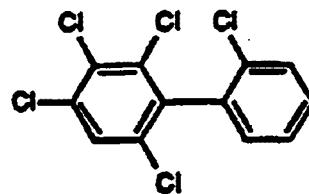


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.12	99.00	0.11	145.00	0.10	256.05	0.84	326.00	1.00
73.05	0.16	109.05	0.38	184.00	0.41	257.05	0.09	327.00	0.12
74.05	0.28	110.05	0.26	186.00	0.12	257.95	0.26	328.00	0.64
75.05	0.11	122.05	0.10	217.95	0.12	289.00	0.26	330.00	0.18
85.00	0.10	126.95	0.43	219.05	0.11	291.00	0.32		
92.00	0.17	127.95	0.40	254.05	0.85	293.00	0.14		
98.00	0.18	128.95	0.12	255.05	0.11	323.95	0.58		

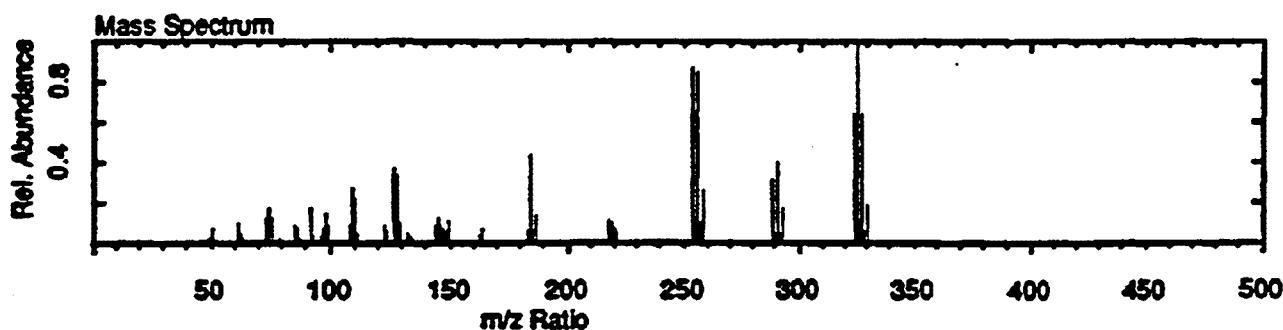
IUPAC Congener No. 88

2,2',3,4,6-PENTACHLOROBIPHENYL

CAS No. 55215-17-3



cm^{-1}	abs								
656.50	0.05	825.10	0.39	1083.86	0.23	1267.43	0.05	1536.45	0.24
677.79	0.24	864.91	0.22	1129.94	0.10	1273.44	0.05	1570.42	0.41
733.98	0.17	874.91	0.17	1140.56	0.21	1346.11	1.00	1594.85	0.07
742.96	0.77	1031.13	0.14	1178.41	0.25	1424.38	0.96		
761.82	0.55	1040.29	0.30	1244.88	0.11	1443.51	0.35		

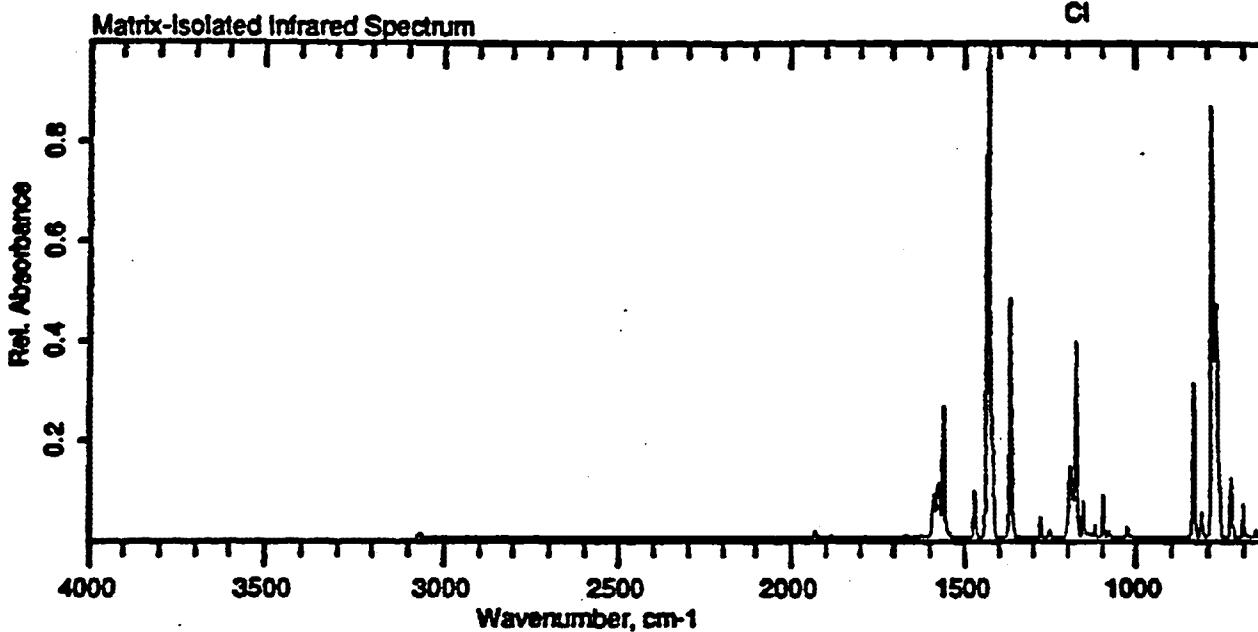
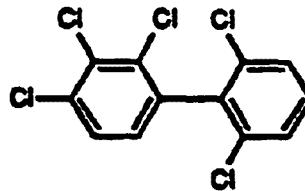


m/z	abun								
61.05	0.11	110.05	0.23	186.00	0.14	258.05	0.26	328.00	0.65
73.05	0.13	127.05	0.38	218.05	0.12	289.00	0.32	330.00	0.19
74.05	0.18	127.95	0.35	219.05	0.10	291.00	0.40		
75.05	0.13	128.95	0.10	254.05	0.88	293.00	0.19		
92.10	0.18	145.00	0.13	255.05	0.12	323.95	0.64		
98.00	0.15	149.10	0.12	256.05	0.85	326.00	1.00		
109.05	0.28	184.10	0.45	257.05	0.10	327.00	0.12		

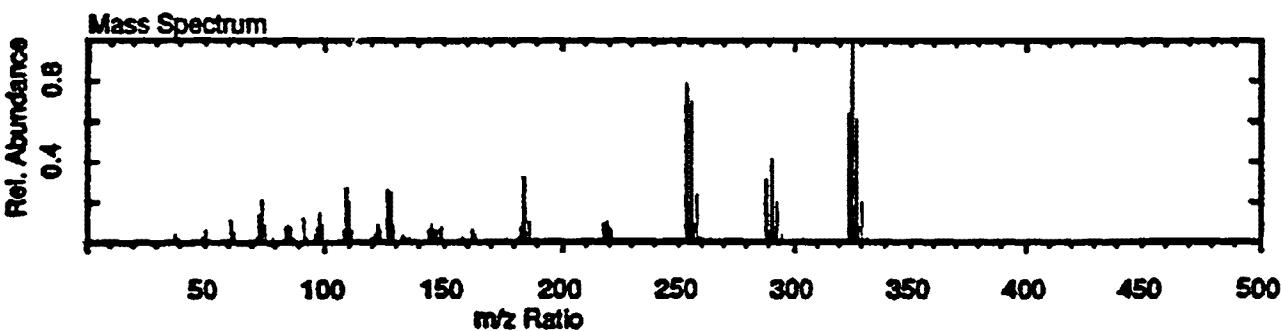
IUPAC Congener No. 89

2,2',3,4,6'-PENTACHLOROBIPHENYL

CAS No. 73575-57-2



cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
703.64	0.07	820.79	0.06	1189.86	0.10	1435.37	0.77		
737.75	0.13	841.78	0.31	1197.13	0.15	1473.44	0.10		
778.75	0.48	1099.05	0.09	1282.59	0.05	1563.84	0.27		
784.56	0.47	1157.97	0.08	1368.61	0.48	1577.83	0.11		
791.67	0.87	1178.19	0.40	1430.24	1.00	1583.53	0.10		

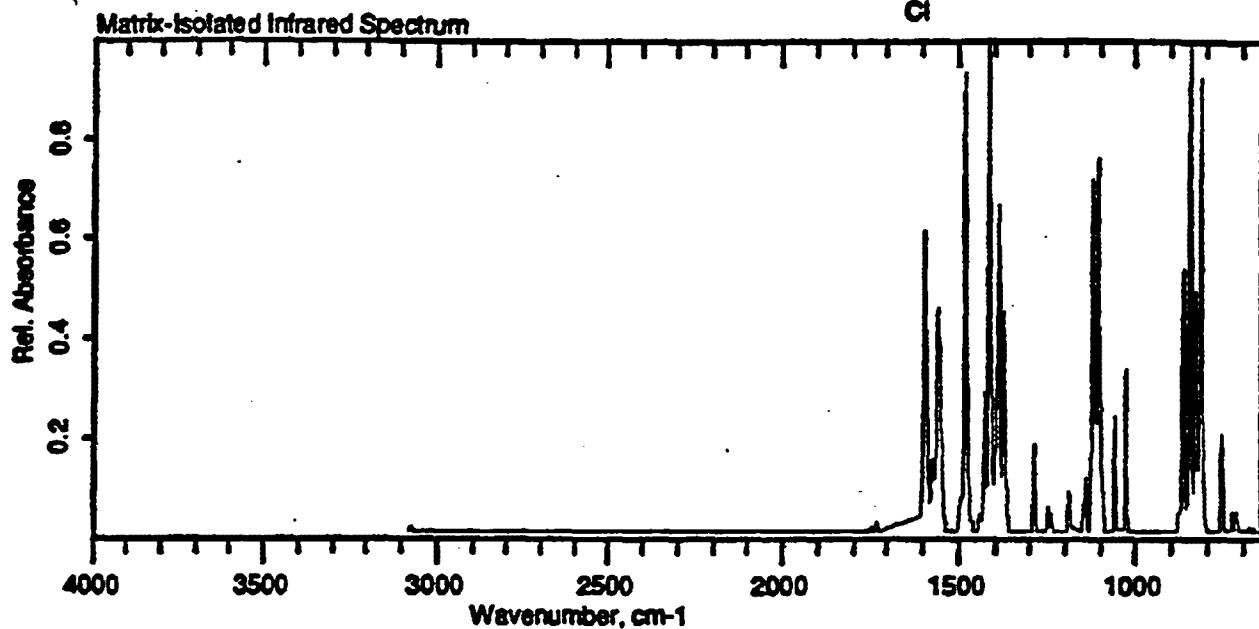
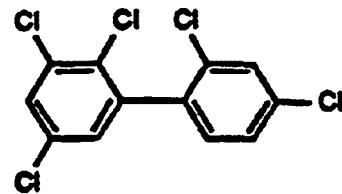


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.11	99.00	0.10	186.00	0.10	257.95	0.24	328.00	0.61
73.05	0.15	109.05	0.28	217.95	0.10	289.00	0.31	330.00	0.21
74.05	0.22	110.05	0.21	218.95	0.10	290.90	0.42		
75.05	0.09	122.05	0.09	254.05	0.79	292.90	0.21		
85.00	0.10	127.05	0.27	255.05	0.11	323.95	0.64		
92.00	0.13	127.95	0.26	255.95	0.71	326.00	1.00		
98.00	0.15	184.00	0.33	256.95	0.09	327.00	0.12		

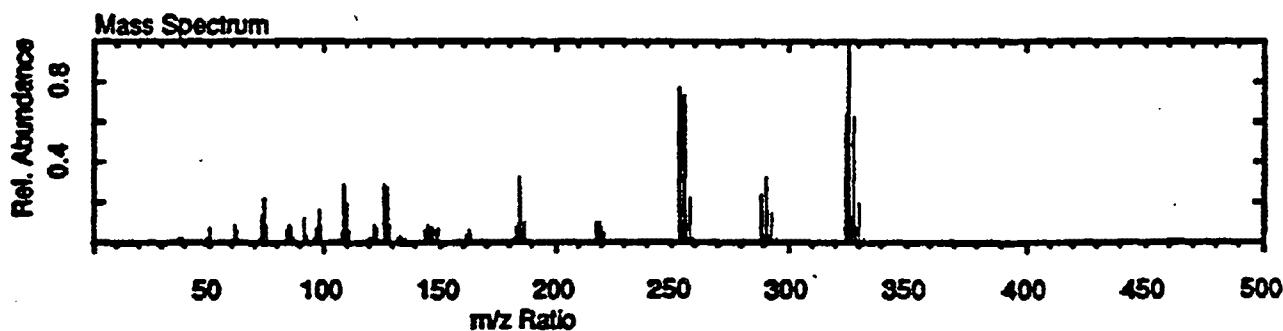
IUPAC Congener No. 90

2,2',3,4',5-PENTACHLOROBIPHENYL

CAS No. 68194-07-0



cm^{-1}	abs								
719.44	0.05	869.30	0.54	1117.15	0.27	1291.75	0.19	1483.39	0.93
732.22	0.05	883.18	0.05	1124.70	0.72	1376.26	0.46	1554.98	0.40
762.22	0.21	1032.69	0.34	1142.94	0.12	1389.67	0.66	1560.29	0.46
819.70	0.92	1063.11	0.25	1193.18	0.10	1416.02	0.99	1577.02	0.15
835.48	0.50	1103.44	0.27	1241.86	0.05	1428.19	0.29		
850.38	1.00	1109.57	0.77	1250.64	0.07	1443.37	0.05		

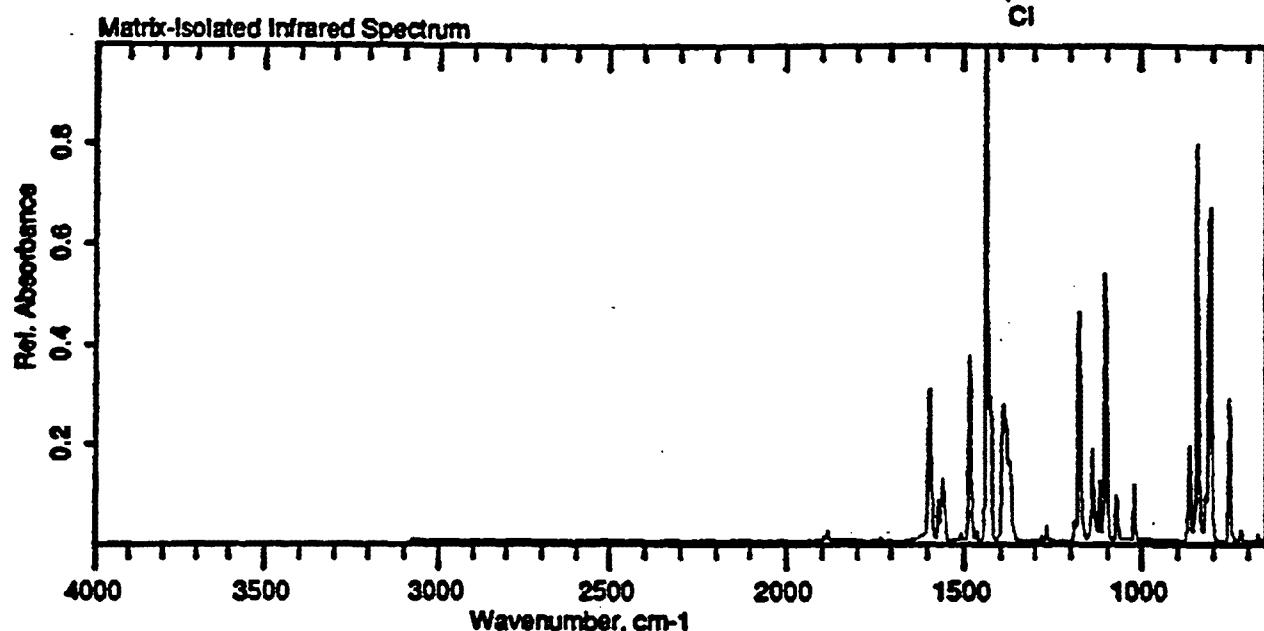
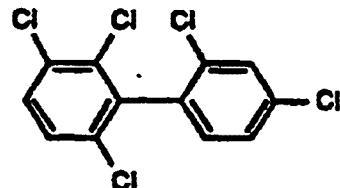


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.10	99.00	0.10	184.10	0.34	256.05	0.74	323.95	0.64
73.05	0.14	109.05	0.29	186.00	0.11	257.05	0.10	326.00	1.00
74.05	0.23	110.05	0.20	218.05	0.10	258.05	0.24	327.00	0.13
85.00	0.09	127.05	0.29	219.05	0.10	289.00	0.25	328.00	0.63
92.00	0.13	127.95	0.28	254.05	0.78	291.00	0.33	330.00	0.21
98.00	0.16	145.00	0.09	255.05	0.11	293.00	0.15		

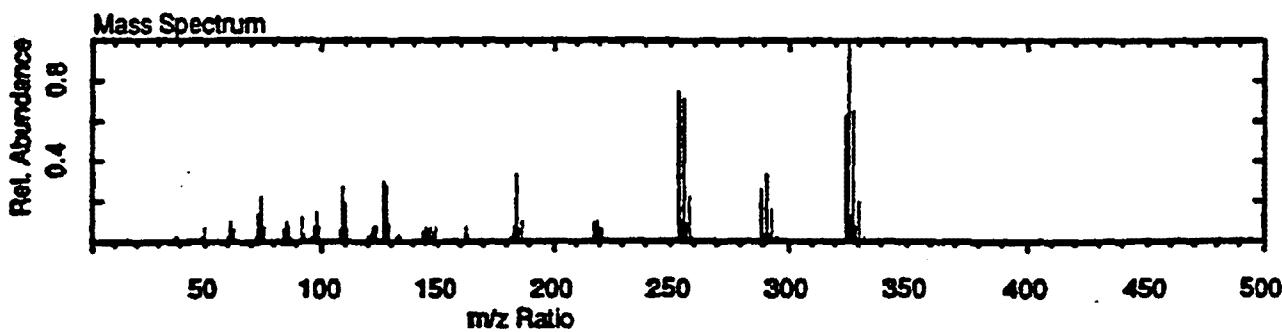
IUPAC Congener No. 91

2,2',3,4',6-PENTACHLOROBIPHENYL

CAS No. 58194-05-8



cm^{-1}	abs								
756.46	0.29	869.43	0.20	1124.25	0.12	1392.18	0.27	1560.38	0.13
809.33	0.66	1026.41	0.12	1144.39	0.19	1428.69	0.29	1572.97	0.08
824.77	0.10	1076.02	0.10	1178.83	0.46	1438.38	1.00		
846.69	0.79	1107.82	0.53	1375.63	0.16	1485.39	0.37		

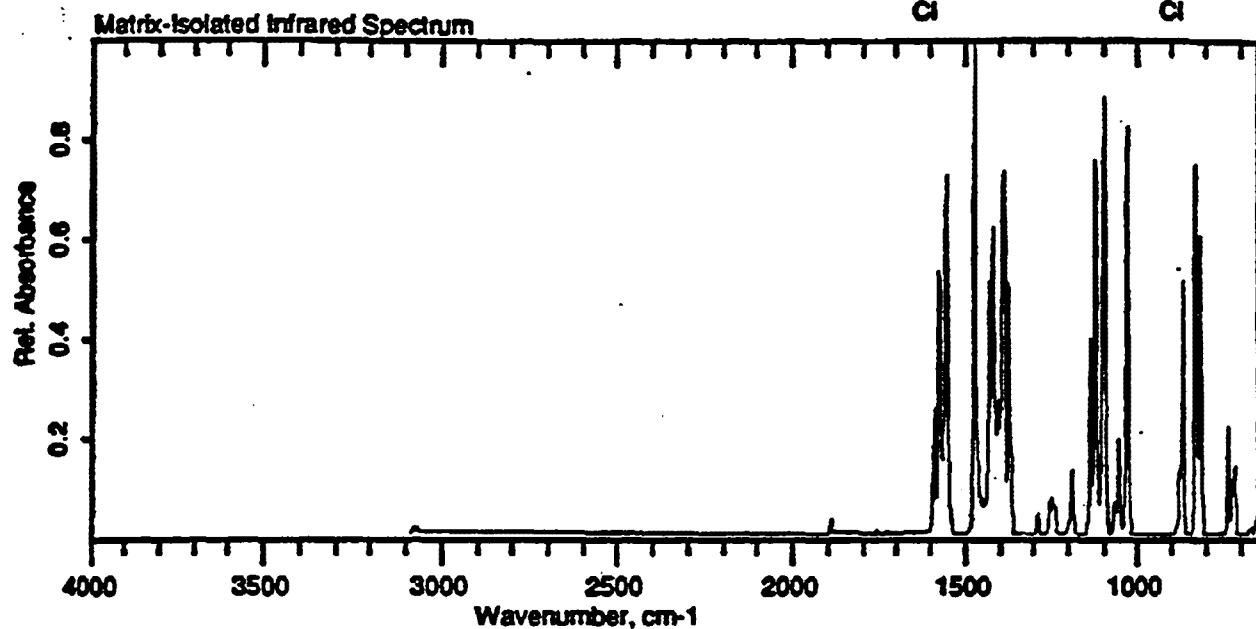
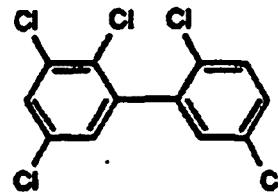


m/z	abun.	m/z	abun.	m/z	abun.	m/z	abun.	m/z	abun.
61.05	0.11	109.05	0.28	218.05	0.10	258.05	0.23	327.00	0.13
73.05	0.15	110.05	0.20	219.05	0.10	289.00	0.27	328.00	0.65
74.05	0.23	127.05	0.30	254.05	0.75	291.00	0.34	330.00	0.21
85.00	0.10	127.95	0.28	255.05	0.11	293.00	0.16		
92.00	0.13	184.10	0.34	256.05	0.72	323.95	0.63		
98.00	0.16	186.10	0.11	257.05	0.09	326.00	1.00		

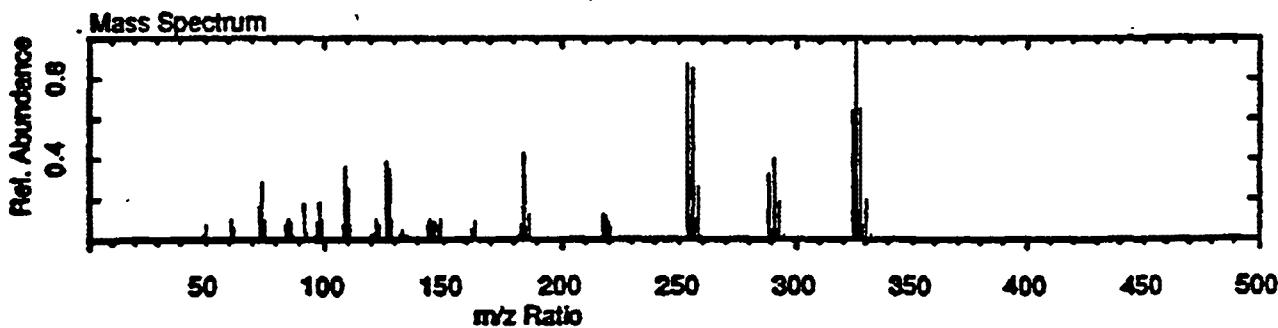
IUPAC Congener No. 92

2,2',3,5,5'-PENTACHLOROBIPHENYL

CAS No. 52663-61-3



cm^{-1}	abs								
720.09	0.14	876.45	0.15	1120.00	0.15	1256.91	0.07	1421.73	0.62
728.68	0.11	881.83	0.14	1126.36	0.75	1290.30	0.05	1431.15	0.51
738.76	0.22	1036.13	0.82	1139.90	0.39	1371.43	0.23	1475.10	1.00
818.23	0.60	1060.26	0.20	1191.74	0.14	1376.81	0.51	1556.10	0.73
832.61	0.74	1073.39	0.07	1243.45	0.07	1390.36	0.73	1577.85	0.53
868.40	0.52	1101.01	0.88	1249.49	0.06	1406.98	0.27		

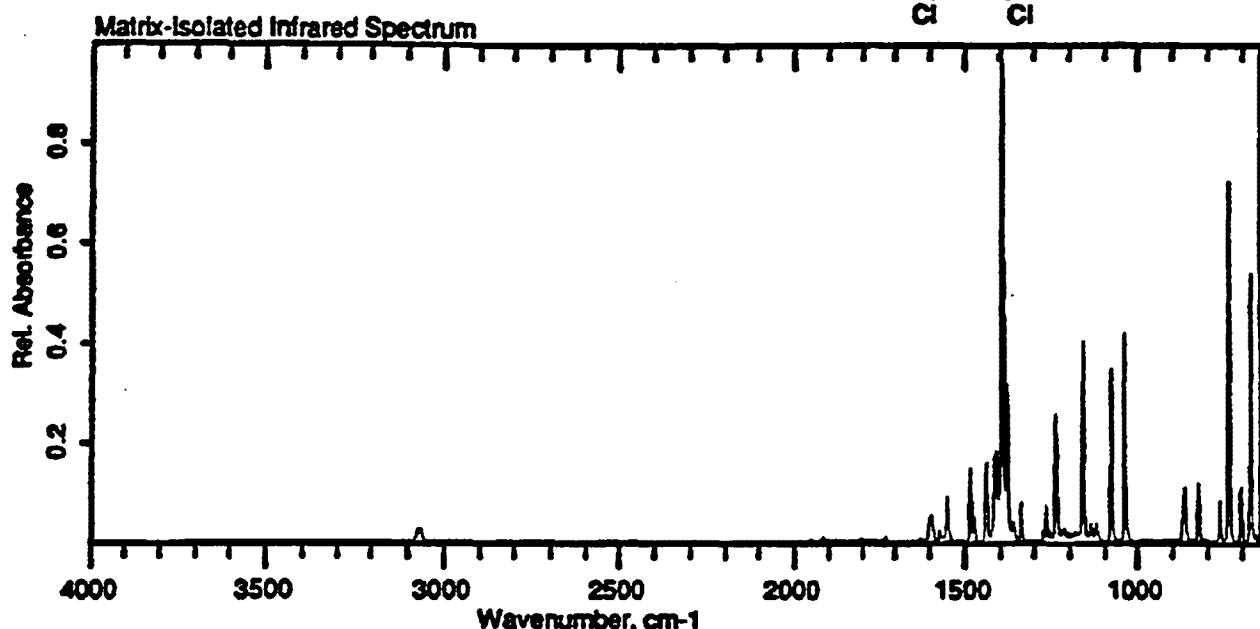
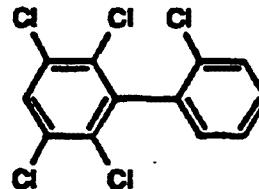


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.11	89.00	0.11	145.00	0.11	255.05	0.12	323.95	0.64
73.05	0.16	109.05	0.37	149.10	0.10	258.05	0.86	326.00	1.00
74.05	0.29	110.05	0.25	184.10	0.43	257.05	0.11	327.00	0.13
75.05	0.11	122.05	0.10	186.10	0.13	258.05	0.27	328.00	0.65
85.00	0.11	127.05	0.39	218.05	0.13	289.00	0.33	330.00	0.21
92.00	0.18	127.95	0.36	219.05	0.12	291.00	0.41		
98.00	0.19	128.95	0.11	254.05	0.88	293.00	0.19		

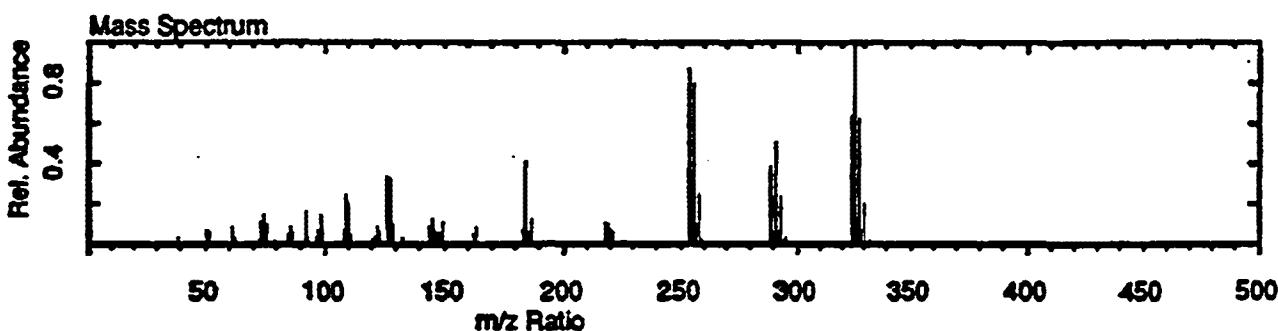
IUPAC Congener No. 93

2,2',3,5,6-PENTACHLOROBIPHENYL

CAS No. 73575-56-1



cm^{-1}	abs								
678.17	0.53	830.55	0.12	1166.23	0.40	1381.78	0.31	1475.43	0.05
705.09	0.11	869.91	0.11	1243.19	0.25	1394.95	1.00	1486.83	0.15
741.46	0.72	1044.23	0.41	1271.03	0.07	1414.32	0.18	1552.73	0.09
766.80	0.08	1084.37	0.35	1341.41	0.08	1440.85	0.16		

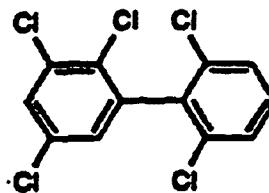


m/z	abun								
61.05	0.10	110.05	0.21	149.10	0.12	256.05	0.81	326.00	1.00
73.05	0.12	122.05	0.09	184.10	0.42	257.05	0.10	327.00	0.13
74.05	0.16	127.05	0.35	186.10	0.13	258.05	0.26	328.00	0.64
75.05	0.10	128.05	0.33	218.05	0.11	289.00	0.39	330.00	0.21
92.00	0.16	128.95	0.10	219.05	0.11	291.00	0.51		
98.00	0.15	144.00	0.09	254.05	0.88	293.00	0.24		
109.05	0.26	145.00	0.13	255.05	0.12	323.95	0.65		

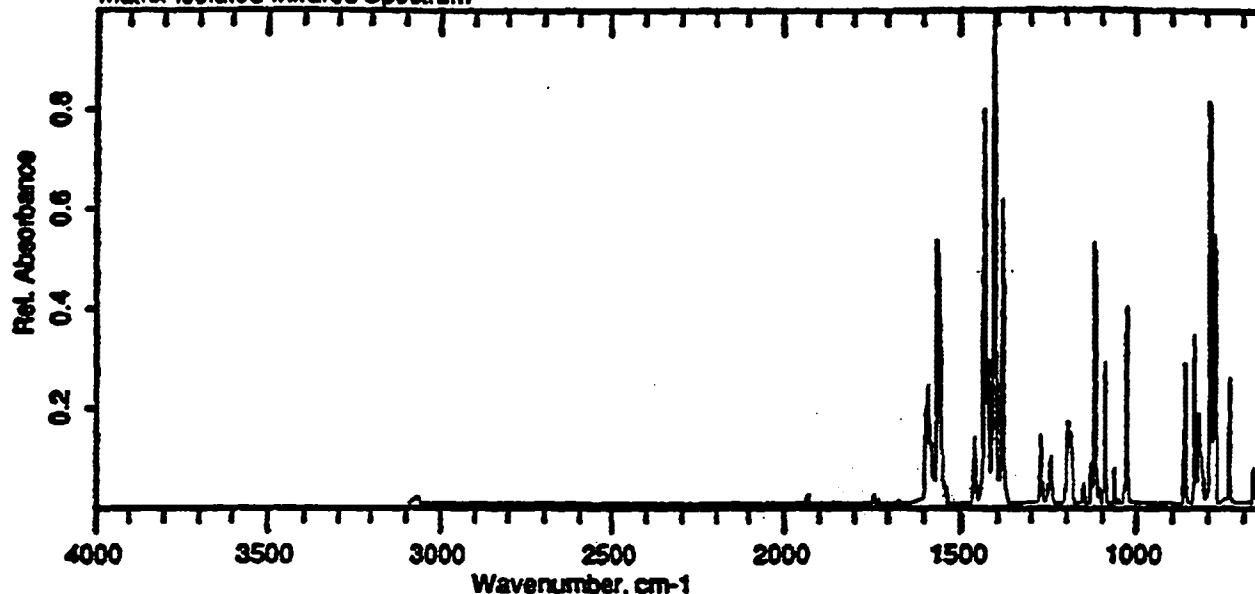
IUPAC Congener No. 94

2,2',3,5,6'-PENTACHLOROBIPHENYL

CAS No. 73575-55-0

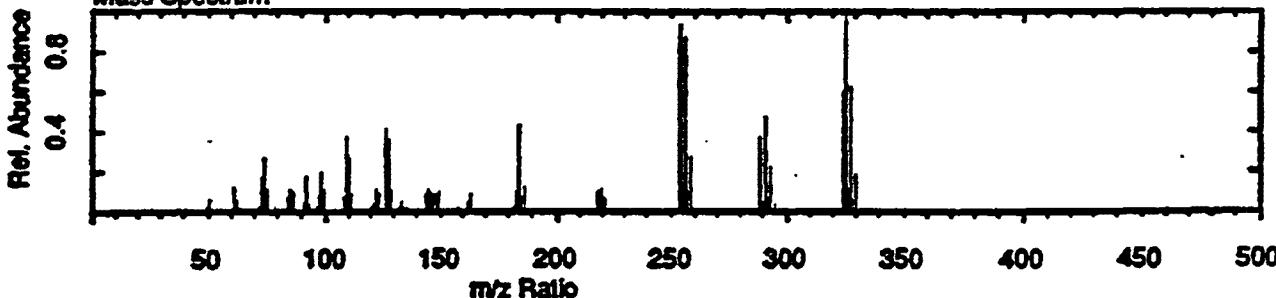


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
673.86	0.08	867.62	0.29	1133.12	0.09	1277.01	0.14	1560.15	0.46
739.95	0.26	1032.83	0.40	1155.22	0.05	1385.79	0.62	1565.77	0.54
780.67	0.56	1038.68	0.05	1190.14	0.15	1406.92	1.00	1577.01	0.06
794.27	0.83	1067.75	0.08	1199.27	0.17	1426.12	0.30	1585.29	0.13
826.94	0.19	1094.50	0.29	1248.21	0.10	1436.18	0.80		
839.22	0.34	1122.86	0.53	1257.80	0.05	1463.62	0.14		

Mass Spectrum

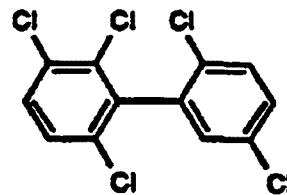


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.14	99.00	0.12	145.00	0.12	256.05	0.88	326.00	1.00
73.05	0.19	109.05	0.38	184.10	0.44	257.05	0.11	327.00	0.12
74.05	0.29	110.05	0.28	186.10	0.13	258.05	0.28	328.00	0.63
75.05	0.11	122.05	0.12	218.05	0.11	289.00	0.38	330.00	0.20
85.00	0.11	127.05	0.42	219.05	0.12	291.00	0.48		
92.00	0.18	128.05	0.37	254.05	0.94	293.00	0.23		
98.00	0.20	128.95	0.11	255.05	0.13	323.95	0.61		

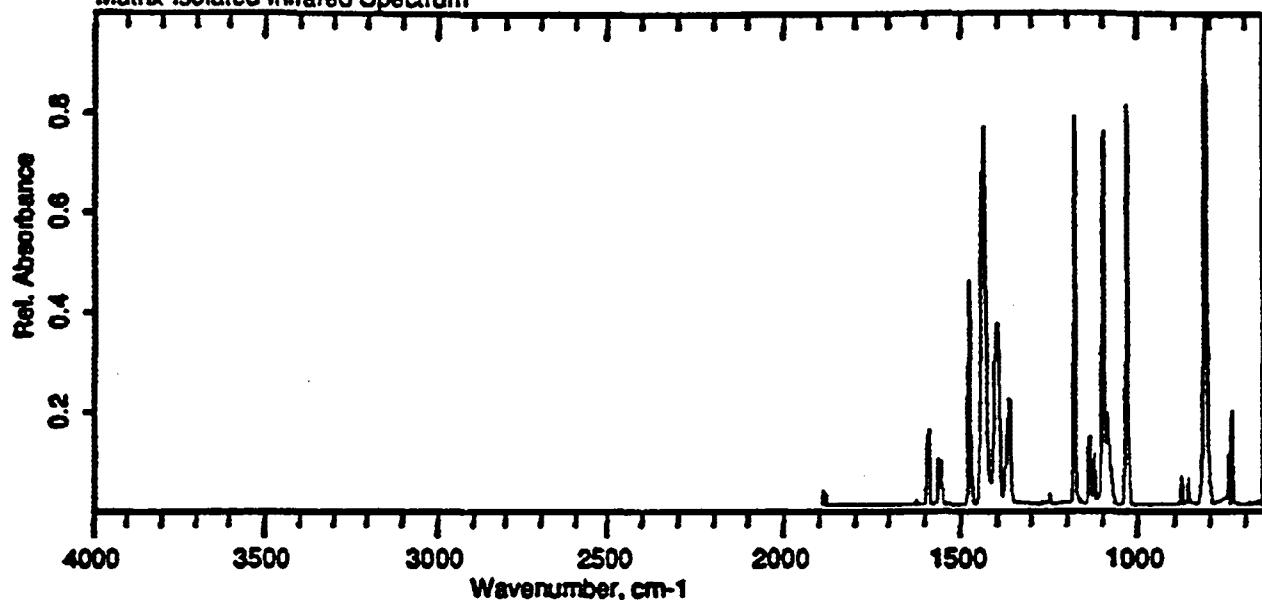
IUPAC Congener No. 95

2,2',3,5',6-PENTACHLOROBIPHENYL

CAS No. 38379-99-6

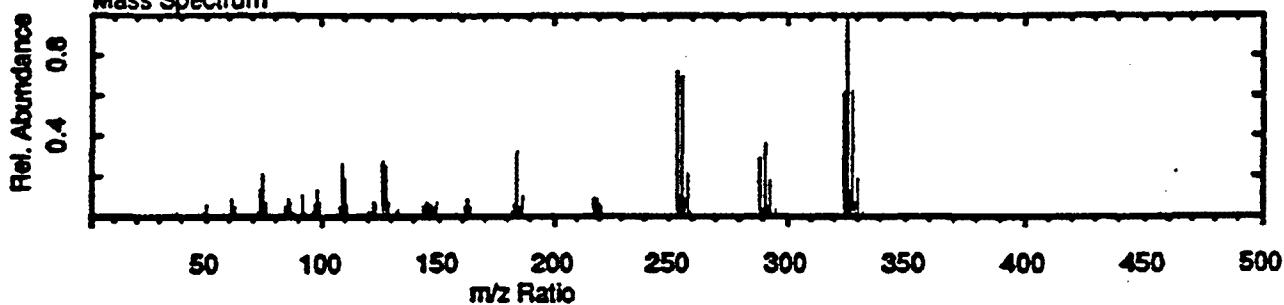


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
653.01	0.06	884.43	0.07	1124.64	0.11	1400.12	0.38	1565.37	0.10
738.89	0.20	1033.60	0.82	1137.40	0.15	1436.62	0.77	1591.43	0.16
749.34	0.11	1078.44	0.09	1140.96	0.13	1443.75	0.68		
816.16	1.00	1088.73	0.20	1180.75	0.79	1478.29	0.46		
865.76	0.06	1098.85	0.77	1365.24	0.22	1557.58	0.10		

Mass Spectrum

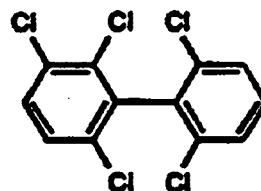


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.09	99.00	0.08	149.00	0.08	254.95	0.10	323.95	0.62
73.05	0.14	109.05	0.27	162.95	0.09	255.95	0.70	325.00	0.08
74.05	0.22	110.05	0.19	184.00	0.34	256.95	0.09	326.00	1.00
75.05	0.08	122.05	0.08	186.00	0.10	257.95	0.22	327.00	0.13
85.00	0.09	126.95	0.28	217.95	0.09	289.00	0.29	328.00	0.63
92.00	0.12	127.95	0.26	218.95	0.10	291.00	0.37	330.00	0.20
98.00	0.15	128.95	0.08	254.05	0.73	292.90	0.18		

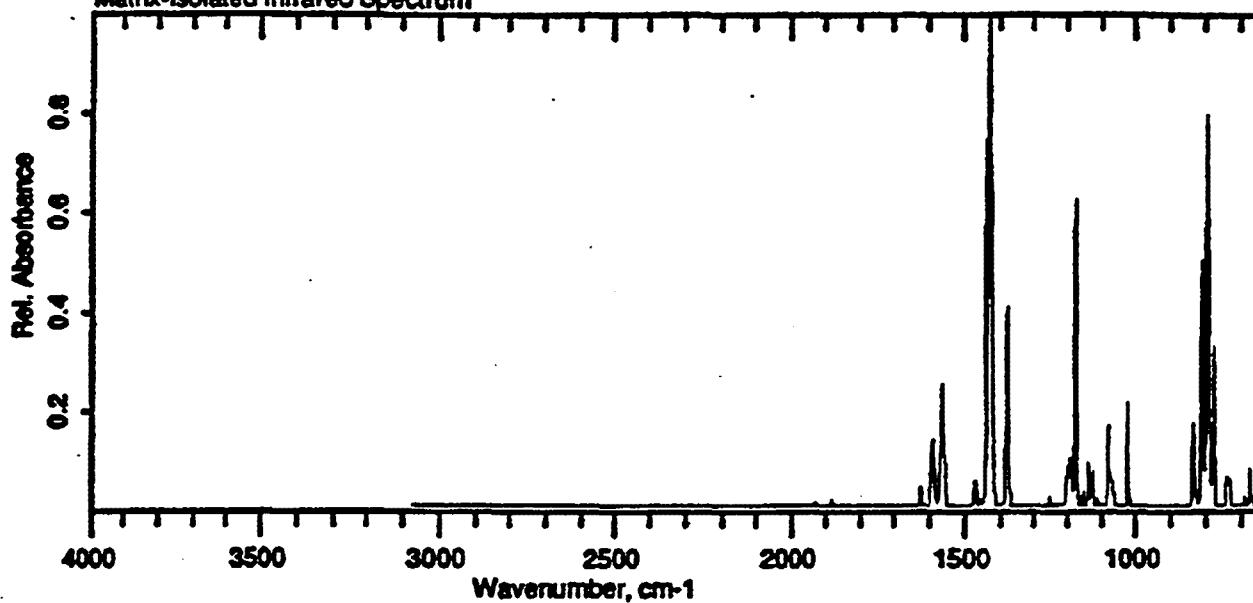
IUPAC Congener No. 96

2,2',3,5,6'-PENTACHLOROBIPHENYL

CAS No. 73575-54-9

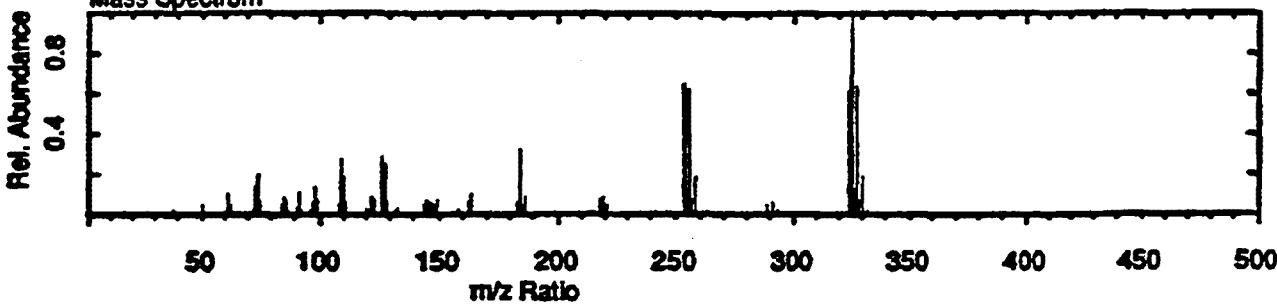


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
675.42	0.09	812.22	0.50	1083.28	0.17	1198.39	0.09	1565.10	0.26
734.36	0.06	838.65	0.18	1128.45	0.08	1380.28	0.41	1591.57	0.14
742.15	0.07	1028.18	0.22	1142.40	0.10	1429.60	1.00		
778.38	0.33	1071.03	0.08	1179.63	0.62	1437.28	0.75		
796.80	0.79	1077.68	0.07	1193.05	0.10	1470.39	0.06		

Mass Spectrum

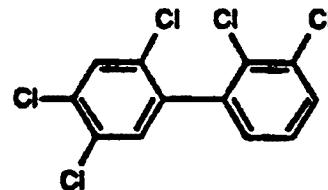


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.10	96.00	0.15	128.95	0.08	254.05	0.66	327.00	0.13
73.05	0.14	109.05	0.28	163.05	0.11	255.05	0.09	328.00	0.64
74.05	0.20	110.05	0.20	184.10	0.33	256.05	0.63	330.00	0.20
75.05	0.08	122.05	0.09	186.10	0.10	258.05	0.20		
85.00	0.09	127.05	0.29	218.05	0.08	323.95	0.62		
92.10	0.12	127.95	0.26	219.05	0.09	326.00	1.00		

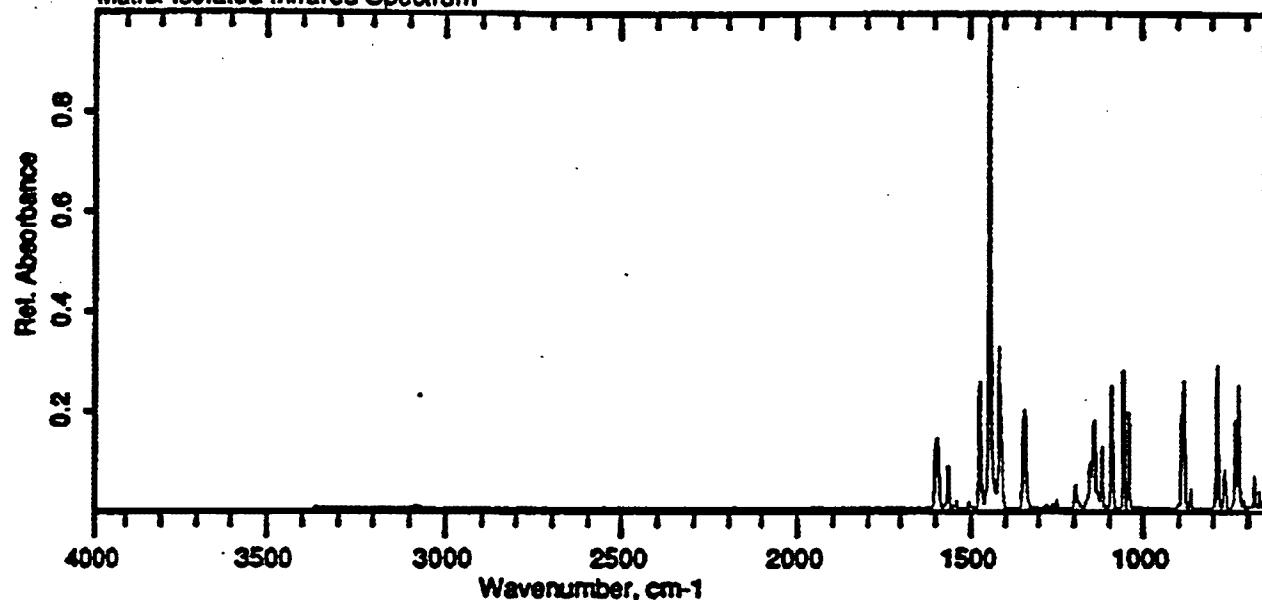
IUPAC Congener No. 97

2,2',3,4,5-PENTACHLOROBIPHENYL

CAS No. 41464-51-1

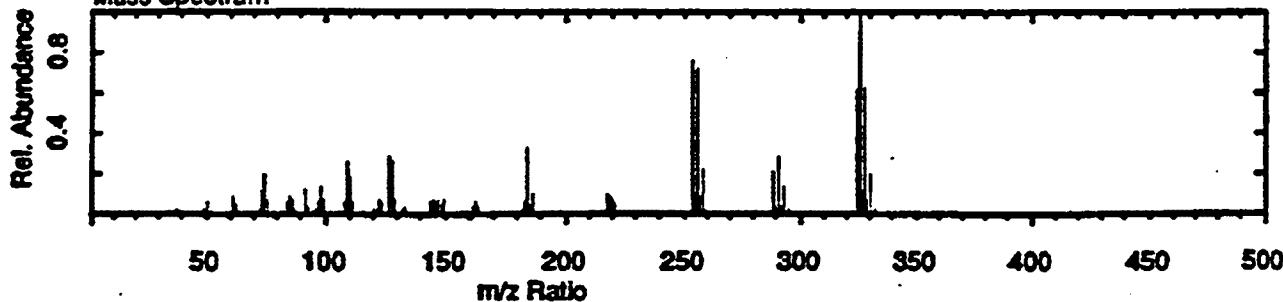


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
650.63	0.07	789.15	0.29	1094.30	0.25	1343.79	0.20		
683.07	0.07	889.55	0.26	1121.72	0.13	1417.89	0.32		
726.66	0.25	895.02	0.19	1144.20	0.18	1445.71	1.00		
736.44	0.18	1045.71	0.20	1155.95	0.10	1476.13	0.26		
769.66	0.08	1060.37	0.29	1198.31	0.05	1566.52	0.09		

Mass Spectrum

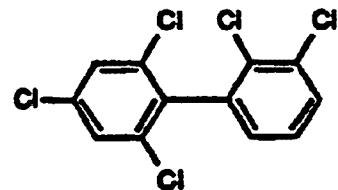


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.10	109.05	0.27	184.00	0.33	257.05	0.09	326.00	1.00
73.05	0.12	110.05	0.19	186.00	0.10	258.05	0.23	327.00	0.12
74.05	0.21	122.05	0.08	218.05	0.10	289.00	0.22	328.00	0.63
85.00	0.09	126.95	0.29	219.05	0.10	291.00	0.29	330.00	0.20
92.00	0.13	127.95	0.27	254.05	0.77	292.90	0.14		
98.00	0.14	128.95	0.09	255.05	0.11	323.95	0.62		
99.00	0.08	145.00	0.09	256.05	0.73	325.00	0.08		

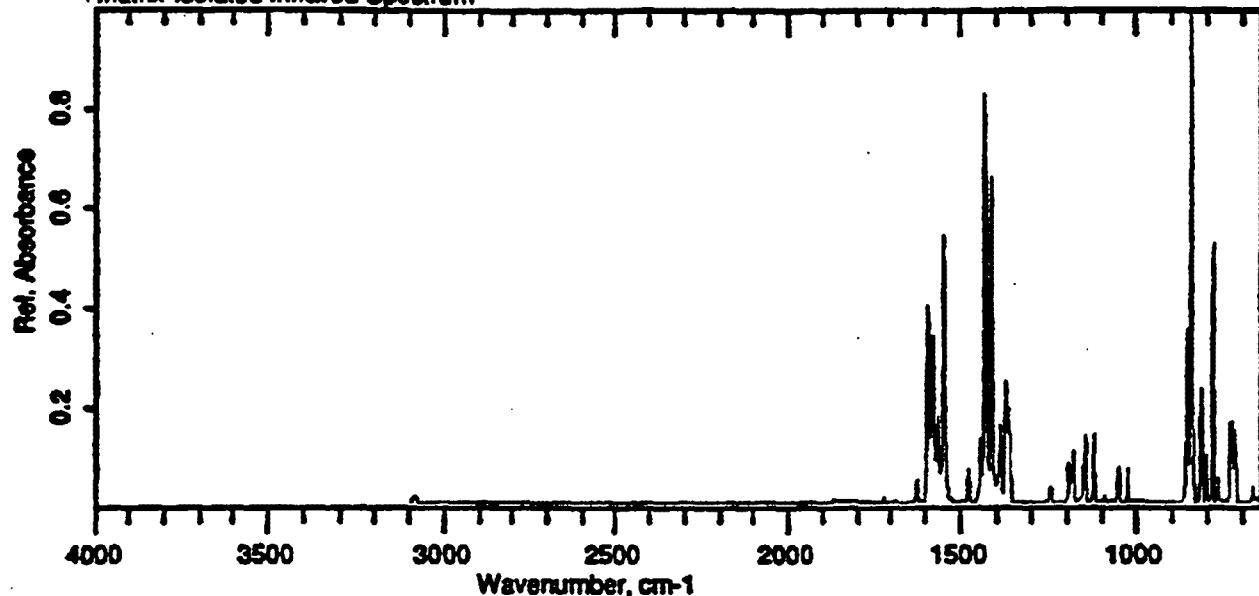
IUPAC Congener No. 98

2,2',3'4,6-PENTACHLOROBIPHENYL

CAS No. 60233-25-2

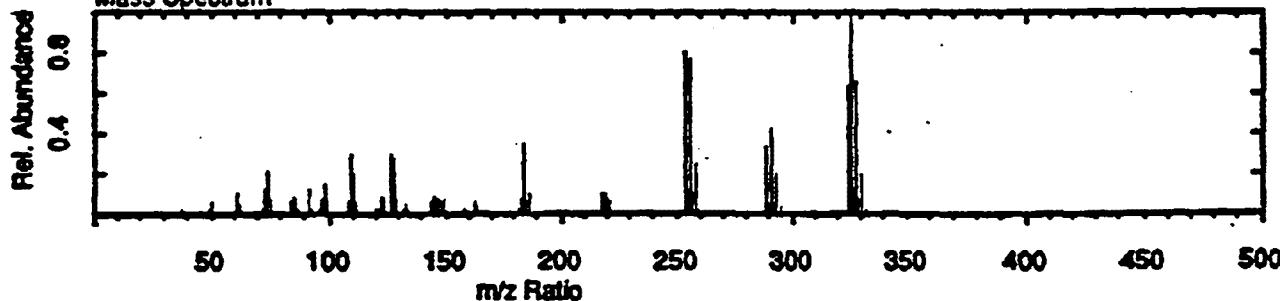


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
722.66	0.15	819.66	0.24	1149.70	0.14	1389.79	0.16	1547.34	0.55
731.47	0.17	848.72	1.00	1157.44	0.08	1403.32	0.05	1564.23	0.18
737.75	0.17	859.46	0.36	1184.77	0.12	1413.81	0.66	1579.75	0.34
771.44	0.06	1028.14	0.08	1198.71	0.09	1431.20	0.83	1593.79	0.41
785.60	0.53	1054.66	0.08	1367.10	0.20	1445.47	0.13		
805.31	0.10	1125.00	0.15	1375.04	0.25	1479.24	0.08		

Mass Spectrum

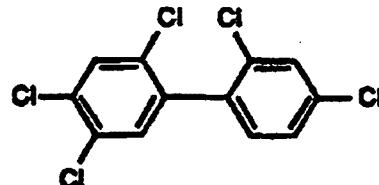


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.10	109.05	0.30	184.10	0.35	256.05	0.78	323.95	0.65
73.05	0.13	110.05	0.21	186.10	0.11	257.05	0.11	326.00	1.00
74.05	0.22	122.05	0.10	218.05	0.11	258.05	0.25	327.00	0.14
85.00	0.10	127.05	0.31	219.05	0.11	289.00	0.34	328.00	0.67
92.00	0.13	127.95	0.28	254.05	0.81	291.00	0.43	330.00	0.21
98.00	0.15	145.00	0.10	255.05	0.12	293.00	0.20		

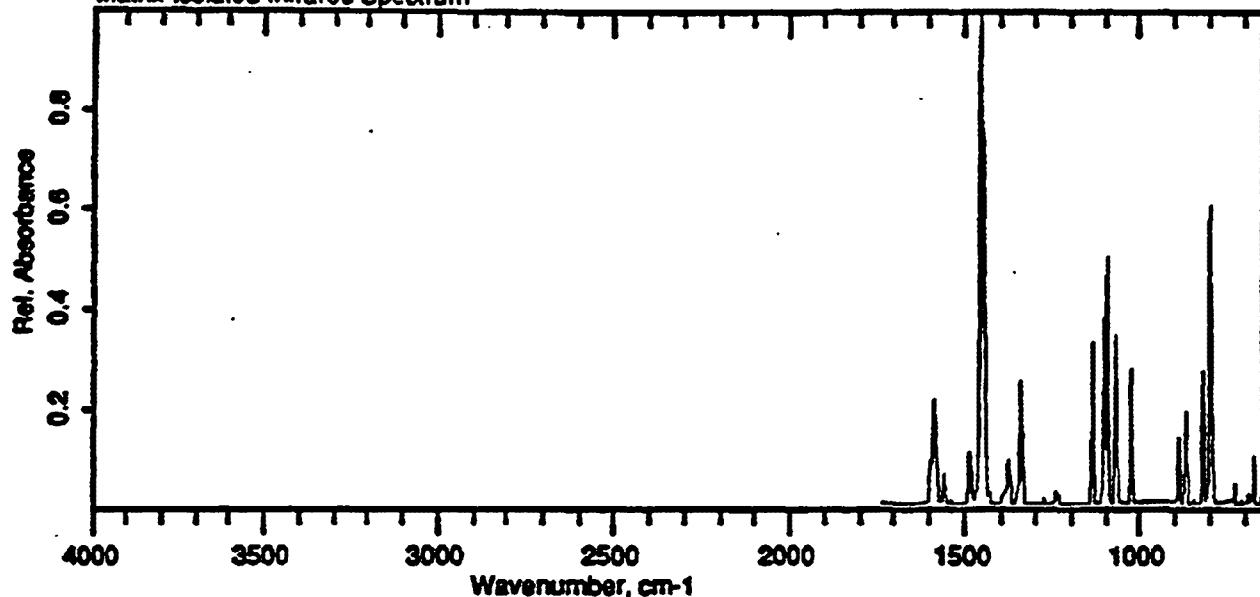
IUPAC Congener No. 99

2,2',4,4',5-PENTACHLOROBIPHENYL

CAS No. 38380-01-7

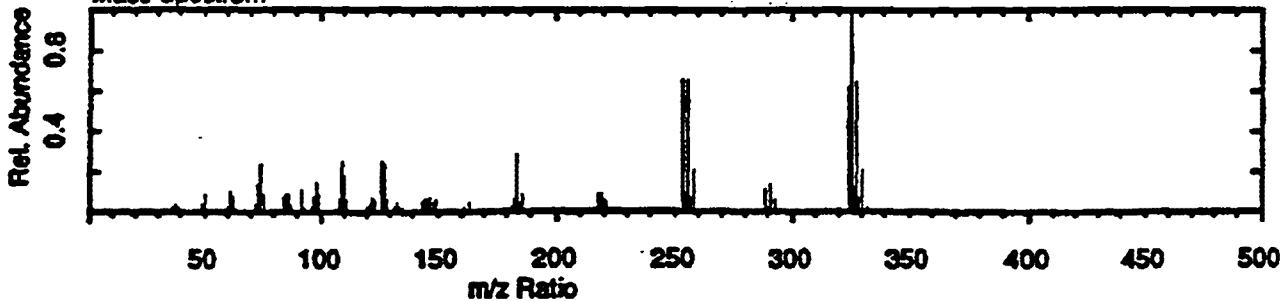


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
675.97	0.10	870.79	0.19	1098.15	0.50	1379.61	0.10	1560.10	0.07
732.59	0.05	892.01	0.14	1107.33	0.38	1450.63	0.77	1588.09	0.22
801.05	0.61	1029.43	0.28	1141.34	0.33	1456.61	1.00		
823.28	0.28	1074.54	0.34	1346.27	0.25	1488.37	0.11		

Mass Spectrum

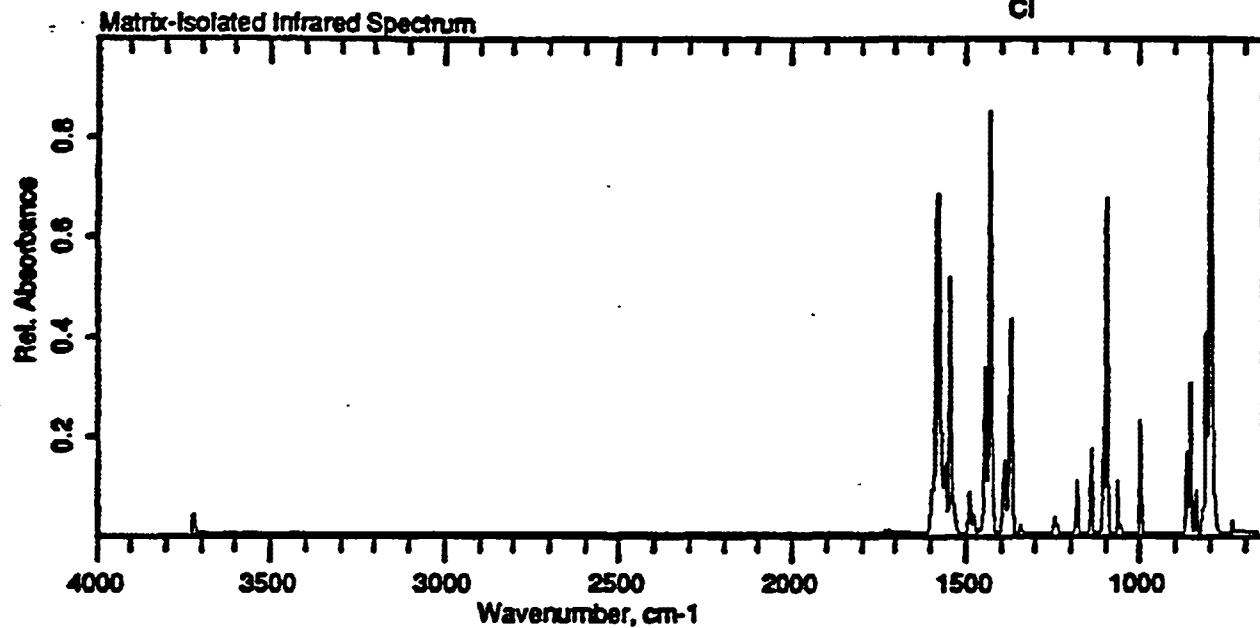
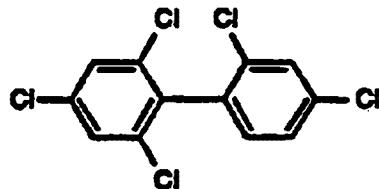


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.09	92.00	0.12	126.95	0.28	255.05	0.10	325.00	0.08
61.05	0.11	97.00	0.08	127.95	0.24	256.05	0.67	326.00	1.00
73.05	0.14	98.00	0.16	184.10	0.29	257.05	0.09	327.00	0.13
74.05	0.24	99.00	0.09	186.00	0.09	258.05	0.22	328.00	0.66
75.05	0.09	109.05	0.26	218.05	0.10	289.00	0.12	330.00	0.21
85.00	0.10	110.05	0.18	219.05	0.10	291.00	0.15		
86.00	0.09	122.05	0.08	254.05	0.67	323.95	0.63		

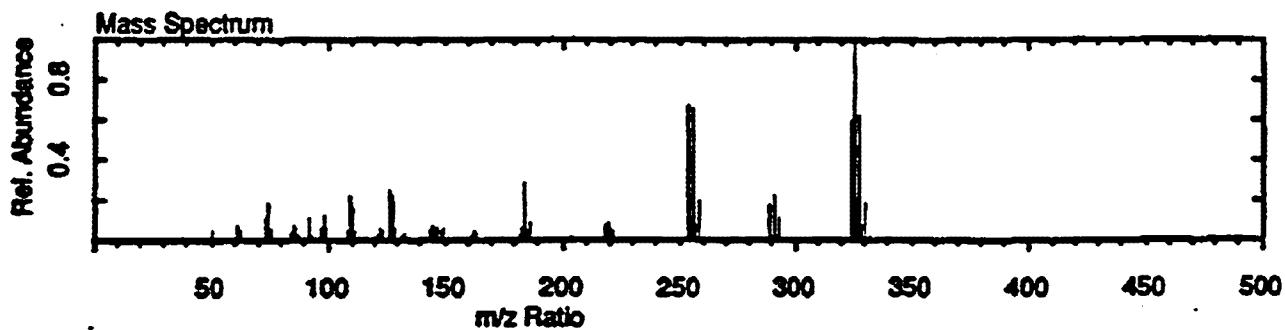
IUPAC Congener No. 100

2,2',4,4',6-PENTACHLOROBIPHENYL

CAS No. 39485-83-1

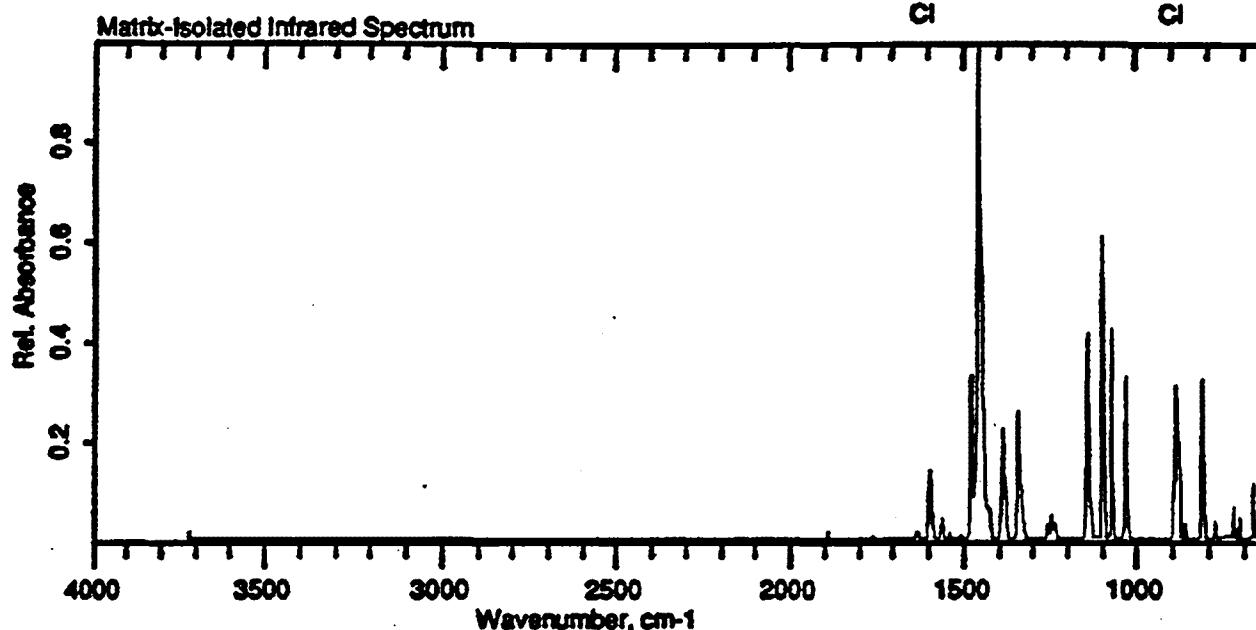
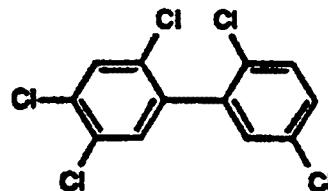


cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
799.98	1.00	869.73	0.17	1143.16	0.18	1446.68	0.33		
815.27	0.41	1003.98	0.23	1185.02	0.11	1491.98	0.09		
825.21	0.05	1067.99	0.11	1372.23	0.43	1547.17	0.52		
843.81	0.09	1098.64	0.67	1390.74	0.15	1559.88	0.14		
859.71	0.31	1107.16	0.22	1432.07	0.85	1580.12	0.68		

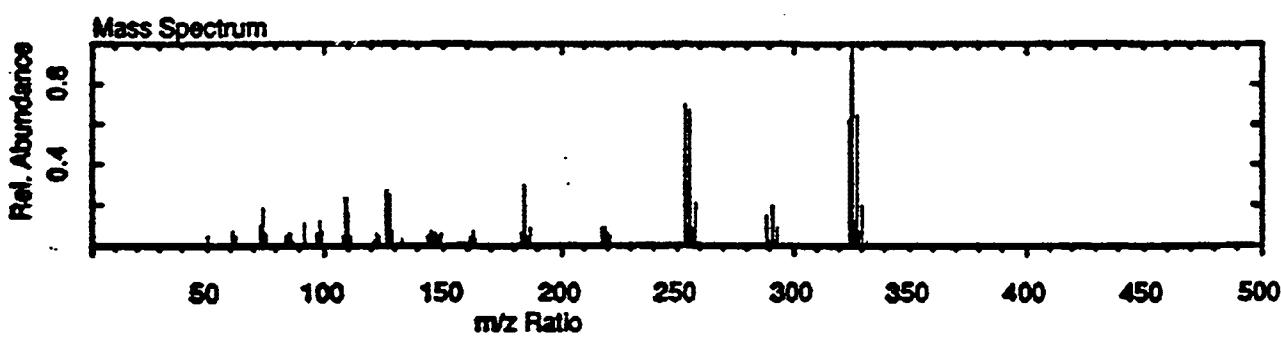


m/z	abun								
61.05	0.09	110.05	0.17	217.95	0.09	257.95	0.21	326.00	1.00
73.05	0.12	126.95	0.26	218.95	0.09	289.00	0.18	327.00	0.13
74.05	0.19	127.95	0.24	253.95	0.68	290.90	0.23	328.00	0.63
92.00	0.12	145.10	0.08	254.95	0.10	292.90	0.11	329.90	0.20
98.00	0.13	184.00	0.30	255.95	0.67	323.95	0.61		
109.05	0.23	186.00	0.09	258.95	0.08	325.00	0.08		

IUPAC Congener No. 101
 2,2',4,5,5'-PENTACHLOROBIPHENYL
 CAS No. 37680-73-2



cm^{-1}	abs								
673.69	0.12	885.25	0.20	1101.23	0.61	1383.09	0.13	1480.69	0.33
714.20	0.05	891.72	0.31	1144.17	0.42	1389.39	0.22	1563.05	0.05
731.16	0.07	1034.54	0.33	1248.41	0.05	1429.00	0.07		
818.58	0.32	1075.41	0.42	1344.91	0.26	1457.81	1.00		

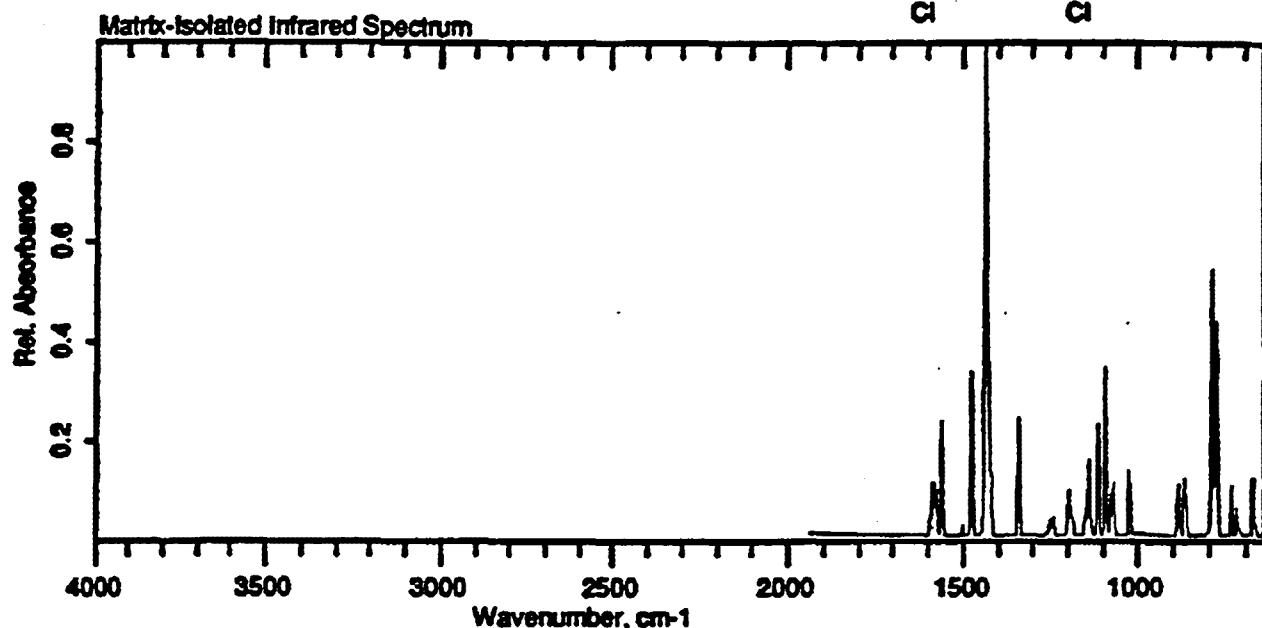
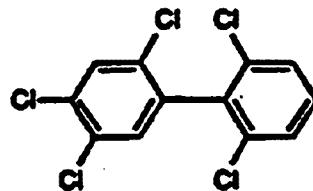


m/z	abun								
61.05	0.08	110.05	0.17	219.05	0.09	289.00	0.16	327.00	0.13
73.05	0.11	127.05	0.28	254.05	0.70	291.00	0.20	328.00	0.65
74.05	0.19	127.95	0.26	255.05	0.10	293.00	0.09	329.00	0.08
92.00	0.12	184.10	0.30	256.05	0.68	323.95	0.63	330.00	0.20
98.00	0.13	186.00	0.09	257.05	0.09	325.00	0.08		
109.05	0.25	217.95	0.09	258.05	0.21	326.00	1.00		

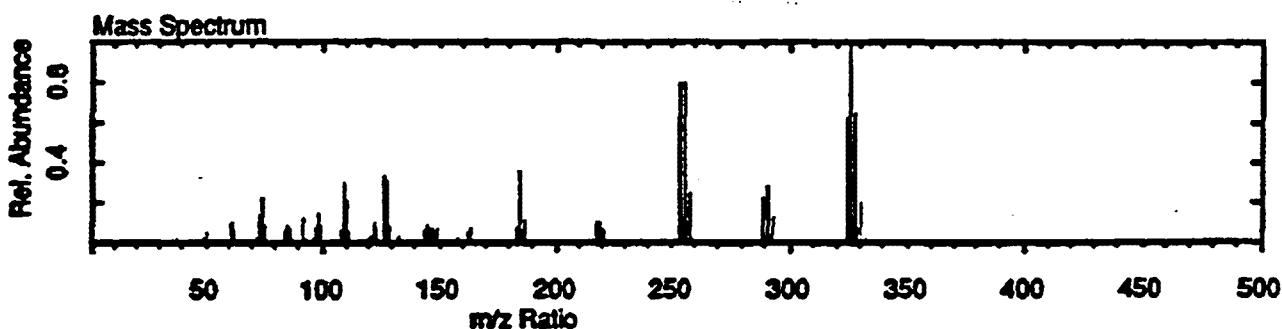
IUPAC Congener No. 102

2,2',4,5,6'-PENTACHLOROBIPHENYL

CAS No. 68194-06-9



cm^{-1}	abs								
682.14	0.13	867.65	0.09	1074.05	0.12	1155.06	0.05	1438.29	1.00
726.72	0.07	873.78	0.13	1082.16	0.09	1190.18	0.05	1477.80	0.34
741.69	0.11	889.31	0.11	1096.78	0.35	1199.18	0.10	1564.83	0.24
781.01	0.44	1026.62	0.11	1116.77	0.23	1244.68	0.05	1580.09	0.10
793.10	0.54	1031.61	0.14	1144.51	0.16	1342.79	0.25		

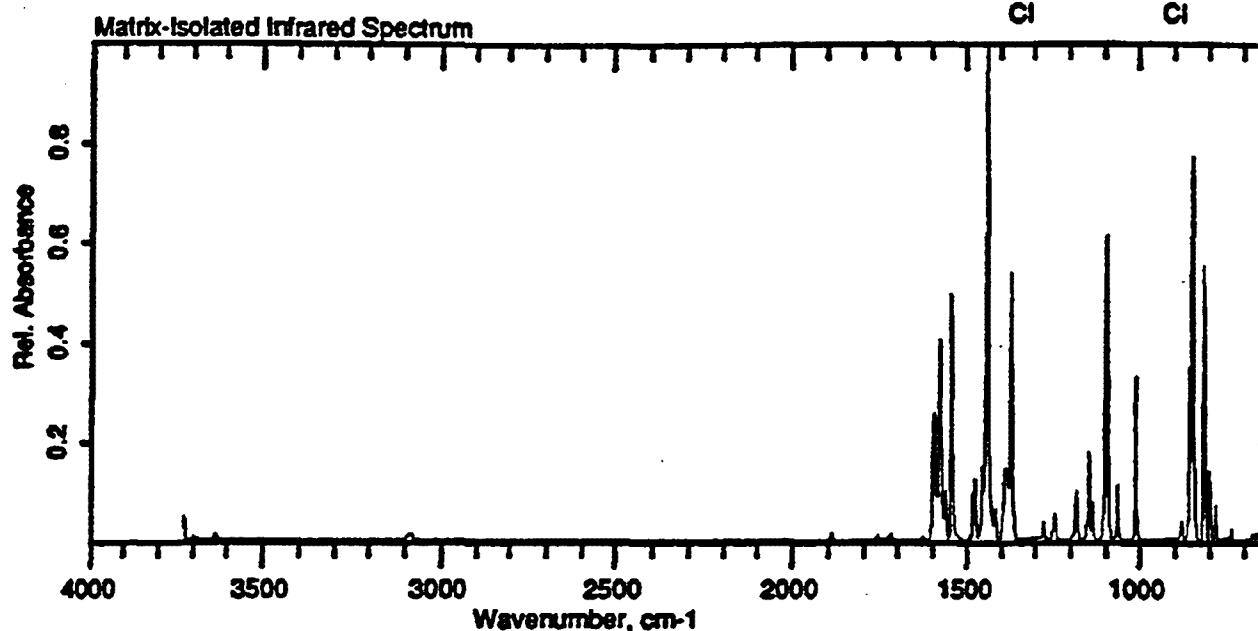
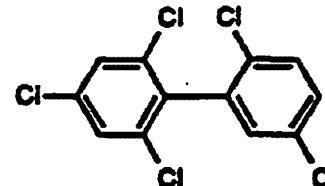


m/z	abun								
61.05	0.11	110.05	0.22	186.10	0.12	257.05	0.10	326.00	1.00
73.05	0.15	122.05	0.10	218.05	0.11	258.05	0.25	327.00	0.13
74.05	0.23	127.05	0.35	219.05	0.10	289.00	0.23	328.00	0.66
92.00	0.13	127.95	0.32	254.05	0.81	291.00	0.29	330.00	0.21
98.00	0.16	128.95	0.10	255.05	0.11	293.00	0.13		
109.05	0.30	184.10	0.36	256.05	0.80	323.95	0.63		

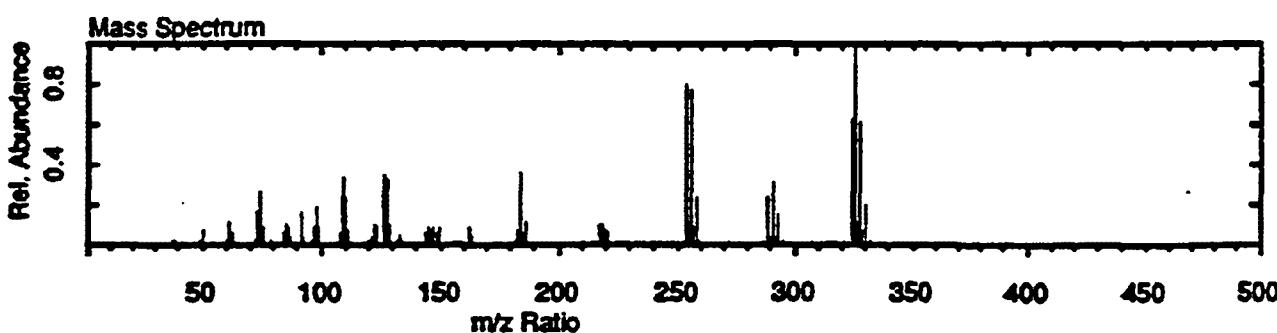
IUPAC Congener No. 103

2,2',4,5',6-PENTACHLOROBIPHENYL

CAS No. 60145-21-3



cm^{-1}	abs								
649.61	0.06	1017.55	0.33	1247.91	0.06	1439.77	1.00	1580.40	0.40
786.09	0.07	1068.05	0.11	1371.16	0.54	1455.24	0.15	1597.52	0.26
803.91	0.15	1097.58	0.61	1381.54	0.13	1477.35	0.13		
818.83	0.55	1139.01	0.08	1387.21	0.15	1484.30	0.10		
851.82	0.77	1149.56	0.18	1389.44	0.15	1547.22	0.50		
859.98	0.35	1185.57	0.10	1418.21	0.07	1565.13	0.10		

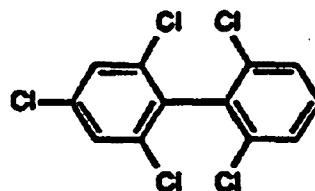


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.12	109.05	0.34	184.10	0.37	256.05	0.78	326.00	1.00
73.05	0.17	110.05	0.25	186.10	0.12	258.05	0.24	327.00	0.12
74.05	0.27	122.05	0.10	218.05	0.10	289.00	0.24	328.00	0.52
85.00	0.11	127.05	0.36	219.05	0.11	291.00	0.32	330.00	0.20
92.10	0.17	128.05	0.33	254.05	0.81	293.00	0.15		
98.00	0.19	128.95	0.10	255.05	0.11	323.95	0.63		

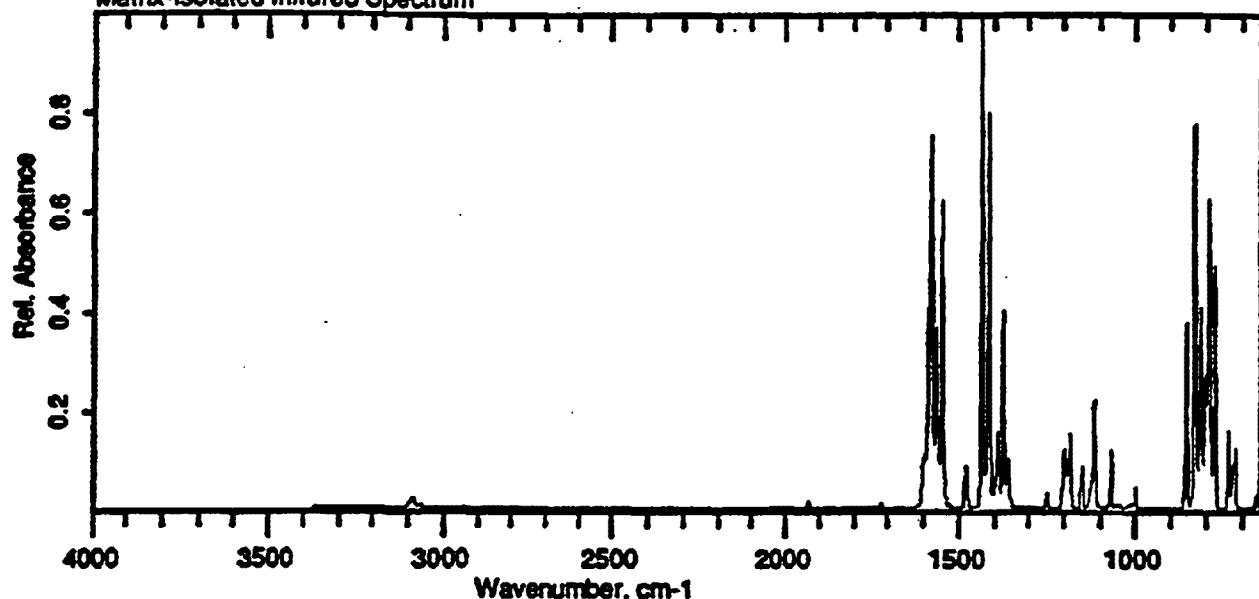
IUPAC Congener No. 104

2,2',4,6,6'-PENTACHLOROBIPHENYL

CAS No. 56558-16-8

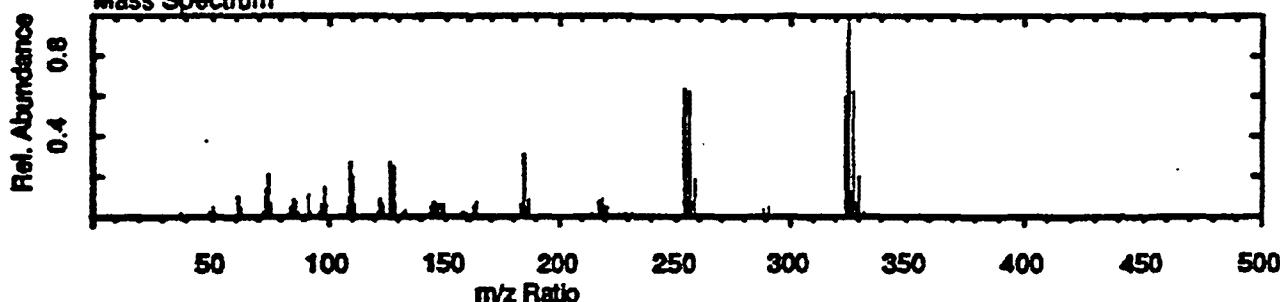


Matrix-Isolated Infrared Spectrum



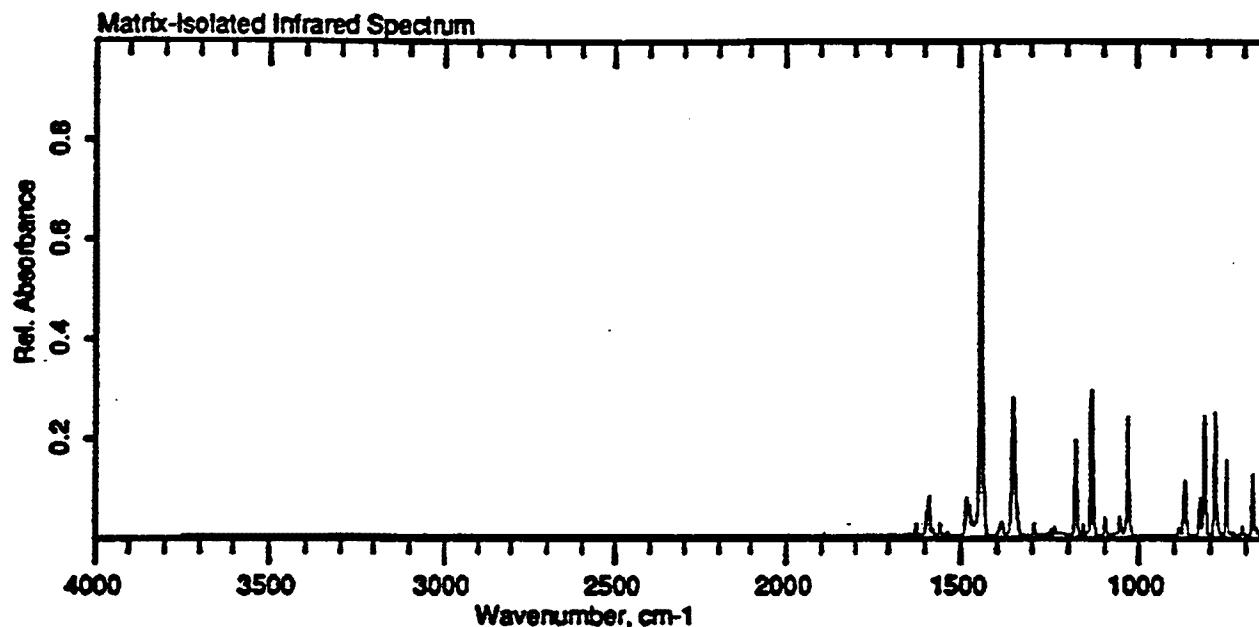
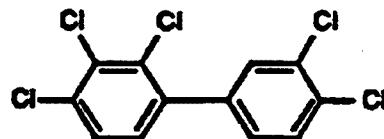
cm^{-1}	abs								
653.07	0.07	805.26	0.28	1117.90	0.23	1375.65	0.41	1565.50	0.37
721.31	0.13	819.66	0.41	1151.25	0.09	1390.86	0.16	1579.42	0.76
726.56	0.10	836.63	0.79	1184.96	0.16	1416.05	0.80	1587.38	0.41
740.21	0.16	858.85	0.39	1191.51	0.10	1436.19	1.00		
779.55	0.49	1003.64	0.05	1201.44	0.13	1481.97	0.09		
795.34	0.63	1072.90	0.13	1361.79	0.10	1548.82	0.62		

Mass Spectrum

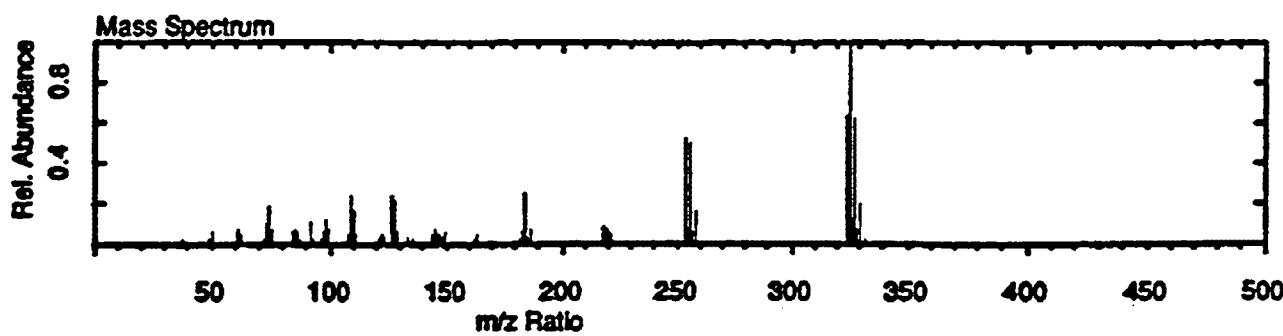


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.11	109.05	0.28	163.05	0.09	255.05	0.09	328.00	0.64
73.05	0.14	110.05	0.20	184.10	0.31	256.05	0.63	330.00	0.20
74.05	0.22	122.05	0.09	186.10	0.10	258.05	0.20		
85.00	0.09	127.05	0.28	218.05	0.08	323.95	0.61		
92.00	0.12	128.05	0.26	219.05	0.09	326.00	1.00		
98.00	0.15	145.00	0.08	254.05	0.64	327.00	0.13		

IUPAC Congener No. 105
 2,3,3',4,4'-PENTACHLOROBIPHENYL
 CAS No. 32598-14-4



cm^{-1}	abs								
680.09	0.13	816.88	0.24	1036.24	0.24	1355.59	0.28	1483.87	0.08
755.75	0.16	830.80	0.08	1136.49	0.29	1443.31	1.00		
787.57	0.25	872.58	0.11	1180.26	0.19	1477.52	0.06		

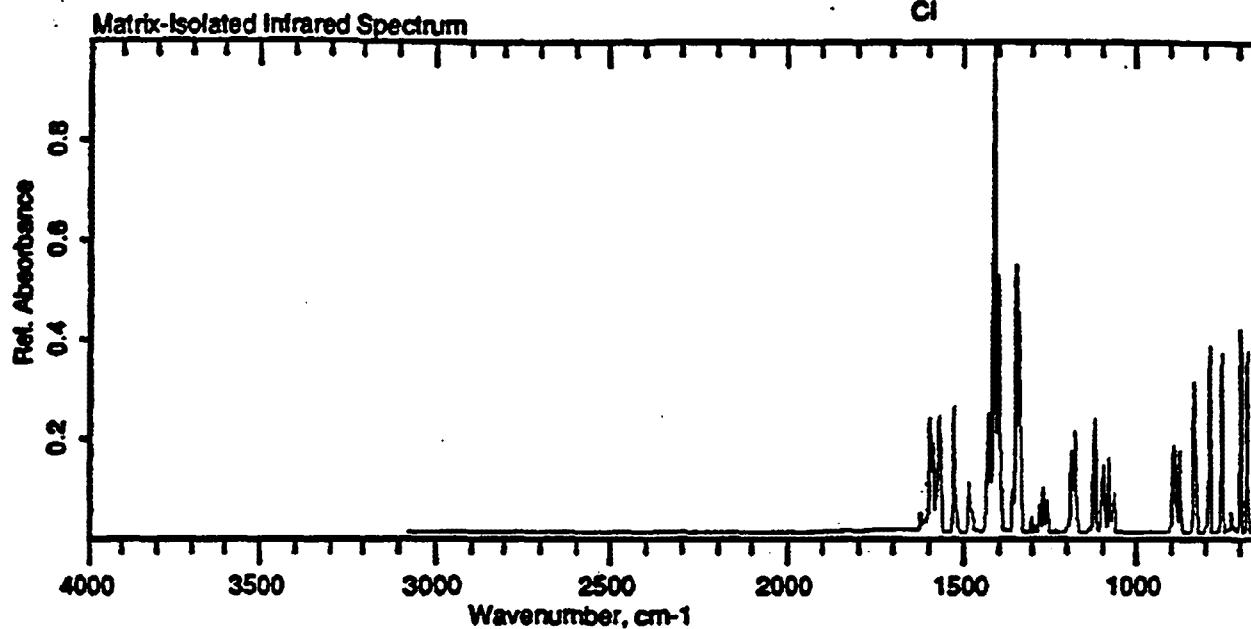
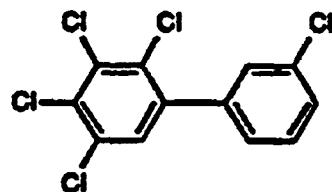


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.07	86.00	0.07	127.95	0.22	220.05	0.07	326.00	1.00
61.05	0.06	92.00	0.11	128.95	0.07	254.05	0.54	327.00	0.13
73.05	0.11	98.00	0.13	145.00	0.08	255.05	0.08	328.00	0.64
74.05	0.19	99.00	0.08	184.10	0.26	256.05	0.51	329.00	0.08
75.05	0.08	109.05	0.25	186.10	0.08	258.05	0.16	330.00	0.21
83.95	0.07	110.05	0.17	218.05	0.09	323.95	0.64		
85.00	0.09	127.05	0.24	219.05	0.09	325.00	0.08		

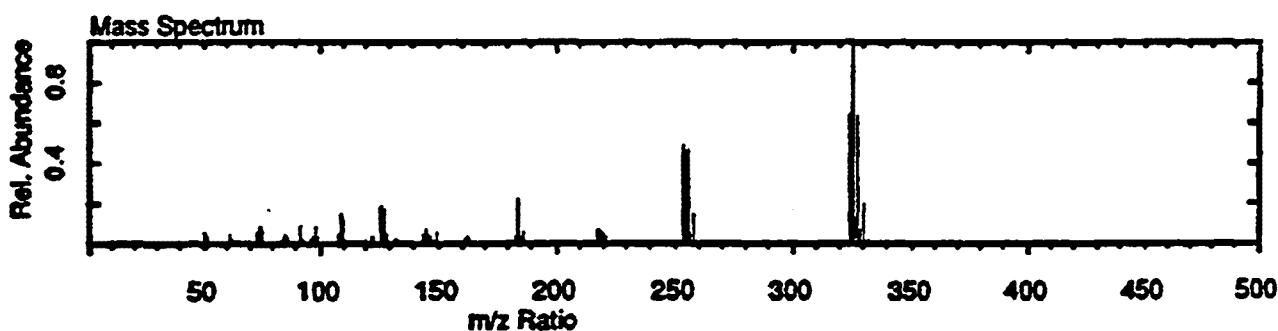
IUPAC Congener No. 106

2,3,3',4,5-PENTACHLOROBIPHENYL

CAS No. 70424-69-0

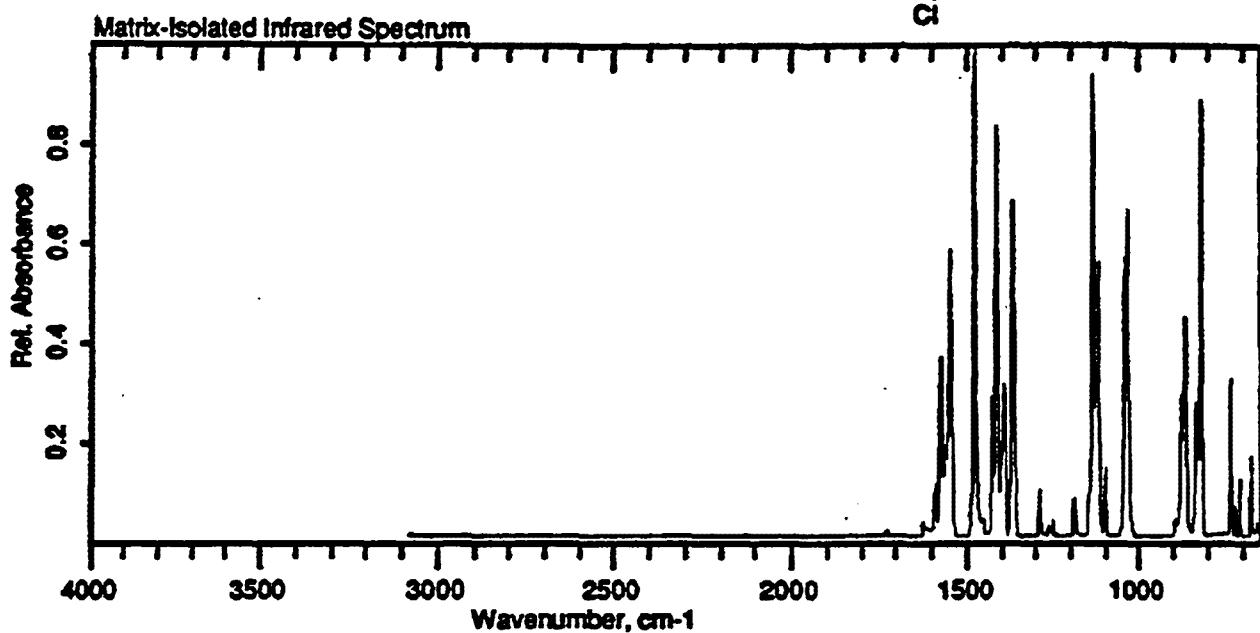
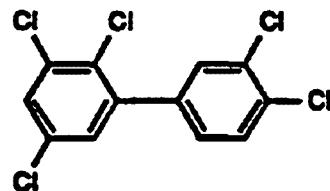


cm^{-1}	abs								
678.17	0.37	878.82	0.18	1180.83	0.22	1348.97	0.54	1486.76	0.11
693.35	0.42	896.38	0.18	1189.94	0.17	1360.12	0.10	1529.95	0.26
725.44	0.05	1069.82	0.09	1259.87	0.08	1400.01	0.53	1571.92	0.24
754.26	0.37	1085.01	0.16	1271.53	0.10	1412.51	1.00	1591.31	0.19
789.27	0.39	1099.72	0.14	1282.20	0.07	1428.50	0.25	1600.54	0.24
835.28	0.31	1124.32	0.24	1342.22	0.45	1476.15	0.05		

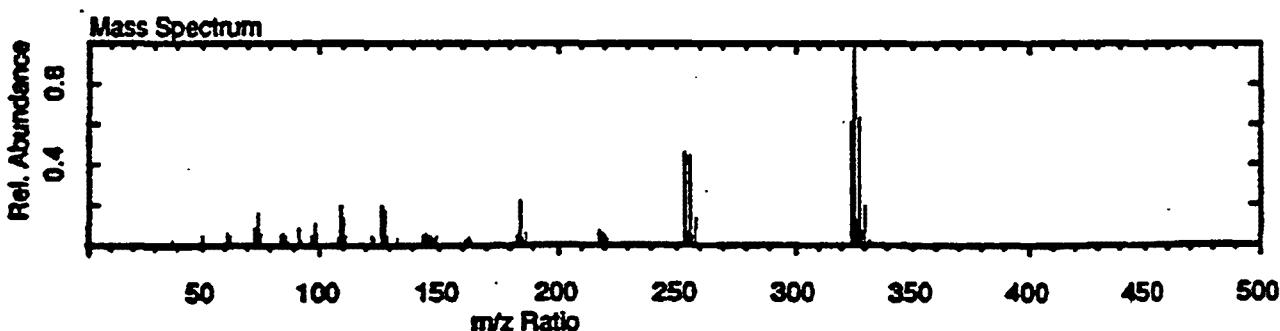


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.07	109.05	0.16	186.00	0.07	257.05	0.06	329.00	0.08
61.05	0.06	110.05	0.13	218.05	0.08	257.95	0.15	330.00	0.21
73.05	0.07	127.05	0.19	219.05	0.07	323.95	0.64		
74.05	0.10	127.95	0.18	219.95	0.06	325.00	0.08		
75.05	0.08	145.00	0.08	254.05	0.49	326.00	1.00		
92.00	0.09	149.00	0.06	255.05	0.07	327.00	0.13		
98.00	0.09	184.00	0.23	256.05	0.47	328.00	0.64		

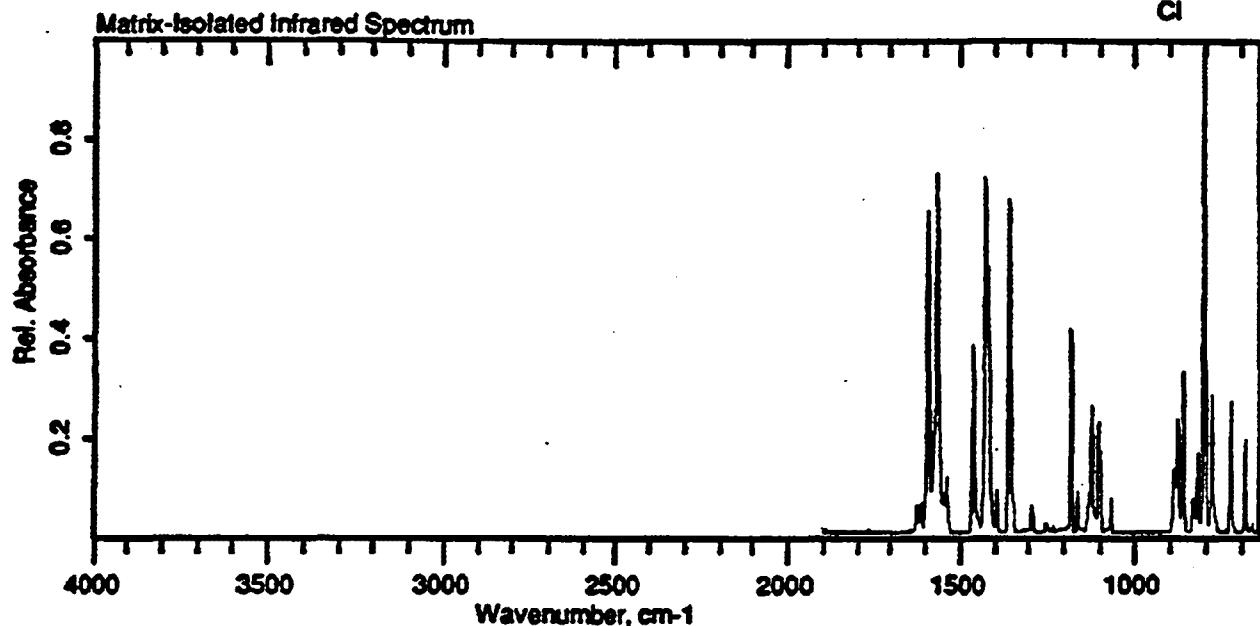
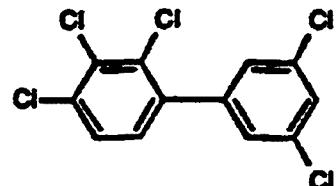
IUPAC Congener No. 107
 2,3,3',4',5-PENTACHLOROBIPHENYL
 CAS No. 70424-68-9



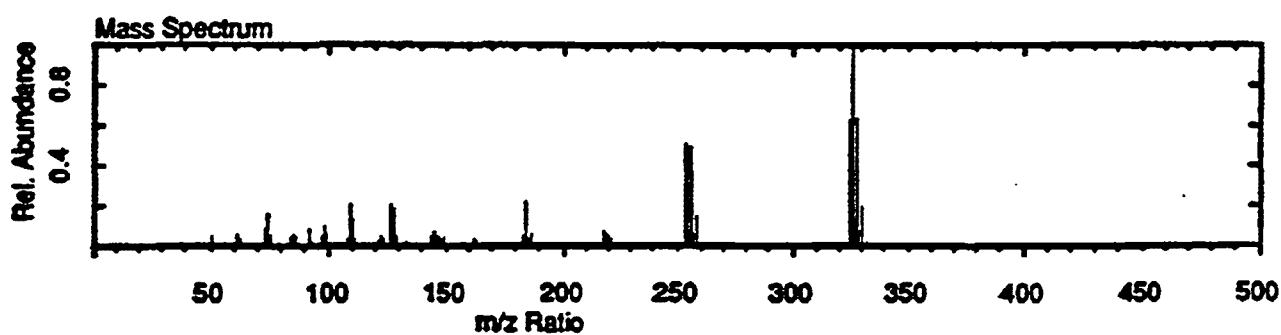
cm^{-1}	abs								
676.58	0.17	857.49	0.45	1101.68	0.15	1292.33	0.10	1480.01	1.00
709.53	0.13	874.29	0.30	1122.11	0.56	1368.98	0.68	1548.99	0.58
721.71	0.07	881.43	0.21	1129.88	0.33	1392.75	0.31	1564.03	0.19
736.01	0.32	895.97	0.05	1138.69	0.93	1415.90	0.83	1576.99	0.37
821.44	0.89	1036.14	0.67	1181.16	0.09	1427.70	0.29		
835.64	0.28	1044.03	0.58	1253.79	0.05	1454.81	0.05		



IUPAC Congener No. 108
 2,3,3',4,5'-PENTACHLOROBIPHENYL
 CAS No. 70362-41-3

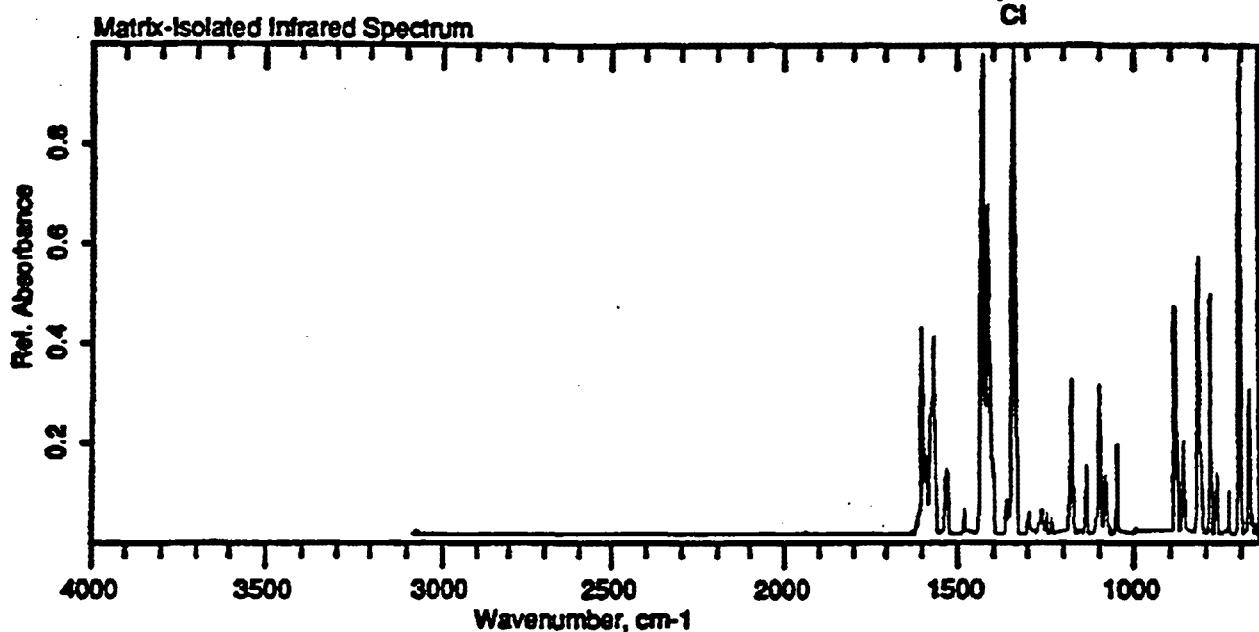
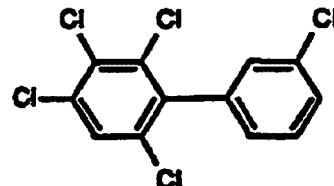


cm^{-1}	abs								
689.44	0.20	864.44	0.33	1124.18	0.26	1393.45	0.10	1567.28	0.73
731.11	0.27	880.25	0.24	1162.53	0.09	1417.57	0.54	1594.51	0.65
784.61	0.29	890.84	0.14	1180.32	0.42	1427.18	0.72	1612.80	0.07
806.09	1.00	1071.21	0.08	1293.24	0.07	1462.36	0.39		
822.86	0.17	1100.04	0.17	1347.76	0.08	1541.44	0.12		
835.93	0.08	1105.79	0.23	1357.88	0.67	1549.68	0.09		

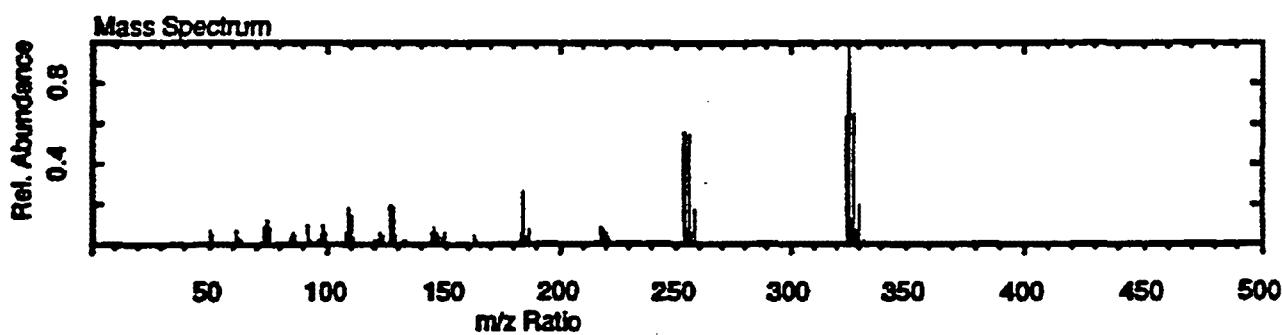


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.07	99.00	0.07	146.00	0.06	255.05	0.08	327.00	0.13
73.05	0.09	109.05	0.21	184.10	0.23	256.05	0.51	328.00	0.65
74.05	0.17	110.05	0.14	186.10	0.07	257.05	0.06	329.00	0.08
75.05	0.07	127.05	0.21	218.05	0.09	258.05	0.16	330.00	0.20
85.00	0.06	127.95	0.20	219.05	0.07	323.95	0.63		
92.00	0.10	128.95	0.06	220.05	0.06	325.00	0.08		
98.00	0.11	145.00	0.08	254.05	0.52	326.00	1.00		

IUPAC Congener No. 109
 2,3,3',4,6-PENTACHLOROBIPHENYL
 CAS No. 74472-35-8



cm^{-1}	abs								
668.10	0.06	824.35	0.57	1138.61	0.15	1343.37	0.99	1568.70	0.41
676.44	0.31	866.25	0.20	1180.02	0.33	1363.29	0.09	1591.10	0.17
704.00	1.00	890.91	0.48	1236.36	0.05	1415.01	0.68		
735.75	0.11	1052.59	0.20	1250.58	0.06	1430.50	0.98		
772.08	0.14	1086.04	0.14	1264.21	0.07	1482.23	0.07		
789.72	0.50	1100.84	0.32	1300.94	0.06	1532.13	0.14		

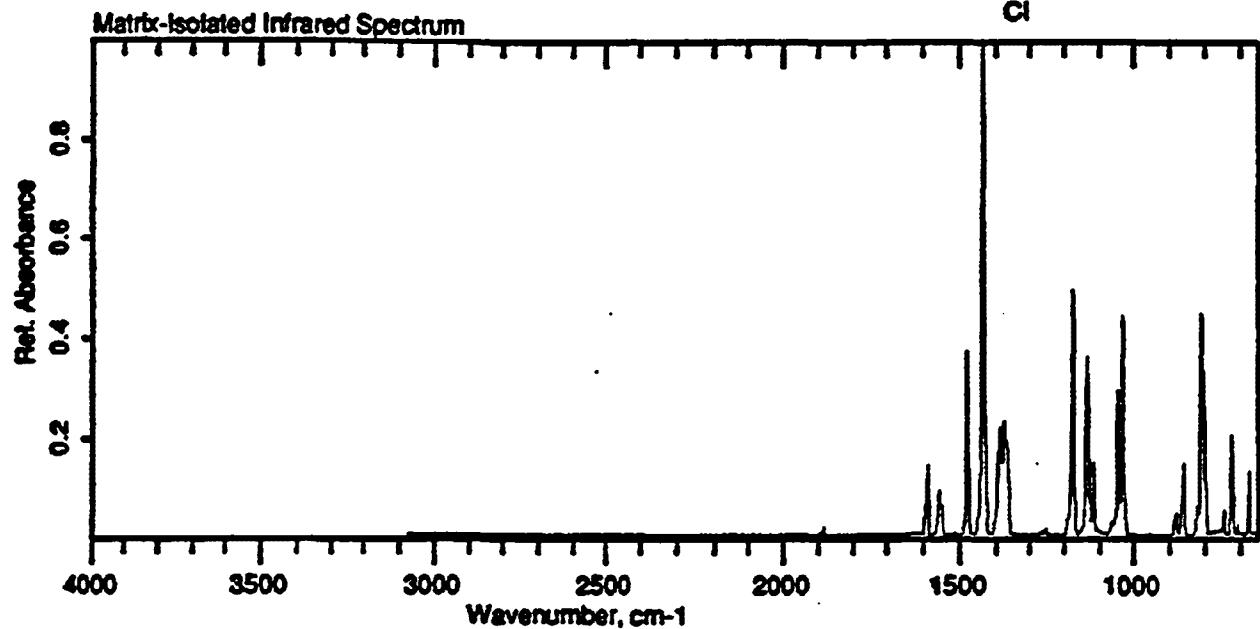
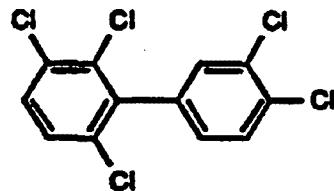


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.08	98.00	0.11	149.10	0.07	255.05	0.08	326.00	1.00
61.05	0.08	109.05	0.19	184.10	0.27	256.05	0.55	327.00	0.13
73.05	0.09	110.05	0.15	186.10	0.09	257.05	0.07	328.00	0.66
74.05	0.13	127.05	0.21	218.05	0.09	258.05	0.18	329.00	0.08
75.05	0.09	127.85	0.19	219.05	0.08	323.95	0.65	330.00	0.21
92.00	0.11	145.00	0.09	254.05	0.57	325.00	0.09		

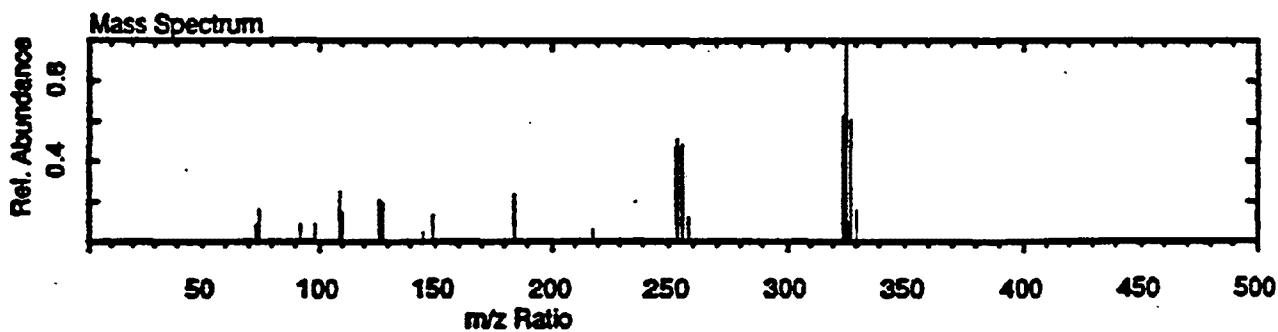
IUPAC Congener No. 110

2,3,3',4',6-PENTACHLOROBIPHENYL

CAS No. 38380-03-9



cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
676.43	0.13	825.42	0.07	1118.91	0.15	1387.18	0.22		
726.30	0.21	865.31	0.15	1135.88	0.36	1435.89	1.00		
748.92	0.06	886.92	0.05	1177.07	0.50	1481.23	0.37		
808.47	0.34	1037.38	0.45	1370.87	0.19	1553.91	0.06		
813.83	0.45	1051.32	0.30	1376.73	0.23	1580.87	0.09		

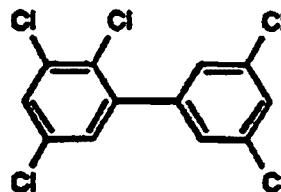


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
73.05	0.09	110.05	0.16	184.00	0.25	323.95	0.63		
74.05	0.16	127.05	0.22	217.95	0.06	326.00	1.00		
92.00	0.09	127.95	0.21	253.95	0.52	327.00	0.10		
98.00	0.10	145.00	0.06	255.95	0.49	328.00	0.62		
109.05	0.25	149.00	0.14	257.95	0.13	330.00	0.17		

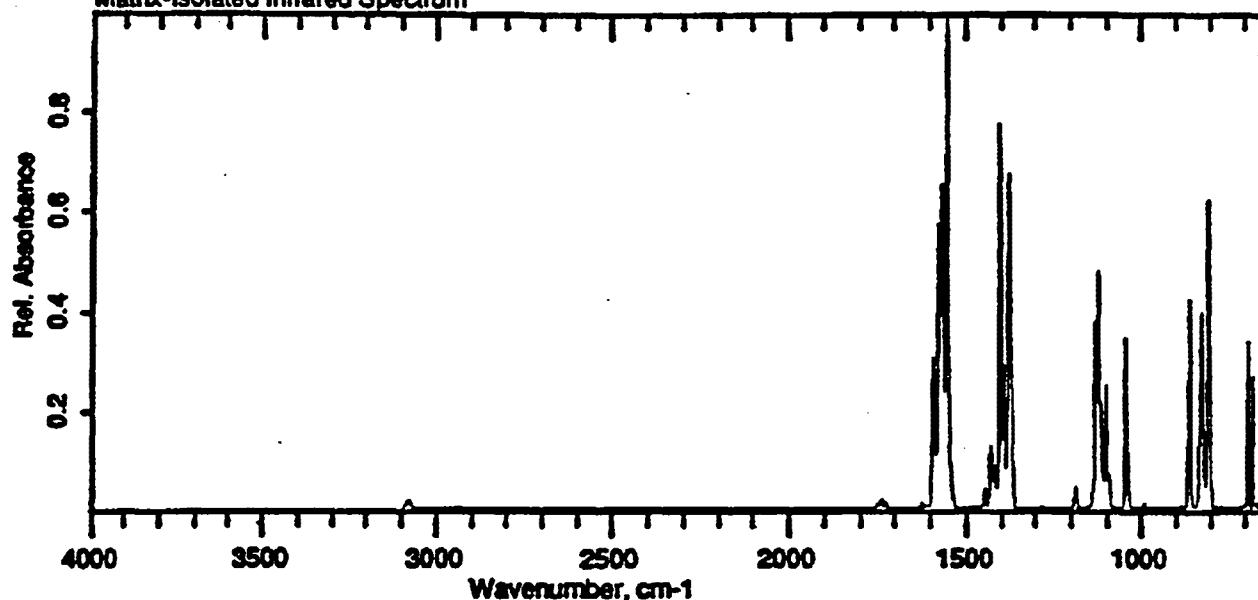
IUPAC Congener No. 111

2,3,3',5,5'-PENTACHLOROBIPHENYL

CAS No. 38635-32-0

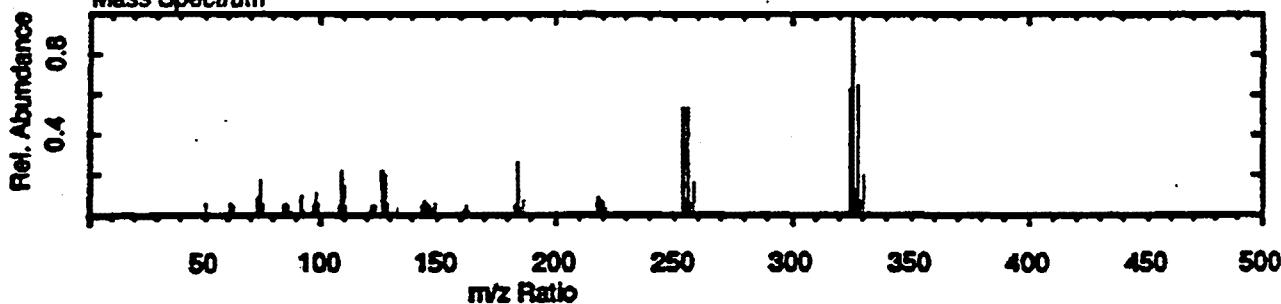


Matrix-Isolated Infrared Spectrum



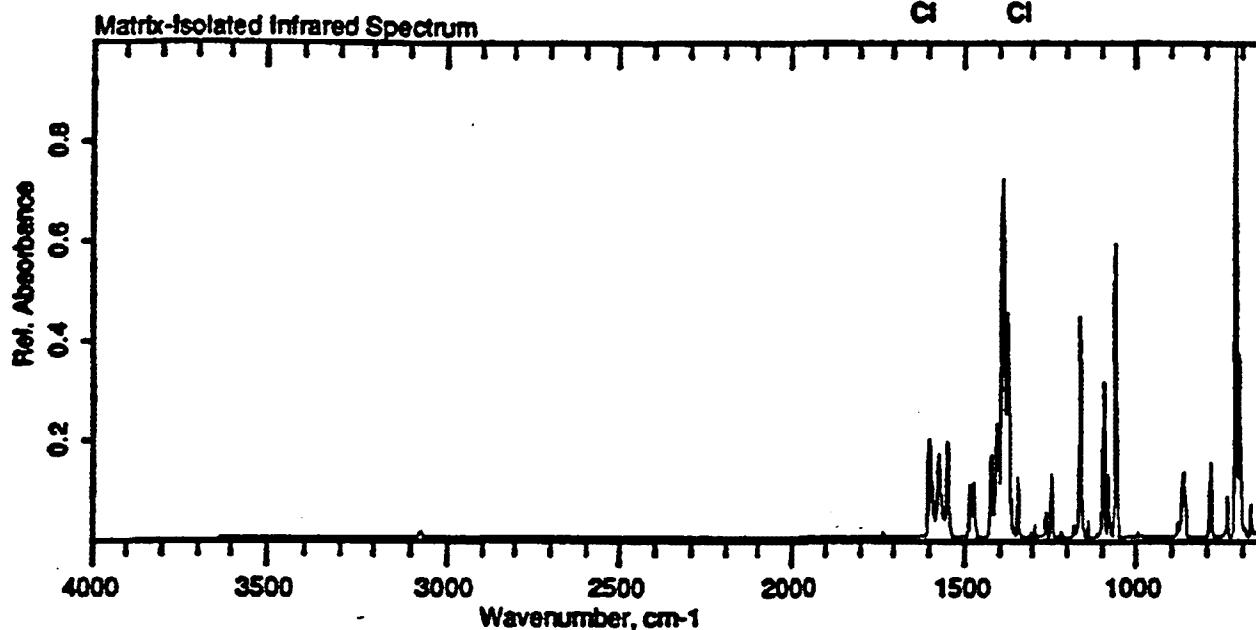
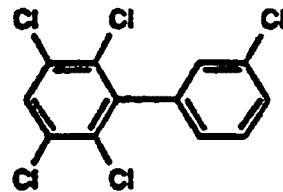
cm^{-1}	abs								
652.88	0.06	864.70	0.43	1126.08	0.48	1404.56	0.78	1577.81	0.57
678.87	0.27	1051.00	0.35	1135.67	0.38	1421.47	0.09		
692.53	0.34	1096.92	0.07	1190.44	0.05	1432.00	0.13		
809.51	0.62	1105.09	0.25	1377.80	0.67	1554.95	1.00		
830.82	0.40	1120.96	0.21	1393.84	0.29	1568.10	0.65		

Mass Spectrum

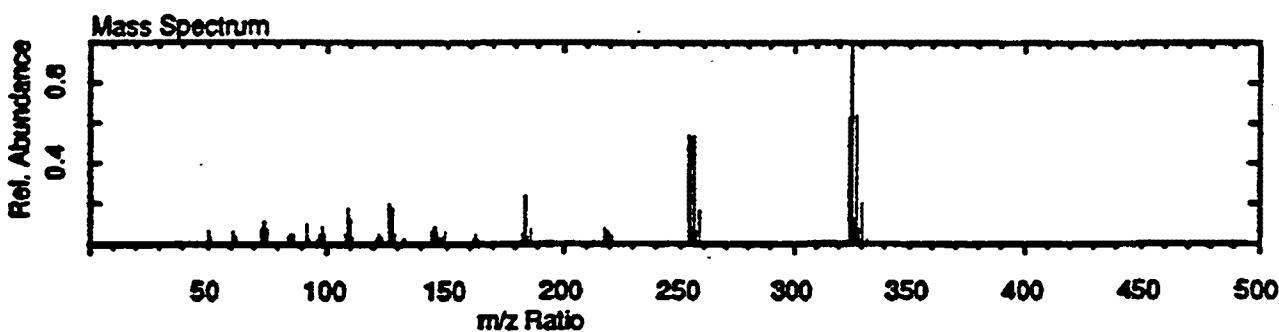


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.07	98.00	0.12	145.00	0.09	254.95	0.08	327.00	0.13
73.05	0.10	99.00	0.07	184.00	0.26	255.95	0.54	328.00	0.65
74.05	0.18	109.05	0.23	186.00	0.08	257.95	0.17	329.00	0.08
75.05	0.07	110.05	0.16	217.95	0.10	323.95	0.63	329.90	0.21
85.00	0.07	126.95	0.23	218.95	0.08	325.00	0.08		
92.00	0.11	127.95	0.21	253.95	0.54	326.00	1.00		

IUPAC Congener No. 112
 2,3,3',5,6-PENTACHLOROBIPHENYL
 CAS No. 74472-36-9



cm^{-1}	abs								
677.25	0.07	865.59	0.08	1165.09	0.44	1390.35	0.71	1551.25	0.19
708.25	0.37	870.18	0.13	1247.41	0.13	1408.72	0.23	1575.78	0.17
718.97	1.00	1063.60	0.59	1263.76	0.05	1426.15	0.17		
745.07	0.09	1083.85	0.13	1347.22	0.12	1475.43	0.11		
792.05	0.15	1097.02	0.31	1376.06	0.45	1487.08	0.11		

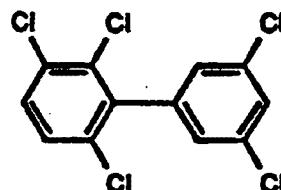


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.07	108.00	0.06	146.00	0.07	254.05	0.54	326.00	1.00
61.05	0.07	109.05	0.18	149.00	0.07	254.95	0.08	327.00	0.13
73.05	0.08	110.05	0.14	184.00	0.25	255.95	0.54	328.00	0.64
74.05	0.12	126.95	0.20	186.00	0.08	256.95	0.07	329.00	0.08
75.05	0.08	127.95	0.18	217.95	0.09	257.95	0.17	330.00	0.21
92.00	0.11	144.00	0.07	218.95	0.07	323.95	0.63		
98.00	0.10	145.00	0.10	219.95	0.06	325.00	0.08		

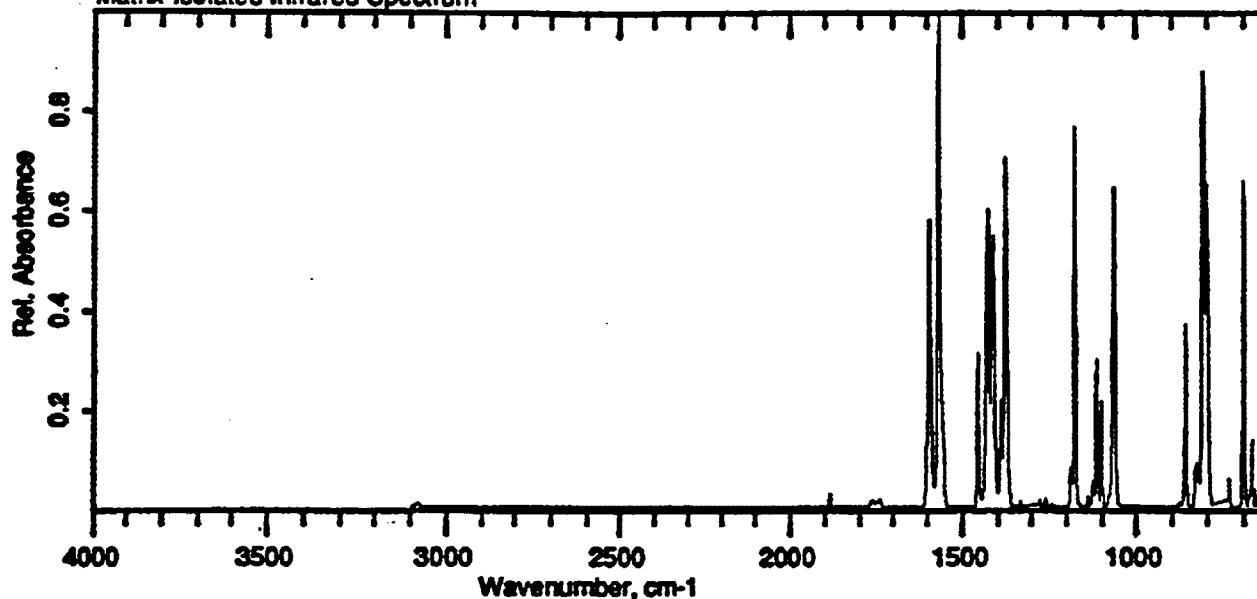
IUPAC Congener No. 113

2,3,3',5,6-PENTACHLOROBIPHENYL

CAS No. 68194-10-5

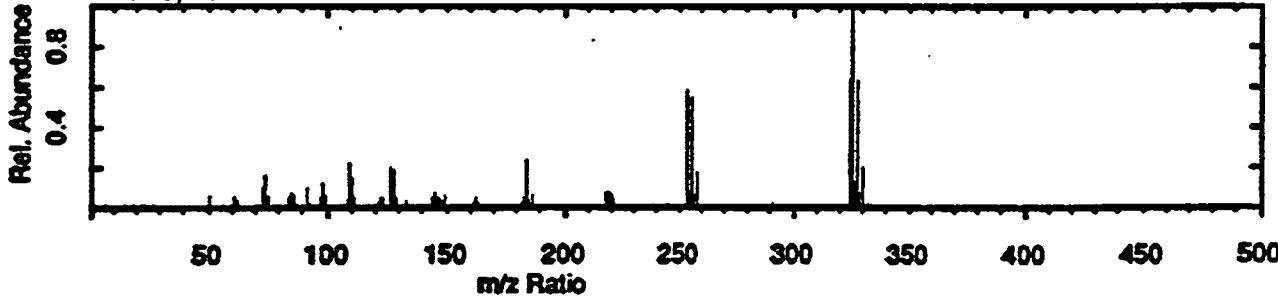


Matrix-isolated Infrared Spectrum



cm^{-1}	abs								
677.78	0.14	831.46	0.09	1102.88	0.22	1377.54	0.70	1556.18	0.17
701.86	0.66	835.28	0.09	1117.29	0.31	1391.31	0.22	1568.41	1.00
741.63	0.06	864.24	0.37	1127.99	0.06	1413.34	0.55		
803.43	0.65	1066.14	0.65	1178.29	0.77	1428.51	0.60		
814.28	0.88	1072.15	0.35	1190.09	0.08	1456.62	0.32		

Mass Spectrum

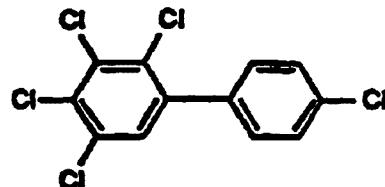


m/z	abun								
73.05	0.11	110.05	0.16	217.95	0.08	257.95	0.18	328.90	0.08
74.05	0.17	126.95	0.21	218.95	0.08	323.95	0.65	329.90	0.21
85.00	0.08	127.95	0.19	253.95	0.60	325.00	0.08		
92.00	0.10	145.00	0.08	254.95	0.08	326.00	1.00		
98.00	0.13	184.00	0.25	255.95	0.55	327.00	0.13		
109.05	0.23	186.00	0.07	258.95	0.07	328.00	0.65		

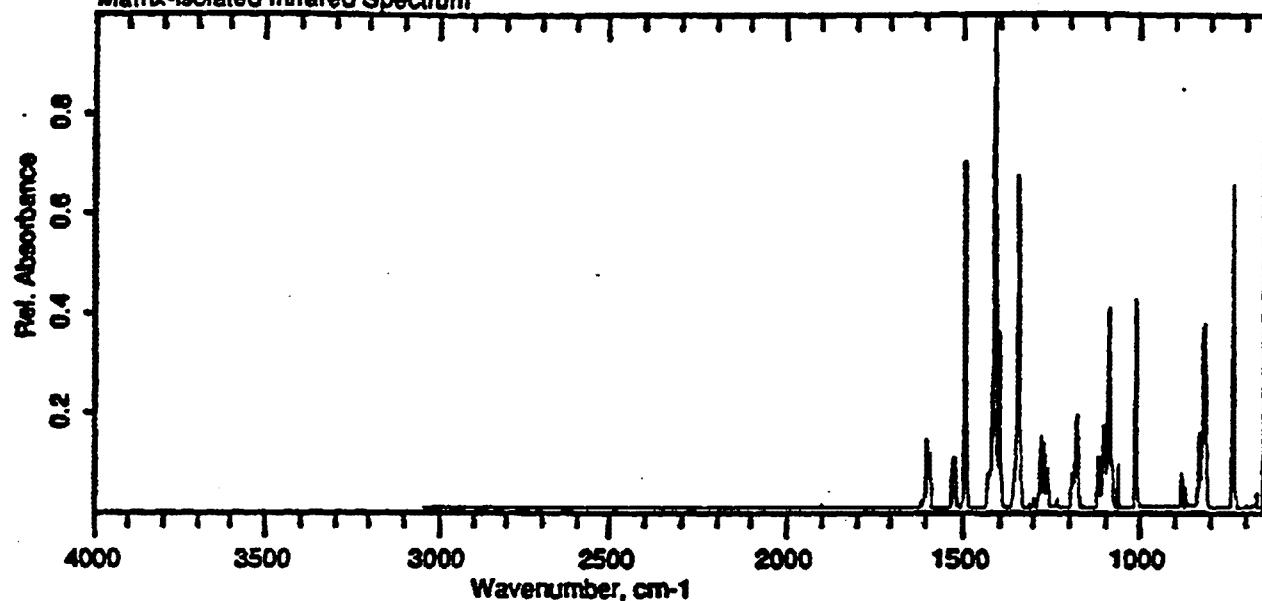
IUPAC Congener No. 114

2,3,4,4',5-PENTACHLOROBIPHENYL

CAS No. 74472-37-0

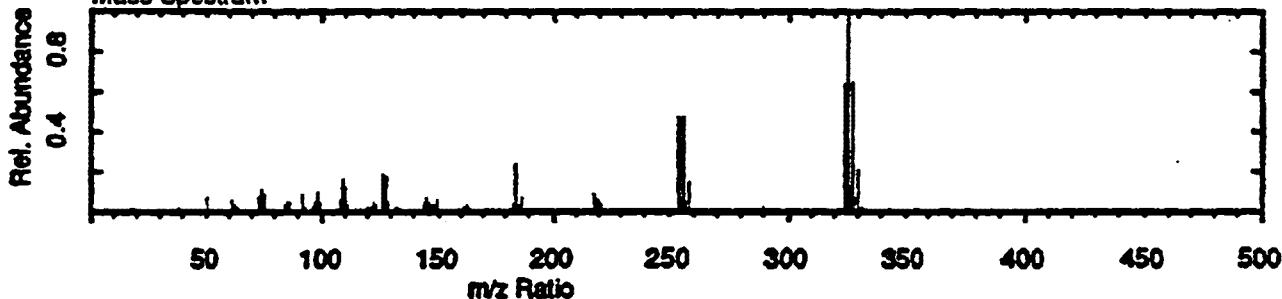


Matrix-isolated Infrared Spectrum



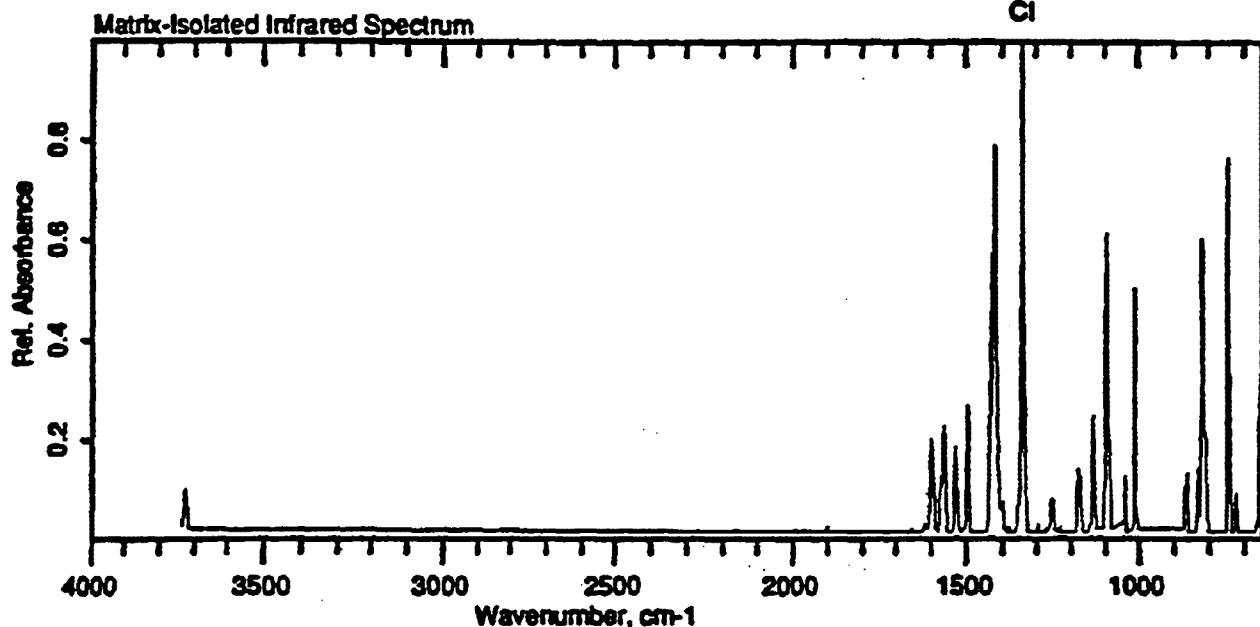
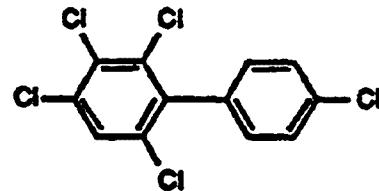
cm-1	abs	cm-1	abs	cm-1	abs	cm-1	abs	cm-1	abs
652.10	0.11	885.01	0.08	1122.32	0.11	1346.69	0.68	1591.37	0.12
738.40	0.67	1018.41	0.43	1182.49	0.19	1400.62	0.36		
819.94	0.38	1067.04	0.10	1195.66	0.08	1413.88	1.00		
823.90	0.37	1085.60	0.11	1263.66	0.09	1432.32	0.08		
836.36	0.16	1093.84	0.41	1273.92	0.14	1496.35	0.72		
873.94	0.05	1107.45	0.17	1282.73	0.15	1525.78	0.11		

Mass Spectrum

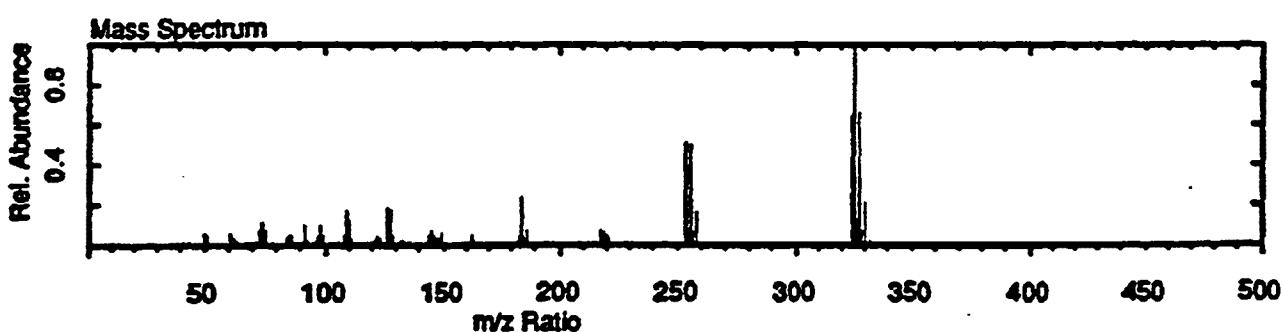


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.09	92.00	0.10	145.00	0.08	254.05	0.48	326.00	1.00
51.00	0.06	98.00	0.10	149.00	0.07	255.05	0.07	327.00	0.13
61.05	0.07	108.00	0.06	184.00	0.25	255.95	0.48	328.00	0.66
73.05	0.09	109.05	0.17	186.00	0.08	256.95	0.06	329.00	0.08
74.05	0.12	110.05	0.13	217.95	0.09	257.95	0.15	330.00	0.21
75.05	0.10	126.95	0.19	218.95	0.07	323.95	0.64		
85.00	0.06	127.95	0.18	219.95	0.06	325.00	0.08		

IUPAC Congener No. 115
 2,3,4,4',6-PENTACHLOROBIPHENYL
 CAS No. 74472-38-1

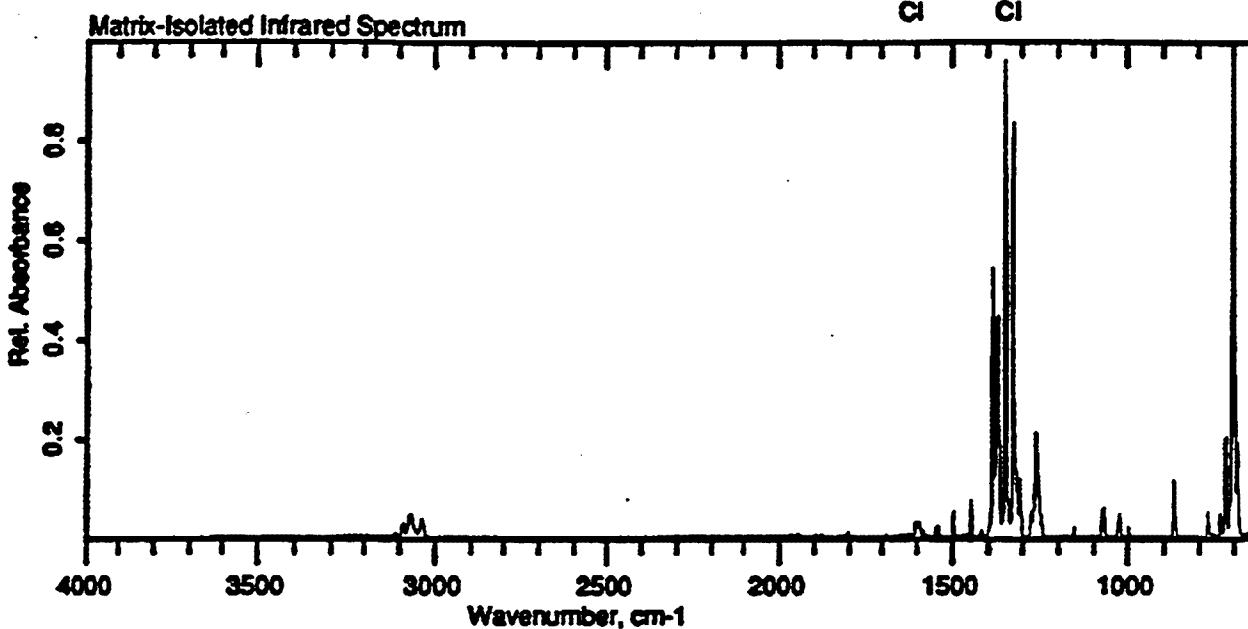
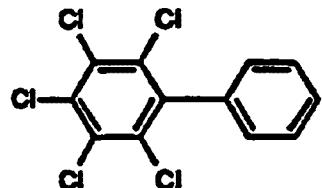


cm^{-1}	abs								
657.71	0.32	867.14	0.13	1136.18	0.25	1399.13	0.09	1564.64	0.22
725.01	0.09	871.82	0.10	1181.09	0.14	1404.87	0.06	1574.42	0.13
747.02	0.78	1017.99	0.51	1256.91	0.08	1419.54	0.78	1602.43	0.20
814.64	0.21	1045.55	0.13	1260.33	0.08	1427.45	0.57		
821.56	0.60	1090.83	0.19	1342.59	1.00	1497.38	0.27		
833.33	0.14	1097.63	0.61	1356.81	0.06	1532.74	0.18		

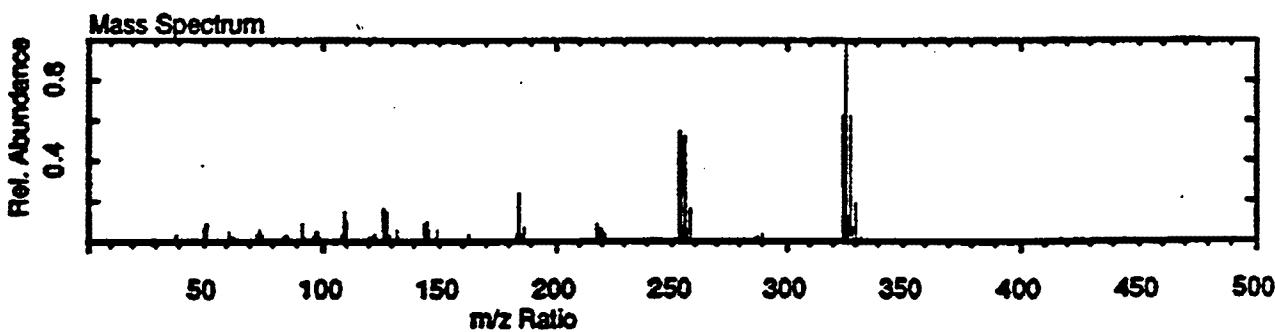


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.10	0.07	109.05	0.18	149.10	0.07	256.05	0.51	328.00	0.67
61.05	0.07	110.05	0.14	184.10	0.25	257.05	0.07	329.00	0.08
73.05	0.08	127.05	0.20	186.10	0.08	258.05	0.16	330.00	0.22
74.05	0.12	127.95	0.18	218.05	0.08	323.95	0.66		
75.05	0.08	144.00	0.06	219.05	0.07	325.00	0.09		
92.00	0.10	145.00	0.09	254.05	0.52	326.00	1.00		
98.00	0.10	146.00	0.06	255.05	0.08	327.00	0.13		

IUPAC Congener No. 116
2,3,4,5,6-PENTACHLOROBIPHENYL
CAS No. 18259-05-7



cm^{-1}	abs								
690.87	0.19	776.59	0.05	1265.23	0.21	1329.77	0.83	1386.44	0.54
701.54	1.00	875.56	0.11	1279.05	0.05	1343.25	0.08	1447.56	0.08
724.51	0.20	1027.78	0.05	1310.93	0.12	1351.23	0.95	1498.78	0.05
740.43	0.05	1074.48	0.06	1321.44	0.13	1372.63	0.44		

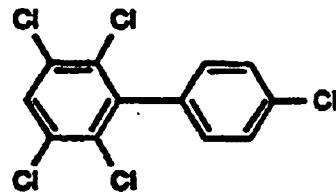


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.07	109.05	0.15	146.00	0.06	254.05	0.56	326.00	1.00
51.10	0.09	110.05	0.11	149.00	0.07	255.05	0.08	327.00	0.13
61.05	0.05	126.95	0.17	184.00	0.25	256.05	0.53	328.00	0.63
74.05	0.07	127.95	0.16	186.00	0.08	257.05	0.07	329.00	0.08
92.00	0.10	131.95	0.06	218.05	0.10	258.05	0.16	330.00	0.20
97.00	0.06	144.00	0.10	219.05	0.06	323.95	0.63		
98.00	0.06	145.00	0.11	219.95	0.07	325.00	0.09		

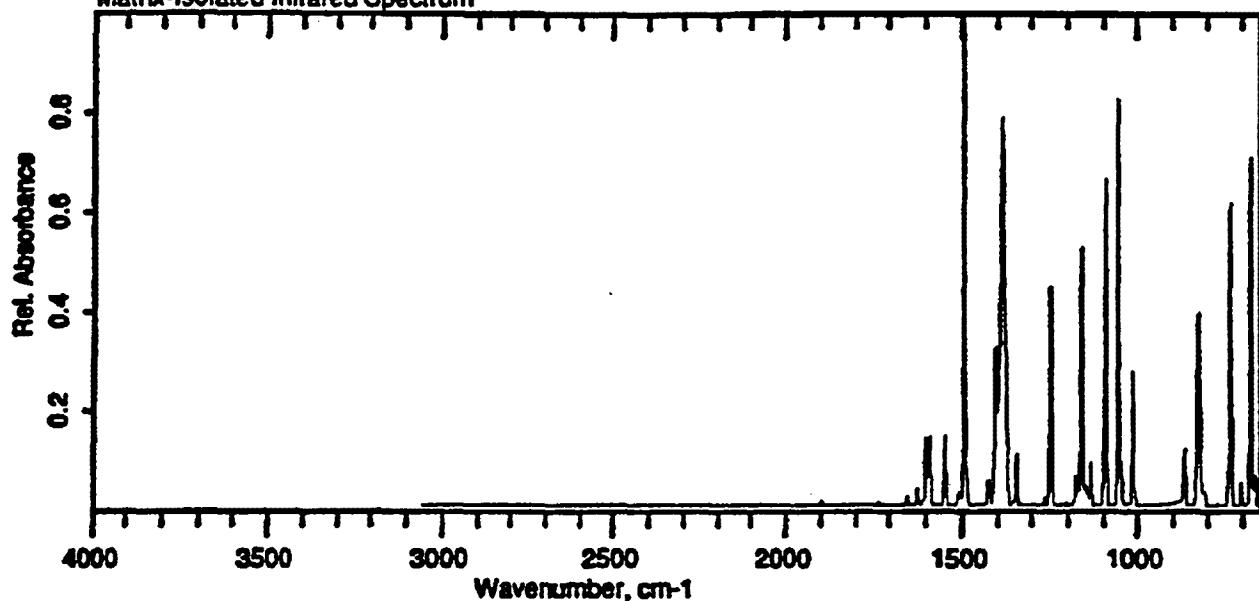
IUPAC Congener No. 117

2,3,4',5,6-PENTACHLOROBIPHENYL

CAS No. 68194-11-6

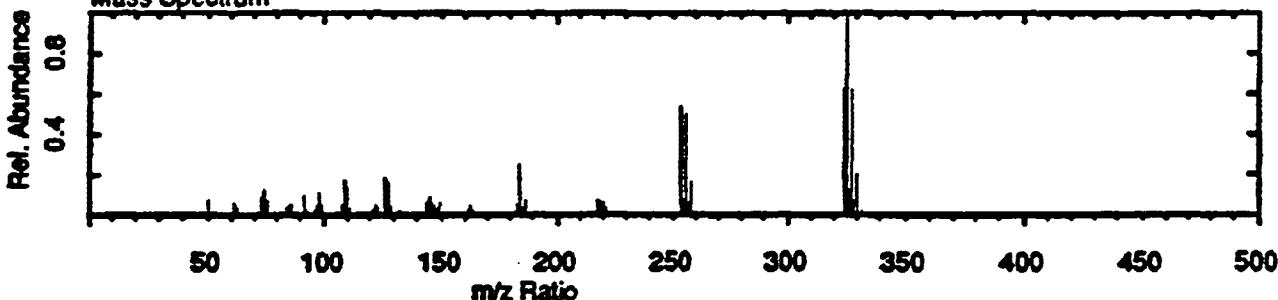


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
655.72	0.05	741.97	0.08	1095.54	0.66	1249.44	0.45	1550.08	0.15
683.69	0.07	827.34	0.39	1104.92	0.05	1345.14	0.11	1591.64	0.15
688.66	0.05	832.31	0.39	1137.08	0.10	1385.82	0.78	1602.92	0.15
677.78	0.71	869.77	0.12	1152.28	0.05	1407.14	0.32		
704.64	0.06	1018.87	0.28	1164.21	0.53	1425.91	0.06		
735.39	0.63	1059.12	0.83	1179.88	0.07	1495.65	1.00		

Mass Spectrum

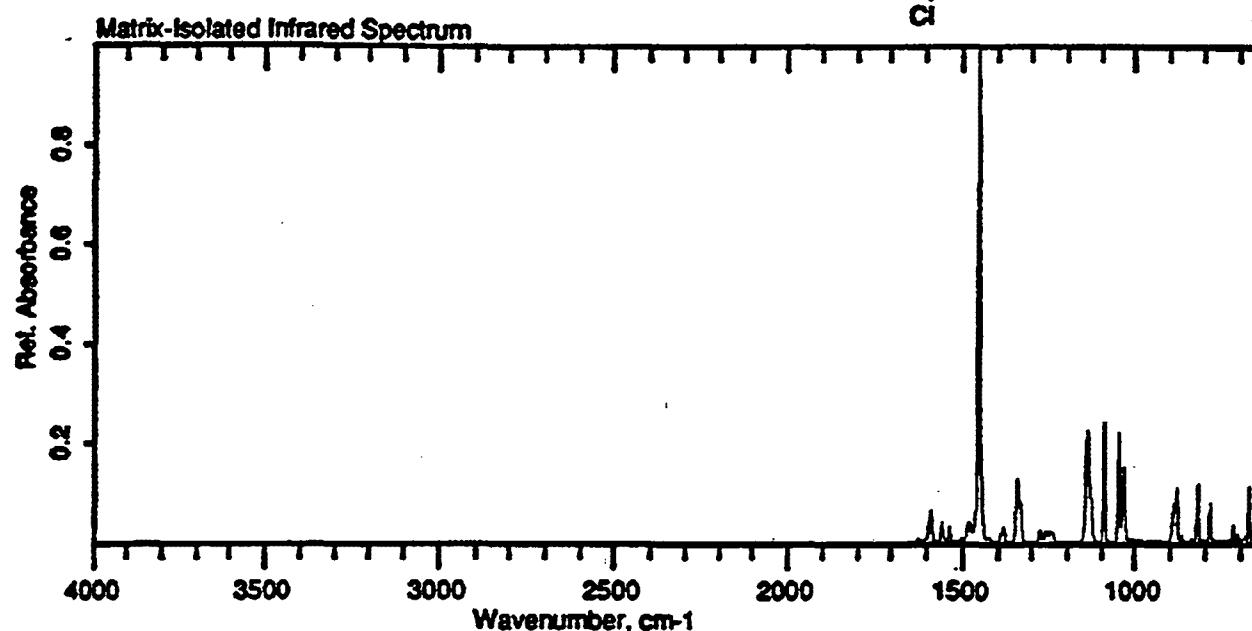
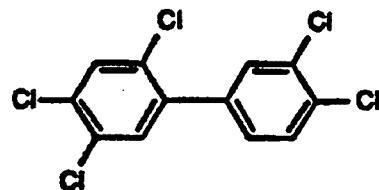


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.08	98.00	0.11	149.00	0.07	255.05	0.08	327.00	0.13
61.05	0.07	109.05	0.18	184.00	0.26	256.05	0.51	328.00	0.63
73.05	0.09	110.05	0.14	186.00	0.08	257.95	0.17	329.00	0.08
74.05	0.13	127.05	0.19	218.05	0.08	323.95	0.63	330.00	0.21
75.05	0.08	127.95	0.17	218.95	0.07	325.00	0.08		
92.00	0.11	145.00	0.09	254.05	0.55	326.00	1.00		

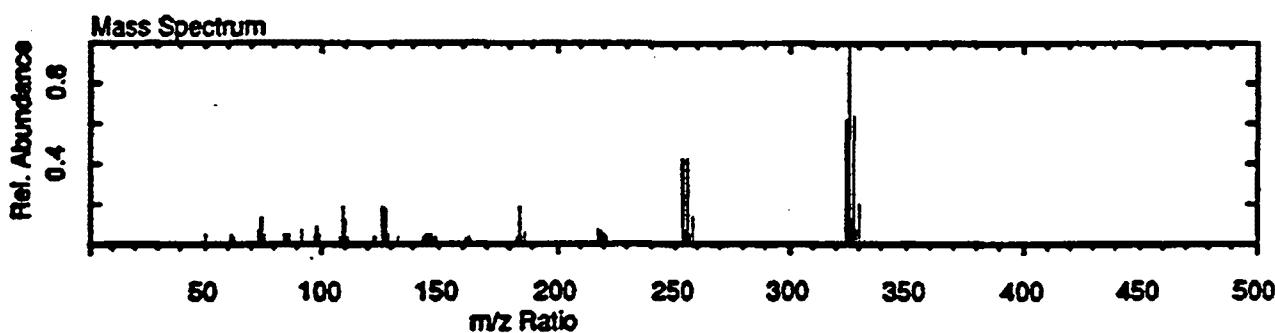
IUPAC Congener No. 118

2,3',4,4',5-PENTACHLOROBIPHENYL

CAS No. 31508-00-6



<u>cm-1</u>	<u>abs</u>								
678.31	0.11	885.19	0.11	1051.02	0.22	1337.91	0.08		
788.38	0.08	892.42	0.08	1094.31	0.24	1345.93	0.13		
824.73	0.12	1037.25	0.15	1142.45	0.23	1455.18	1.00		

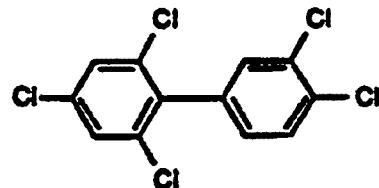


<u>m/z</u>	<u>abun</u>								
73.05	0.08	110.05	0.13	218.95	0.07	323.95	0.62	330.00	0.21
74.05	0.14	126.95	0.19	219.95	0.06	325.00	0.08		
85.00	0.06	127.95	0.18	254.05	0.43	326.00	1.00		
92.00	0.08	184.00	0.20	255.05	0.07	327.00	0.13		
98.00	0.10	186.00	0.07	255.95	0.43	328.00	0.65		
109.05	0.19	217.95	0.09	257.95	0.14	329.00	0.08		

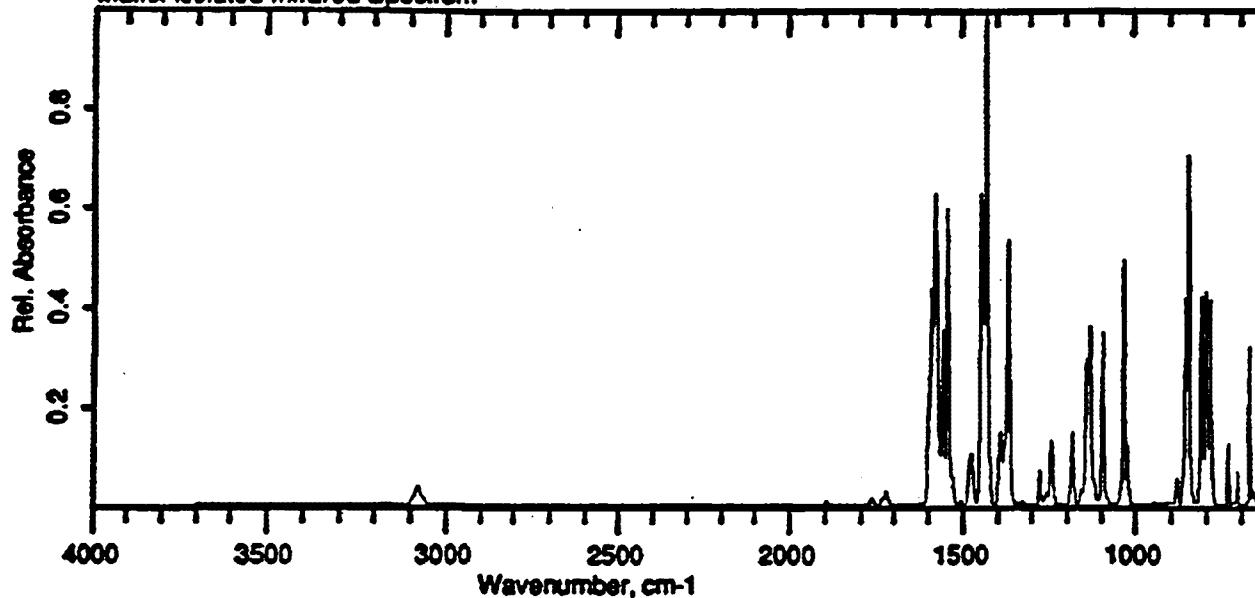
IUPAC Congener No. 119

2,3',4,4',6-PENTACHLOROBIPHENYL

CAS No. 56558-17-9

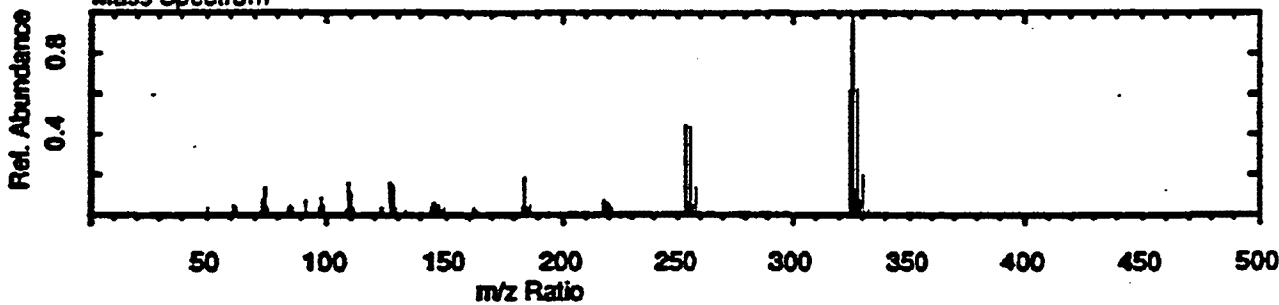


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
677.03	0.32	853.41	0.70	1134.55	0.36	1382.04	0.12	1530.93	0.06
711.08	0.07	861.01	0.42	1144.01	0.29	1391.57	0.15	1544.98	0.59
738.86	0.13	886.75	0.05	1186.27	0.15	1430.98	1.00	1558.15	0.36
790.22	0.42	1026.27	0.12	1246.66	0.13	1447.12	0.63	1579.34	0.63
802.98	0.44	1036.96	0.49	1280.45	0.07	1476.95	0.11		
815.91	0.42	1097.30	0.35	1368.15	0.54	1485.01	0.09		

Mass Spectrum

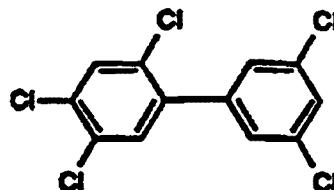


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.06	109.05	0.17	184.00	0.19	255.95	0.45	328.00	0.64
73.05	0.08	110.05	0.12	186.00	0.06	256.95	0.06	328.90	0.08
74.05	0.14	126.95	0.17	217.95	0.08	257.95	0.14	329.90	0.20
85.00	0.06	127.95	0.15	218.95	0.06	323.95	0.62		
92.00	0.08	145.00	0.06	219.95	0.06	325.00	0.06		
98.00	0.09	146.00	0.05	253.95	0.46	326.00	1.00		
99.00	0.05	147.00	0.05	254.95	0.07	327.00	0.13		

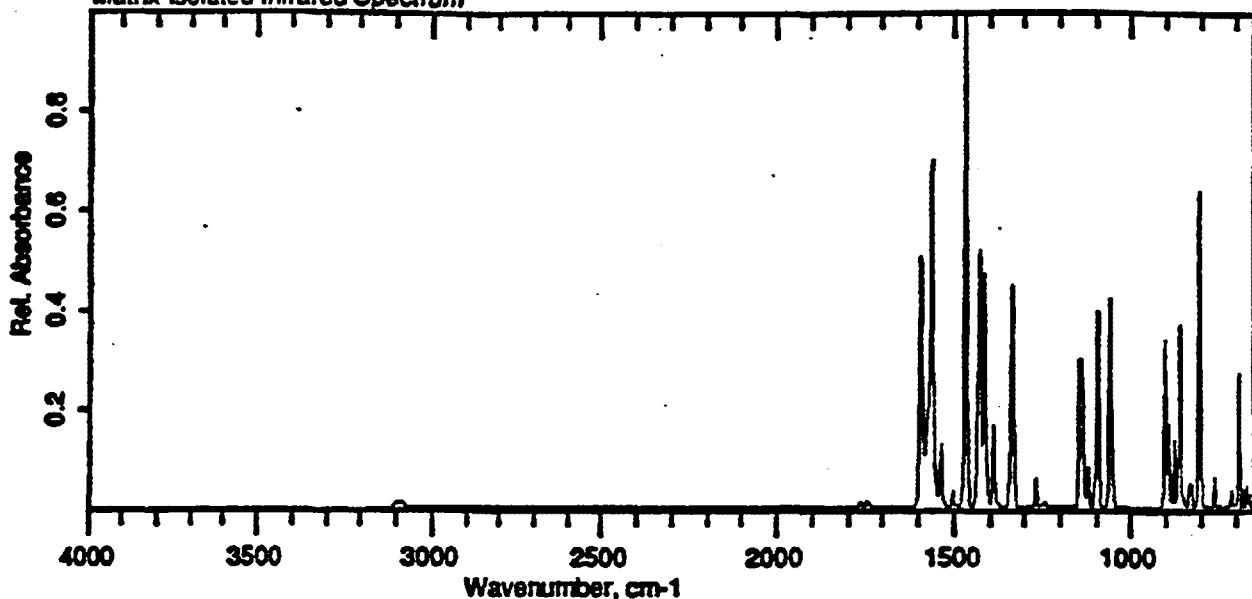
IUPAC Congener No. 120

2,3',4,5,5'-PENTACHLOROBIPHENYL

CAS No. 68194-12-7

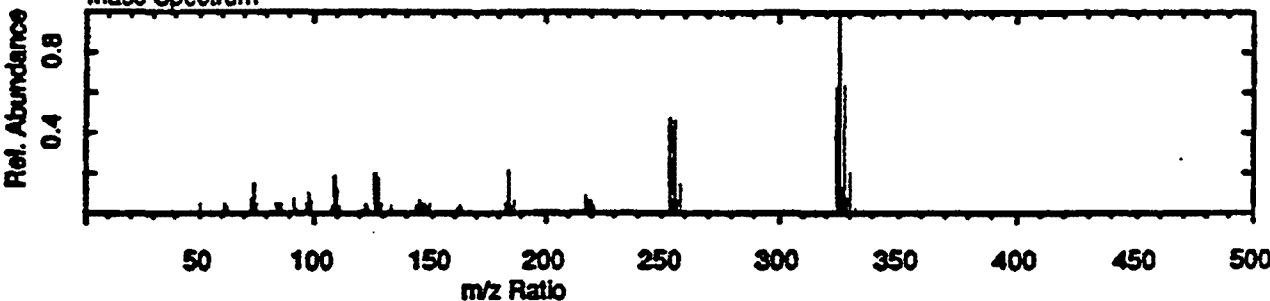


Matrix-Isolated Infrared Spectrum



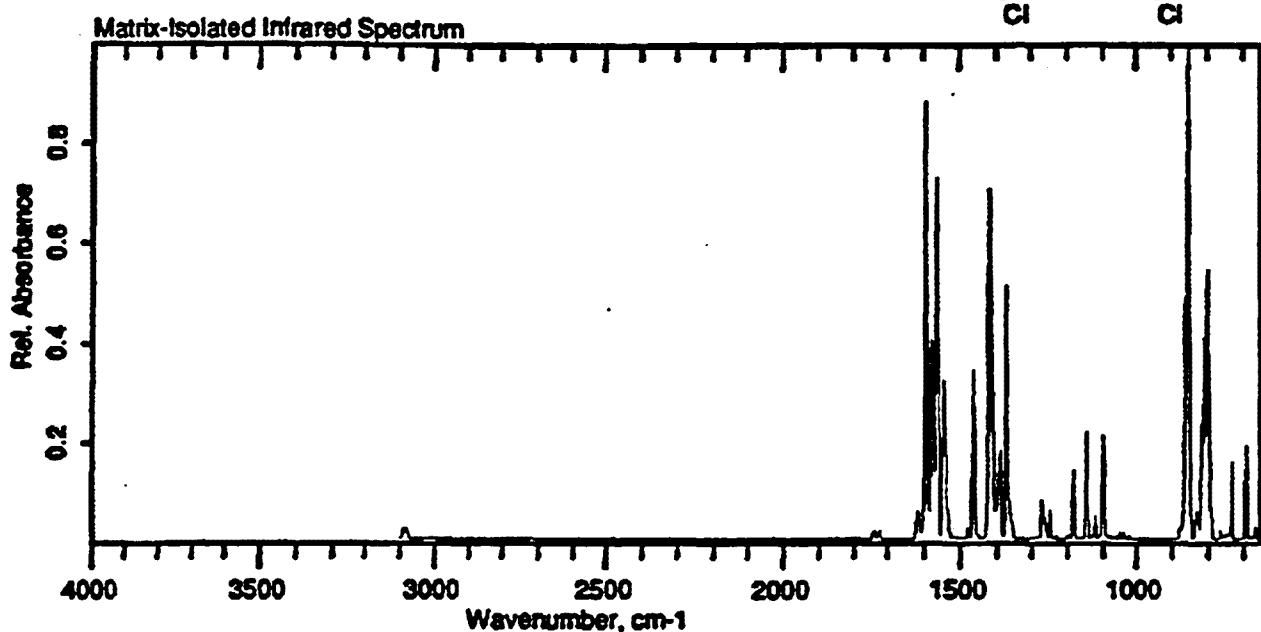
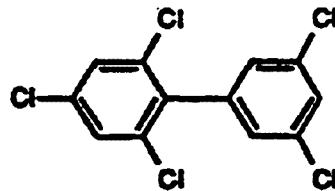
cm^{-1}	abs								
670.10	0.05	864.03	0.36	1099.31	0.39	1339.40	0.44	1565.39	0.69
693.14	0.27	870.33	0.09	1108.23	0.07	1392.24	0.17		
765.42	0.06	880.38	0.14	1125.64	0.06	1417.11	0.47		
808.87	0.63	897.24	0.17	1143.30	0.30	1430.38	0.51		
833.75	0.05	907.76	0.34	1149.22	0.30	1470.31	1.00		
836.55	0.05	1065.23	0.42	1271.85	0.06	1540.35	0.13		

Mass Spectrum

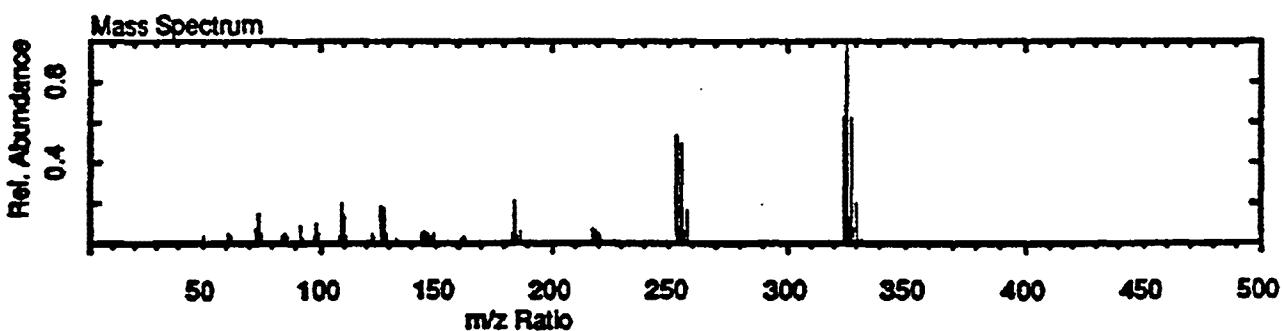


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.06	99.00	0.06	186.00	0.07	256.95	0.06	329.00	0.08
73.05	0.09	109.05	0.20	217.95	0.09	257.95	0.15	329.90	0.21
74.05	0.16	110.05	0.13	218.95	0.07	323.95	0.63		
75.05	0.06	126.95	0.20	219.95	0.06	325.00	0.08		
85.00	0.06	127.95	0.18	253.95	0.48	326.00	1.00		
92.00	0.09	145.00	0.07	254.95	0.07	327.00	0.13		
98.00	0.11	184.00	0.22	255.95	0.47	328.00	0.65		

IUPAC Congener No. 121
 2,3'4,5',6-PENTACHLOROBIPHENYL
 CAS No. 56558-18-0



cm^{-1}	abs								
692.06	0.20	854.71	1.00	1250.85	0.07	1415.65	0.70	1596.09	0.88
733.80	0.16	862.76	0.49	1265.77	0.05	1463.05	0.34		
801.33	0.54	1100.34	0.21	1273.81	0.08	1468.61	0.13		
810.48	0.41	1123.87	0.05	1366.95	0.09	1547.10	0.32		
818.83	0.23	1148.74	0.22	1372.47	0.51	1564.86	0.73		
833.28	0.06	1185.45	0.14	1390.67	0.18	1580.44	0.41		

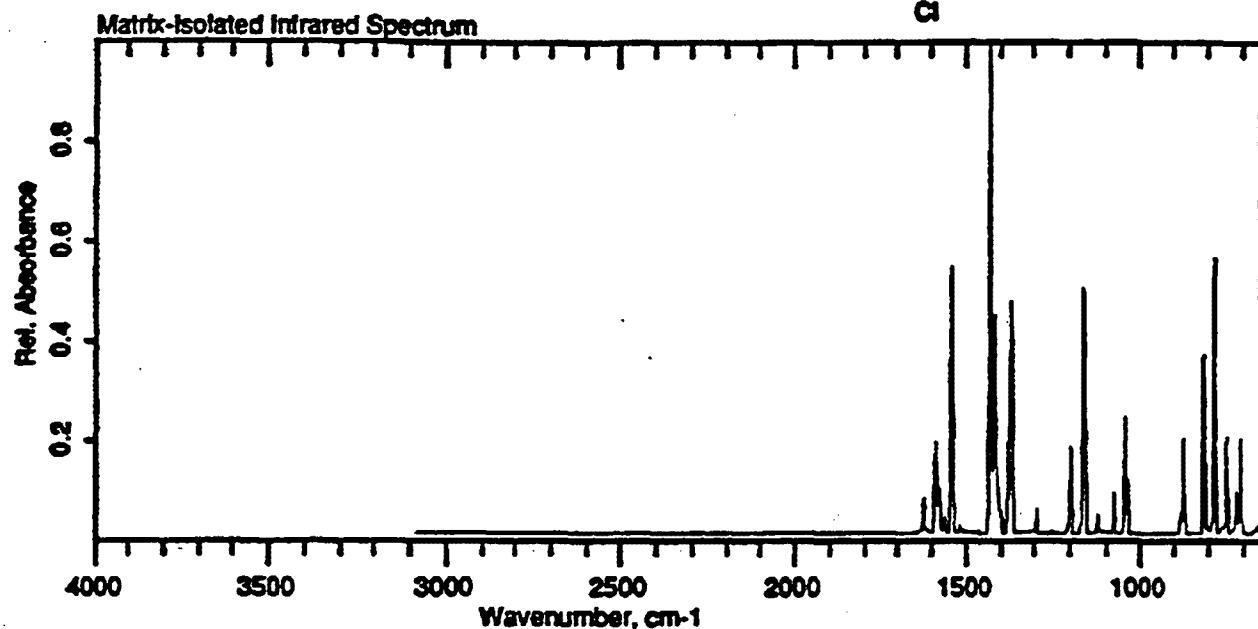
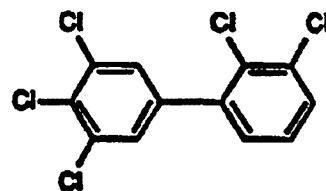


m/z	abun								
73.05	0.09	110.05	0.14	218.05	0.08	258.05	0.16	329.00	0.08
74.05	0.15	127.05	0.19	219.05	0.07	323.95	0.64	330.00	0.20
85.00	0.06	127.95	0.18	254.05	0.54	325.00	0.08		
92.00	0.09	145.00	0.07	255.05	0.08	326.00	1.00		
98.00	0.11	184.10	0.22	256.05	0.51	327.00	0.13		
109.05	0.20	186.10	0.06	257.05	0.06	328.00	0.63		

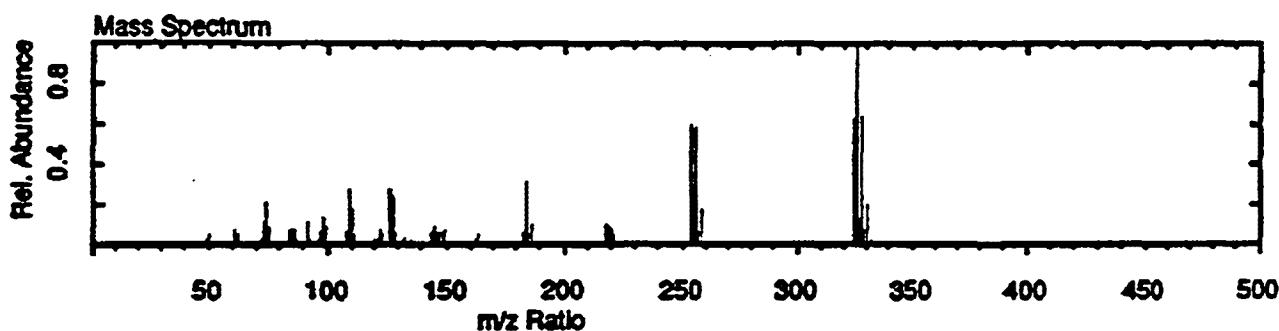
IUPAC Congener No. 122

2',3,3',4,5-PENTACHLOROBIPHENYL

CAS No. 76842-07-4



cm^{-1}	abs								
710.07	0.20	875.66	0.20	1126.64	0.05	1418.28	0.45	1590.82	0.20
722.90	0.10	884.47	0.06	1164.72	0.51	1430.54	1.00		
751.11	0.21	1042.10	0.13	1199.78	0.18	1544.65	0.54		
785.92	0.56	1050.32	0.24	1297.24	0.06	1566.99	0.05		
817.25	0.37	1080.11	0.10	1370.42	0.47	1582.15	0.11		

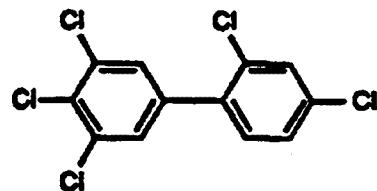


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.09	86.00	0.08	122.05	0.08	218.05	0.11	323.95	0.64
73.05	0.12	92.00	0.12	127.05	0.28	219.05	0.09	326.00	1.00
74.05	0.22	98.00	0.14	128.05	0.25	254.05	0.60	327.00	0.13
75.05	0.09	99.00	0.10	145.00	0.09	255.05	0.09	328.00	0.65
83.95	0.09	109.05	0.28	184.10	0.31	256.05	0.59	330.00	0.21
85.00	0.08	110.05	0.19	186.00	0.10	258.05	0.18		

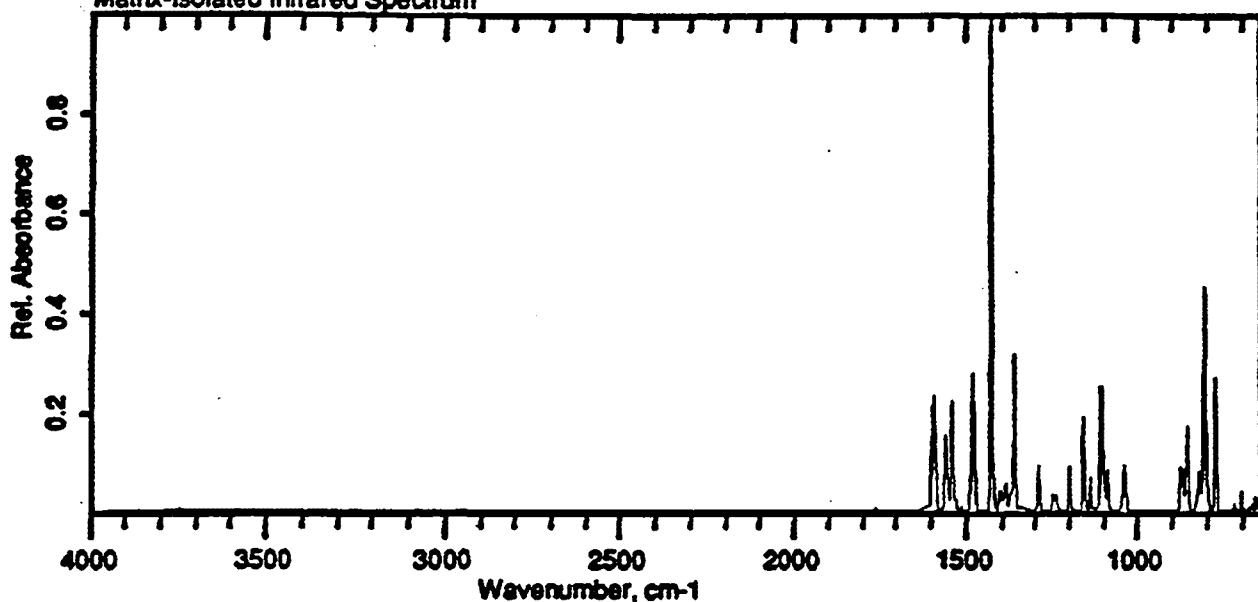
IUPAC Congener No. 123

2',3,4,4',5-PENTACHLOROBIPHENYL

CAS No. 65510-44-3

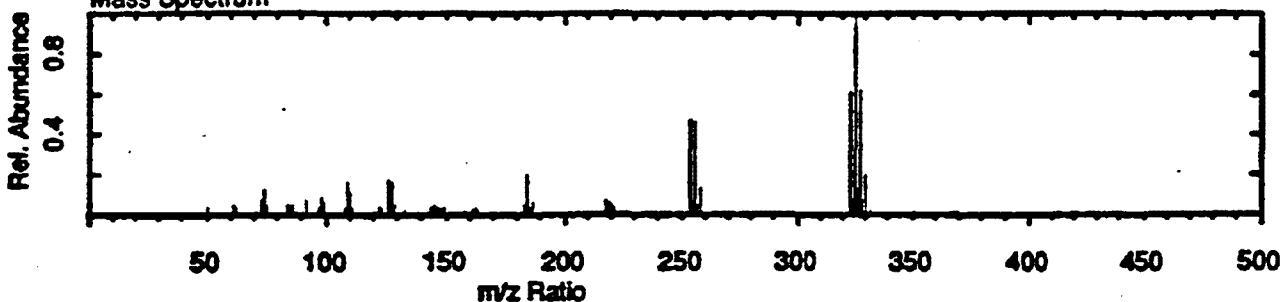


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
778.80	0.28	873.00	0.09	1110.74	0.25	1294.21	0.09	1482.97	0.28
810.53	0.45	880.16	0.09	1143.40	0.07	1365.70	0.32	1542.12	0.22
826.07	0.08	1043.31	0.10	1163.24	0.19	1391.17	0.06	1562.22	0.15
858.89	0.18	1092.62	0.09	1202.92	0.09	1431.26	1.00		

Mass Spectrum

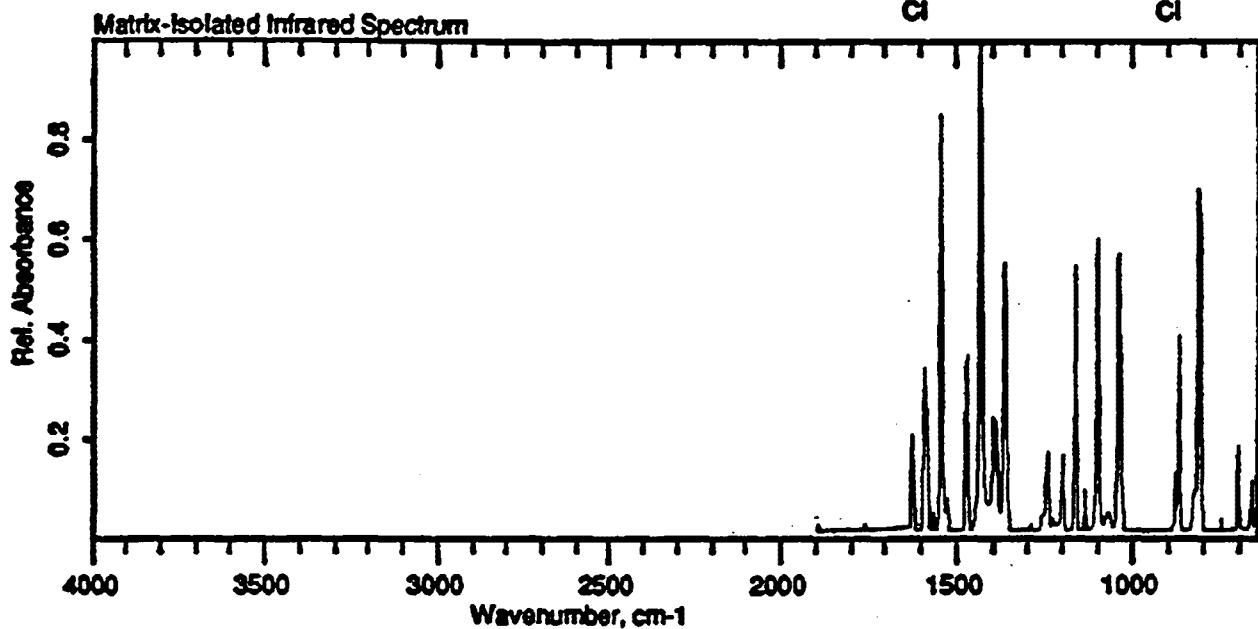
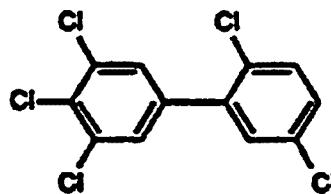


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.06	92.00	0.08	128.95	0.05	219.95	0.06	324.90	0.08
73.05	0.08	98.00	0.09	145.00	0.06	253.95	0.48	325.90	1.00
73.95	0.14	99.00	0.06	183.00	0.05	254.95	0.07	326.90	0.13
75.05	0.05	109.05	0.17	184.00	0.21	255.95	0.46	327.90	0.63
83.95	0.05	110.05	0.12	186.00	0.07	258.95	0.06	328.90	0.08
85.00	0.05	126.95	0.18	217.95	0.08	257.95	0.15	329.90	0.21
86.00	0.05	127.95	0.17	218.95	0.07	323.85	0.62		

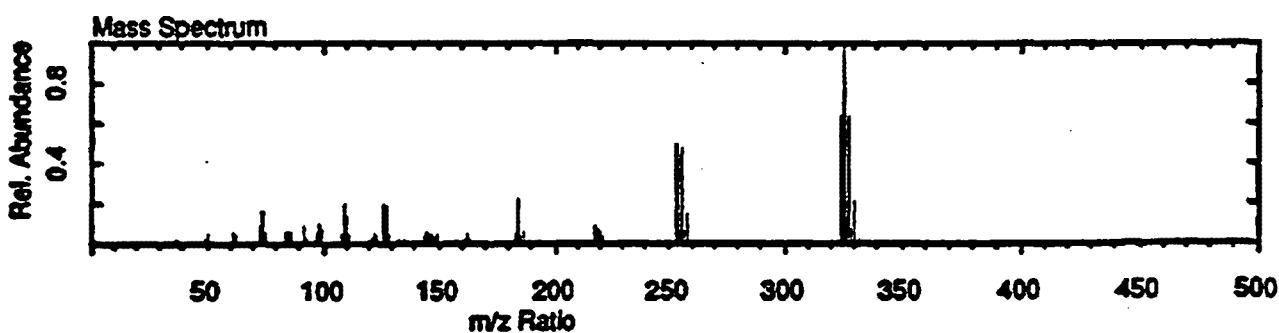
IUPAC Congener No. 124

2',3,4,5,5'-PENTACHLOROBIPHENYL

CAS No. 70424-70-3



cm^{-1}	abs								
659.48	0.06	827.53	0.09	1102.29	0.60	1367.85	0.55	1526.77	0.08
665.98	0.12	830.33	0.09	1137.85	0.10	1392.68	0.24	1544.10	0.84
673.05	0.06	873.88	0.41	1164.24	0.55	1400.07	0.24	1565.19	0.05
704.75	0.19	884.52	0.13	1202.77	0.17	1433.81	1.00	1584.62	0.26
814.34	0.67	1044.52	0.57	1245.03	0.17	1472.75	0.36	1590.77	0.34
817.59	0.70	1073.04	0.05	1259.98	0.05	1477.06	0.26		

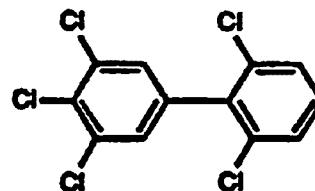


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.07	92.00	0.09	145.00	0.06	254.95	0.07	327.00	0.13
73.05	0.09	98.00	0.11	184.00	0.23	255.95	0.48	327.90	0.65
74.05	0.17	99.00	0.08	186.00	0.07	256.95	0.06	328.90	0.08
75.05	0.07	109.05	0.20	217.95	0.09	257.95	0.16	329.90	0.21
83.95	0.06	110.05	0.14	218.95	0.08	323.95	0.64		
85.00	0.06	126.95	0.20	219.95	0.06	325.00	0.08		
86.00	0.06	127.95	0.19	253.95	0.50	326.00	1.00		

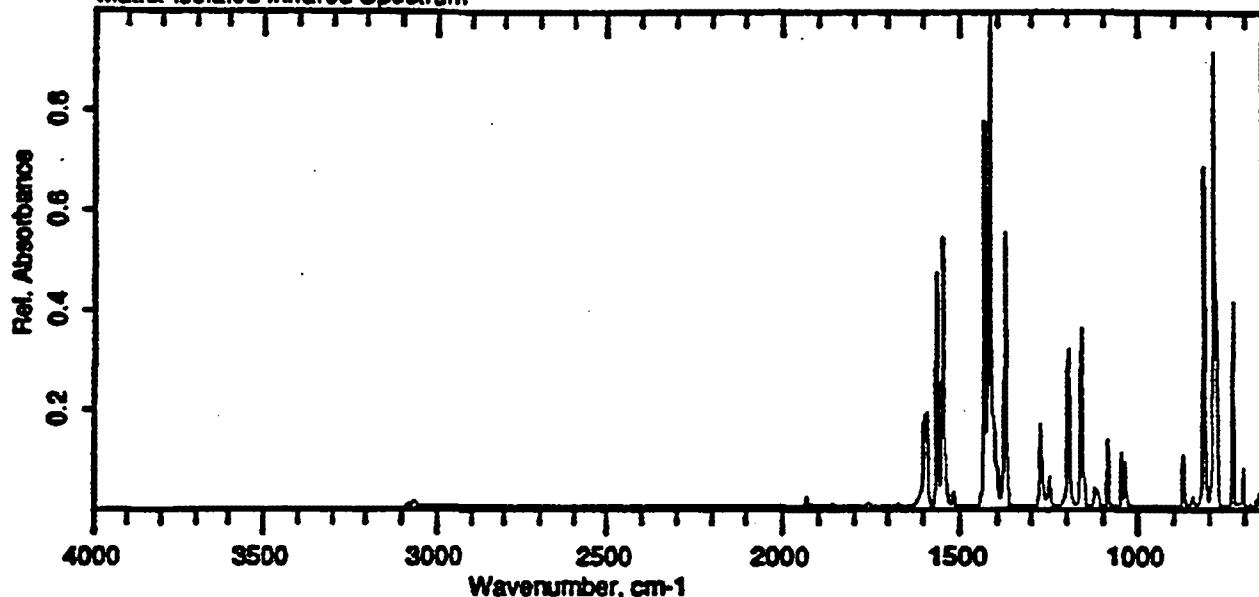
IUPAC Congener No. 125

2',3,4,5,6'-PENTACHLOROBIPHENYL

CAS No. 74472-39-2



Matrix-Isolated Infrared Spectrum



cm-1 abs

650.16 0.05
704.65 0.08
734.90 0.41
781.28 0.41
790.08 0.92

cm-1 abs

817.88 0.68
877.27 0.11
1040.38 0.09
1051.33 0.11
1088.76 0.14

cm-1 abs

1155.17 0.07
1162.77 0.36
1197.75 0.32
1251.95 0.07
1278.15 0.17

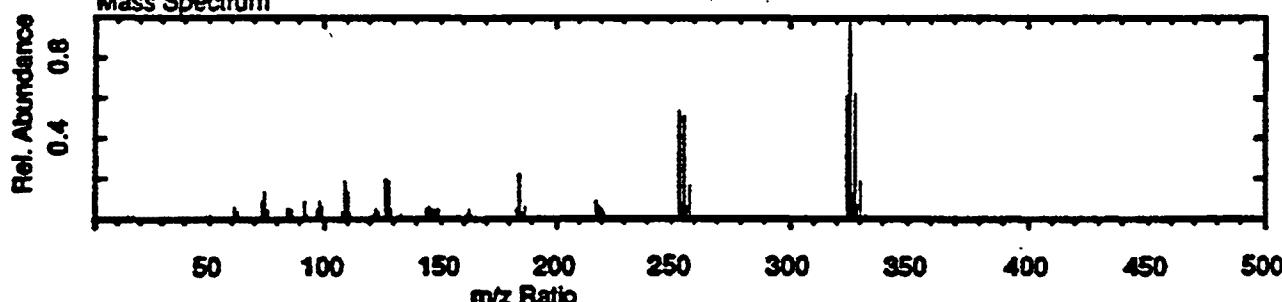
cm-1 abs

1377.25 0.55
1401.75 0.09
1419.75 1.00
1434.62 0.79
1547.22 0.55

cm-1 abs

1564.20 0.47
1591.18 0.20
1595.96 0.19

Mass Spectrum



m/z abun

61.05 0.07
73.05 0.09
74.05 0.15
75.05 0.06
92.00 0.09
98.00 0.10
99.00 0.07

m/z abun

109.05 0.20
110.05 0.15
122.05 0.06
126.95 0.21
127.95 0.19
128.95 0.06
145.00 0.07

m/z abun

183.00 0.06
184.00 0.23
186.00 0.07
217.95 0.09
219.05 0.07
219.95 0.06
254.05 0.54

m/z abun

254.95 0.08
255.95 0.52
256.95 0.07
257.95 0.17
323.95 0.62
325.00 0.08
326.00 1.00

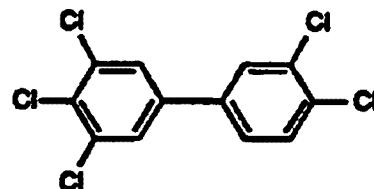
m/z abun

327.00 0.13
328.00 0.63
329.00 0.08
330.00 0.20

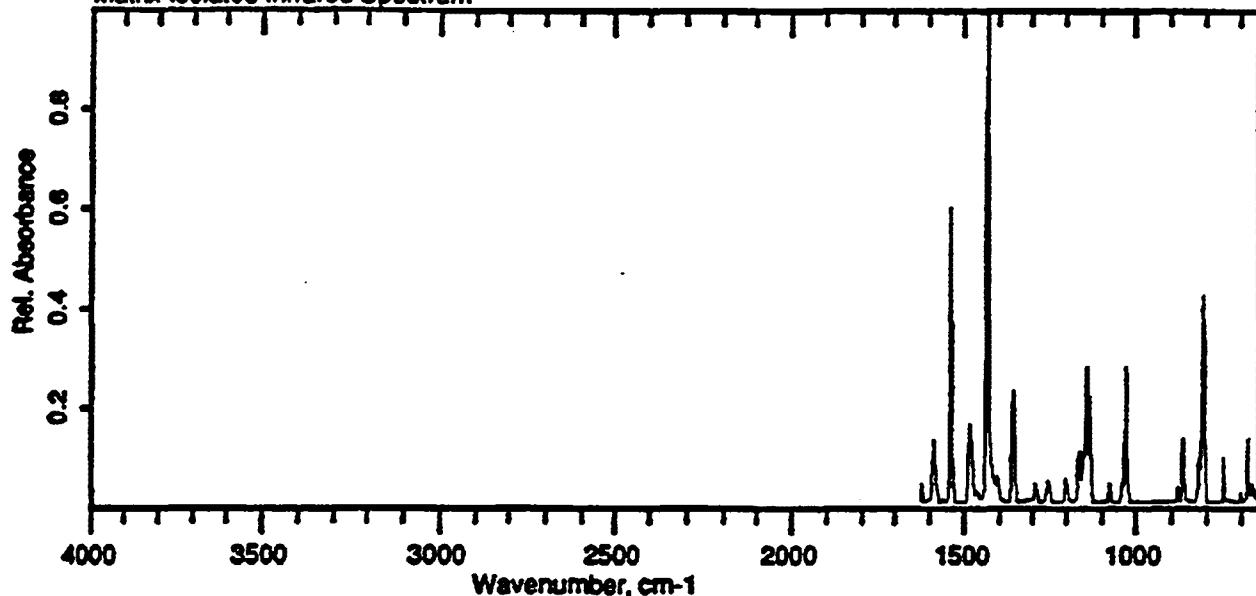
IUPAC Congener No. 126

3,3',4,4',5-PENTACHLOROBIPHENYL

CAS No. 57465-28-8

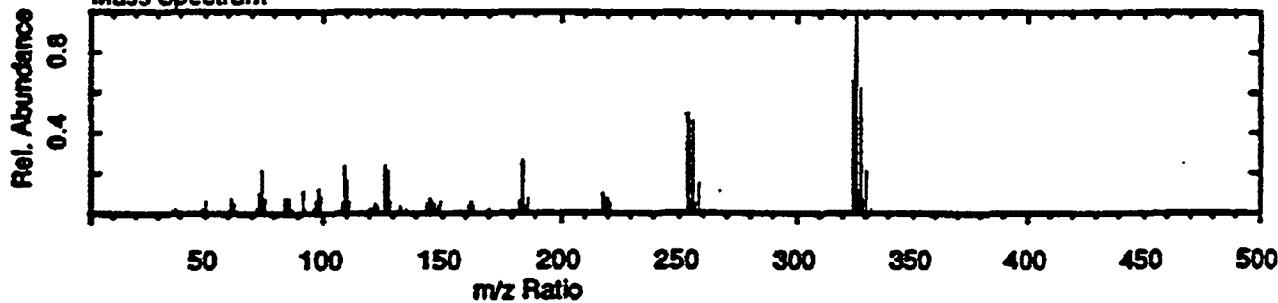


Matrix-Isolated Infrared Spectrum



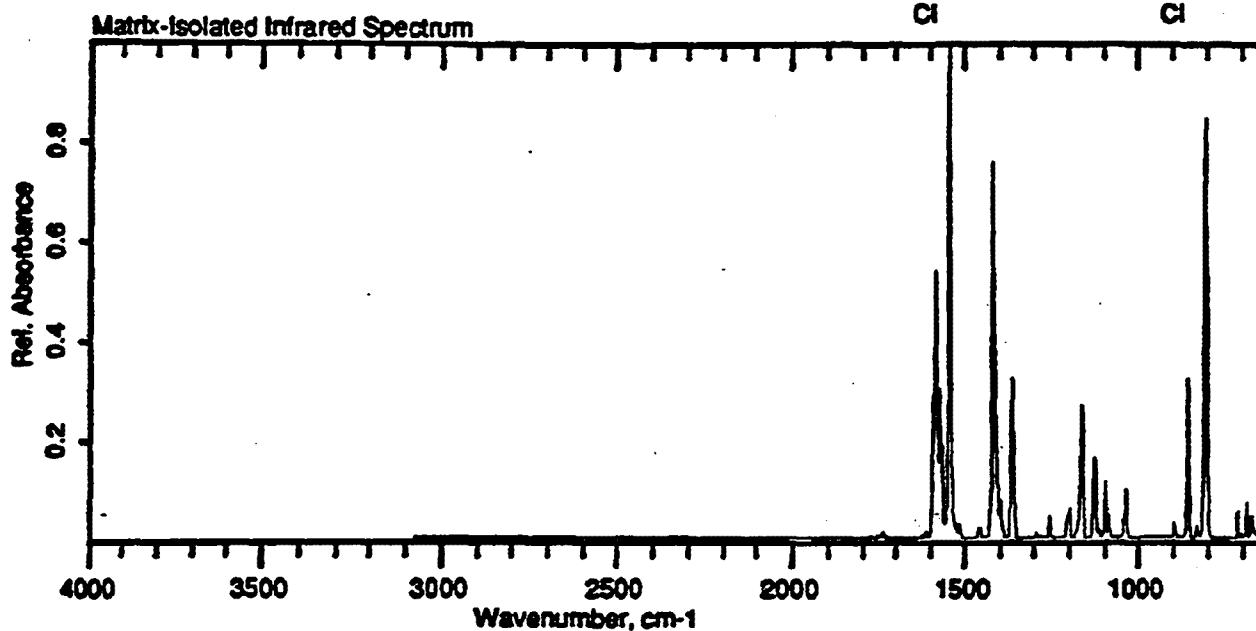
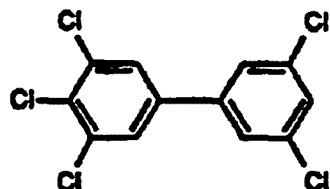
cm^{-1}	abs								
668.37	0.05	871.08	0.14	1144.68	0.28	1296.69	0.05	1540.55	0.60
680.85	0.14	1033.83	0.28	1152.76	0.10	1359.17	0.23	1589.59	0.14
753.17	0.10	1043.54	0.05	1165.54	0.11	1404.60	0.06		
811.85	0.42	1080.35	0.05	1205.69	0.06	1432.63	1.00		
824.11	0.10	1135.19	0.22	1256.96	0.05	1485.32	0.17		

Mass Spectrum

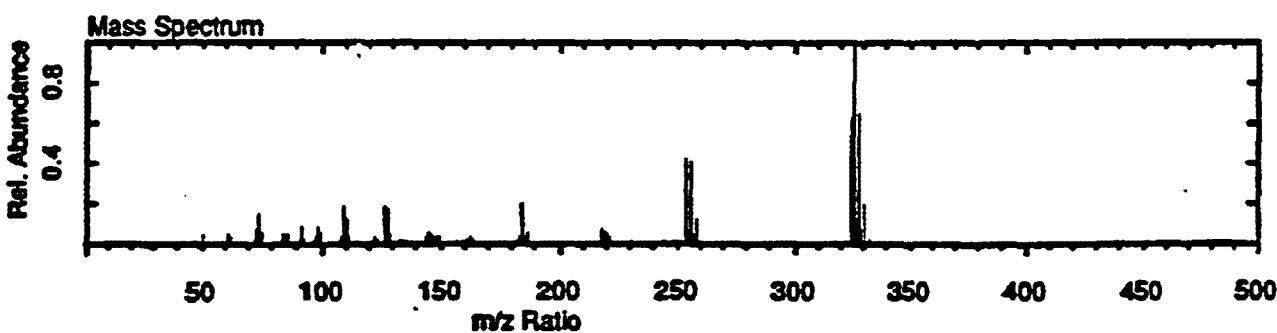


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
50.00	0.07	86.00	0.08	127.95	0.22	219.95	0.08	326.00	1.00
61.05	0.08	92.00	0.11	128.95	0.07	253.95	0.50	327.00	0.12
73.05	0.11	98.00	0.13	145.00	0.08	254.95	0.07	328.00	0.64
74.05	0.21	99.00	0.10	184.00	0.27	255.95	0.47	329.00	0.08
75.05	0.08	109.05	0.24	186.00	0.08	257.95	0.15	330.00	0.21
83.95	0.08	110.05	0.17	217.95	0.10	323.95	0.66		
85.00	0.08	127.05	0.24	218.95	0.09	325.00	0.08		

IUPAC Congener No. 127
 3,3',4,5,5'-PENTACHLOROBIPHENYL
 CAS No. 39635-33-1



cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
669.23	0.05	860.24	0.33	1165.64	0.27	1416.18	0.41		
674.99	0.05	1041.83	0.11	1201.01	0.07	1420.88	0.76		
688.36	0.08	1090.81	0.05	1258.37	0.05	1545.83	1.00		
716.24	0.06	1101.23	0.12	1366.08	0.33	1569.07	0.19		
808.11	0.85	1130.93	0.17	1399.23	0.08	1573.89	0.31		

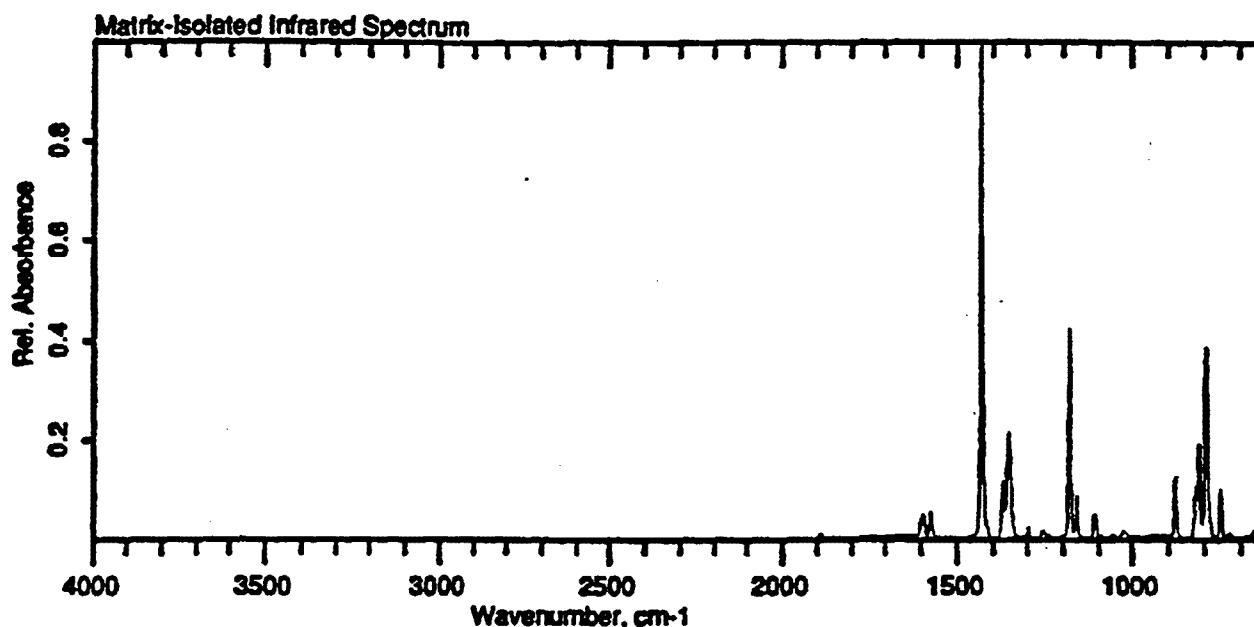
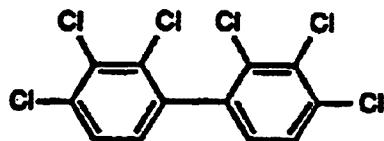


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
73.05	0.08	109.05	0.20	186.00	0.07	256.05	0.42	328.00	0.65
74.05	0.16	110.05	0.13	217.95	0.08	257.95	0.13	329.00	0.08
75.05	0.06	126.95	0.20	218.95	0.07	323.95	0.64	330.00	0.21
92.00	0.09	127.95	0.18	219.95	0.06	325.00	0.09		
98.00	0.10	145.00	0.07	254.05	0.43	326.00	1.00		
99.00	0.07	164.00	0.20	255.05	0.06	327.00	0.13		

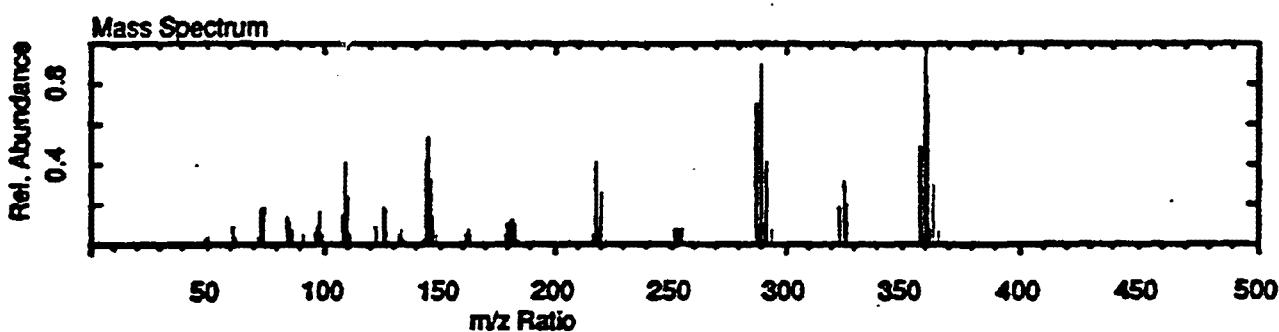
IUPAC Congener No. 128

2,2',3,3',4,4'-HEXACHLOROBIPHENYL

CAS No. 38380-07-3



cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
758.04	0.10	825.97	0.10	1164.62	0.08	1372.24	0.11		
796.91	0.38	885.61	0.12	1184.88	0.42	1434.42	1.00		
817.42	0.19	1114.09	0.05	1355.99	0.21	1576.80	0.05		

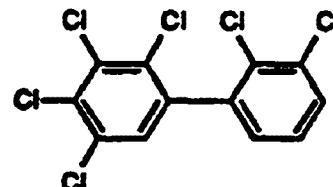


m/z	abun								
73.05	0.19	110.05	0.25	179.95	0.11	290.00	0.91	359.95	1.00
74.05	0.20	126.05	0.19	181.00	0.12	291.00	0.10	360.95	0.12
83.95	0.15	127.05	0.18	182.00	0.13	292.00	0.42	361.95	0.76
85.00	0.12	144.00	0.43	183.00	0.11	322.95	0.20	363.95	0.30
98.00	0.17	145.00	0.54	217.95	0.42	325.00	0.32		
108.00	0.16	146.00	0.33	219.95	0.27	327.00	0.21		
109.05	0.42	147.00	0.14	288.00	0.70	357.95	0.49		

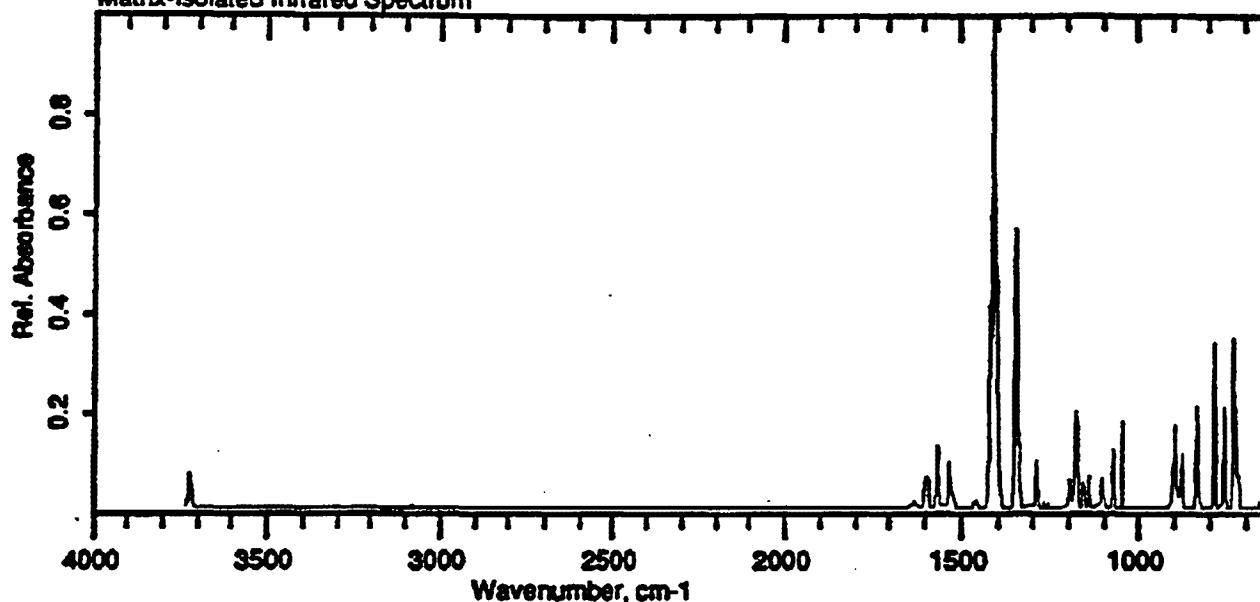
IUPAC Coagener No. 129

2,2',3,3',4,5-HEXACHLOROBIPHENYL

CAS No. 55215-18-4



Matrix-Isolated Infrared Spectrum



cm⁻¹ abs

722.57 0.08
735.55 0.35
761.24 0.21
788.57 0.34
838.16 0.21

cm⁻¹ abs

880.89 0.12
901.54 0.17
1051.26 0.18
1075.81 0.13
1109.05 0.07

cm⁻¹ abs

1144.43 0.07
1157.28 0.05
1162.07 0.06
1181.69 0.20
1199.28 0.07

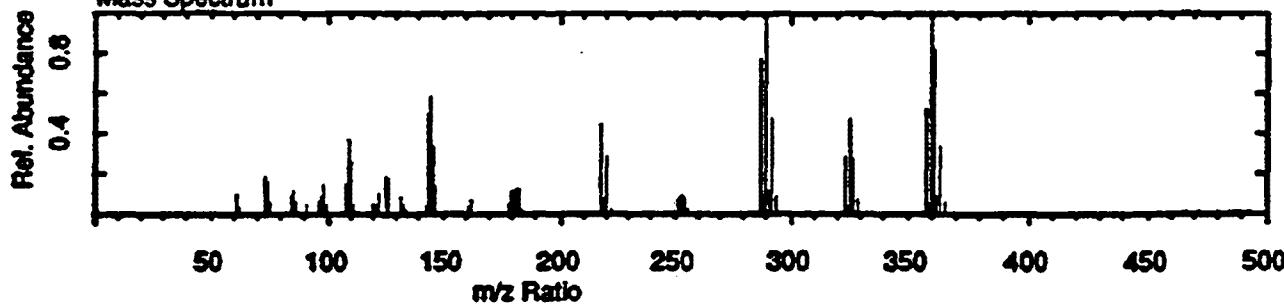
cm⁻¹ abs

1293.30 0.10
1348.31 0.56
1410.46 1.00
1420.07 0.41
1533.97 0.10

cm⁻¹ abs

1566.08 0.13
1597.86 0.07

Mass Spectrum



m/z abun

61.05 0.11
73.05 0.19
74.05 0.16
85.00 0.12
98.00 0.16
108.00 0.15
109.05 0.38

m/z abun

110.05 0.26
122.05 0.11
126.05 0.19
127.05 0.19
144.00 0.50
145.00 0.60
146.00 0.34

m/z abun

147.00 0.14
179.95 0.12
181.00 0.12
182.00 0.13
183.00 0.13
218.05 0.46
220.05 0.29

m/z abun

288.00 0.78
290.00 1.00
291.00 0.12
292.00 0.49
322.95 0.29
325.00 0.48
327.00 0.28

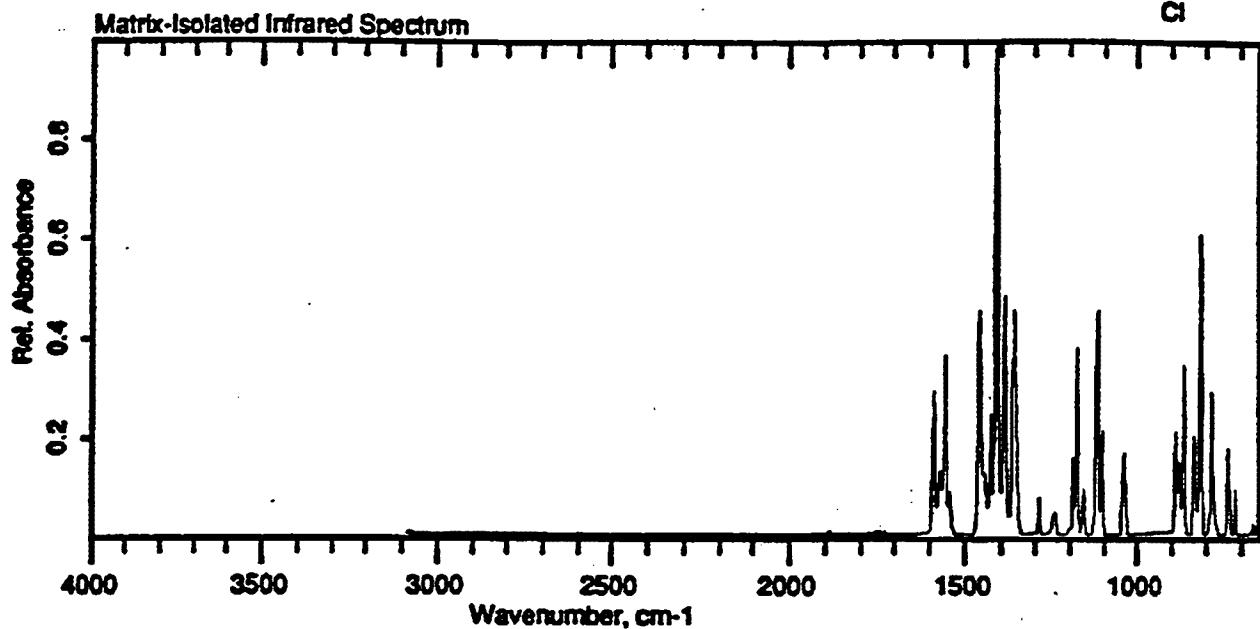
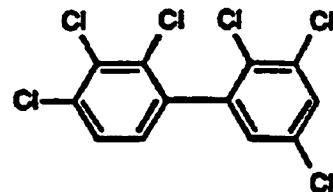
m/z abun

357.95 0.53
359.95 0.99
360.95 0.12
361.95 0.83
363.95 0.34

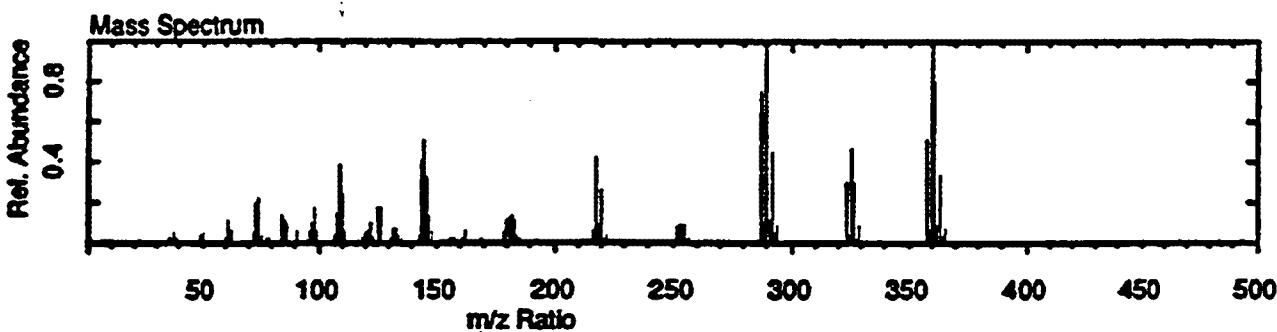
IUPAC Congener No. 130

2,2',3,3',4,5'-HEXACHLOROBIPHENYL

CAS No. 52663-66-8



cm^{-1}	abs								
718.23	0.10	881.43	0.15	1126.71	0.35	1291.93	0.08	1446.83	0.13
739.28	0.18	892.99	0.21	1162.40	0.10	1361.88	0.46	1460.27	0.46
787.04	0.30	1044.43	0.17	1181.94	0.39	1367.51	0.36	1545.36	0.09
818.07	0.61	1049.50	0.13	1193.12	0.16	1390.43	0.49	1557.85	0.37
838.20	0.21	1109.29	0.22	1245.58	0.05	1412.90	1.00	1573.34	0.13
868.80	0.35	1121.81	0.46	1251.39	0.05	1428.48	0.25		

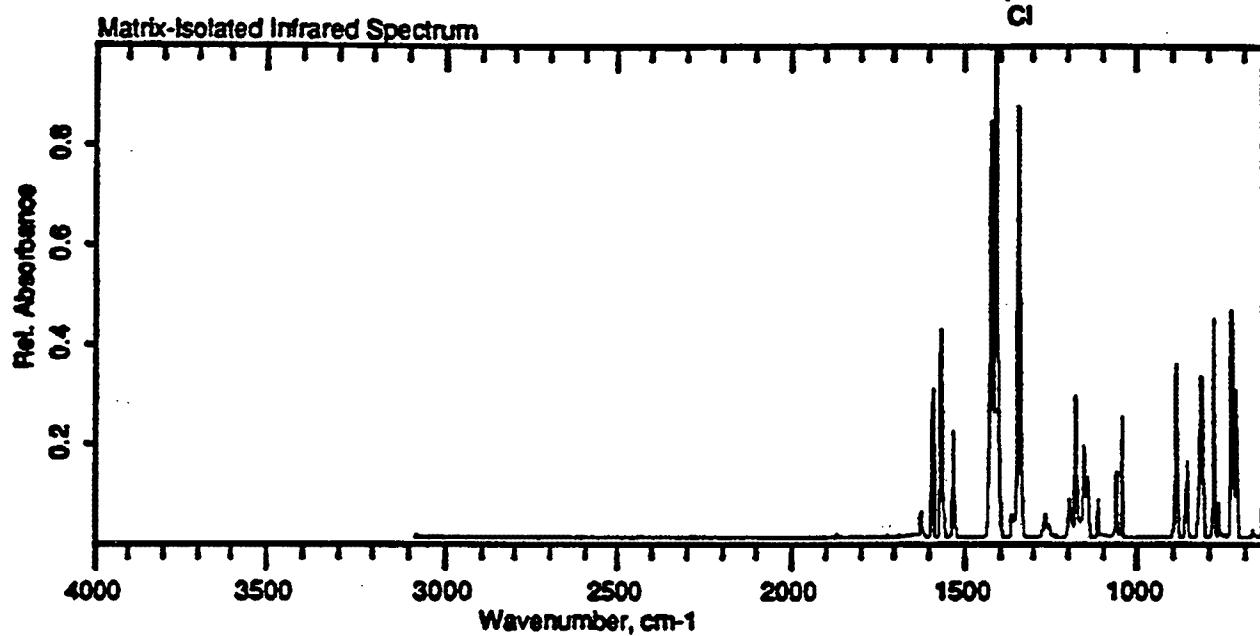
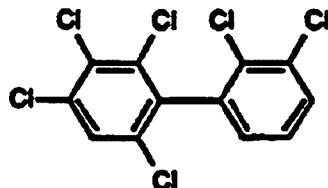


m/z	abun								
61.05	0.12	109.05	0.40	146.00	0.33	220.05	0.27	327.00	0.31
73.05	0.21	110.05	0.25	147.00	0.15	288.00	0.75	357.95	0.52
74.05	0.23	122.05	0.11	179.95	0.12	290.00	0.98	359.95	1.00
83.95	0.14	126.05	0.19	181.00	0.13	291.00	0.12	360.95	0.13
85.00	0.12	126.95	0.19	182.00	0.15	292.00	0.46	361.95	0.81
98.00	0.18	144.00	0.42	183.10	0.12	322.95	0.30	363.95	0.34
108.00	0.16	145.00	0.52	218.05	0.43	325.00	0.47		

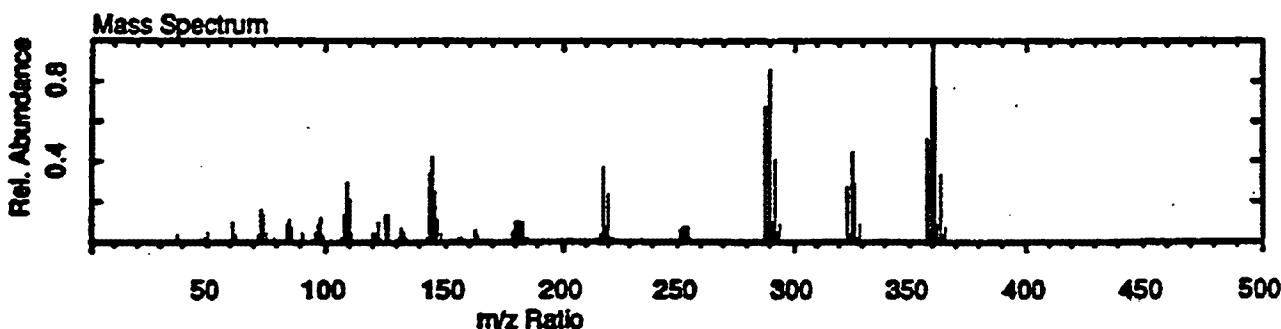
IUPAC Congener No. 131

2,2',3,3',4,6-HEXACHLOROBIPHENYL

CAS No. 61798-70-7



cm^{-1}	abs								
650.76	0.09	825.30	0.33	1116.74	0.09	1199.33	0.09	1425.36	0.84
726.87	0.31	865.08	0.16	1146.85	0.13	1269.28	0.06	1535.17	0.22
740.06	0.47	894.11	0.38	1157.65	0.20	1345.94	0.88	1568.14	0.43
775.37	0.08	1047.49	0.25	1165.81	0.05	1366.92	0.06	1591.26	0.31
788.94	0.45	1063.99	0.14	1180.21	0.29	1412.26	1.00		

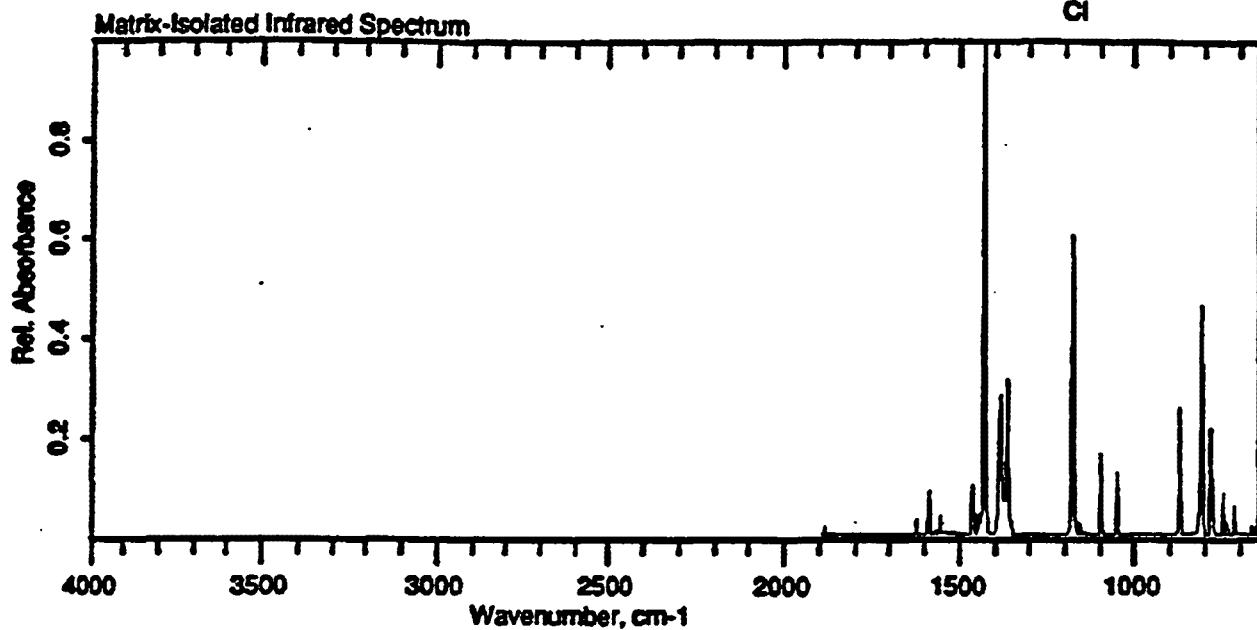
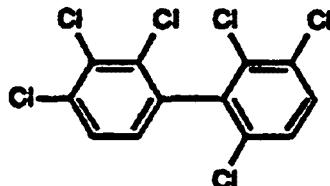


m/z	abun								
61.05	0.11	110.05	0.21	147.00	0.12	288.00	0.68	357.95	0.52
73.05	0.17	122.05	0.10	179.95	0.11	290.00	0.87	359.95	1.00
74.05	0.15	126.05	0.15	181.00	0.11	291.00	0.11	360.95	0.13
85.00	0.11	128.95	0.15	182.00	0.11	292.00	0.41	361.95	0.78
98.00	0.13	144.00	0.35	183.10	0.11	322.95	0.28	363.95	0.34
108.00	0.14	145.00	0.43	218.05	0.39	325.00	0.46		
109.05	0.31	146.00	0.25	220.05	0.24	327.00	0.29		

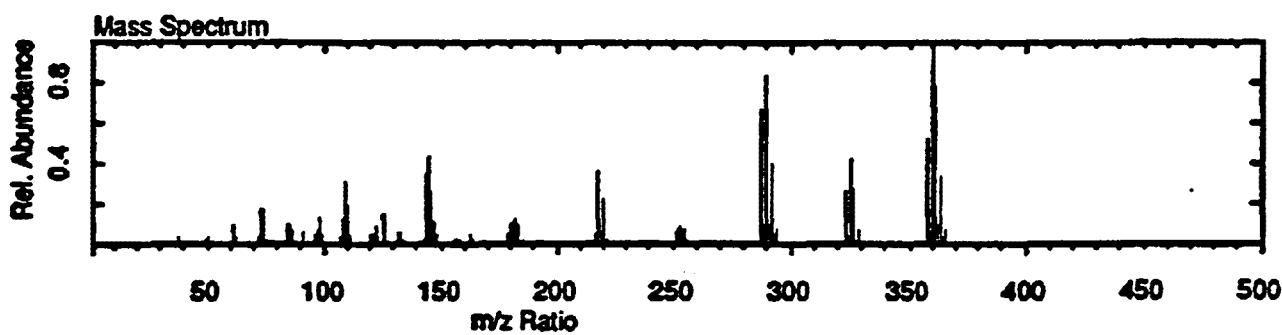
IUPAC Congener No. 132

2,2',3,3',4,6'-HEXACHLOROBIPHENYL

CAS No. 38380-05-1



cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
653.23	0.05	811.68	0.46	1181.11	0.60	1445.78	0.05		
719.16	0.07	875.87	0.26	1365.52	0.31	1465.96	0.11		
750.30	0.09	1054.33	0.13	1386.08	0.28	1558.38	0.05		
786.51	0.22	1100.45	0.17	1431.76	1.00	1590.73	0.10		

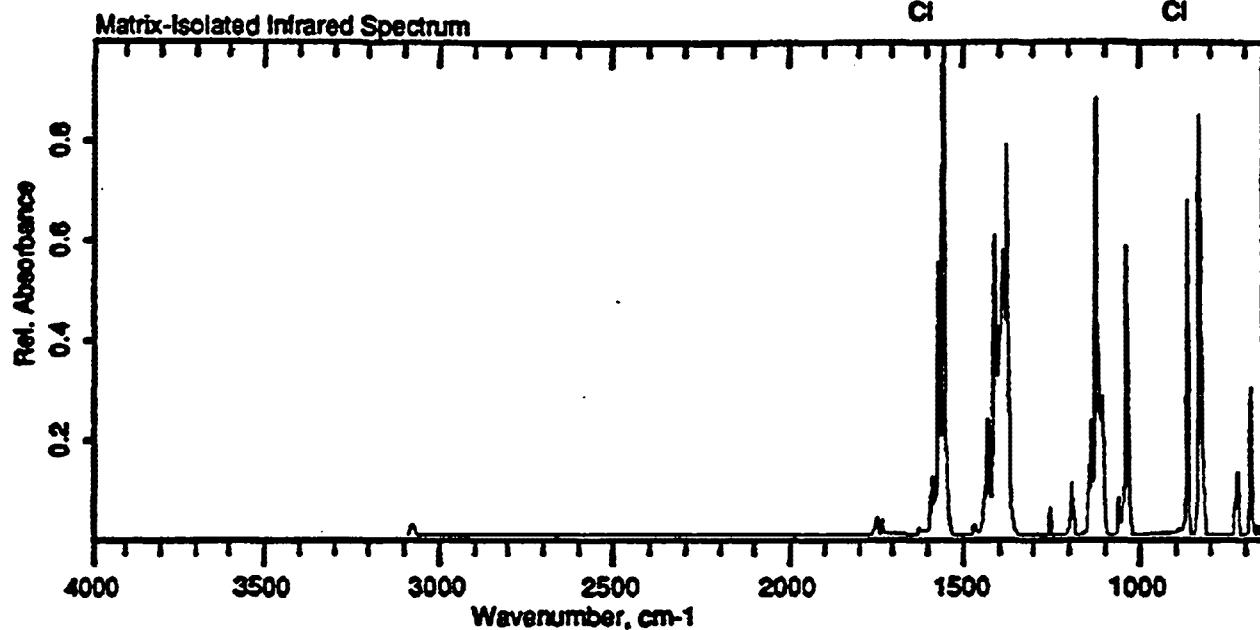
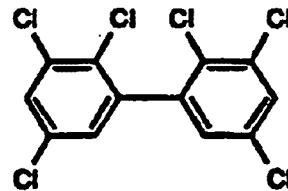


m/z	abun								
61.05	0.10	109.05	0.32	147.00	0.12	288.00	0.68	357.95	0.53
73.05	0.18	110.05	0.21	179.95	0.11	290.00	0.84	359.95	1.00
74.05	0.18	126.05	0.15	181.00	0.12	291.00	0.11	360.95	0.13
83.95	0.10	126.95	0.16	182.00	0.13	292.00	0.41	361.95	0.79
85.00	0.10	144.00	0.36	183.00	0.11	322.95	0.27	362.95	0.10
96.00	0.14	145.00	0.45	218.05	0.37	325.00	0.44	363.95	0.34
108.00	0.13	146.00	0.27	220.05	0.23	327.00	0.28		

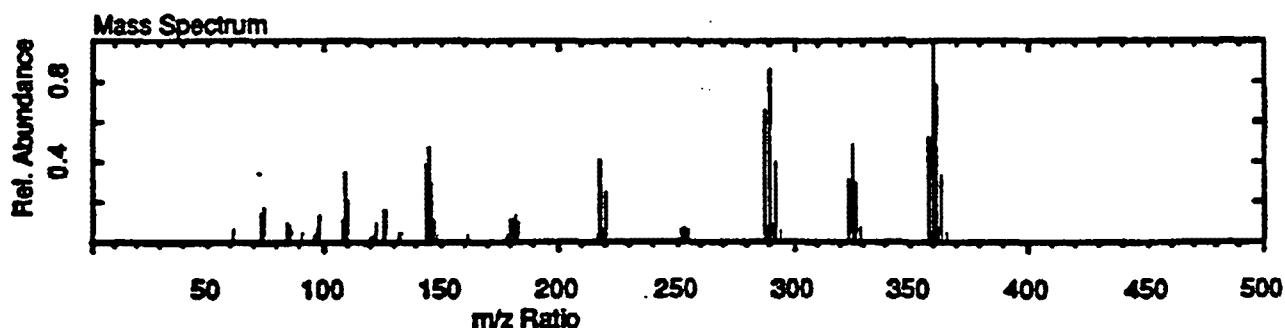
IUPAC Congener No. 133

2,2',3,3',5,5'-HEXACHLOROBIPHENYL

CAS No. 35694-04-3



cm^{-1}	abs								
685.43	0.31	1041.11	0.59	1146.78	0.15	1400.18	0.42	1571.12	0.56
723.12	0.13	1064.19	0.08	1194.61	0.12	1412.67	0.61	1581.42	0.09
730.59	0.08	1108.83	0.29	1255.52	0.06	1431.59	0.24		
835.18	0.85	1125.85	0.89	1378.16	0.79	1439.99	0.11		
869.04	0.68	1138.78	0.24	1389.02	0.58	1557.20	1.00		

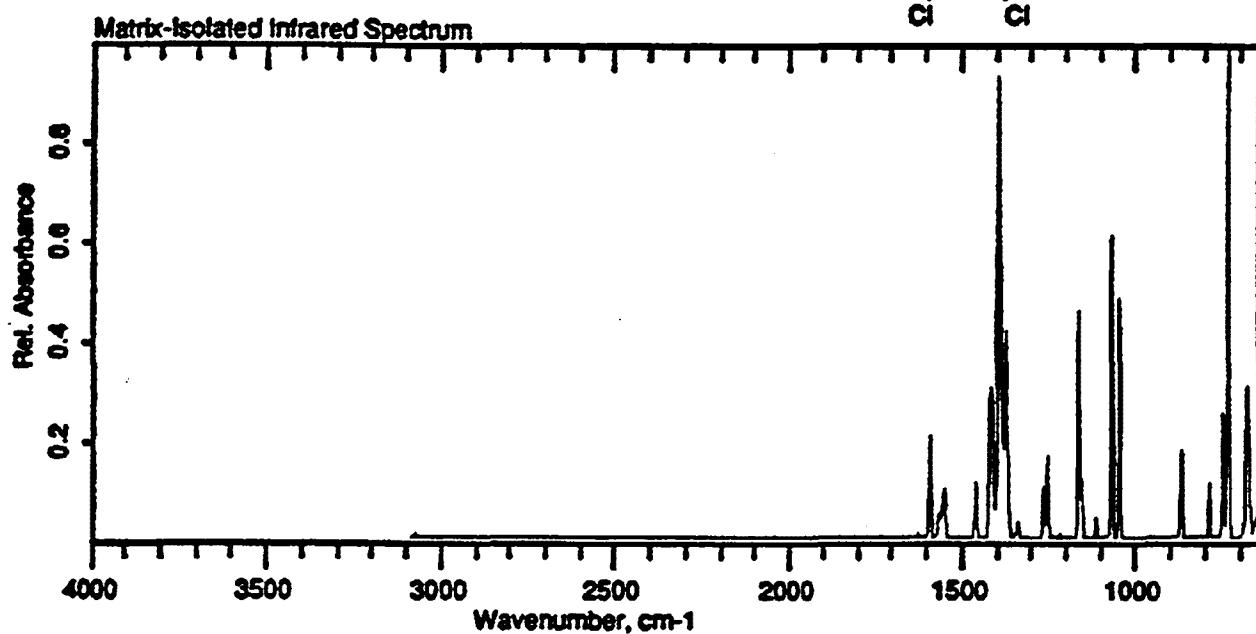
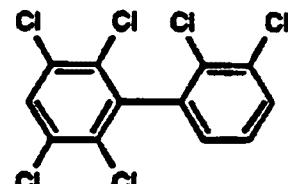


m/z	abun								
73.05	0.16	122.05	0.10	179.95	0.11	289.90	0.87	359.95	1.00
74.05	0.19	126.05	0.17	181.00	0.11	290.90	0.10	360.95	0.12
83.95	0.10	126.95	0.16	182.00	0.14	291.90	0.41	361.95	0.79
98.00	0.15	144.00	0.40	183.00	0.10	322.95	0.31	363.95	0.34
108.00	0.12	145.00	0.49	217.95	0.41	325.00	0.50		
109.05	0.36	146.00	0.30	219.95	0.25	326.90	0.31		
110.05	0.22	147.00	0.12	287.90	0.67	357.95	0.53		

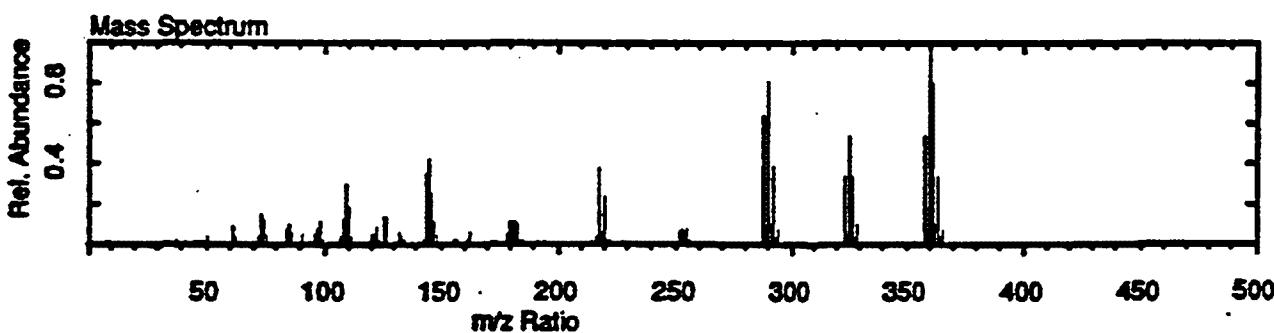
IUPAC Congener No. 134

2,2',3,3',5,6-HEXACHLOROBIPHENYL

CAS No. 52704-70-8

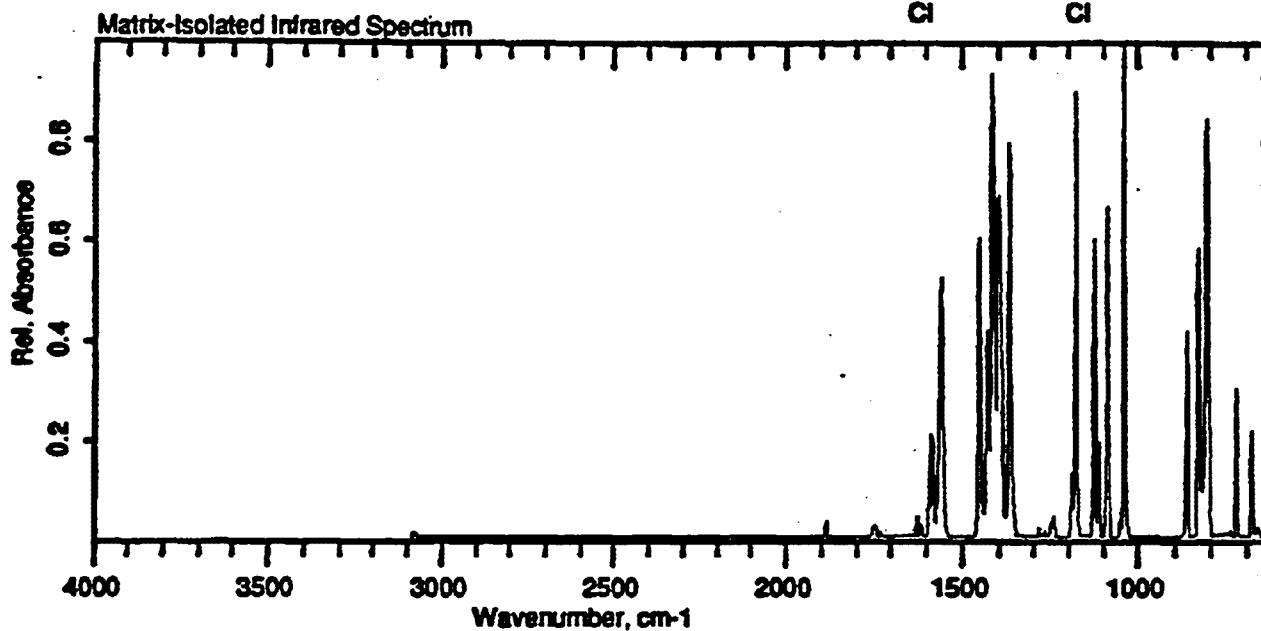
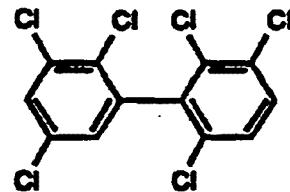


cm^{-1}	abs								
651.44	0.11	782.15	0.12	1157.80	0.13	1384.07	0.21	1564.93	0.06
680.19	0.24	871.97	0.18	1167.04	0.46	1397.03	0.94		
684.33	0.32	1049.41	0.49	1255.73	0.17	1418.08	0.31		
735.92	1.00	1071.09	0.63	1267.58	0.11	1462.06	0.12		
751.99	0.26	1115.26	0.05	1375.94	0.43	1551.72	0.11		

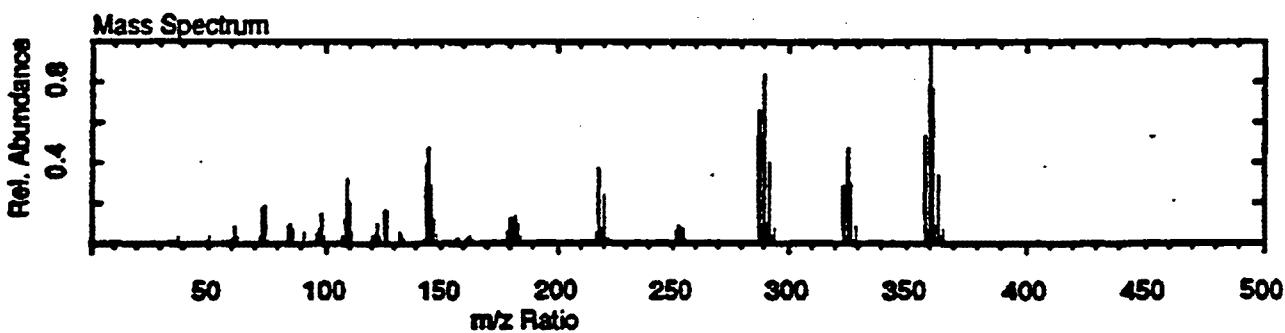


m/z	abun								
73.05	0.15	126.05	0.14	181.00	0.12	291.00	0.11	359.95	1.00
74.05	0.14	126.95	0.15	182.00	0.11	291.90	0.40	360.95	0.13
85.00	0.10	144.00	0.35	183.00	0.11	322.95	0.34	361.95	0.81
98.00	0.12	145.00	0.44	218.05	0.38	325.00	0.55	362.95	0.10
108.00	0.13	146.00	0.25	219.95	0.25	327.00	0.34	363.95	0.34
109.05	0.31	147.00	0.11	288.00	0.64	329.00	0.11		
110.05	0.20	179.95	0.12	290.00	0.82	357.95	0.54		

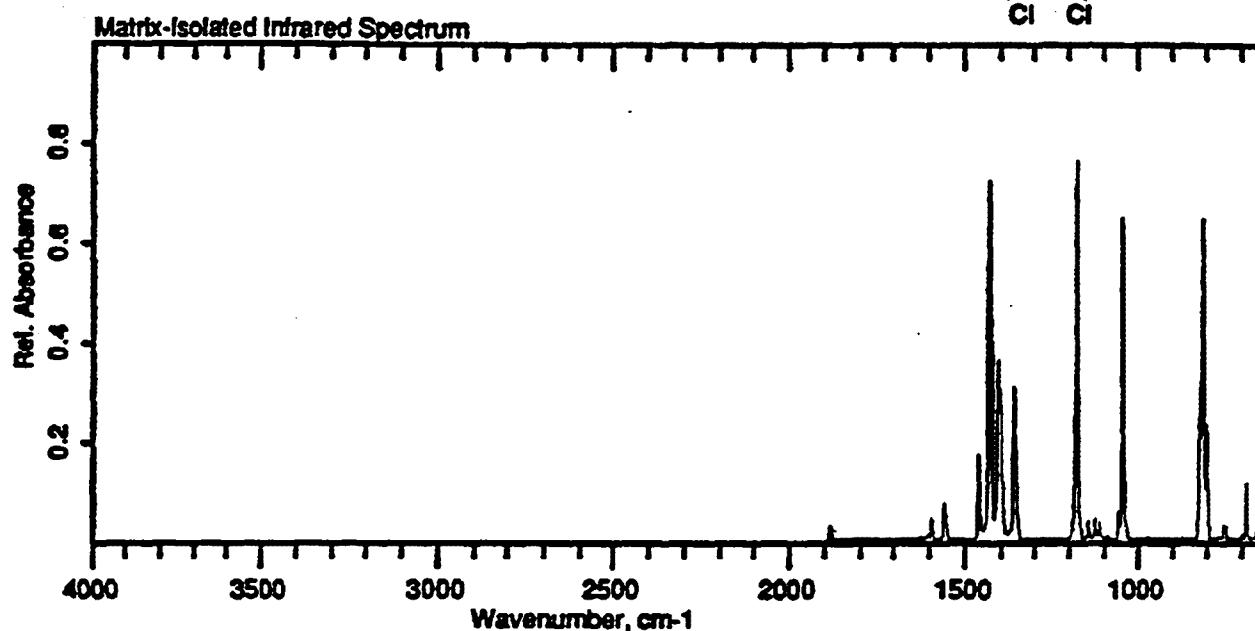
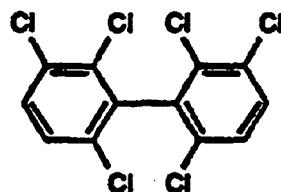
IUPAC Congener No. 135
 2,2',3,3',5,6'-HEXACHLOROBIPHENYL
 CAS No. 52744-13-5



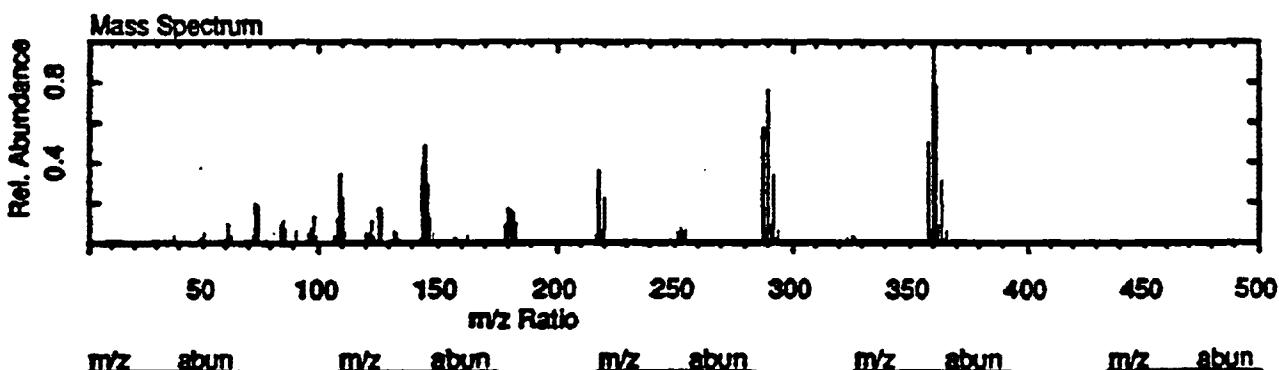
cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
686.01	0.22	1043.65	1.00	1192.14	0.13	1431.07	0.42		
729.68	0.31	1090.88	0.67	1244.16	0.05	1453.46	0.61		
812.30	0.84	1114.57	0.20	1369.93	0.80	1560.42	0.52		
835.87	0.59	1128.02	0.61	1398.14	0.69	1586.44	0.21		
868.41	0.43	1181.05	0.91	1417.23	0.94	1589.81	0.21		



IUPAC Congener No. 136
 2,2',3,3',6,6'-HEXACHLOROBIPHENYL
 CAS No. 38411-22-2



cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
687.00	0.16	823.28	0.41	1128.99	0.06	1407.24	0.47		
754.34	0.05	1049.26	0.85	1147.99	0.06	1430.41	0.95		
802.93	0.31	1060.87	0.08	1179.38	1.00	1462.36	0.23		
813.48	0.86	1115.75	0.05	1362.34	0.41	1560.31	0.10		

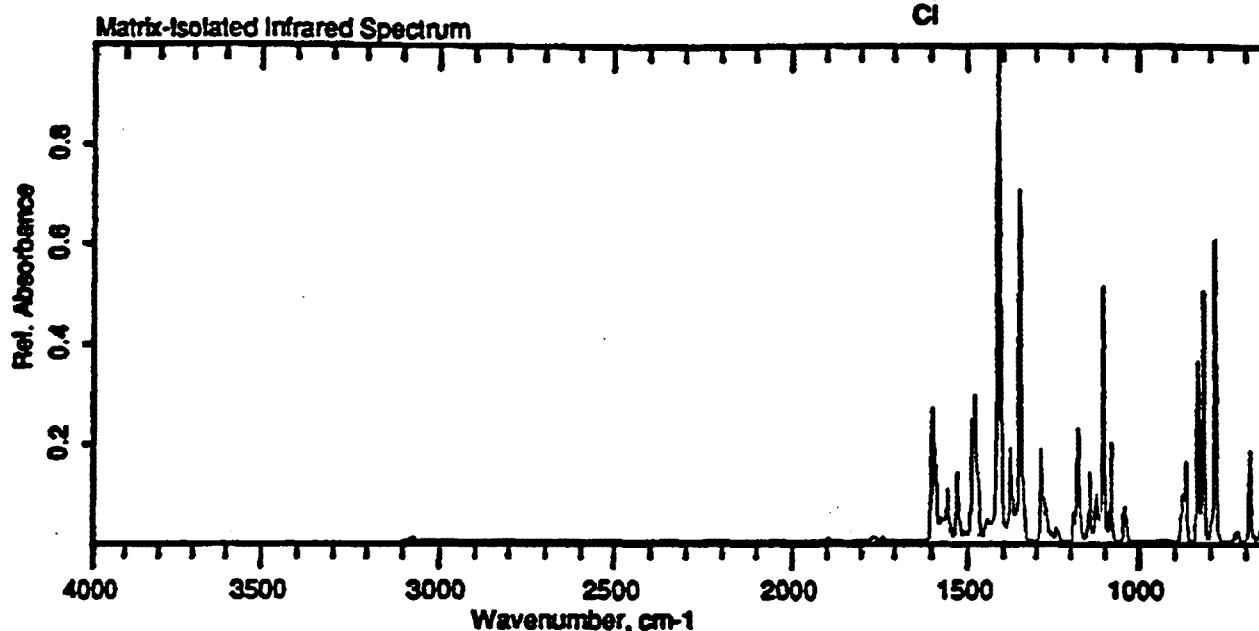
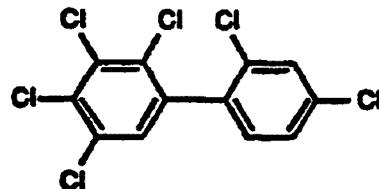


m/z	abun								
61.05	0.11	110.05	0.23	147.00	0.13	220.05	0.23	360.95	0.12
73.05	0.21	122.05	0.12	178.95	0.09	288.00	0.58	361.95	0.80
74.05	0.20	126.05	0.19	179.95	0.18	290.00	0.77	362.95	0.09
85.00	0.12	126.95	0.19	181.00	0.17	291.00	0.09	363.95	0.32
98.00	0.15	144.00	0.39	182.00	0.16	292.00	0.35		
108.00	0.13	145.00	0.49	183.10	0.11	357.95	0.51		
109.05	0.36	146.00	0.30	218.05	0.37	359.95	1.00		

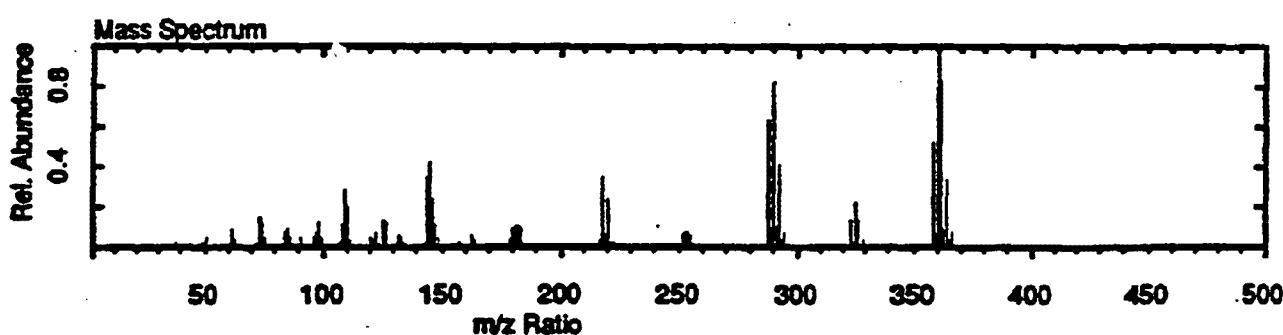
IUPAC Congener No. 137

2,2',3,4,4',5-HEXACHLOROBIPHENYL

CAS No. 35694-06-5



<u>cm-1</u>	<u>abs</u>								
654.59	0.18	1041.94	0.06	1192.88	0.06	1413.49	1.00	1576.40	0.05
687.90	0.19	1047.74	0.07	1274.14	0.07	1444.49	0.05	1592.21	0.15
789.79	0.60	1083.75	0.20	1289.54	0.19	1481.20	0.30		
821.39	0.51	1106.64	0.52	1350.84	0.71	1487.06	0.25		
838.40	0.36	1127.83	0.10	1362.09	0.06	1530.49	0.14		
871.74	0.16	1145.67	0.14	1373.04	0.09	1558.44	0.11		
882.05	0.10	1180.97	0.23	1378.70	0.19	1566.54	0.05		

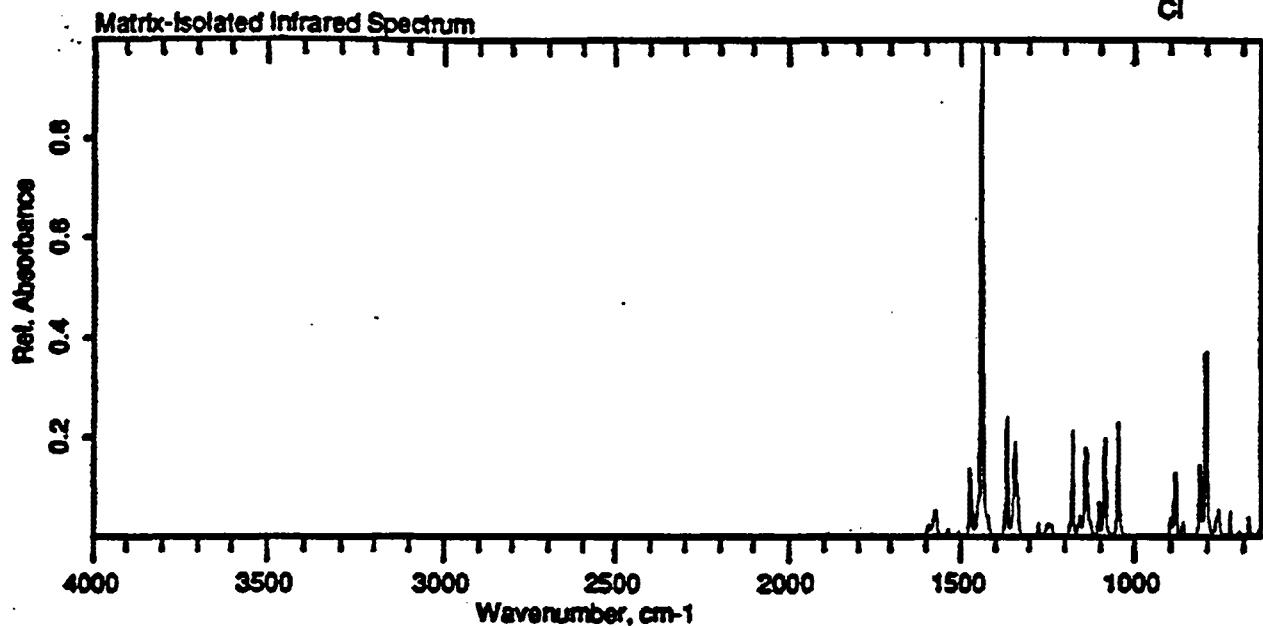
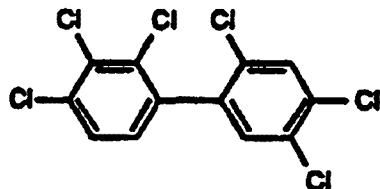


m/z	abun								
61.05	0.09	110.05	0.21	179.95	0.09	289.00	0.09	357.95	0.53
73.05	0.15	126.05	0.14	181.00	0.10	290.00	0.83	359.95	1.00
74.05	0.14	128.95	0.13	182.00	0.10	291.00	0.11	360.95	0.13
85.00	0.10	144.00	0.36	183.00	0.10	291.90	0.42	361.95	0.83
98.00	0.13	145.00	0.43	217.95	0.35	322.95	0.14	362.95	0.10
108.00	0.12	146.00	0.25	219.95	0.24	325.00	0.23	363.95	0.34
109.05	0.29	147.00	0.11	288.00	0.65	327.00	0.14		

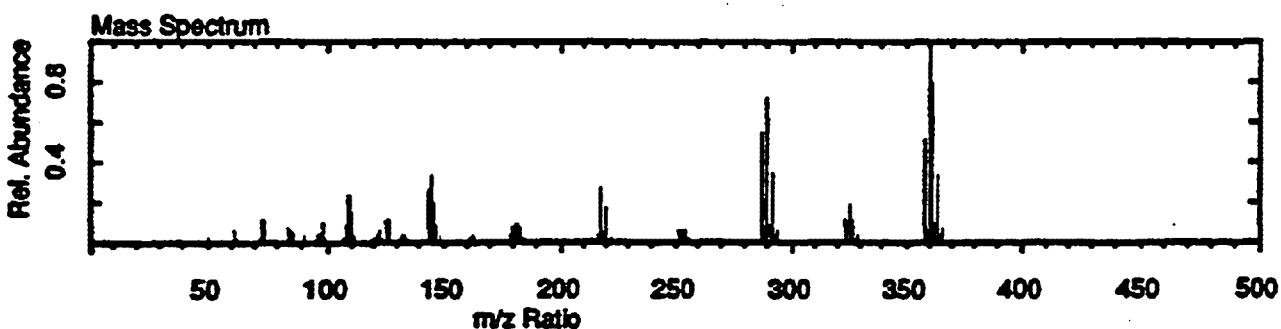
IUPAC Congener No. 138

2,2',3,4,4',5'-HEXACHLOROBIPHENYL

CAS No. 35065-28-2



cm^{-1}	abs								
738.81	0.05	821.57	0.14	1089.92	0.20	1180.76	0.21	1440.90	1.00
771.44	0.05	891.14	0.13	1107.35	0.07	1343.82	0.19	1473.85	0.13
805.70	0.37	1054.01	0.23	1142.45	0.18	1368.05	0.24		

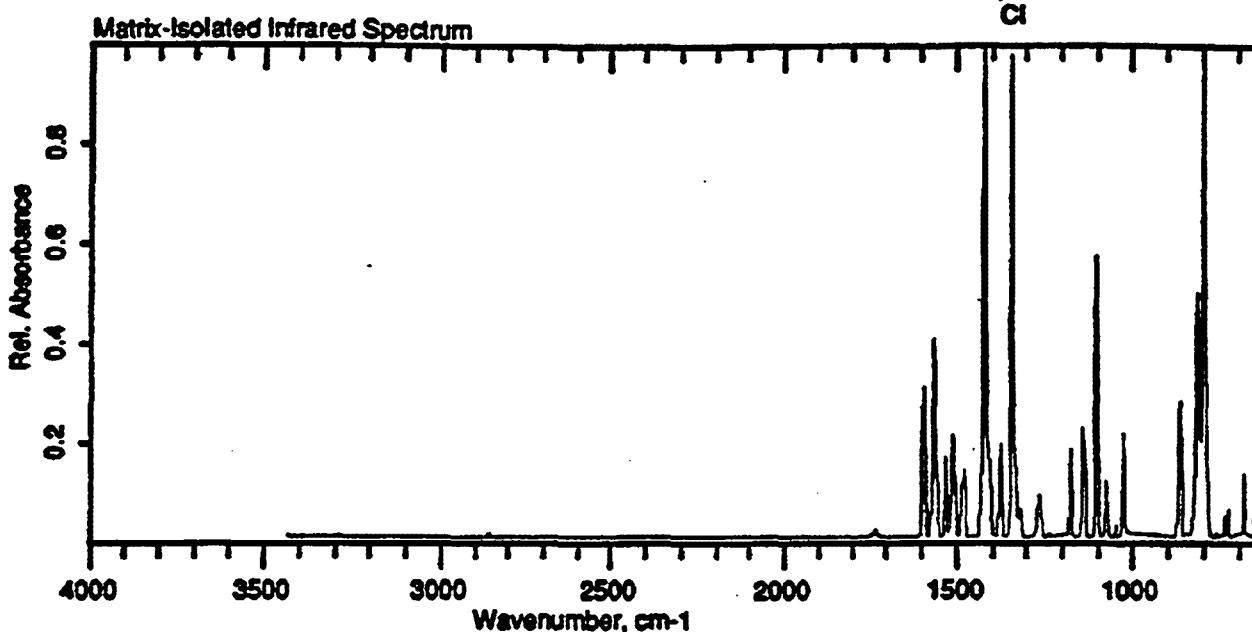
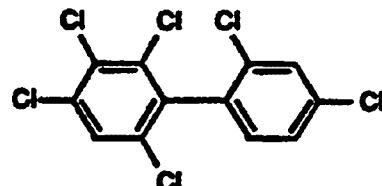


m/z	abun								
73.05	0.11	126.95	0.12	182.00	0.10	322.95	0.12	362.95	0.10
74.05	0.12	144.00	0.27	217.95	0.28	325.00	0.19	363.95	0.34
98.00	0.11	145.00	0.34	219.95	0.18	326.90	0.12		
108.00	0.09	146.00	0.21	287.90	0.56	357.95	0.52		
109.05	0.24	147.00	0.09	289.90	0.73	359.95	1.00		
110.05	0.15	179.95	0.08	290.90	0.10	360.95	0.13		
126.05	0.12	181.00	0.09	291.90	0.36	361.95	0.81		

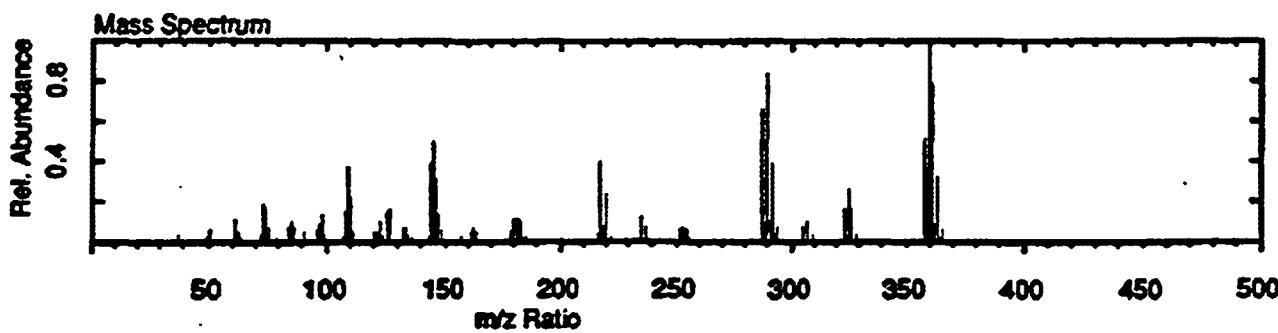
IUPAC Congener No. 139

2,2',3,4,4',6-HEXACHLOROBIPHENYL

CAS No. 56030-56-9



cm^{-1}	abs								
656.31	0.39	869.74	0.28	1178.67	0.19	1411.49	0.17	1567.10	0.41
686.94	0.14	1031.14	0.22	1268.59	0.10	1424.42	1.00		
733.42	0.07	1080.21	0.12	1321.85	0.07	1482.37	0.14		
742.67	0.05	1108.70	0.58	1346.62	0.98	1488.38	0.12		
801.65	0.99	1139.15	0.19	1379.14	0.20	1512.97	0.22		
819.55	0.50	1146.21	0.23	1386.03	0.06	1534.80	0.17		

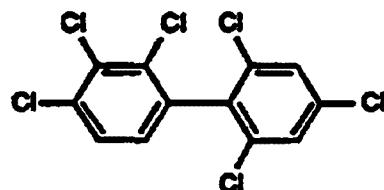


m/z	abun								
61.05	0.12	110.05	0.24	179.95	0.12	290.00	0.85	360.95	0.12
73.05	0.19	126.05	0.16	181.00	0.11	292.00	0.39	361.95	0.79
74.05	0.17	126.95	0.16	182.00	0.11	322.95	0.16	363.95	0.33
85.00	0.11	144.00	0.39	218.05	0.41	325.00	0.27		
98.00	0.15	145.00	0.51	219.95	0.24	327.00	0.17		
108.00	0.15	146.00	0.32	235.10	0.13	357.95	0.52		
109.05	0.38	147.00	0.14	288.00	0.66	359.95	1.00		

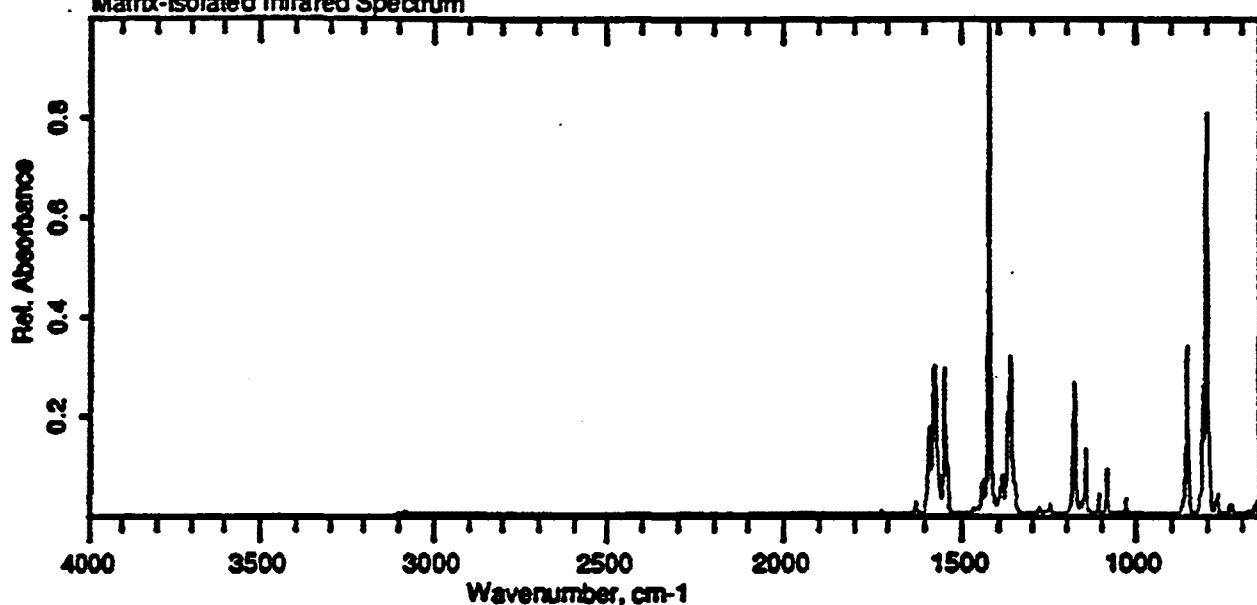
IUPAC Congener No. 140

2,2',3,4,4',6'-HEXACHLOROBIPHENYL

CAS No. 59291-64-4

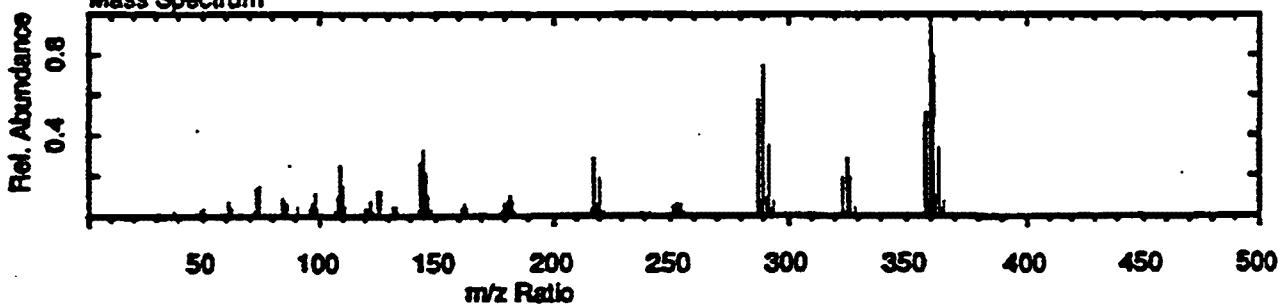


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
804.42	0.81	1087.34	0.09	1356.30	0.07	1390.96	0.08	1549.73	0.29
814.64	0.26	1149.25	0.13	1366.29	0.32	1426.52	1.00	1576.28	0.30
859.33	0.34	1180.84	0.27	1373.91	0.20	1444.49	0.07		

Mass Spectrum

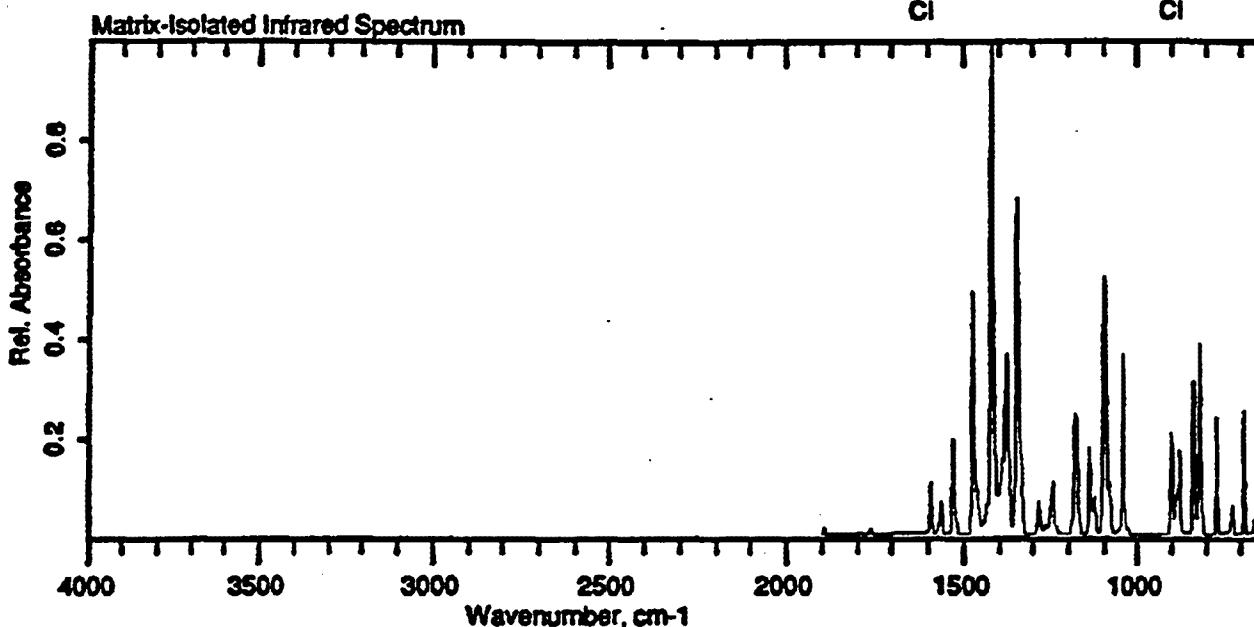
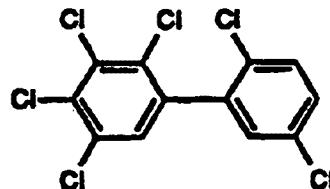


m/z	abun								
73.05	0.14	126.05	0.13	182.00	0.10	291.90	0.36	360.95	0.13
74.05	0.15	126.95	0.13	217.95	0.30	322.95	0.19	361.95	0.80
98.00	0.12	144.00	0.26	219.95	0.19	325.00	0.29	362.95	0.10
108.00	0.10	145.00	0.33	268.00	0.58	327.00	0.19	363.95	0.34
109.05	0.26	146.00	0.22	289.90	0.76	357.95	0.52		
110.05	0.16	147.00	0.10	290.90	0.10	359.95	1.00		

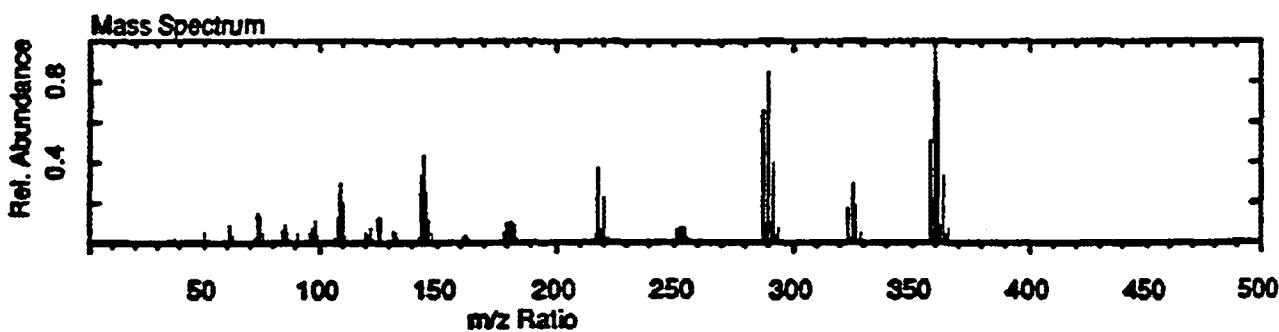
IUPAC Congener No. 141

2,2',3,4,5,5'-HEXACHLOROBIPHENYL

CAS No. 52712-04-6



cm^{-1}	abs								
689.51	0.25	888.35	0.09	1143.43	0.18	1382.46	0.29	1531.51	0.20
723.79	0.06	903.49	0.21	1181.79	0.25	1390.98	0.16	1564.03	0.07
771.11	0.24	1046.26	0.37	1247.19	0.11	1421.01	1.00		
819.05	0.39	1086.34	0.11	1286.09	0.07	1433.98	0.07		
837.64	0.32	1099.66	0.52	1348.37	0.68	1462.53	0.10		
879.74	0.18	1128.46	0.08	1377.35	0.37	1474.62	0.49		

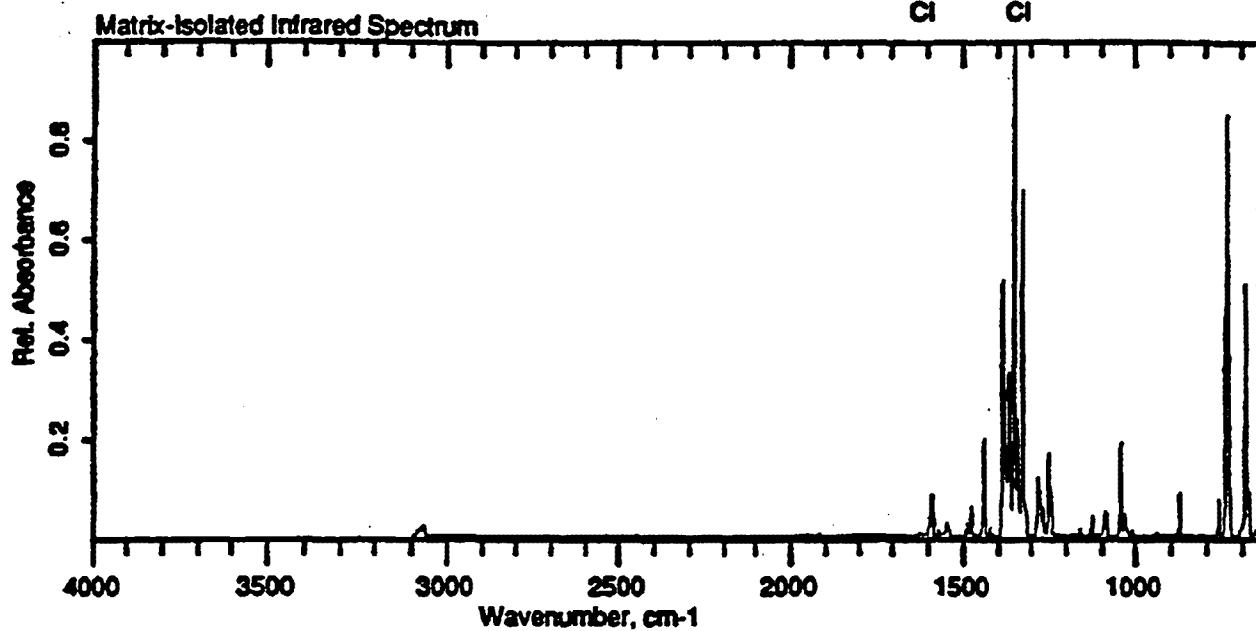
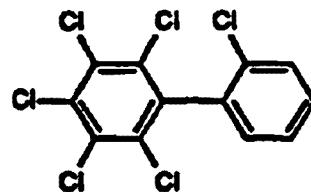


m/z	abun								
61.05	0.09	110.05	0.20	179.95	0.11	289.00	0.09	357.95	0.52
73.05	0.15	126.05	0.14	181.00	0.10	290.00	0.86	359.95	1.00
74.05	0.14	127.05	0.13	182.00	0.11	291.00	0.11	360.95	0.13
85.00	0.09	144.00	0.35	183.00	0.10	292.00	0.41	361.95	0.81
98.00	0.12	145.00	0.44	218.05	0.38	322.95	0.19	362.95	0.10
108.00	0.13	146.00	0.26	220.05	0.23	325.00	0.30	363.95	0.34
109.05	0.30	147.00	0.12	288.00	0.66	327.00	0.19		

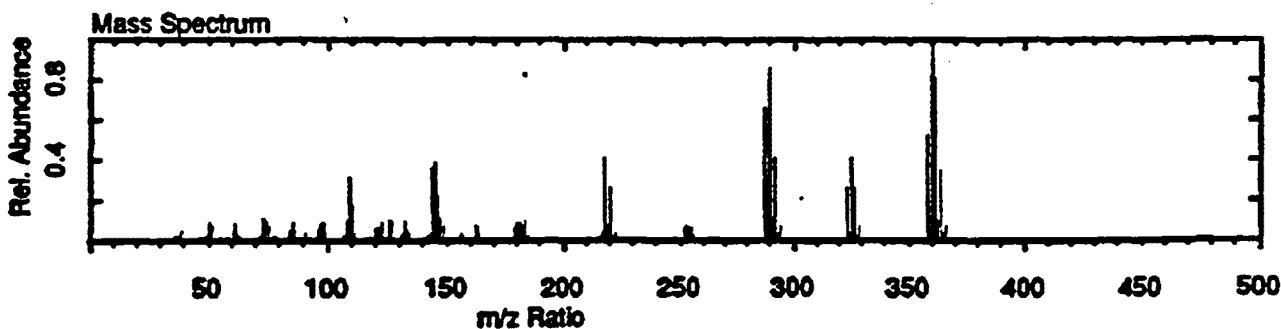
IUPAC Congener No. 142

2,2',3,4,5,6-HEXACHLOROBIPHENYL

CAS No. 41411-61-4



cm^{-1}	abs								
681.98	0.09	879.00	0.09	1246.89	0.10	1329.18	0.69	1442.17	0.20
690.91	0.51	1038.03	0.05	1252.51	0.17	1343.53	0.24	1478.55	0.07
742.00	0.85	1048.69	0.19	1269.08	0.06	1353.37	1.00		
747.41	0.46	1092.40	0.05	1284.16	0.12	1368.63	0.33		
767.68	0.08	1130.63	0.05	1320.77	0.06	1387.63	0.51		

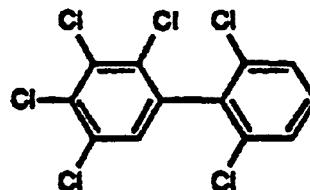


m/z	abun								
73.05	0.12	127.05	0.10	183.10	0.11	292.00	0.42	360.95	0.14
74.05	0.11	131.95	0.11	218.05	0.42	322.95	0.26	361.95	0.82
108.00	0.11	144.00	0.37	220.05	0.27	325.00	0.42	362.95	0.10
109.05	0.32	145.00	0.40	288.00	0.66	327.00	0.27	363.95	0.35
110.05	0.19	146.00	0.23	290.00	0.87	357.95	0.53		
126.05	0.10	147.00	0.12	291.00	0.12	359.95	1.00		

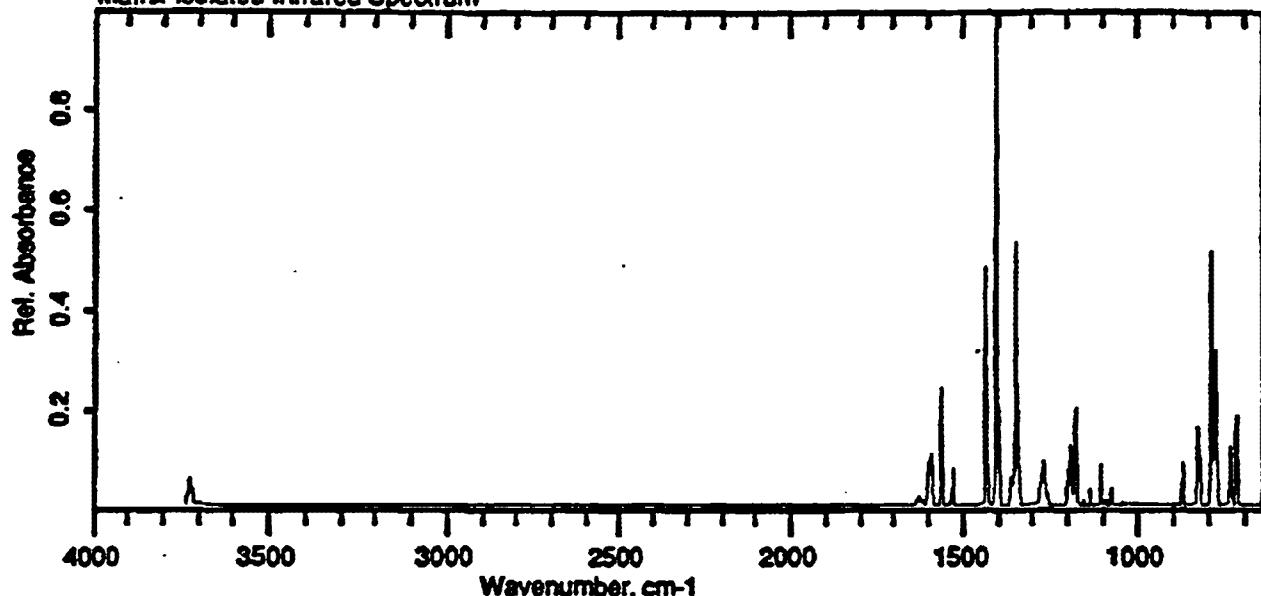
IUPAC Congener No. 143

2,2',3,4,5,6'-HEXACHLOROBIPHENYL

CAS No. 68194-15-0

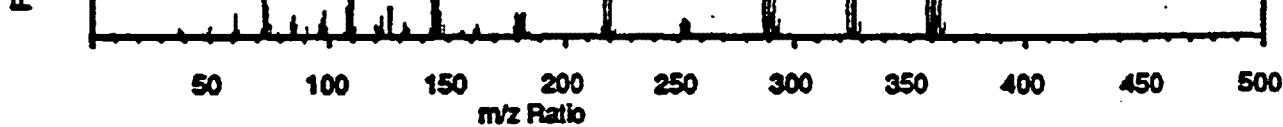


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
722.83	0.19	832.83	0.17	1193.05	0.13	1365.75	0.06	1565.02	0.24
741.61	0.13	876.48	0.09	1200.24	0.08	1404.91	1.00	1594.82	0.11
781.19	0.32	1109.04	0.09	1270.01	0.10	1436.53	0.49		
793.81	0.51	1179.02	0.20	1348.94	0.53	1531.94	0.09		

Mass Spectrum

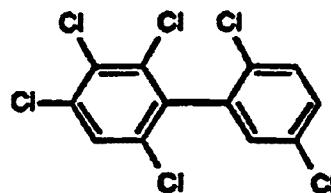


m/z	abun								
61.05	0.11	110.05	0.23	147.00	0.13	288.00	0.72	357.95	0.54
73.05	0.19	122.05	0.11	179.95	0.11	290.00	0.92	360.05	1.00
74.05	0.16	126.05	0.15	181.00	0.11	291.00	0.12	361.05	0.13
85.00	0.11	126.95	0.18	182.00	0.12	292.00	0.46	361.95	0.82
98.00	0.13	144.00	0.39	183.10	0.12	322.95	0.24	362.95	0.10
108.00	0.15	145.00	0.49	218.05	0.41	325.00	0.40	363.95	0.36
109.05	0.33	146.00	0.28	220.05	0.26	327.00	0.24		

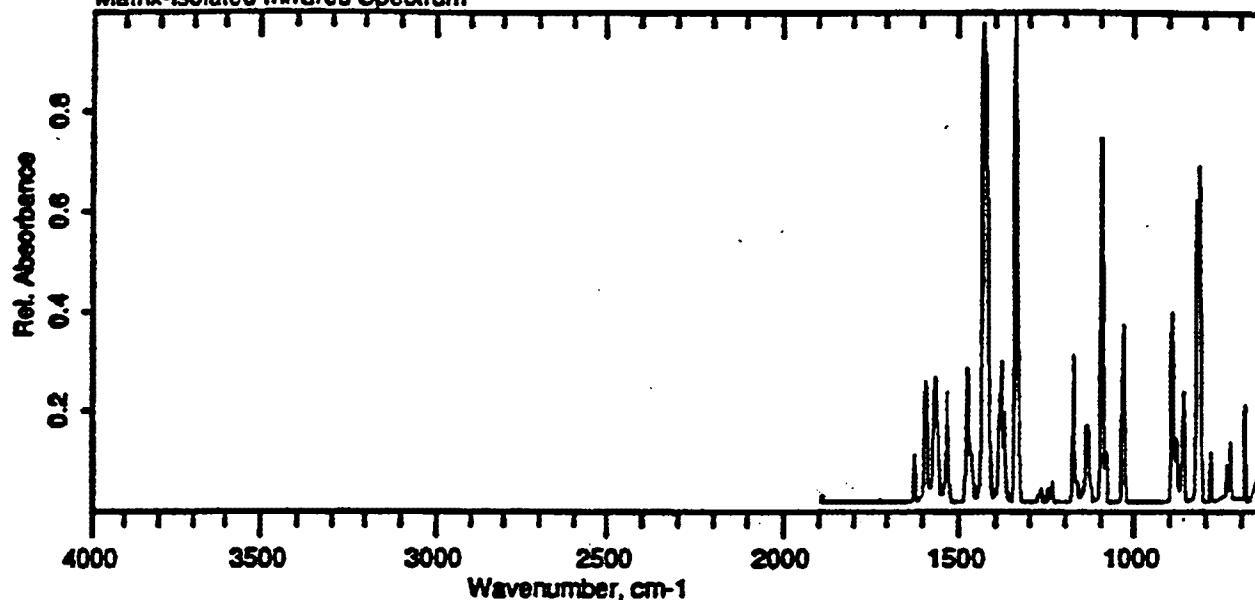
IUPAC Congener No. 144

2,2',3,4,5',6-HEXACHLOROBIPHENYL

CAS No. 68194-14-9

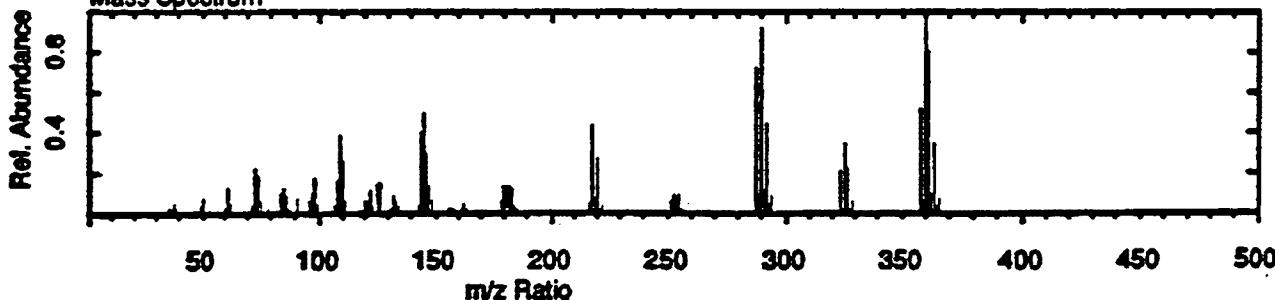


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
689.50	0.21	865.31	0.24	1138.85	0.17	1344.55	1.00	1469.33	0.12
733.30	0.13	883.73	0.14	1143.99	0.17	1375.80	0.20	1477.65	0.28
742.64	0.09	896.77	0.40	1169.30	0.06	1383.57	0.30	1534.09	0.24
788.44	0.12	1036.27	0.38	1180.53	0.31	1390.03	0.23	1566.13	0.26
817.98	0.69	1084.36	0.12	1240.28	0.06	1428.17	0.91	1594.64	0.26
827.59	0.62	1099.09	0.75	1252.22	0.05	1433.45	0.98		

Mass Spectrum

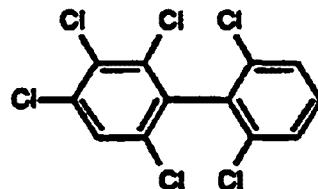


m/z	abun								
61.05	0.13	110.05	0.27	147.00	0.15	288.00	0.73	357.95	0.54
73.05	0.23	122.05	0.12	179.95	0.15	290.00	0.93	359.95	1.00
74.05	0.19	126.05	0.16	181.00	0.14	291.00	0.12	360.95	0.12
85.00	0.13	126.95	0.16	182.00	0.14	292.00	0.46	361.95	0.82
98.00	0.18	144.00	0.41	183.00	0.13	322.95	0.22	363.95	0.36
108.00	0.17	145.00	0.50	218.05	0.44	325.00	0.36		
109.05	0.40	146.00	0.31	220.05	0.28	327.00	0.23		

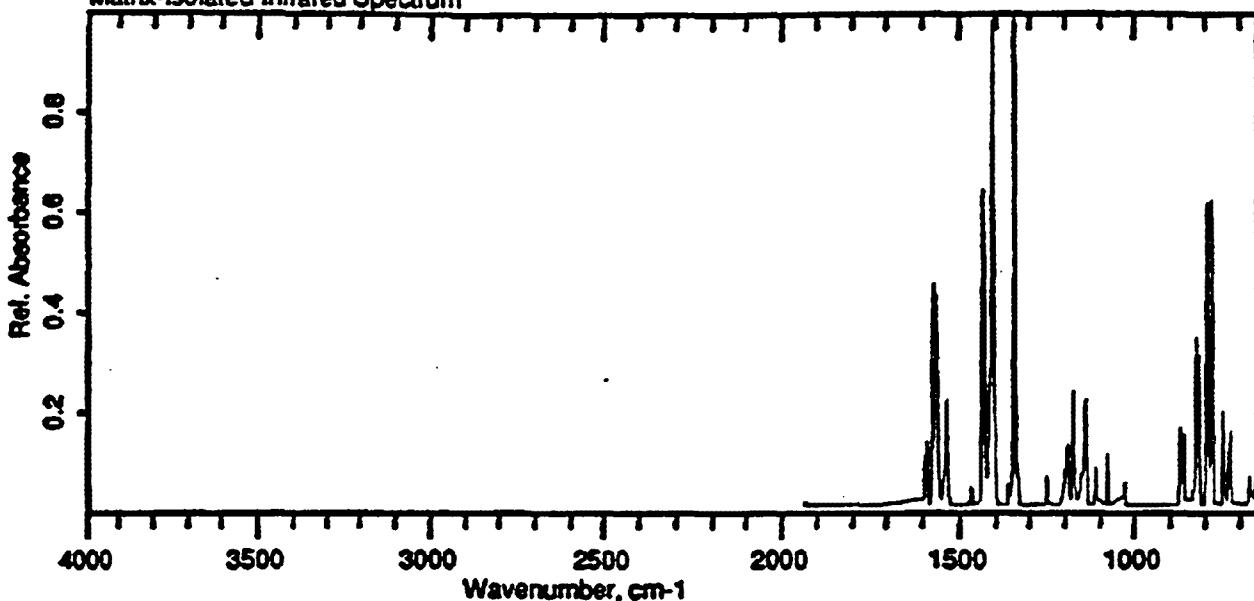
IUPAC Congener No. 145

2,2',3,4,6,6'-HEXACHLOROBIPHENYL

CAS No. 74472-40-5

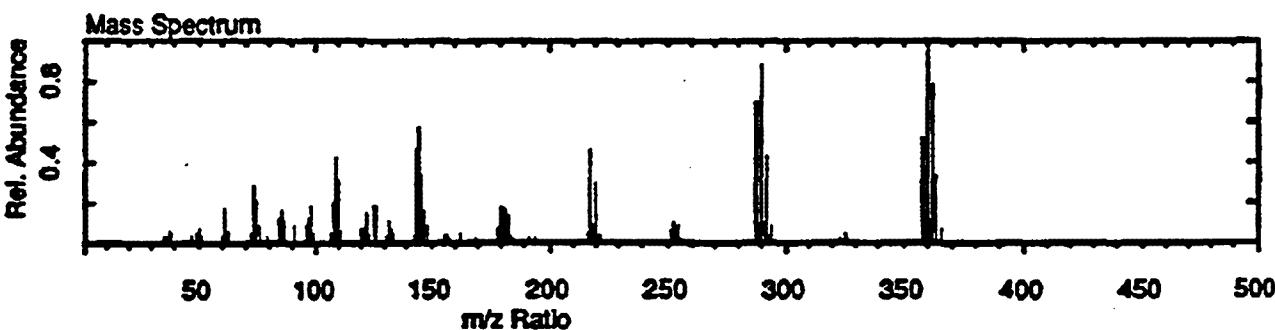


Matrix-Isolated Infrared Spectrum



cm⁻¹	abs	cm⁻¹	abs	cm⁻¹	abs	cm⁻¹	abs	cm⁻¹	abs
672.22	0.07	821.72	0.31	1144.29	0.23	1365.10	0.06	1572.03	0.45
675.64	0.05	827.39	0.35	1155.07	0.08	1409.49	1.00	1590.76	0.14
727.50	0.16	864.04	0.15	1179.03	0.25	1417.45	0.26		
734.71	0.12	875.23	0.17	1194.29	0.14	1436.12	0.64		
749.58	0.20	1032.96	0.06	1202.77	0.08	1470.17	0.05		
780.52	0.62	1081.43	0.12	1254.04	0.07	1537.40	0.22		
796.05	0.62	1115.31	0.09	1346.56	0.89	1565.75	0.44		

Mass Spectrum

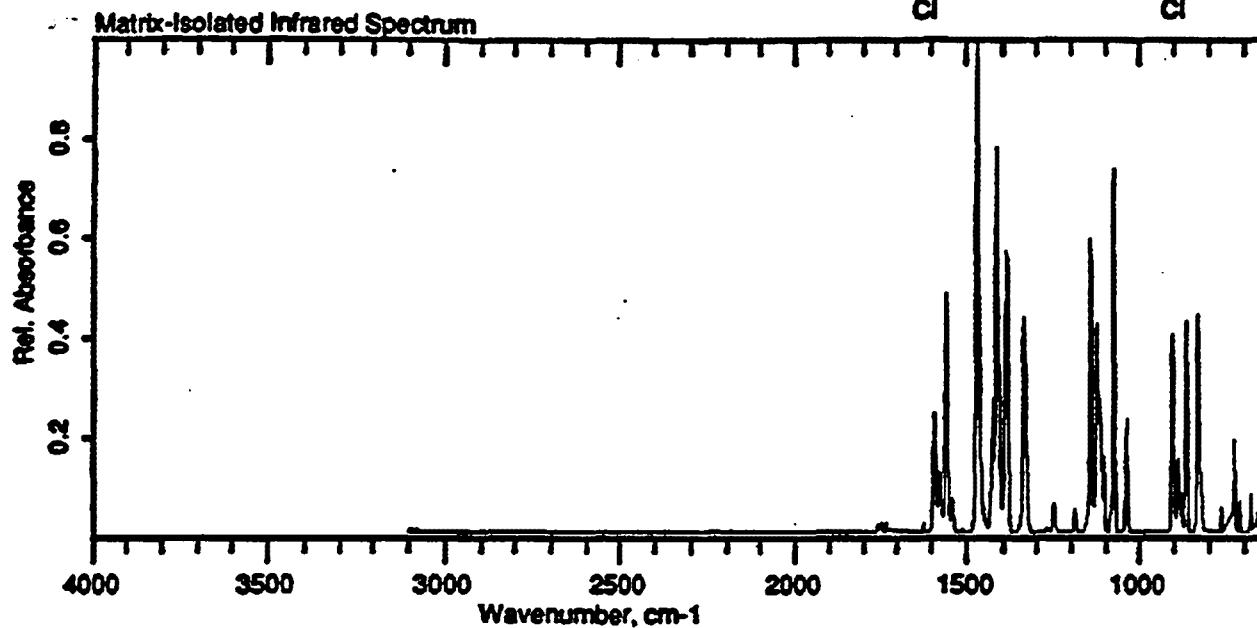
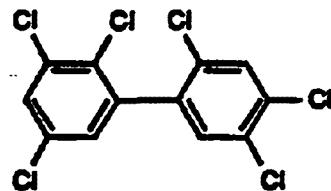


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.18	98.00	0.19	131.95	0.12	182.00	0.16	292.00	0.44
73.05	0.29	108.00	0.21	144.00	0.46	183.10	0.15	358.05	0.54
74.05	0.21	109.05	0.43	145.00	0.58	218.05	0.47	360.05	1.00
83.95	0.13	110.05	0.31	146.00	0.34	220.05	0.31	361.05	0.12
85.00	0.16	122.05	0.16	147.00	0.17	288.00	0.70	362.05	0.79
86.00	0.12	126.05	0.19	179.95	0.18	290.00	0.89	363.95	0.35
97.00	0.13	128.95	0.19	181.00	0.18	291.00	0.11		

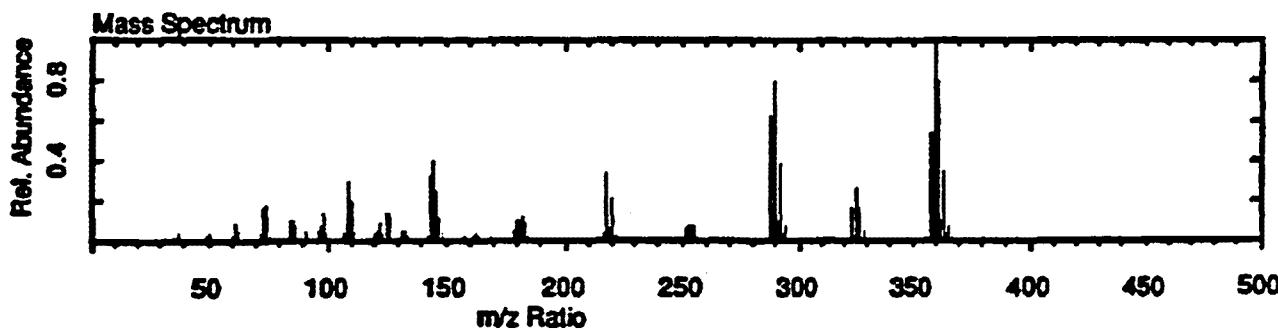
IUPAC Congener No. 146

2,2',3,4',5,5'-HEXACHLOROBIPHENYL

CAS No. 51908-16-8



cm^{-1}	abs								
665.09	0.05	869.23	0.44	1088.23	0.08	1255.19	0.07	1542.88	0.08
683.98	0.09	883.07	0.09	1108.42	0.16	1340.80	0.44	1558.79	0.49
715.24	0.07	893.50	0.16	1124.06	0.29	1389.01	0.58	1577.78	0.13
730.50	0.20	909.56	0.41	1129.61	0.43	1416.78	0.78		
768.39	0.06	1043.76	0.24	1145.96	0.60	1428.50	0.28		
835.53	0.45	1079.37	0.74	1193.25	0.06	1470.60	1.00		

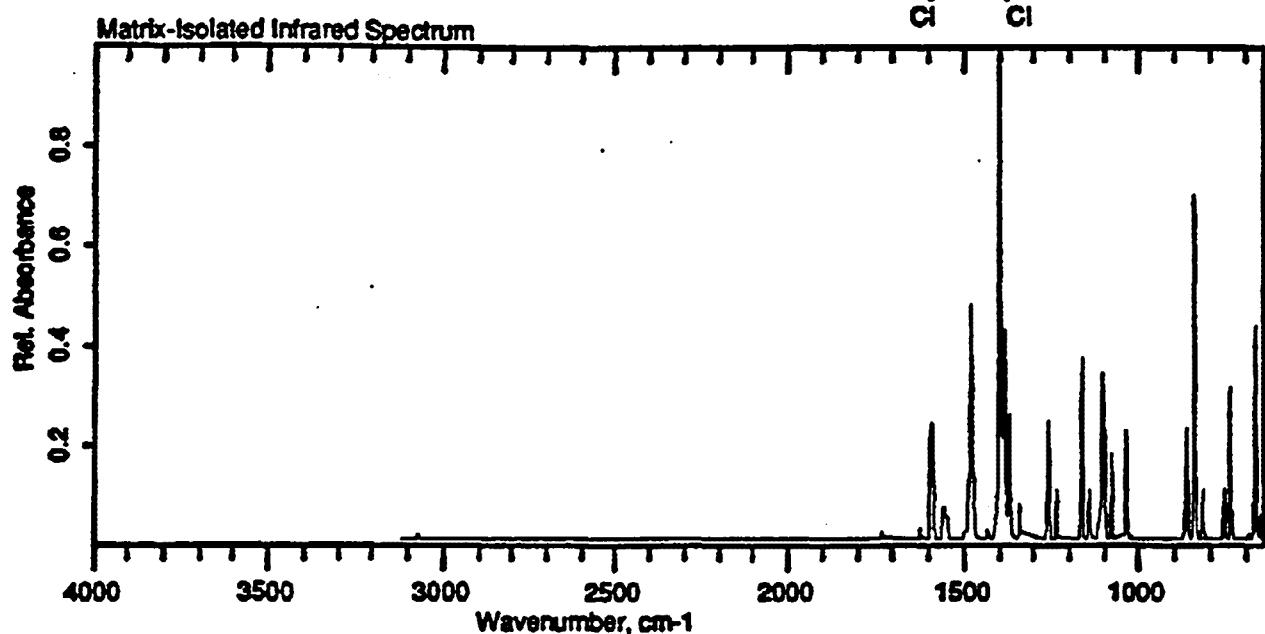
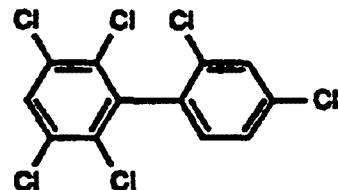


m/z	abun								
73.05	0.17	110.05	0.20	179.95	0.11	291.00	0.11	360.95	0.13
74.05	0.19	126.05	0.14	181.00	0.11	292.00	0.39	361.95	0.81
83.95	0.11	126.95	0.15	182.00	0.13	322.95	0.17	362.95	0.10
85.00	0.10	144.00	0.33	218.05	0.34	325.00	0.27	363.95	0.35
98.00	0.15	145.00	0.41	220.05	0.22	327.00	0.17		
108.00	0.12	146.00	0.26	288.00	0.64	357.95	0.54		
109.05	0.31	147.00	0.11	290.00	0.81	359.95	1.00		

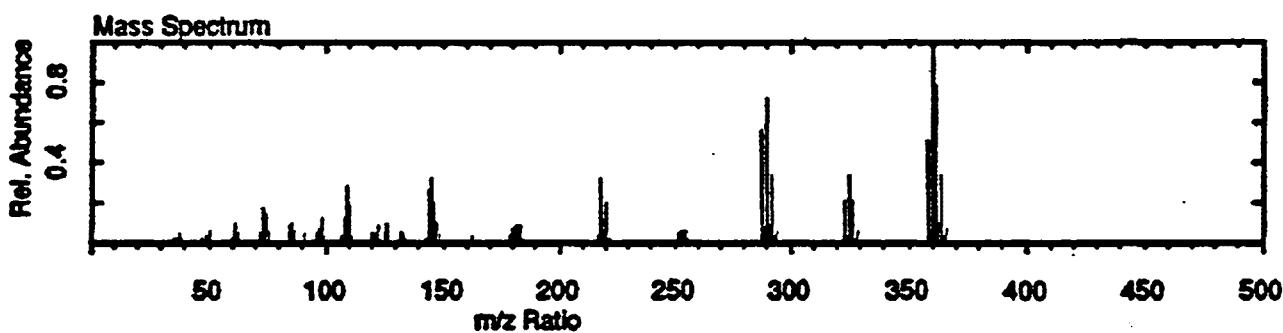
IUPAC Congener No. 147

2,2',3,4',5,6-HEXACHLOROBIPHENYL

CAS No. 68194-13-8



cm^{-1}	abs								
658.85	0.06	824.39	0.11	1108.15	0.34	1342.16	0.08	1550.42	0.05
674.19	0.44	848.42	0.71	1147.15	0.11	1372.50	0.26	1561.96	0.07
739.43	0.07	870.19	0.24	1166.99	0.37	1386.12	0.43	1593.33	0.24
746.81	0.32	1040.04	0.23	1239.16	0.11	1400.12	1.00		
763.64	0.11	1081.35	0.19	1262.27	0.25	1482.52	0.48		

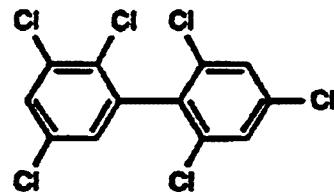


m/z	abun								
61.05	0.11	109.05	0.29	147.00	0.10	290.00	0.73	359.95	1.00
73.05	0.18	110.05	0.20	181.00	0.09	291.00	0.09	360.95	0.13
74.05	0.16	126.05	0.11	182.00	0.09	292.00	0.35	361.95	0.80
83.95	0.09	127.05	0.11	183.00	0.10	322.95	0.22	362.95	0.10
85.00	0.11	144.00	0.27	218.05	0.34	325.00	0.35	363.95	0.34
98.00	0.14	145.00	0.34	220.05	0.21	327.00	0.22		
108.00	0.13	146.00	0.21	288.00	0.56	357.95	0.51		

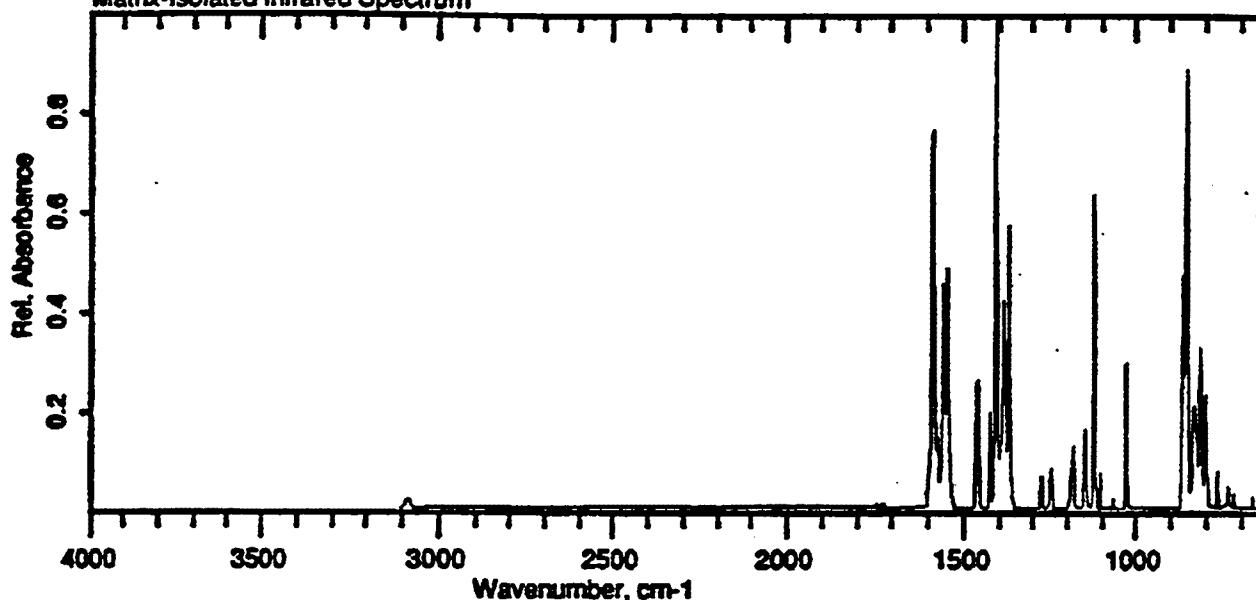
IUPAC Congener No. 148

2,2',3,4',5,6'-HEXACHLOROBIPHENYL

CAS No. 74472-42-7

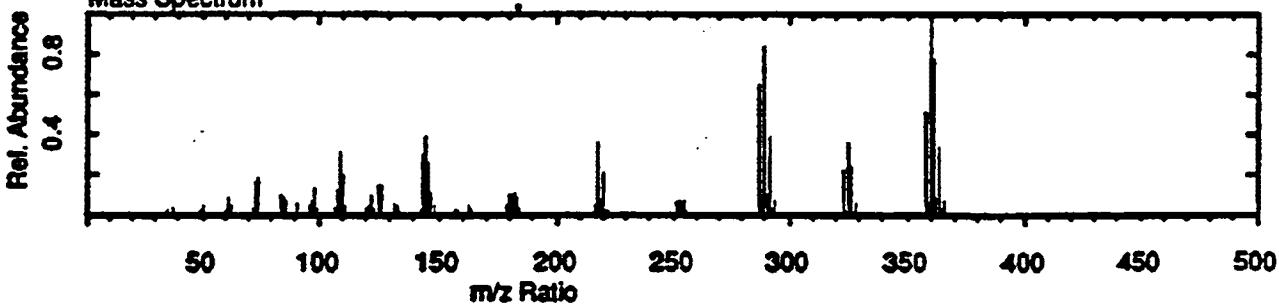


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
740.21	0.05	868.25	0.48	1185.62	0.13	1409.80	1.00	1575.22	0.15
770.12	0.09	1033.33	0.31	1248.35	0.09	1427.92	0.20		
804.87	0.24	1107.60	0.08	1252.84	0.07	1462.29	0.26		
819.29	0.33	1119.41	0.05	1277.84	0.07	1464.99	0.26		
836.58	0.21	1126.65	0.64	1371.91	0.58	1546.99	0.49		
857.65	0.89	1152.10	0.17	1388.26	0.43	1558.88	0.46		

Mass Spectrum

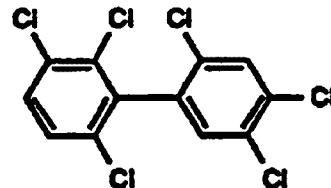


m/z	abun								
73.05	0.17	122.05	0.11	179.95	0.10	291.00	0.11	360.95	0.13
74.05	0.19	126.05	0.15	181.00	0.11	292.00	0.39	361.95	0.79
83.95	0.10	126.95	0.16	182.00	0.12	322.95	0.23	363.95	0.34
98.00	0.14	144.00	0.31	218.05	0.36	325.00	0.37		
108.00	0.13	145.00	0.40	220.05	0.22	327.00	0.24		
109.05	0.32	146.00	0.27	288.00	0.65	357.95	0.52		
110.05	0.20	147.00	0.12	290.00	0.85	359.95	1.00		

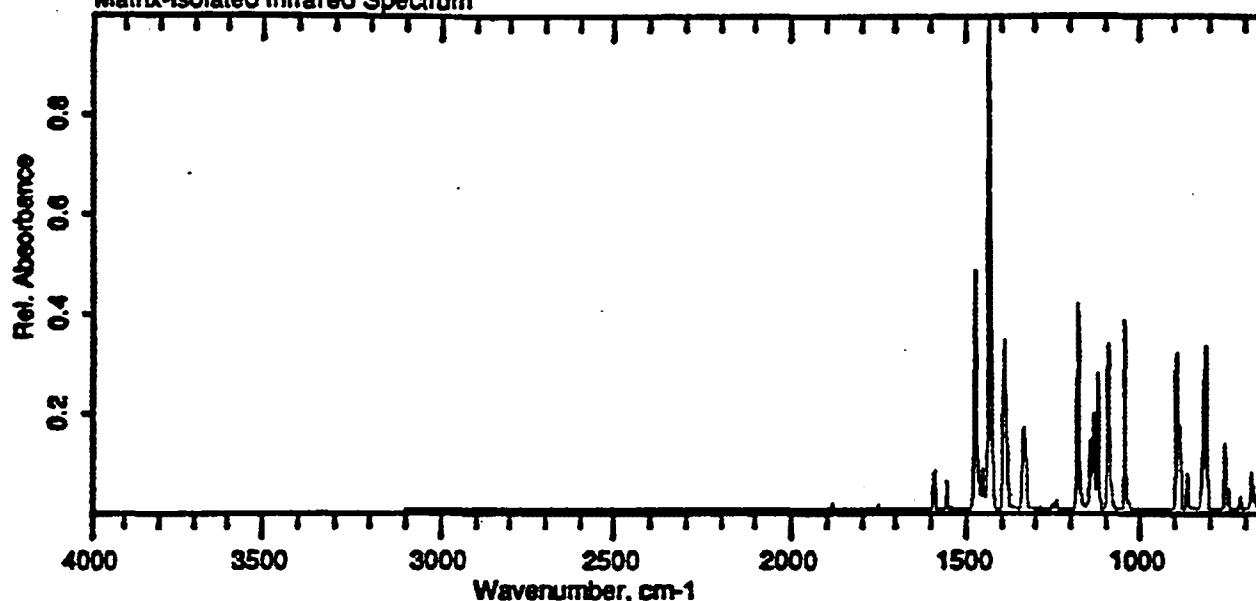
IUPAC Congener No. 149

2,2',3,4',5',6-HEXACHLOROBIPHENYL

CAS No. 38380-04-0

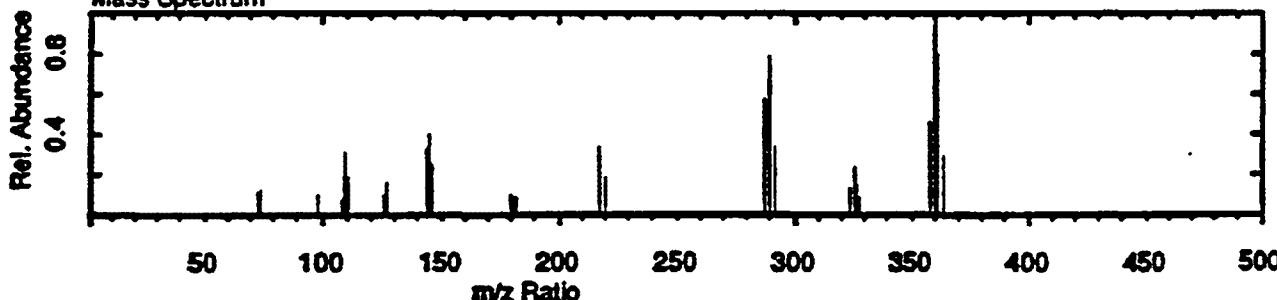


Matrix-Isolated Infrared Spectrum



<u>cm-1</u>	<u>abs</u>								
679.29	0.05	868.00	0.08	1123.67	0.28	1392.87	0.35		
683.41	0.08	889.34	0.17	1136.10	0.20	1436.02	1.00		
748.78	0.05	897.60	0.32	1147.47	0.15	1455.14	0.09		
760.06	0.14	1049.40	0.39	1181.02	0.42	1475.45	0.49		
814.75	0.34	1095.23	0.34	1336.99	0.17	1558.40	0.06		

Mass Spectrum

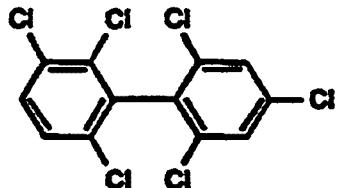


<u>m/z</u>	<u>abun</u>								
73.05	0.12	126.05	0.10	181.00	0.10	292.00	0.34	357.95	0.47
74.05	0.13	126.95	0.17	182.00	0.09	322.95	0.14	359.95	1.00
98.00	0.10	144.00	0.33	218.05	0.34	325.00	0.24	360.95	0.09
108.00	0.09	145.00	0.41	220.05	0.20	326.00	0.16	361.95	0.81
109.05	0.32	148.00	0.25	288.00	0.58	327.00	0.15	363.95	0.30
110.05	0.19	179.95	0.10	290.00	0.80	328.00	0.09		

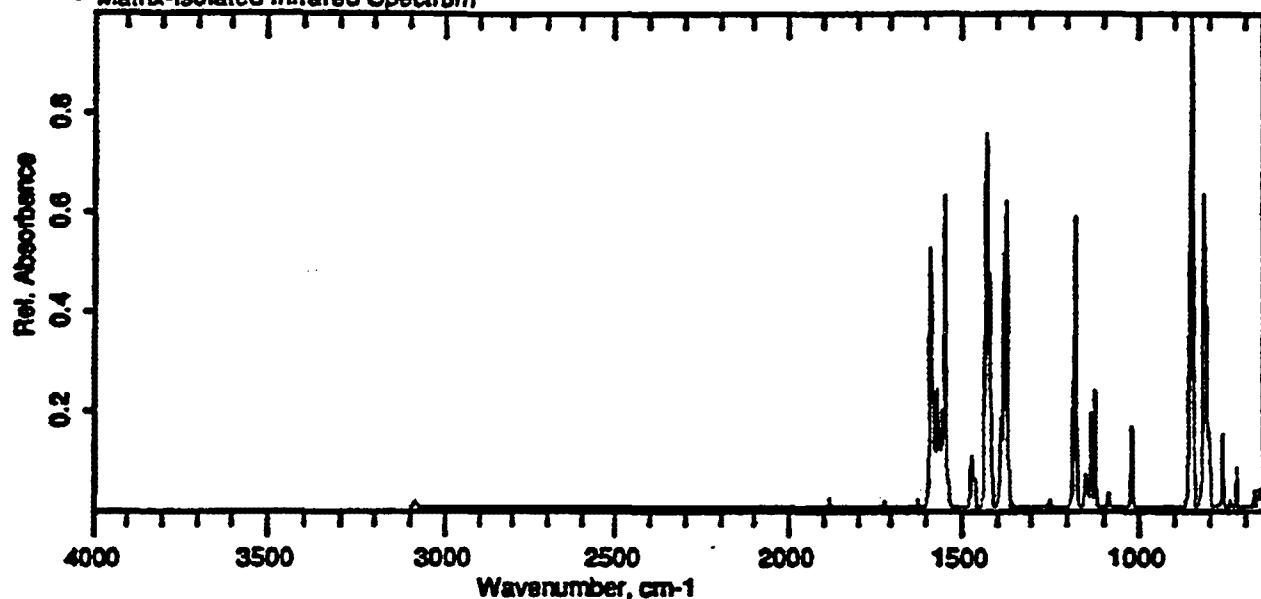
IUPAC Congener No. 150

2,2',3,4',6,6'-HEXACHLOROBIPHENYL

CAS No. 68194-08-1

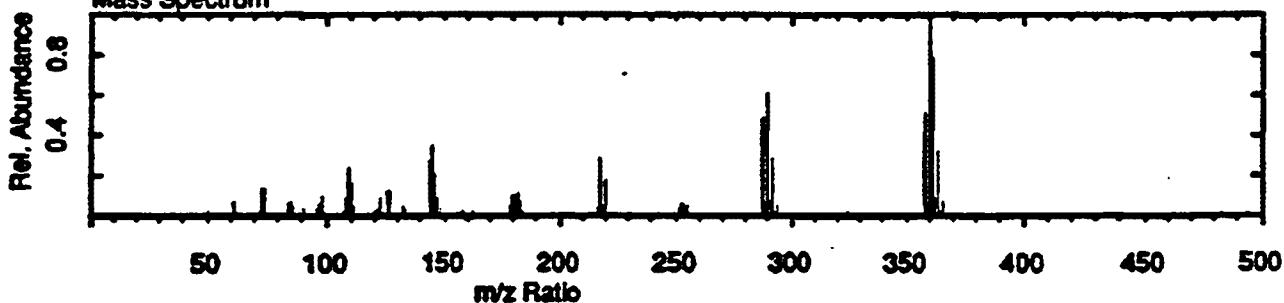


Matrix-isolated Infrared Spectrum



cm^{-1}	abs								
652.34	0.05	819.13	0.64	1148.56	0.06	1389.66	0.19	1549.13	0.63
726.31	0.09	854.29	1.00	1153.91	0.07	1423.62	0.47	1558.80	0.20
766.65	0.15	1026.54	0.17	1179.89	0.59	1430.94	0.76	1571.75	0.24
806.26	0.18	1126.10	0.24	1374.25	0.62	1466.96	0.06		
813.43	0.41	1138.66	0.19	1378.43	0.51	1474.37	0.11		

Mass Spectrum

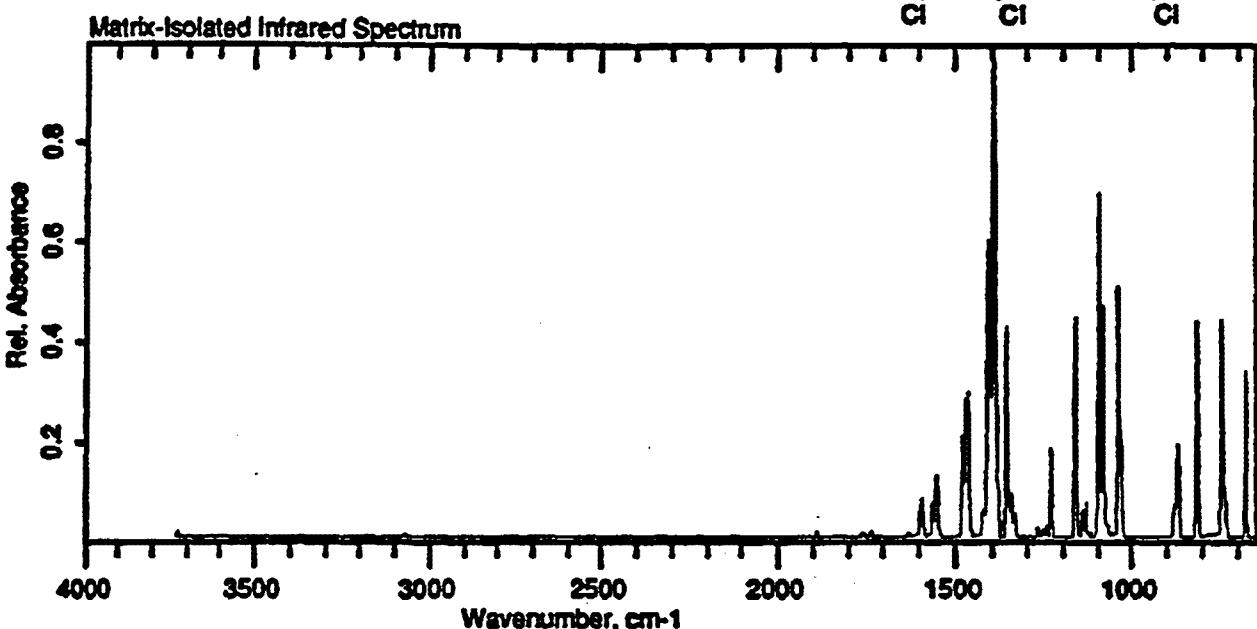
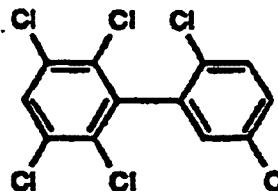


m/z	abun								
61.05	0.08	110.05	0.16	147.00	0.10	287.90	0.49	361.85	0.80
73.05	0.14	122.05	0.09	179.95	0.11	289.90	0.62	362.85	0.10
73.95	0.14	126.05	0.13	181.00	0.11	290.90	0.08	363.85	0.34
85.00	0.09	126.95	0.13	182.00	0.12	291.90	0.29	365.85	0.08
98.00	0.11	144.00	0.28	183.00	0.08	357.85	0.52		
108.00	0.10	145.00	0.35	217.95	0.29	359.85	1.00		
109.05	0.24	146.00	0.22	219.95	0.18	360.85	0.13		

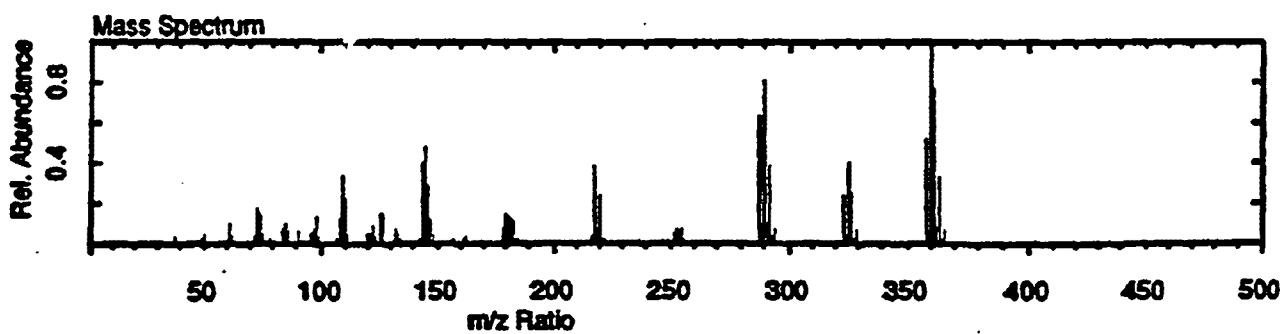
IUPAC Congener No. 151

2,2',3,5,5',6-HEXACHLOROBIPHENYL

CAS No. 52663-63-5



cm^{-1}	abs								
679.43	0.35	883.86	0.07	1168.36	0.45	1409.50	0.60	1565.55	0.08
735.12	0.08	1045.07	0.52	1238.39	0.19	1425.49	0.06		
743.17	0.25	1087.42	0.48	1338.29	0.06	1466.51	0.30		
748.63	0.44	1099.05	0.70	1346.78	0.10	1471.66	0.28		
817.98	0.44	1138.51	0.08	1360.81	0.43	1481.07	0.21		
872.34	0.20	1149.01	0.06	1393.93	1.00	1553.07	0.13		

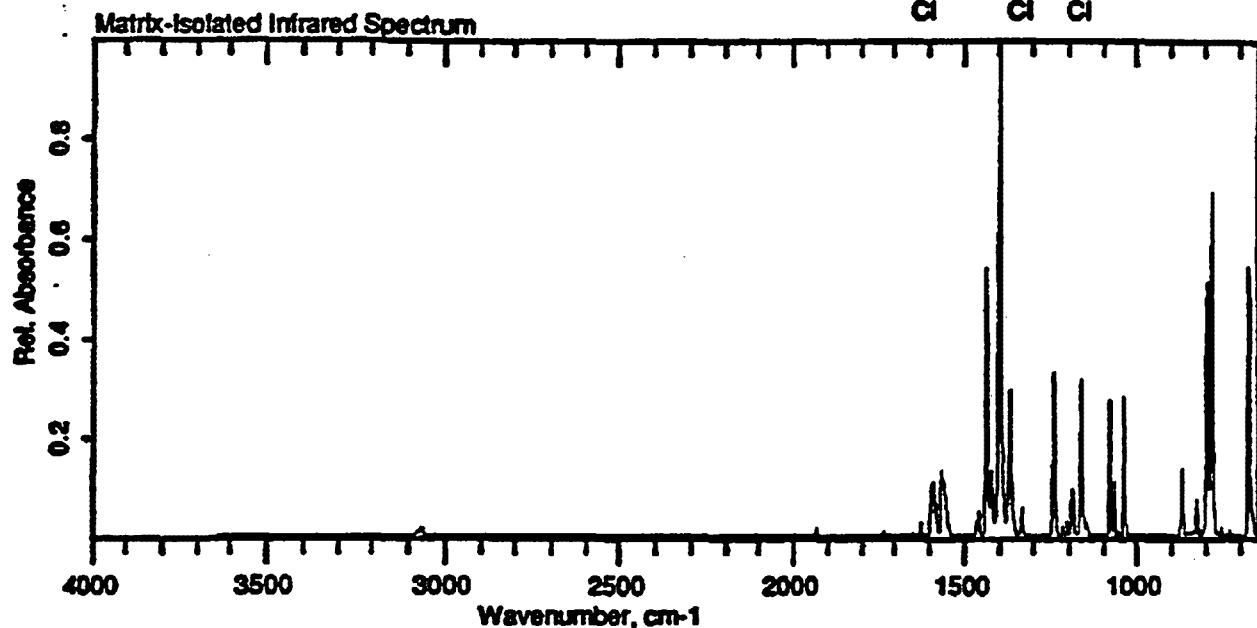
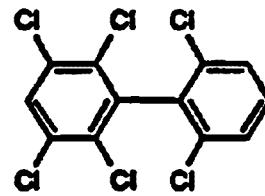


m/z	abun								
61.05	0.10	110.05	0.23	147.00	0.13	288.00	0.65	357.95	0.53
73.05	0.18	122.05	0.10	179.95	0.16	290.00	0.81	359.95	1.00
73.95	0.16	126.05	0.15	181.00	0.14	291.00	0.10	360.95	0.12
85.00	0.11	126.95	0.15	182.00	0.13	291.90	0.39	361.95	0.78
98.00	0.15	144.00	0.40	183.00	0.12	322.95	0.24	362.95	0.09
108.00	0.14	145.00	0.50	217.95	0.39	325.00	0.40	363.95	0.34
109.05	0.35	146.00	0.29	219.95	0.25	327.00	0.25		

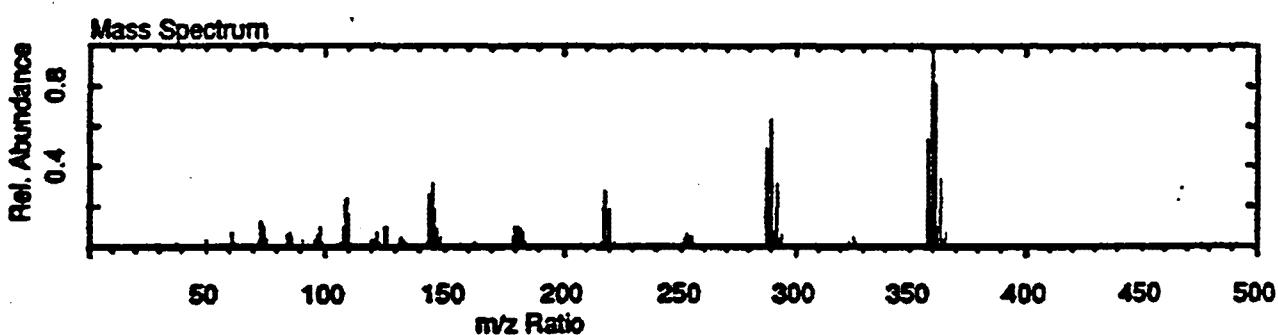
IUPAC Congener No. 152

2,2',3,5,6,6'-HEXACHLOROBIPHENYL

CAS No. 68194-09-2



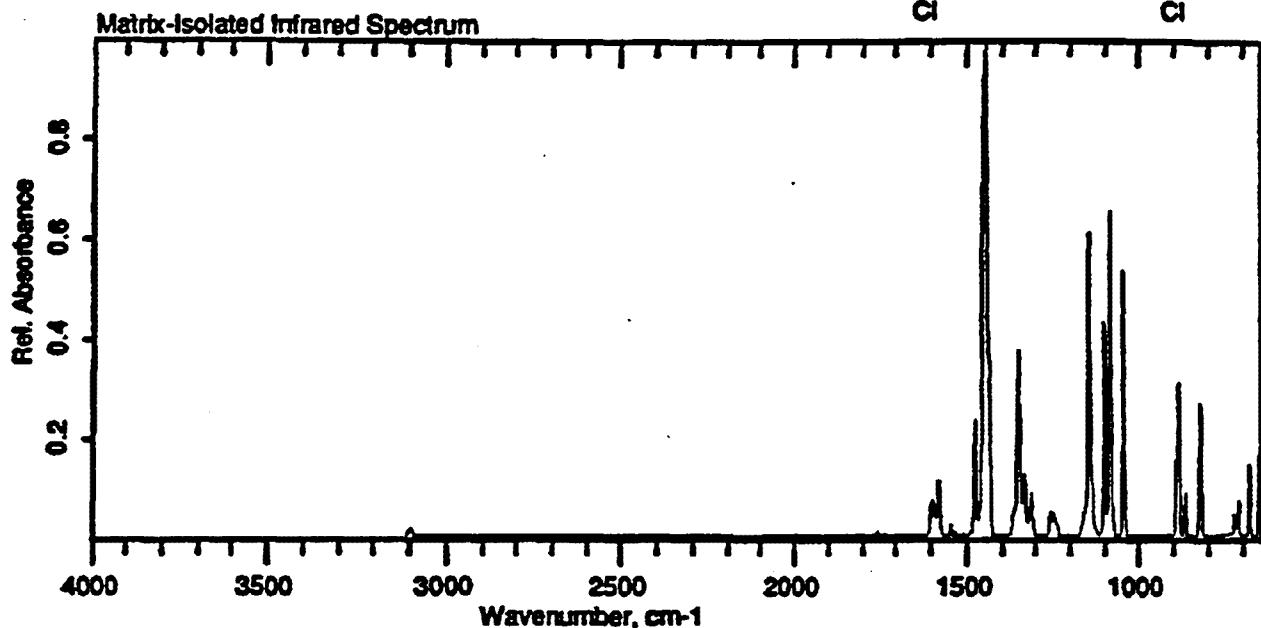
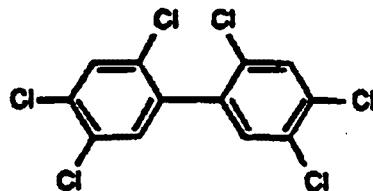
cm^{-1}	abs								
675.55	0.55	1042.24	0.29	1246.24	0.33	1436.01	0.54	1591.20	0.11
782.03	0.69	1070.20	0.11	1336.69	0.06	1458.31	0.05		
797.37	0.51	1083.47	0.28	1368.90	0.30	1561.86	0.11		
830.78	0.08	1168.14	0.32	1397.65	1.00	1567.91	0.13		
870.79	0.14	1192.68	0.10	1422.49	0.13	1584.39	0.07		



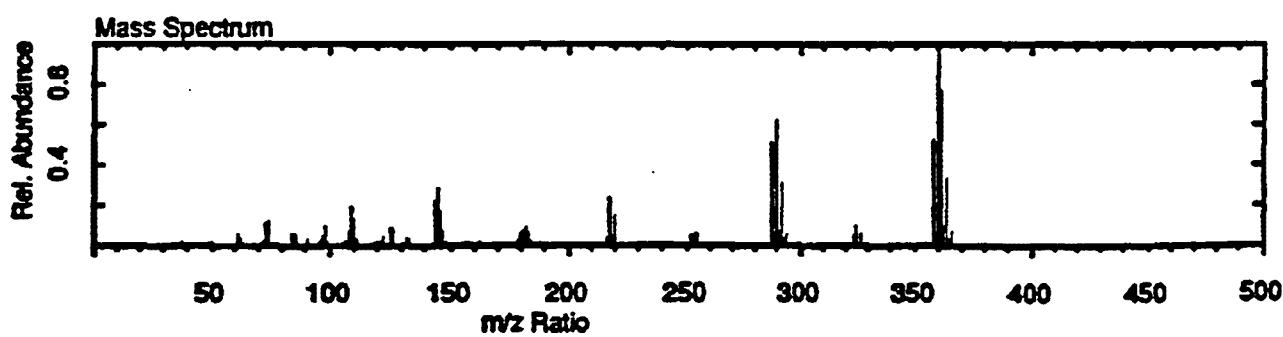
IUPAC Congener No. 153

2,2',4,4',5,5'-HEXACHLOROBIPHENYL

CAS No. 35065-27-1



cm^{-1}	abs								
656.71	0.17	869.68	0.09	1103.28	0.43	1336.14	0.13	1479.41	0.23
682.80	0.15	888.67	0.32	1148.24	0.61	1353.41	0.37	1581.40	0.12
713.93	0.07	895.72	0.16	1249.67	0.05	1366.59	0.06		
726.15	0.05	1048.89	0.54	1258.93	0.05	1448.95	1.00		
825.89	0.27	1087.12	0.65	1316.31	0.09	1455.11	0.91		

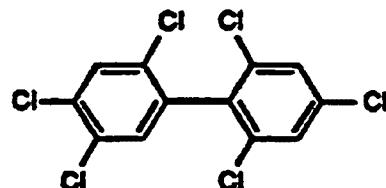


m/z	abun								
73.05	0.12	126.05	0.10	182.00	0.09	291.90	0.31	362.95	0.10
73.95	0.13	126.95	0.10	217.95	0.24	324.90	0.10	363.85	0.35
98.00	0.10	144.00	0.23	219.95	0.15	357.95	0.54	365.85	0.08
108.00	0.09	145.00	0.30	287.90	0.52	359.95	1.00		
109.05	0.21	146.00	0.18	289.90	0.64	360.95	0.13		
110.05	0.14	181.00	0.08	290.90	0.08	361.95	0.78		

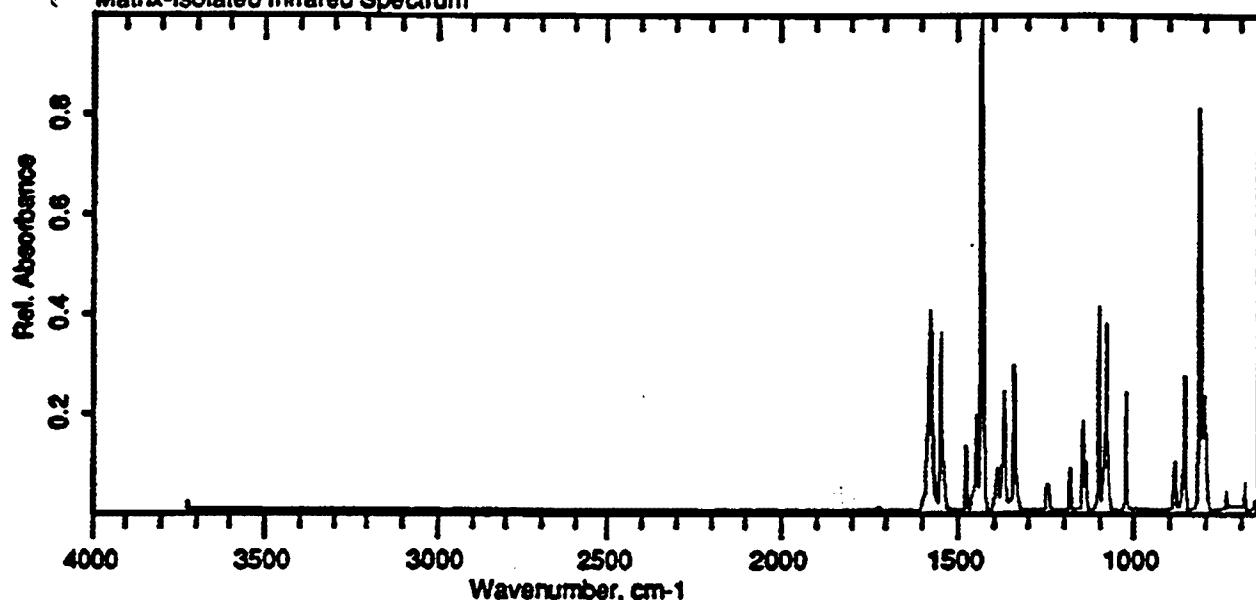
IUPAC Congener No. 154

2,2',4,4',5,5'-HEXACHLOROBIPHENYL

CAS No. 60145-22-4

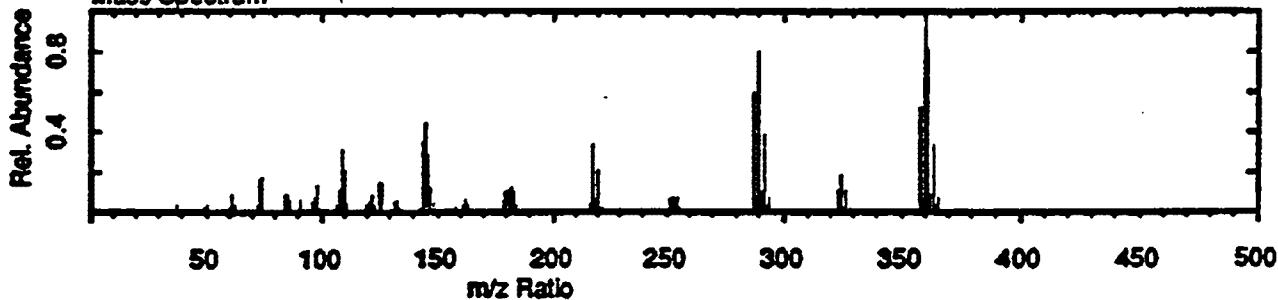


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
688.64	0.06	889.59	0.10	1150.31	0.19	1390.89	0.09	1549.61	0.36
805.41	0.24	1028.69	0.25	1186.10	0.09	1434.02	1.00	1578.64	0.41
818.90	0.81	1083.80	0.38	1249.07	0.06	1448.37	0.20		
860.23	0.28	1105.49	0.42	1343.25	0.30	1477.63	0.13		
867.28	0.06	1141.81	0.10	1370.58	0.25	1543.38	0.11		

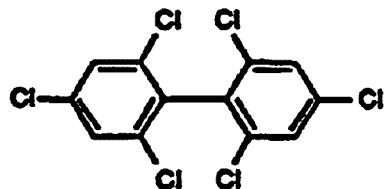
Mass Spectrum



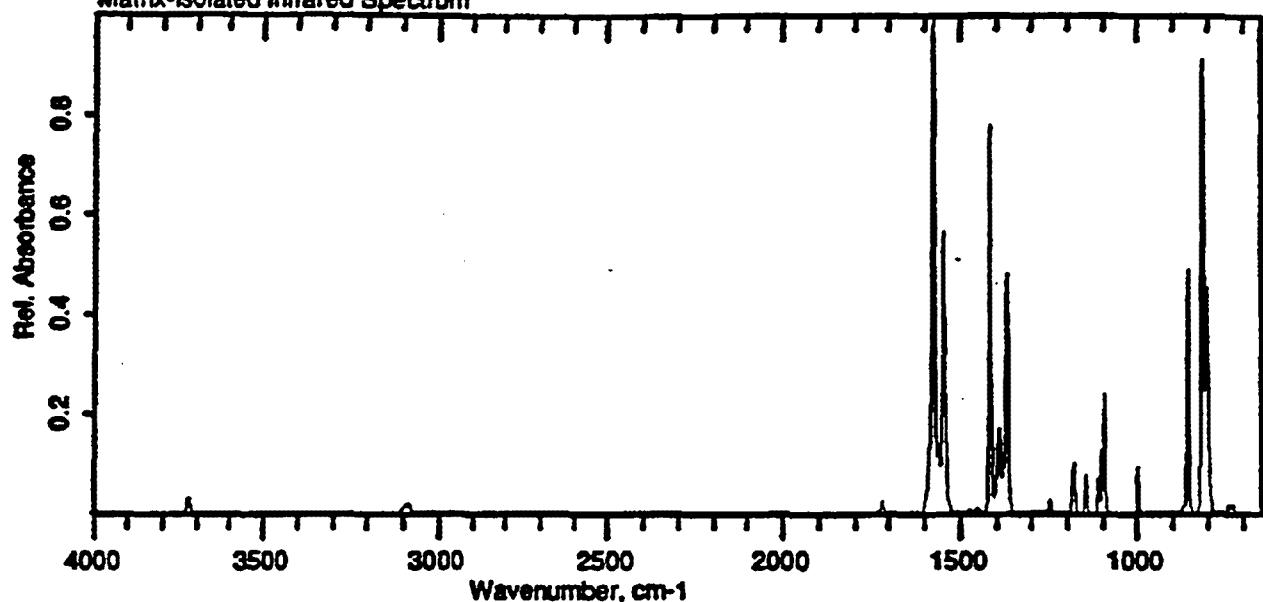
IUPAC Congener No. 155

2,2',4,4',6,6'-HEXACHLOROBIPHENYL

CAS No. 33979-03-2

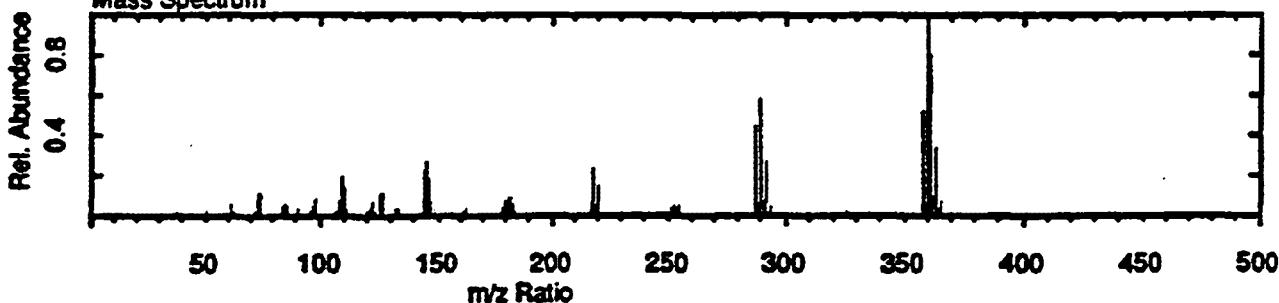


Matrix-isolated Infrared Spectrum



cm^{-1}	abs								
805.57	0.45	1002.66	0.09	1114.83	0.07	1371.64	0.48	1549.94	0.56
817.08	0.91	1097.88	0.24	1150.53	0.08	1393.59	0.17	1562.33	0.14
859.25	0.49	1106.01	0.13	1184.56	0.10	1419.05	0.79		

Mass Spectrum

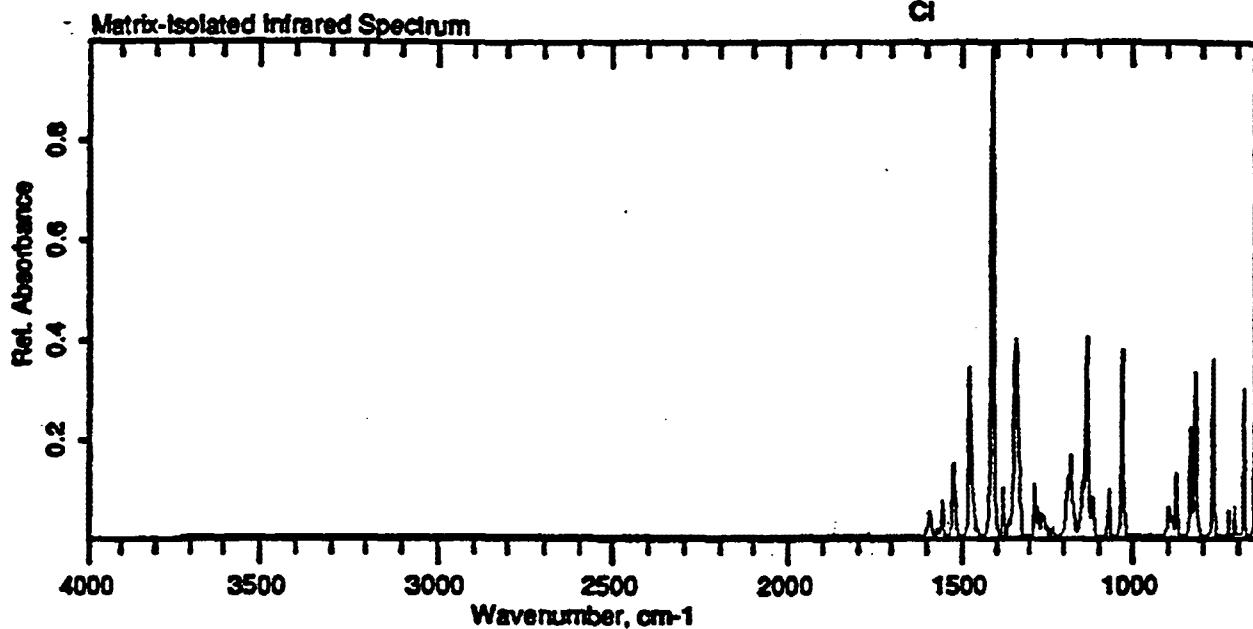
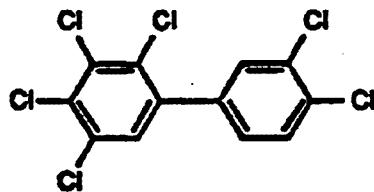


m/z	abun								
61.05	0.07	110.05	0.14	147.00	0.08	288.00	0.46	360.05	1.00
73.05	0.12	122.05	0.08	179.95	0.09	289.00	0.06	361.05	0.14
74.05	0.12	126.05	0.11	181.00	0.09	290.00	0.59	361.95	0.81
85.00	0.07	126.95	0.11	182.00	0.10	291.00	0.08	362.95	0.11
98.00	0.10	144.00	0.23	183.10	0.07	292.00	0.28	363.95	0.34
108.10	0.08	145.00	0.29	218.05	0.25	358.05	0.53	365.95	0.08
109.05	0.21	146.00	0.19	220.05	0.16	359.05	0.07		

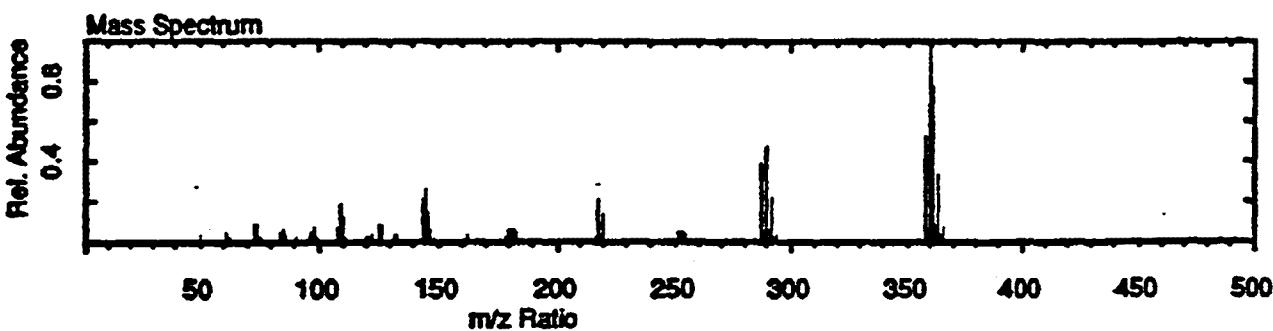
IUPAC Congener No. 156

2,3,3',4,4',5-HEXACHLOROBIPHENYL

CAS No. 38380-08-4



cm^{-1}	abs								
653.44	0.23	823.28	0.34	1074.20	0.10	1266.16	0.05	1413.02	1.00
683.87	0.30	838.55	0.22	1119.28	0.08	1277.84	0.06	1480.22	0.34
711.74	0.06	879.51	0.13	1136.49	0.41	1288.62	0.11	1526.56	0.15
728.62	0.06	903.31	0.06	1149.09	0.11	1343.61	0.40	1559.05	0.08
772.95	0.37	1036.48	0.38	1183.29	0.17	1380.78	0.10		

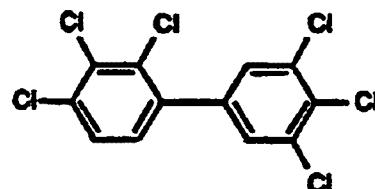


m/z	abun								
73.05	0.09	126.05	0.10	181.00	0.06	291.00	0.06	362.95	0.10
74.05	0.09	126.95	0.09	182.00	0.07	292.00	0.24	363.95	0.34
85.00	0.06	144.00	0.22	183.00	0.06	357.95	0.53	365.95	0.08
98.00	0.09	145.00	0.27	218.05	0.22	358.95	0.07		
108.00	0.08	146.00	0.16	220.05	0.14	359.95	1.00		
109.05	0.19	147.00	0.07	288.00	0.39	360.95	0.13		
110.05	0.13	179.95	0.07	290.00	0.49	361.95	0.78		

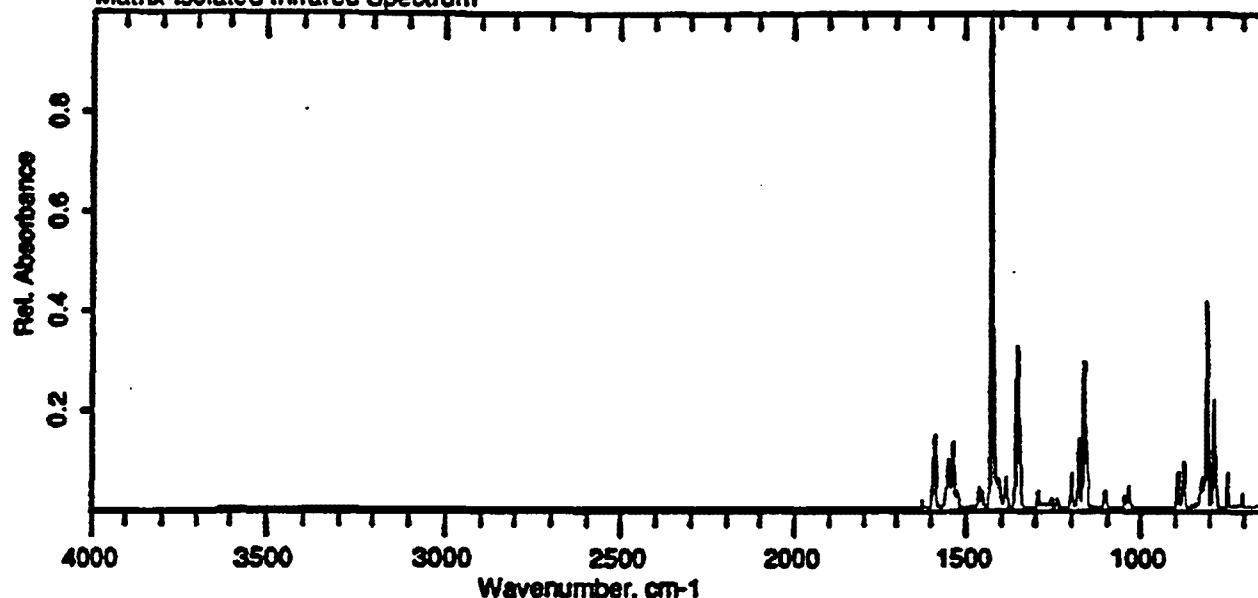
IUPAC Congener No. 157

2,3,3',4,4',5'-HEXACHLOROBIPHENYL

CAS No. 69782-90-7

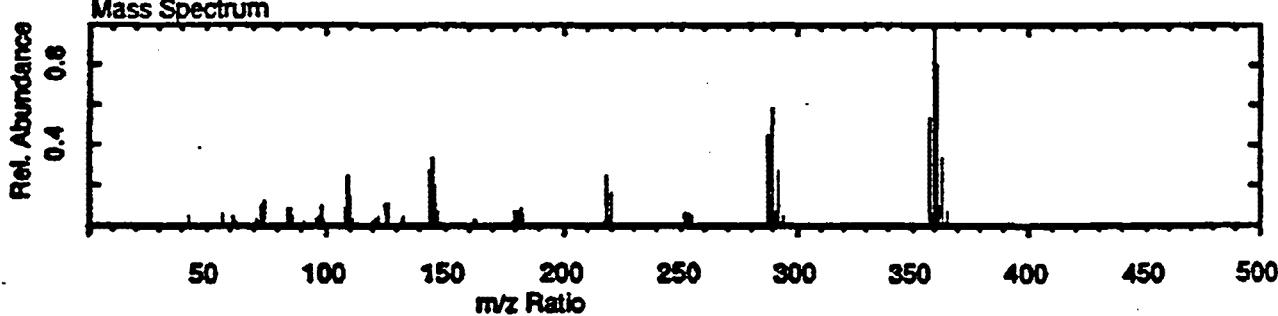


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
750.90	0.06	879.52	0.09	1167.46	0.30	1387.28	0.07	1537.64	0.14
789.37	0.22	898.02	0.08	1182.27	0.14	1408.89	0.06	1551.15	0.10
810.14	0.41	1041.30	0.05	1202.73	0.07	1426.73	1.00		
825.81	0.06	1159.68	0.12	1353.90	0.33	1463.58	0.05		

Mass Spectrum

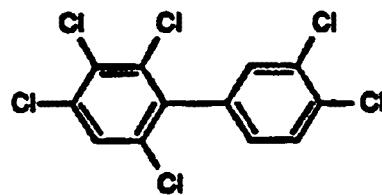


m/z	abun								
73.05	0.11	110.05	0.15	179.95	0.08	288.00	0.46	361.95	0.81
74.05	0.13	126.05	0.12	181.00	0.08	290.00	0.59	362.95	0.10
83.95	0.09	127.05	0.12	182.00	0.09	291.00	0.08	363.95	0.35
85.10	0.09	144.00	0.28	183.10	0.07	292.00	0.29	365.95	0.08
98.00	0.11	145.00	0.35	218.05	0.26	358.05	0.54		
108.10	0.09	146.00	0.21	220.05	0.17	360.05	1.00		
109.05	0.25	147.00	0.09	254.05	0.07	360.95	0.13		

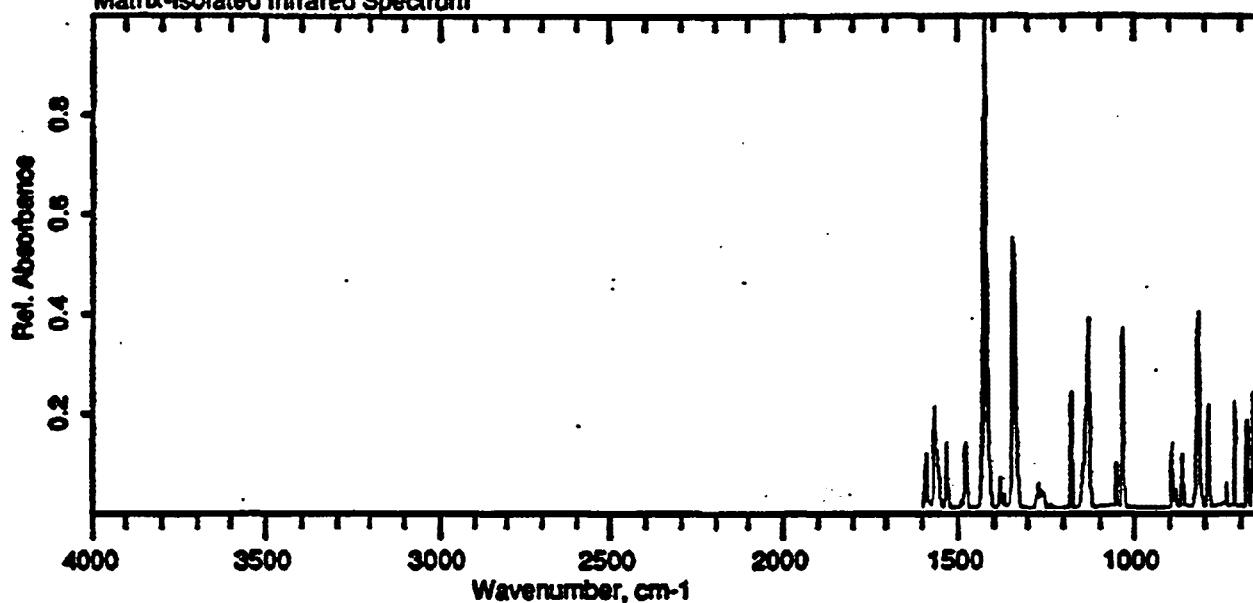
IUPAC Congener No. 158

2,3,3',4,4',6-HEXACHLOROBIPHENYL

CAS No. 74472-42-7

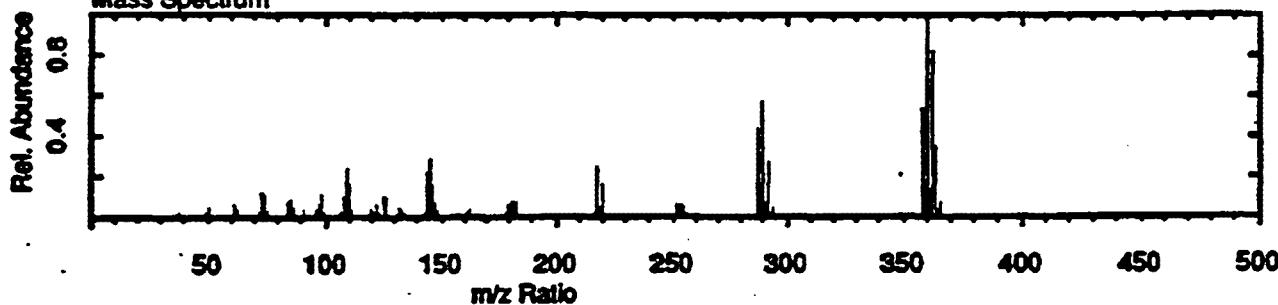


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
851.73	0.13	792.94	0.22	1056.18	0.10	1343.54	0.55	1561.53	0.13
866.56	0.24	820.12	0.40	1132.23	0.39	1380.77	0.07	1568.00	0.21
683.97	0.19	866.81	0.12	1139.16	0.21	1424.54	1.00		
717.91	0.23	897.16	0.14	1179.29	0.25	1479.27	0.14		
740.95	0.06	1037.52	0.37	1271.67	0.06	1531.82	0.14		

Mass Spectrum

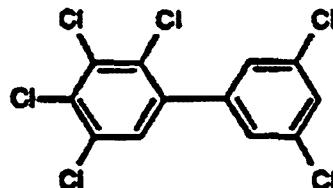


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.07	108.00	0.10	146.00	0.17	220.05	0.17	360.05	1.00
73.05	0.13	109.05	0.24	147.00	0.08	288.00	0.44	361.05	0.14
74.05	0.12	110.05	0.17	179.95	0.07	290.00	0.58	362.05	0.83
83.95	0.08	126.05	0.11	181.00	0.08	291.00	0.08	362.95	0.10
85.00	0.09	127.05	0.11	182.00	0.08	292.00	0.29	363.95	0.35
97.00	0.07	144.00	0.24	183.10	0.08	358.05	0.54	365.95	0.08
98.00	0.12	145.00	0.29	218.05	0.26	359.05	0.07		

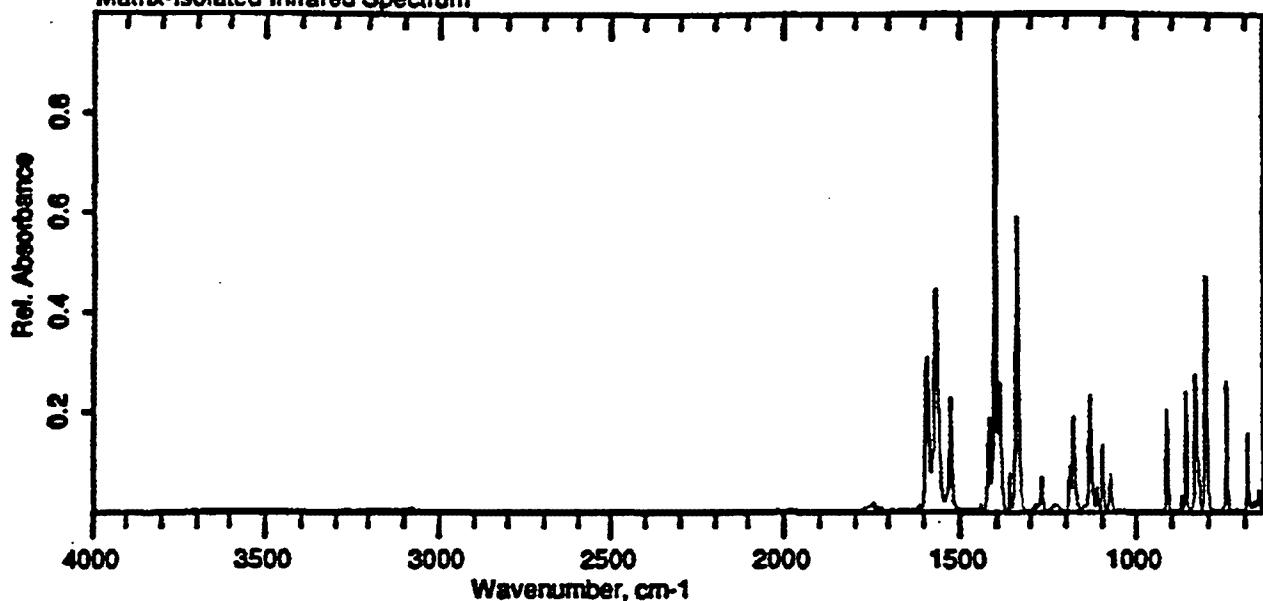
IUPAC Congener No. 159

2,3,3',4,5,5'-HEXACHLOROBIPHENYL

CAS No. 39635-35-3

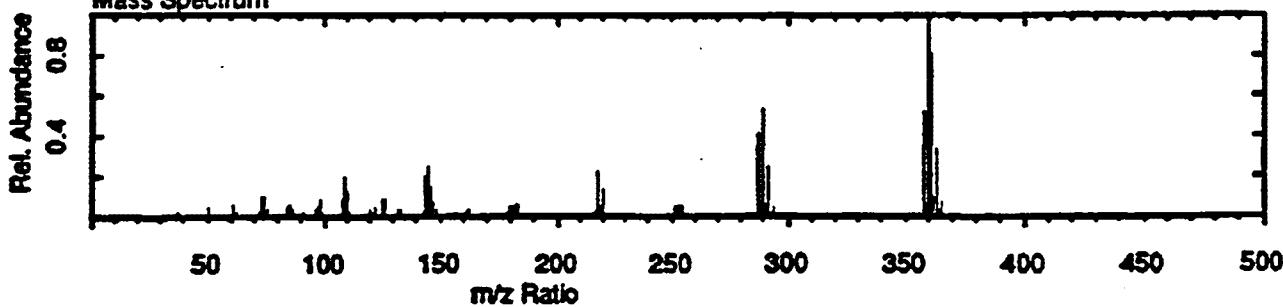


Matrix-Isolated Infrared Spectrum



<u>cm-1</u>	<u>abs</u>								
693.55	0.16	919.00	0.20	1182.96	0.19	1392.24	0.26		
752.36	0.26	1081.13	0.07	1193.57	0.09	1404.24	1.00		
809.89	0.47	1102.17	0.13	1272.73	0.07	1421.03	0.19		
838.15	0.27	1117.56	0.05	1342.69	0.59	1527.35	0.23		
865.14	0.24	1136.66	0.23	1364.06	0.08	1569.47	0.44		

Mass Spectrum

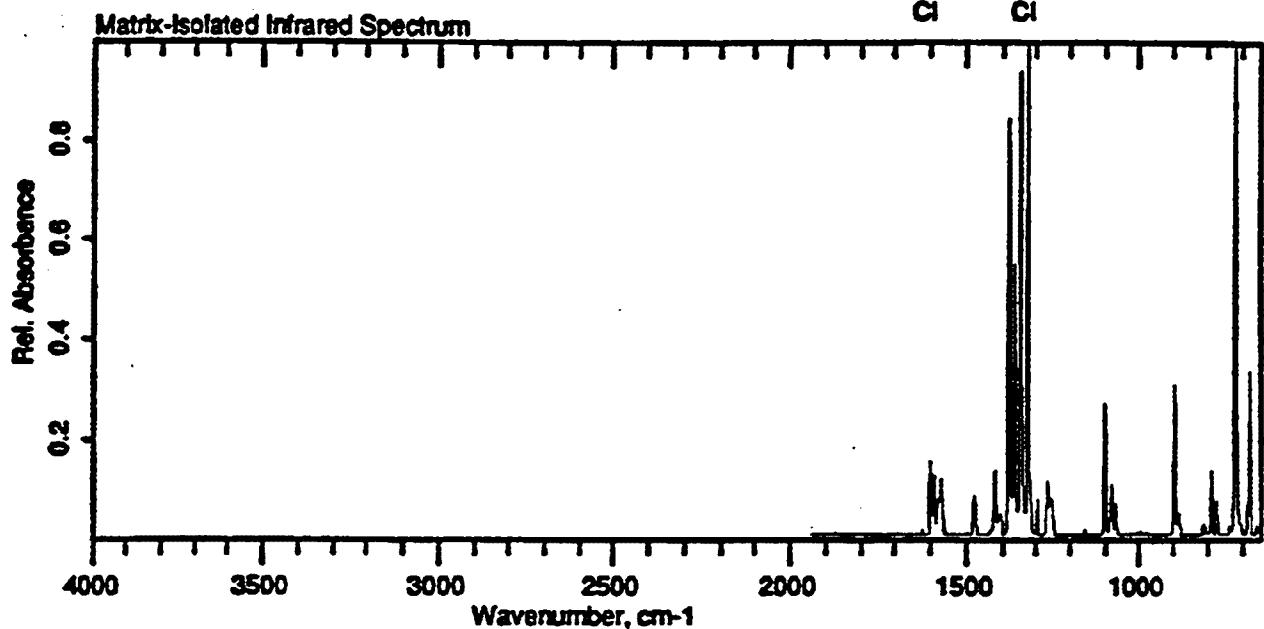
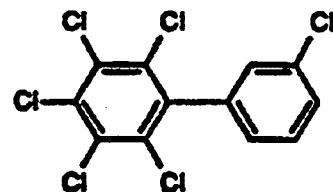


<u>m/z</u>	<u>abun</u>								
61.05	0.06	110.05	0.13	179.95	0.06	289.00	0.06	360.95	0.14
73.05	0.10	128.05	0.09	182.00	0.07	290.00	0.55	361.95	0.82
74.05	0.11	128.95	0.10	183.00	0.06	291.00	0.07	362.95	0.11
85.00	0.07	144.00	0.21	217.95	0.24	291.90	0.26	363.95	0.34
98.00	0.09	145.00	0.26	219.95	0.15	357.95	0.53	365.95	0.08
108.00	0.09	146.00	0.16	253.95	0.06	358.95	0.07		
109.05	0.20	147.00	0.08	288.00	0.42	359.95	1.00		

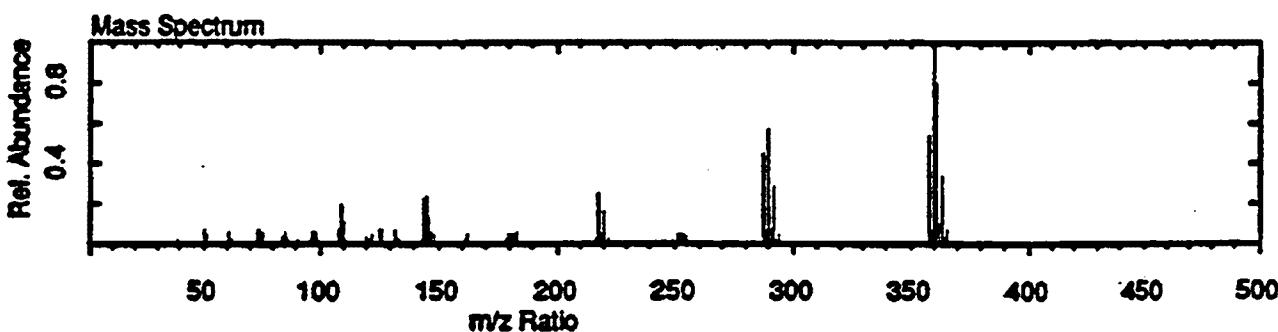
IUPAC Congener No. 160

2,3,3',4,5,6-HEXACHLOROBIPHENYL

CAS No. 41411-62-5



cm^{-1}	abs								
680.32	0.34	899.56	0.31	1262.79	0.09	1366.56	0.55	1572.75	0.12
722.13	1.00	1072.36	0.07	1269.69	0.12	1381.86	0.84	1581.55	0.08
777.59	0.08	1084.48	0.11	1299.88	0.08	1406.48	0.05	1592.50	0.13
792.14	0.14	1104.04	0.27	1328.17	0.99	1422.50	0.14		
886.22	0.05	1256.81	0.08	1349.65	0.95	1478.75	0.09		

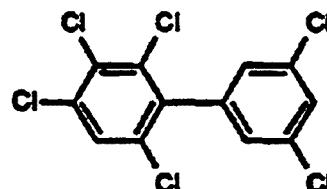


m/z	abun								
50.00	0.08	126.05	0.09	147.00	0.07	290.90	0.08	361.95	0.81
73.05	0.08	126.95	0.09	183.00	0.07	291.90	0.29	362.95	0.10
73.95	0.08	131.95	0.08	217.95	0.26	357.95	0.54	363.95	0.35
108.00	0.08	144.00	0.23	219.95	0.17	358.95	0.07	365.95	0.08
109.05	0.20	145.00	0.24	288.00	0.46	359.95	1.00		
110.05	0.12	146.00	0.15	289.90	0.59	360.95	0.13		

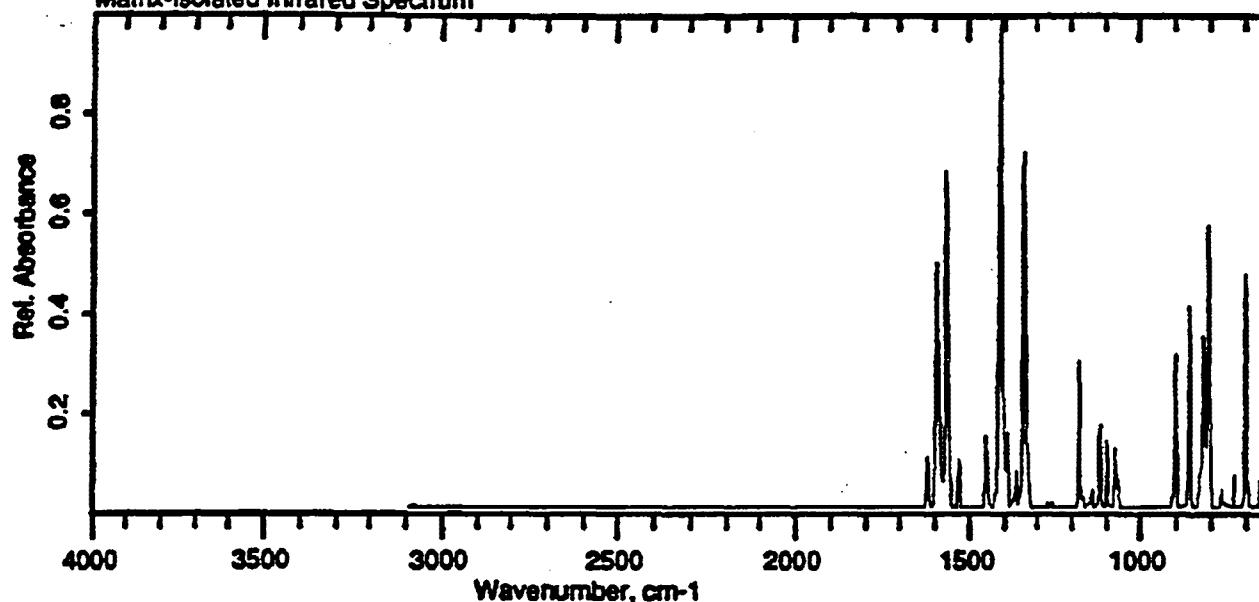
IUPAC Congener No. 161

2,3,3',4,5',6-HEXACHLOROBIPHENYL

CAS No. 74472-43-8

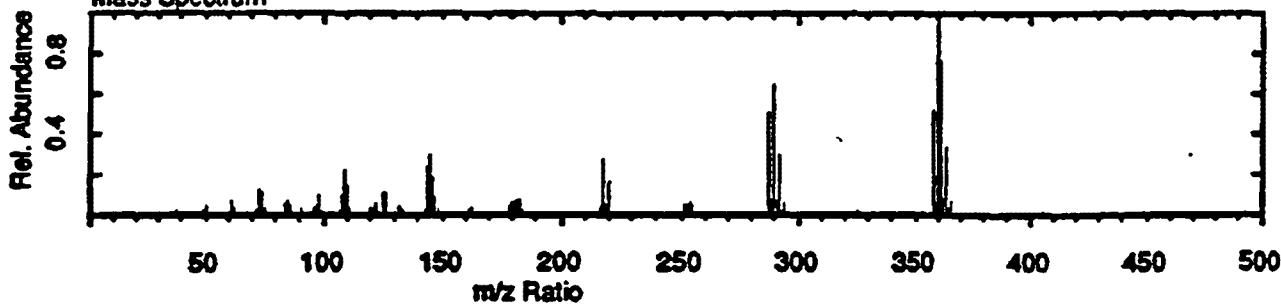


Matrix-isolated Infrared Spectrum



cm^{-1}	abs								
650.66	0.13	810.09	0.57	1100.30	0.14	1391.68	0.16	1595.81	0.49
662.44	0.07	825.68	0.35	1120.73	0.17	1409.50	1.00		
695.63	0.06	865.23	0.41	1142.87	0.05	1416.32	0.35		
702.15	0.47	905.08	0.32	1180.79	0.30	1453.87	0.15		
736.00	0.07	1068.35	0.07	1341.14	0.71	1532.45	0.11		
772.96	0.05	1077.28	0.13	1366.97	0.08	1567.02	0.68		

Mass Spectrum

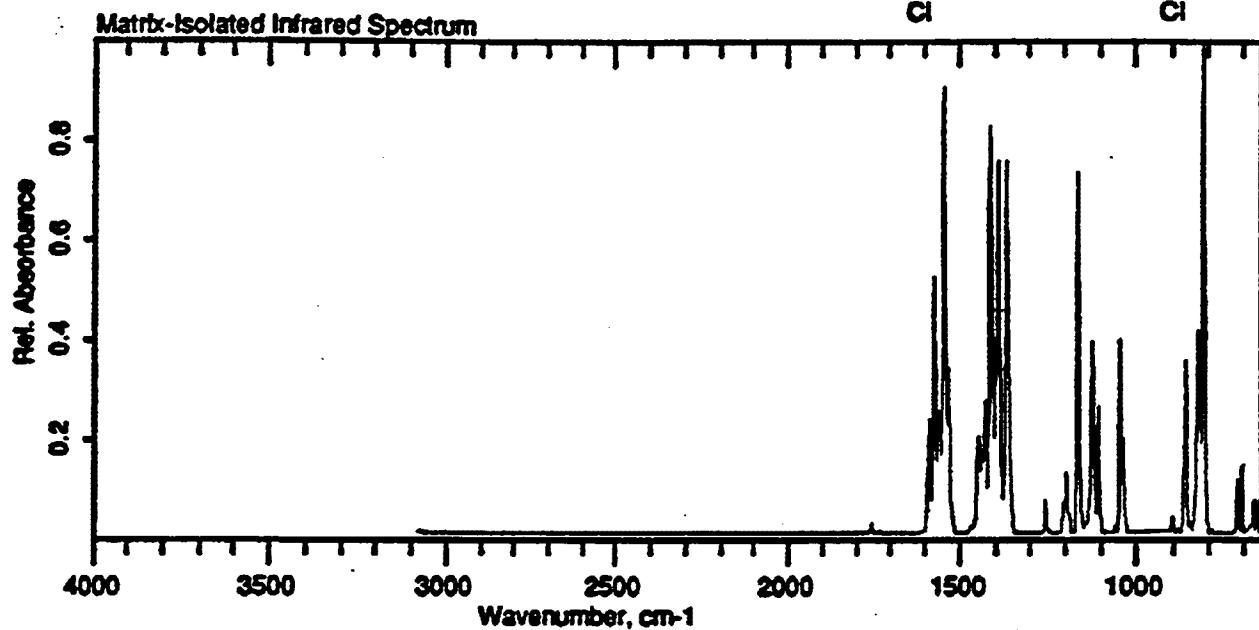
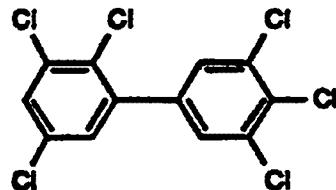


m/z	abun								
61.05	0.08	110.05	0.16	147.00	0.09	288.00	0.51	359.95	1.00
73.05	0.13	122.05	0.07	179.95	0.07	289.00	0.08	360.95	0.13
74.05	0.12	126.05	0.12	181.00	0.07	290.00	0.65	361.95	0.77
85.00	0.08	126.95	0.12	182.00	0.06	291.00	0.09	362.95	0.10
98.00	0.11	144.00	0.24	183.10	0.08	292.00	0.30	363.95	0.34
108.00	0.11	145.00	0.31	218.05	0.28	357.95	0.53	365.95	0.08
109.05	0.24	146.00	0.20	220.05	0.16	358.95	0.07		

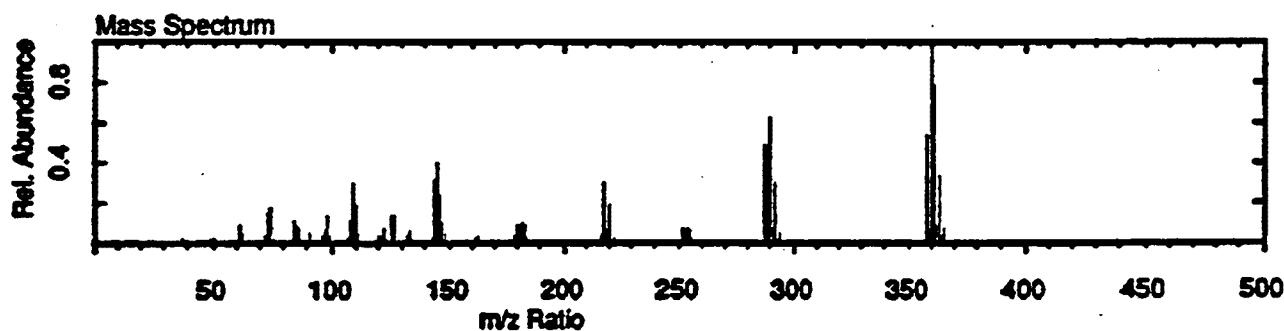
IUPAC Congener No. 162

2,3,3',4',5,5'-HEXACHLOROBIPHENYL

CAS No. 39635-34-2



cm^{-1}	abs								
656.29	0.08	832.53	0.41	1121.89	0.23	1391.93	0.76	1561.12	0.25
662.63	0.07	868.37	0.36	1127.19	0.39	1413.85	0.82	1575.83	0.53
666.50	0.08	874.33	0.13	1166.46	0.74	1428.50	0.28		
673.84	0.08	907.41	0.05	1189.96	0.13	1437.72	0.18		
705.31	0.15	1041.30	0.20	1206.79	0.07	1447.74	0.20		
719.29	0.12	1050.35	0.40	1258.68	0.08	1533.29	0.34		
816.14	1.00	1109.61	0.27	1367.73	0.75	1546.17	0.90		

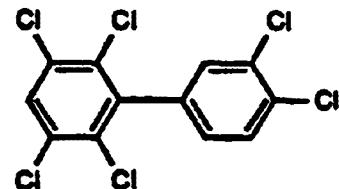


m/z	abun	m/z	abun	m/z	abun	m/z	abun	m/z	abun
61.05	0.09	108.00	0.12	145.00	0.41	218.05	0.31	360.95	0.12
73.05	0.15	109.05	0.31	146.00	0.25	220.05	0.19	361.95	0.80
74.05	0.18	110.05	0.20	147.00	0.11	268.00	0.50	362.95	0.10
83.95	0.12	122.05	0.08	179.95	0.10	290.00	0.63	363.95	0.35
85.00	0.09	126.05	0.14	181.00	0.10	292.00	0.31		
86.00	0.08	126.95	0.14	182.00	0.11	357.95	0.55		
98.00	0.15	144.00	0.32	183.00	0.09	359.95	1.00		

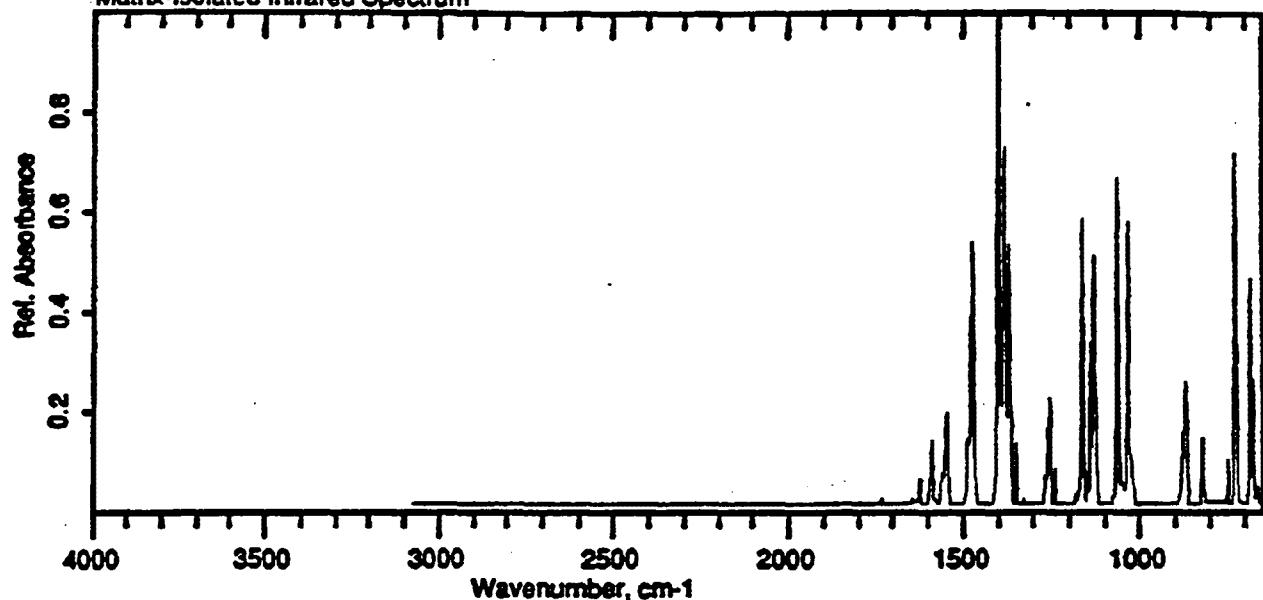
IUPAC Congener No. 163

2,3,3',4',5,6-HEXACHLOROBIPHENYL

CAS No. 74472-44-9

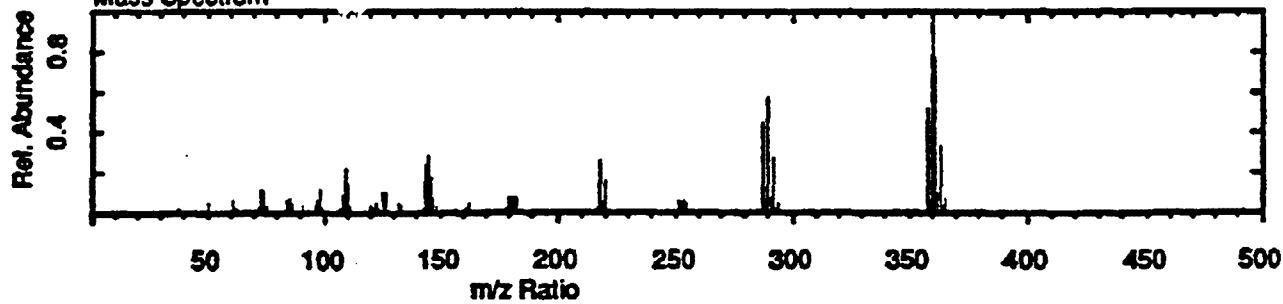


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
662.23	0.05	824.74	0.15	1143.62	0.34	1351.14	0.13	1488.10	0.15
665.03	0.05	873.77	0.26	1150.34	0.05	1371.03	0.53	1548.96	0.20
675.20	0.27	1037.74	0.58	1166.25	0.59	1383.85	0.73	1561.65	0.08
685.62	0.47	1054.31	0.06	1243.28	0.09	1400.47	1.00	1591.26	0.14
729.82	0.72	1066.63	0.67	1258.33	0.23	1474.28	0.54		
749.09	0.10	1133.53	0.51	1269.07	0.07	1479.95	0.39		

Mass Spectrum

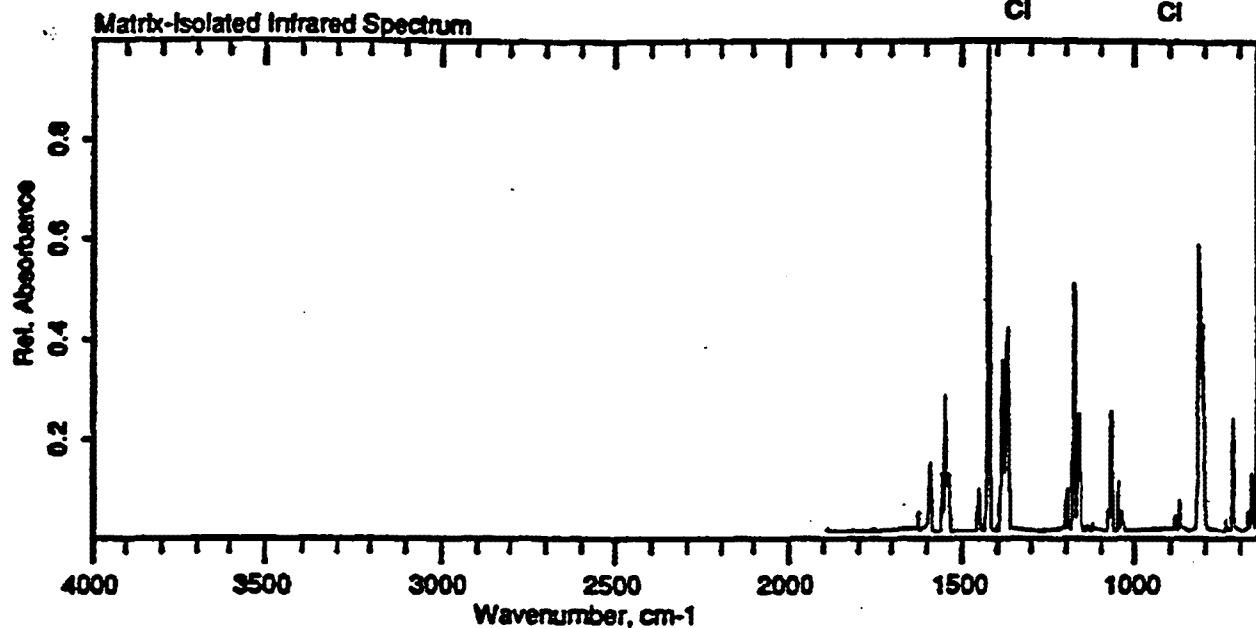
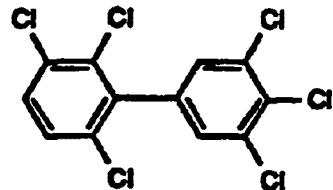


m/z	abun								
61.05	0.07	110.05	0.16	179.95	0.08	290.00	0.58	361.95	0.79
73.05	0.12	126.05	0.11	181.00	0.08	291.00	0.08	362.95	0.10
74.05	0.12	126.95	0.11	182.00	0.09	292.00	0.28	363.95	0.34
85.00	0.08	144.00	0.24	183.10	0.08	357.95	0.54	365.95	0.08
98.00	0.11	145.00	0.29	218.05	0.26	358.95	0.07		
108.00	0.10	146.00	0.18	220.05	0.17	359.95	1.00		
109.05	0.23	147.00	0.08	288.00	0.46	360.95	0.13		

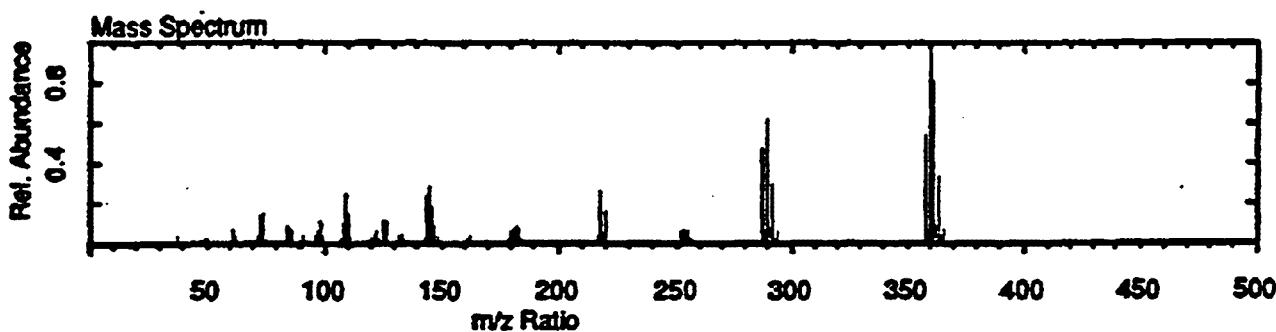
IUPAC Congener No. 164

2,3,3',4,5',6-HEXACHLOROBIPHENYL

CAS No. 74472-45-0



cm^{-1}	abs								
653.05	0.25	818.93	0.58	1079.47	0.05	1385.18	0.35	1558.44	0.12
668.33	0.12	876.72	0.08	1165.21	0.25	1425.89	1.00	1591.38	0.15
678.41	0.05	1040.54	0.06	1180.16	0.50	1455.24	0.10		
721.41	0.23	1051.20	0.11	1200.16	0.10	1538.85	0.13		
808.63	0.43	1071.21	0.25	1371.40	0.41	1548.60	0.28		

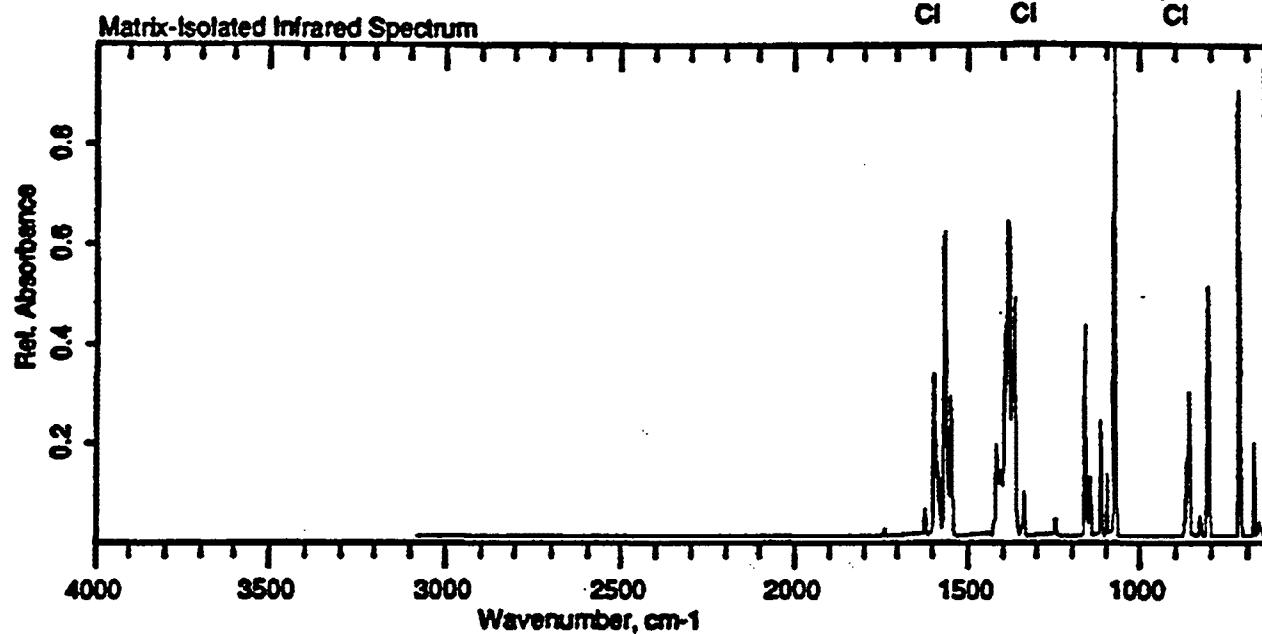
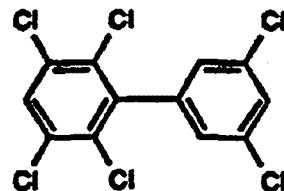


m/z	abun								
73.05	0.14	109.05	0.25	146.00	0.19	219.95	0.17	359.95	1.00
74.05	0.16	110.05	0.16	147.00	0.09	287.90	0.48	360.95	0.12
83.95	0.10	126.05	0.12	181.00	0.08	289.90	0.63	361.95	0.82
85.00	0.08	128.95	0.11	182.00	0.10	290.90	0.08	362.95	0.10
98.00	0.12	144.00	0.24	183.00	0.08	291.90	0.31	363.95	0.35
108.00	0.10	145.00	0.30	217.95	0.27	357.95	0.54		

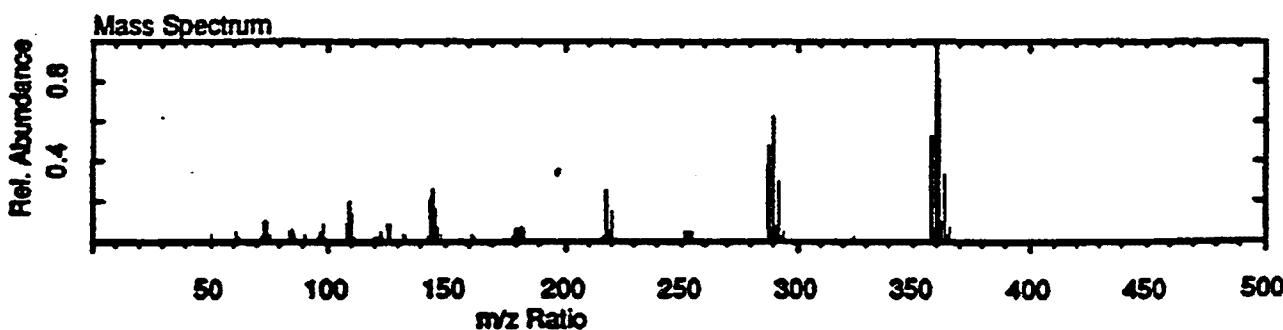
IUPAC Congener No. 165

2,3,3',5,5',6-HEXACHLOROBIPHENYL

CAS No. 74472-46-1



cm^{-1}	abs								
683.54	0.20	871.29	0.17	1166.71	0.43	1385.05	0.53	1568.99	0.62
724.59	0.90	1078.47	1.00	1253.16	0.05	1393.17	0.44	1590.75	0.16
811.98	0.51	1100.24	0.13	1340.25	0.10	1409.10	0.14	1598.75	0.34
835.28	0.05	1119.58	0.24	1367.87	0.49	1420.75	0.19		
865.25	0.30	1151.14	0.13	1374.01	0.38	1551.76	0.29		

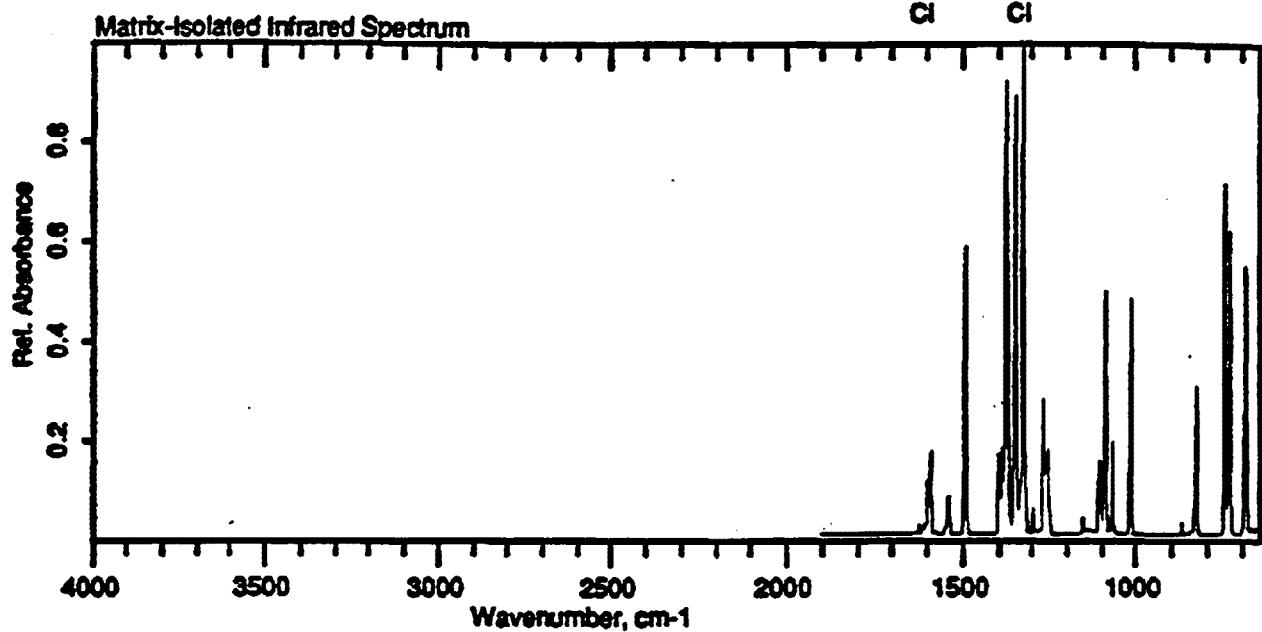
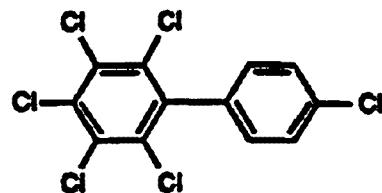


m/z	abun								
73.05	0.11	126.95	0.10	183.00	0.07	291.90	0.30	363.85	0.34
74.05	0.11	144.00	0.21	217.95	0.25	357.95	0.53	365.85	0.08
88.00	0.10	145.00	0.27	219.95	0.16	358.95	0.07		
108.00	0.09	146.00	0.17	287.90	0.48	359.85	1.00		
109.05	0.21	147.00	0.08	288.90	0.07	360.95	0.13		
110.05	0.14	179.95	0.07	289.90	0.63	361.85	0.82		
126.05	0.10	182.00	0.08	290.90	0.08	362.85	0.11		

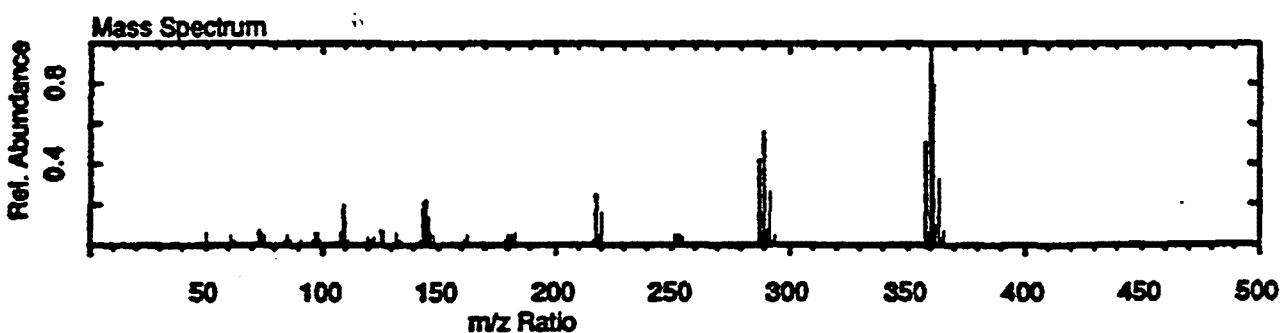
IUPAC Congener No. 166

2,3,4,4',5,6-HEXACHLOROBIPHENYL

CAS No. 41411-63-6



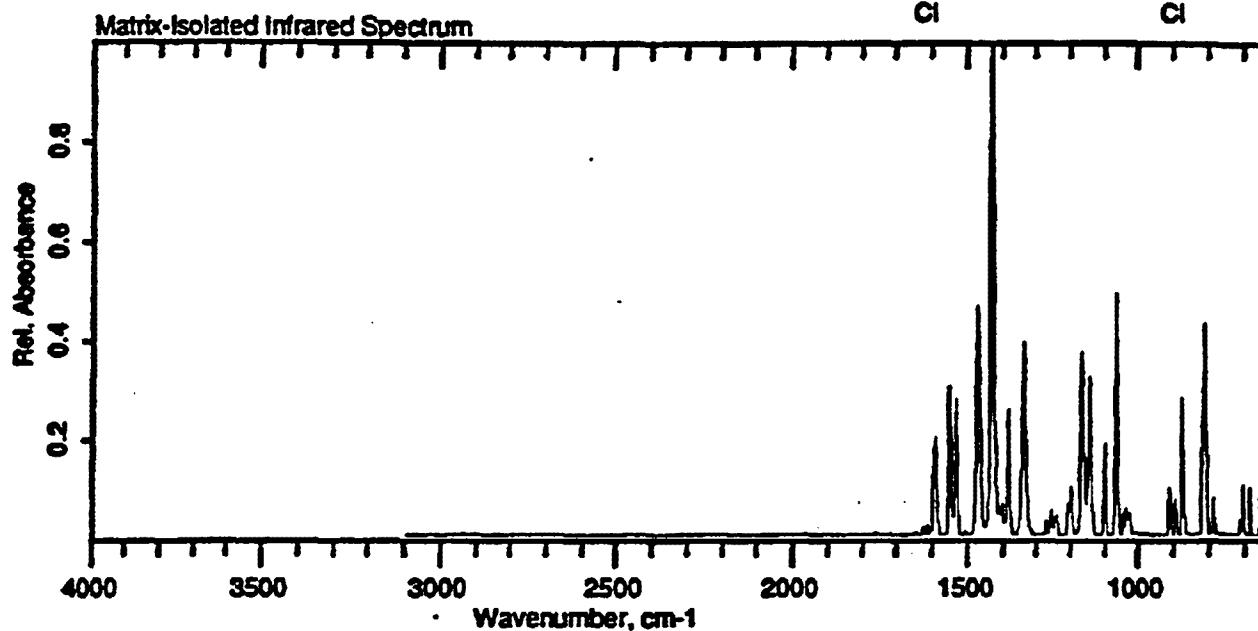
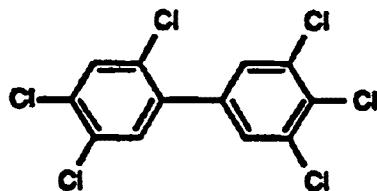
cm^{-1}	abs								
690.36	0.55	1072.50	0.20	1271.06	0.28	1379.39	0.91	1591.89	0.18
737.39	0.63	1093.52	0.49	1300.23	0.07	1391.66	0.18		
751.37	0.71	1110.76	0.15	1329.26	1.00	1400.71	0.17		
833.12	0.31	1157.14	0.05	1335.91	0.12	1495.29	0.60		
1019.17	0.48	1258.10	0.18	1353.24	0.89	1541.90	0.09		



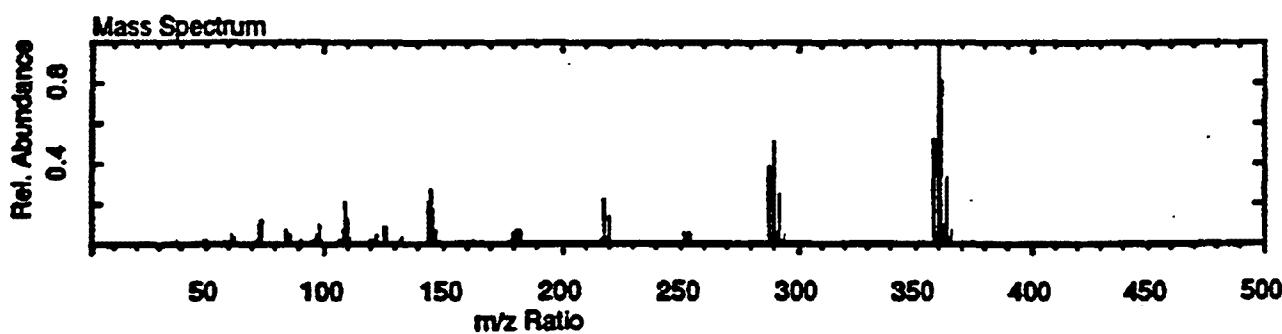
m/z	abun								
50.00	0.07	126.95	0.08	217.95	0.26	291.90	0.27	361.95	0.80
73.05	0.08	144.00	0.21	219.95	0.17	357.95	0.52	362.95	0.10
109.05	0.20	145.00	0.23	287.90	0.43	358.95	0.07	363.95	0.33
110.05	0.13	146.00	0.14	289.90	0.56	359.95	1.00	365.85	0.08
126.05	0.08	147.00	0.07	290.90	0.08	360.95	0.13		

IUPAC Congener No. 167

**2,3',4,4',5,5'-HEXACHLOROBIPHENYL
CAS No. 52663-72-6**



<u>cm-1</u>	<u>abs</u>								
653.68	0.11	877.70	0.29	1065.99	0.50	1208.54	0.07	1409.80	0.06
685.87	0.10	896.98	0.08	1101.29	0.19	1244.26	0.05	1430.97	1.00
705.31	0.11	915.14	0.10	1145.71	0.33	1260.75	0.06	1471.22	0.47
789.40	0.09	1029.85	0.05	1161.52	0.17	1338.32	0.40	1533.43	0.28
813.34	0.44	1040.34	0.06	1169.14	0.38	1383.57	0.26	1553.02	0.31
871.03	0.05	1048.17	0.05	1200.04	0.10	1400.64	0.08		

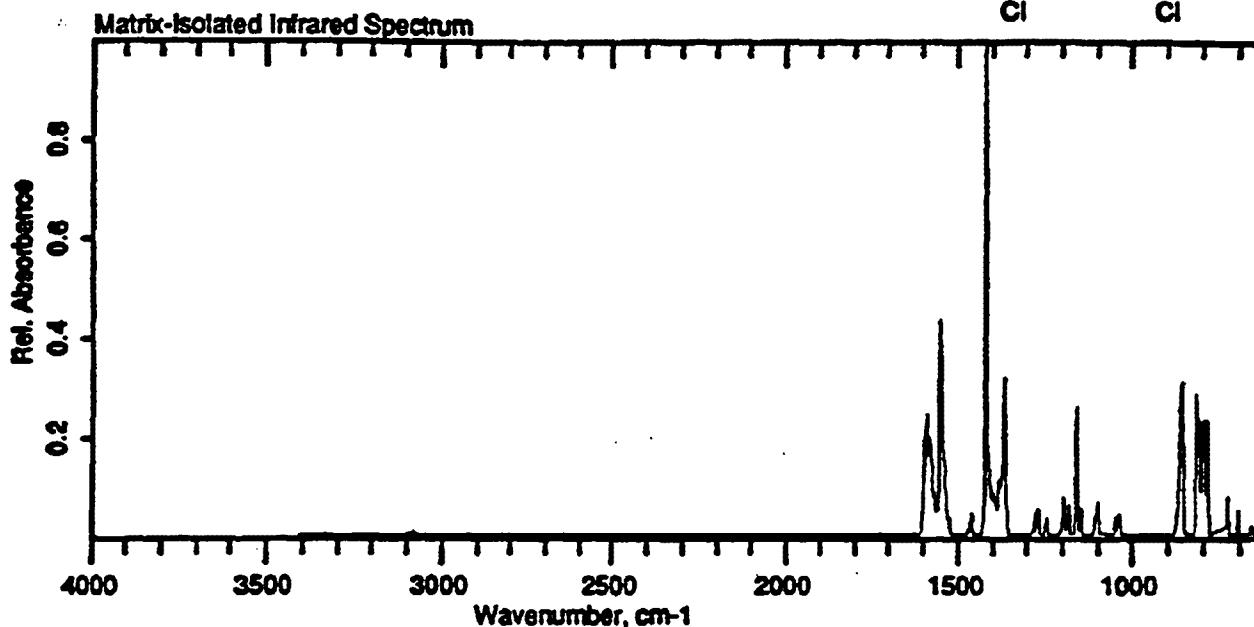
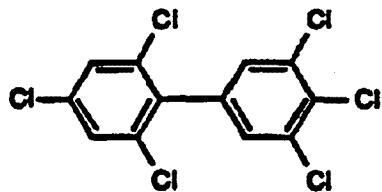


m/z	abun								
73.05	0.10	126.05	0.10	181.00	0.08	291.90	0.25	363.95	0.34
74.05	0.13	126.95	0.10	182.00	0.09	357.95	0.54	365.95	0.08
83.95	0.08	144.00	0.22	217.95	0.23	358.95	0.07		
98.00	0.10	145.00	0.28	219.95	0.15	359.95	1.00		
108.00	0.09	146.00	0.18	288.00	0.40	360.95	0.13		
109.05	0.22	147.00	0.08	289.90	0.52	361.95	0.82		
110.05	0.14	179.95	0.07	290.90	0.07	362.95	0.10		

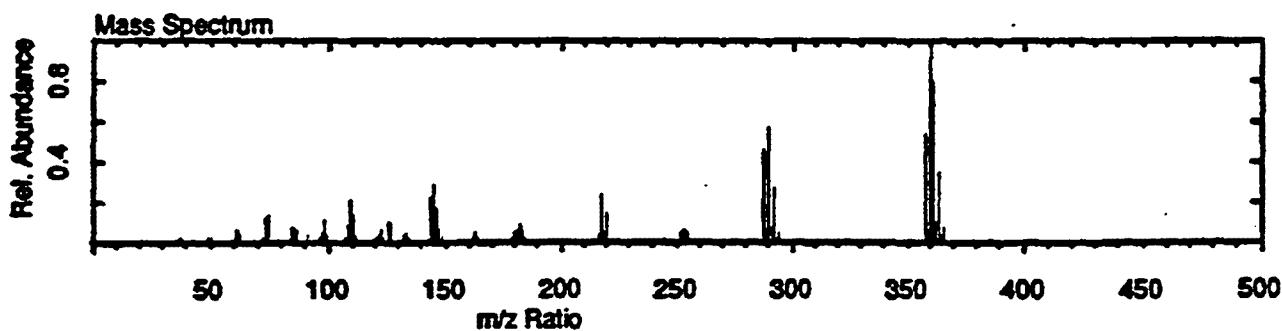
IUPAC Congener No. 168

2,3',4,4',5',6-HEXACHLOROBIPHENYL

CAS No. 59291-65-5



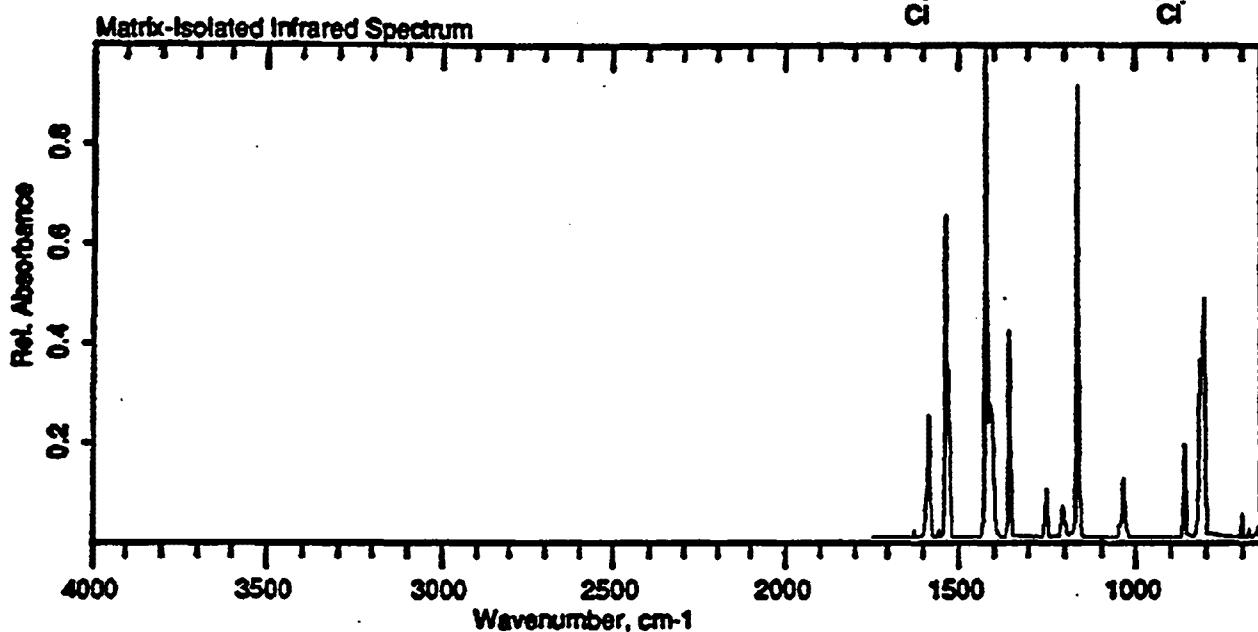
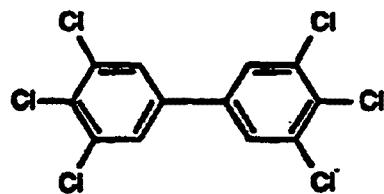
cm^{-1}	abs								
705.75	0.08	801.76	0.23	862.32	0.31	1101.78	0.07	1163.70	0.26
735.13	0.08	816.27	0.24	876.64	0.06	1108.09	0.05	1185.69	0.07
790.95	0.24	822.26	0.29	1041.84	0.05	1149.43	0.06		



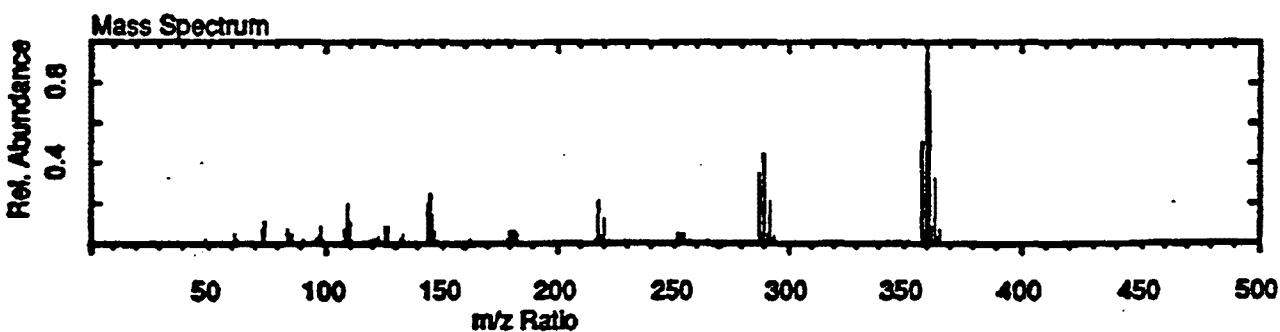
IUPAC Congener No. 169

3,3',4,4',5,5'-HEXACHLOROBIPHENYL

CAS No. 32774-16-6



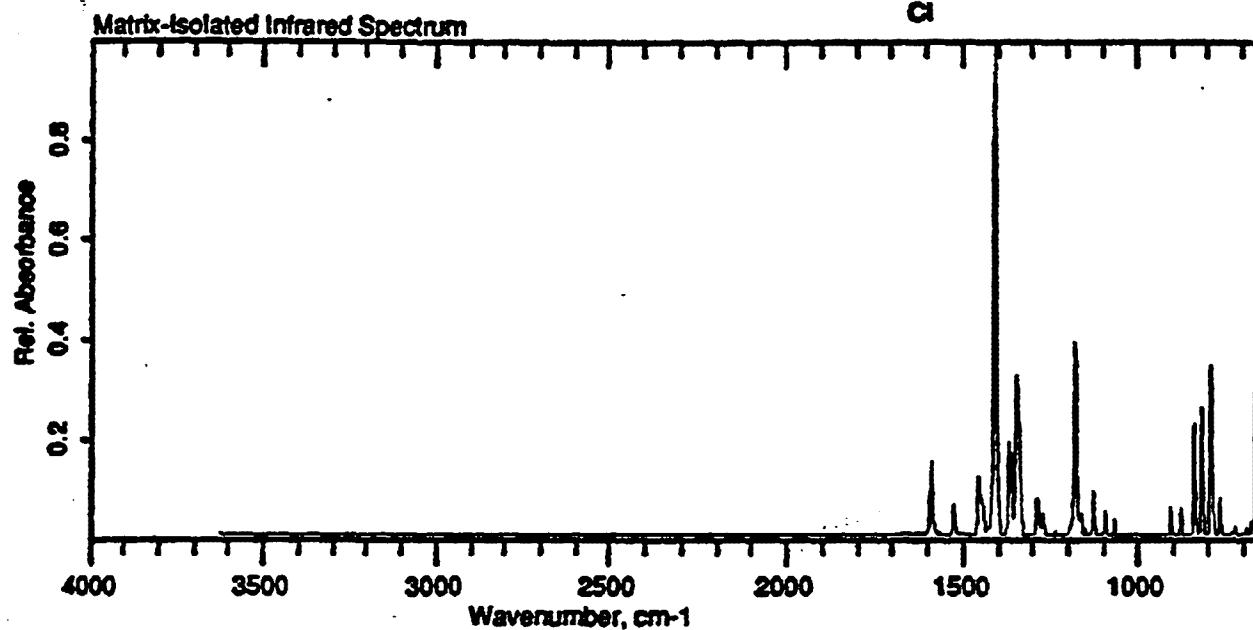
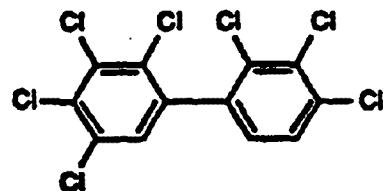
cm^{-1}	abs								
702.81	0.06	863.93	0.19	1209.03	0.07	1409.47	0.27	1538.10	0.65
808.03	0.49	1040.47	0.13	1253.87	0.11	1423.12	1.00		
818.11	0.36	1167.13	0.91	1357.30	0.42	1529.81	0.34		



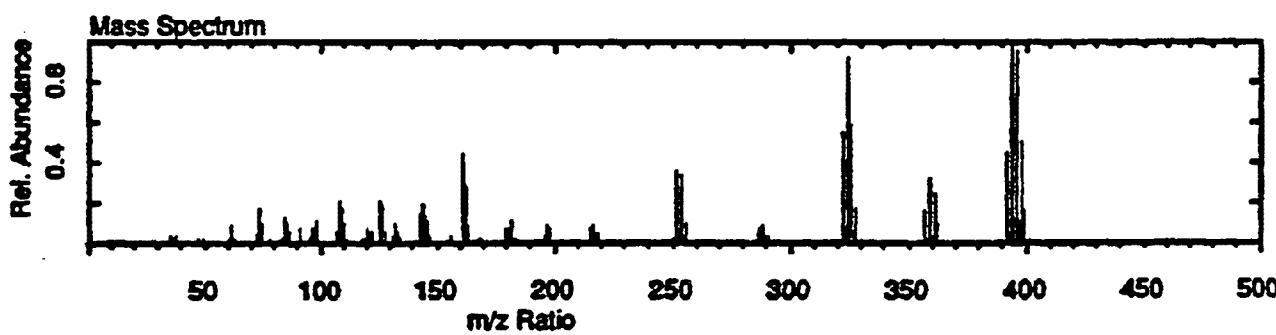
m/z	abun								
73.05	0.08	126.05	0.10	181.00	0.07	290.90	0.06	362.95	0.10
74.05	0.12	126.95	0.10	182.00	0.07	291.90	0.21	363.95	0.33
83.95	0.09	144.00	0.20	217.95	0.22	357.95	0.51	365.95	0.08
98.00	0.10	145.00	0.26	219.95	0.13	358.95	0.07		
108.00	0.08	146.00	0.16	253.95	0.06	369.95	1.00		
109.05	0.20	147.00	0.07	288.00	0.35	360.95	0.13		
110.05	0.12	179.95	0.07	289.90	0.45	361.95	0.77		

IUPAC Congener No. 170

2,2',3,3',4,4',5-HEPTACHLOROBIPHENYL
CAS No. 35065-30-6



cm^{-1}	abs								
655.66	0.11	843.83	0.23	1164.94	0.05	1348.41	0.32	1458.76	0.13
666.25	0.30	881.21	0.06	1180.99	0.39	1363.51	0.17	1529.93	0.07
769.27	0.08	911.83	0.06	1275.43	0.05	1370.80	0.19		
794.40	0.34	1097.24	0.05	1287.55	0.07	1409.49	1.00		
819.85	0.26	1130.66	0.10	1291.18	0.08	1449.48	0.08		

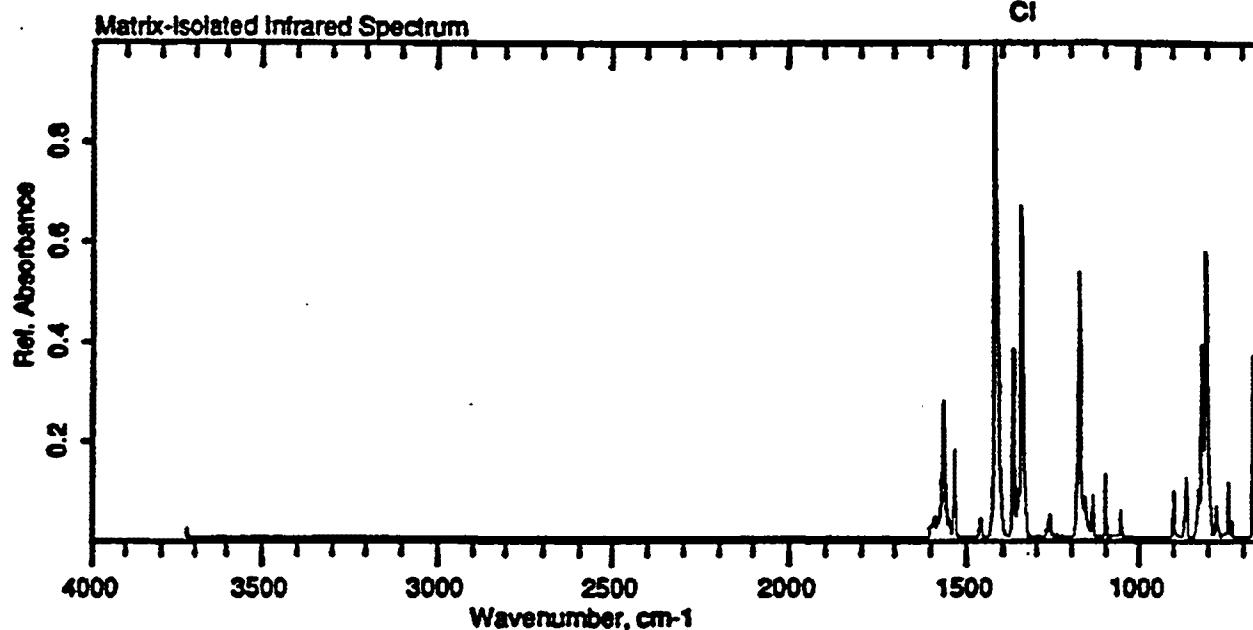
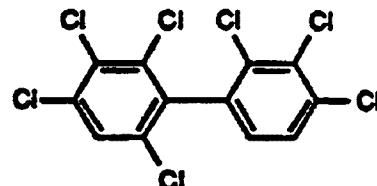


m/z	abun								
73.05	0.19	143.00	0.15	182.00	0.12	328.00	0.19	395.00	0.13
83.95	0.13	144.00	0.20	252.00	0.37	356.95	0.17	396.05	0.97
98.00	0.12	145.00	0.14	254.05	0.35	358.95	0.33	397.05	0.12
108.00	0.22	146.00	0.12	321.95	0.56	360.95	0.26	397.95	0.51
109.05	0.18	161.05	0.28	323.95	0.93	362.95	0.11	399.95	0.16
126.05	0.21	161.95	0.45	325.00	0.12	392.00	0.46		
126.95	0.20	182.95	0.29	326.00	0.59	394.00	1.00		

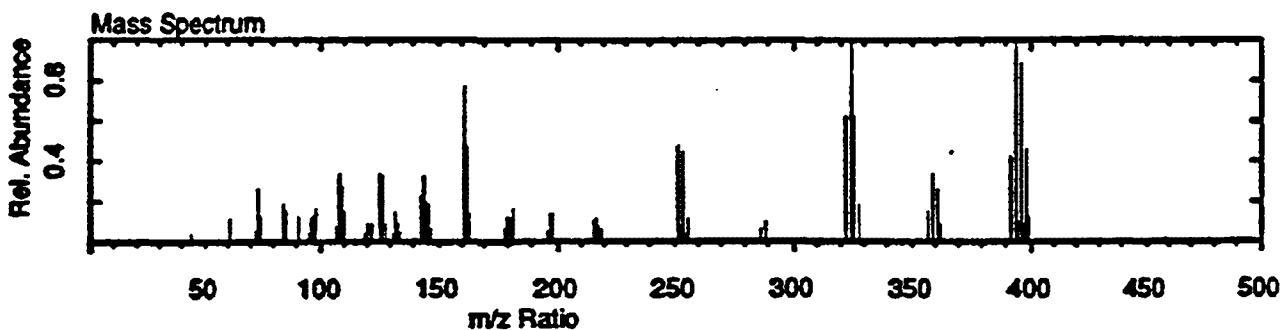
IUPAC Congener No. 171

2,2',3,3',4,4',6-HEPTACHLOROBIPHENYL

CAS No. 52663-71-5



cm^{-1}	abs								
671.86	0.38	818.28	0.39	1059.22	0.06	1177.80	0.54	1419.82	1.00
743.00	0.12	829.24	0.10	1102.35	0.13	1266.41	0.05	1534.43	0.18
778.90	0.07	865.33	0.13	1139.44	0.09	1346.96	0.67	1565.17	0.28
806.18	0.58	903.10	0.10	1162.36	0.09	1369.18	0.38		

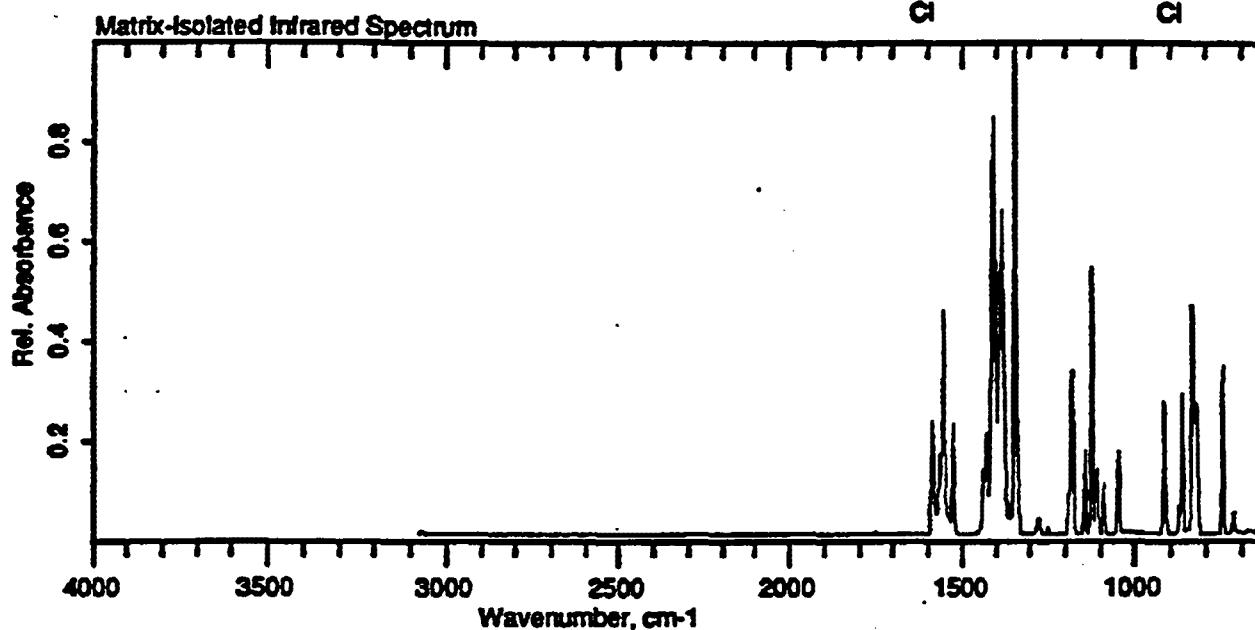
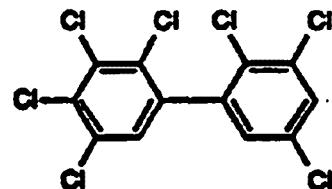


m/z	abun								
73.05	0.27	126.05	0.35	160.95	0.48	253.95	0.45	360.95	0.27
83.95	0.19	126.95	0.33	161.95	0.79	321.95	0.63	391.90	0.43
85.00	0.15	131.95	0.16	162.95	0.48	323.95	0.99	393.90	1.00
98.00	0.17	143.00	0.23	182.00	0.17	326.00	0.63	395.90	0.90
108.00	0.34	144.00	0.33	196.90	0.14	328.00	0.20	397.95	0.47
109.05	0.28	145.00	0.20	197.90	0.15	356.95	0.16		
110.05	0.16	146.00	0.19	251.90	0.49	358.95	0.34		

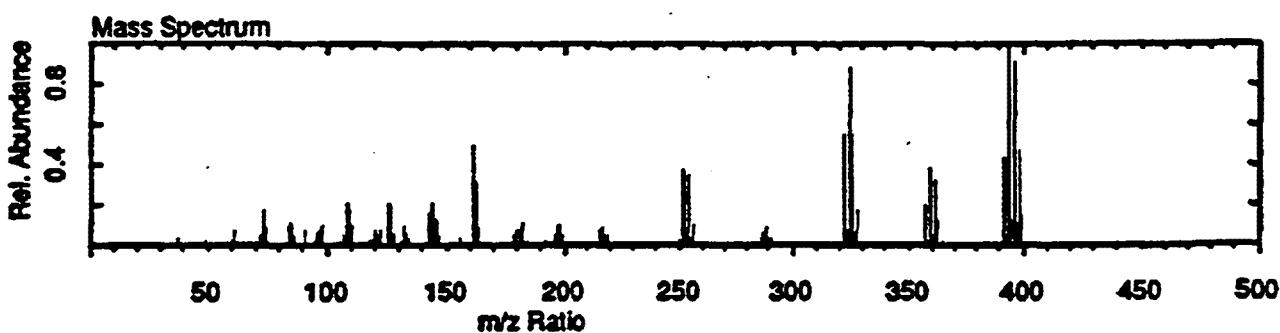
IUPAC Congener No. 172

2,2',3,3',4,5,5'-HEPTACHLOROBIPHENYL

CAS No. 52663-74-8



cm^{-1}	abs								
653.61	0.05	879.16	0.07	1147.42	0.18	1387.68	0.55	1569.86	0.17
723.79	0.06	922.05	0.28	1182.98	0.34	1409.55	0.84		
754.89	0.35	1050.85	0.18	1191.95	0.09	1429.48	0.22		
829.58	0.27	1093.23	0.12	1345.97	1.00	1437.98	0.14		
841.03	0.46	1112.51	0.14	1358.84	0.05	1529.58	0.23		
869.64	0.30	1126.10	0.55	1382.62	0.66	1558.35	0.46		

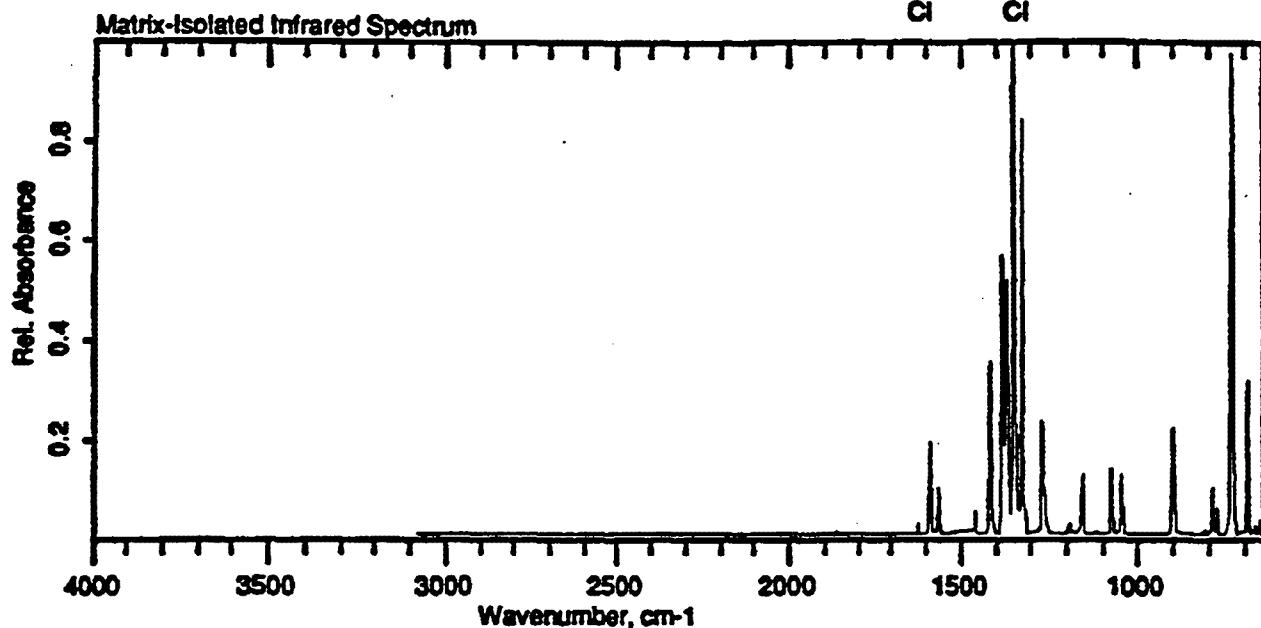
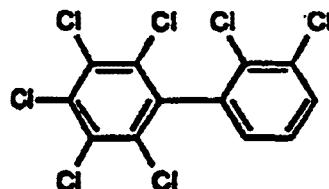


m/z	abun								
73.05	0.18	144.00	0.22	196.90	0.11	328.00	0.18	395.00	0.13
83.95	0.12	145.00	0.14	252.00	0.38	356.95	0.21	396.05	0.91
108.00	0.22	146.00	0.13	254.05	0.36	358.95	0.39	397.05	0.11
109.05	0.19	161.05	0.32	321.95	0.55	360.95	0.33	398.05	0.49
126.05	0.22	161.95	0.51	323.95	0.90	362.95	0.13	399.95	0.16
126.95	0.21	162.95	0.32	325.00	0.11	392.00	0.44		
143.00	0.17	182.10	0.12	326.00	0.56	394.00	1.00		

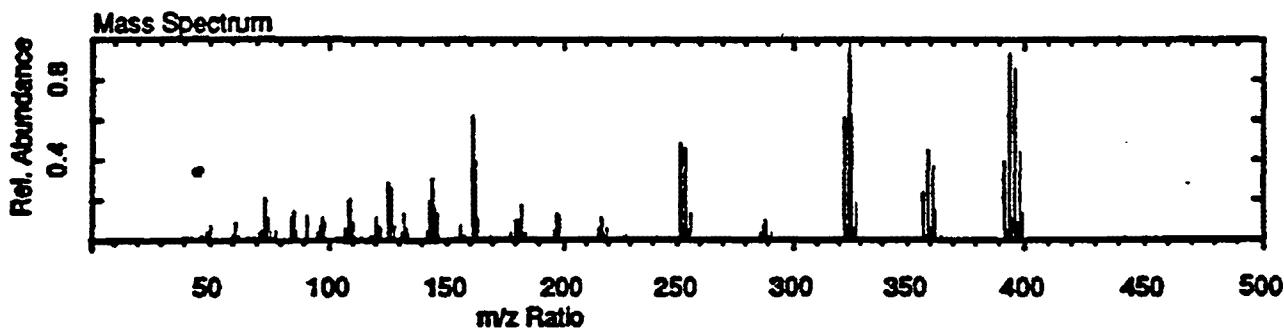
IUPAC Congener No. 173

2,2',3,3',4,5,6-HEPTACHLOROBIPHENYL

CAS No. 68194-16-1



cm^{-1}	abs								
693.52	0.31	905.79	0.22	1158.70	0.13	1328.04	0.83	1418.47	0.35
737.19	0.97	1046.36	0.07	1266.26	0.10	1352.63	1.00	1461.85	0.05
780.02	0.06	1053.34	0.13	1273.06	0.23	1372.72	0.52	1567.09	0.10
793.03	0.10	1080.53	0.14	1320.27	0.08	1384.66	0.56		

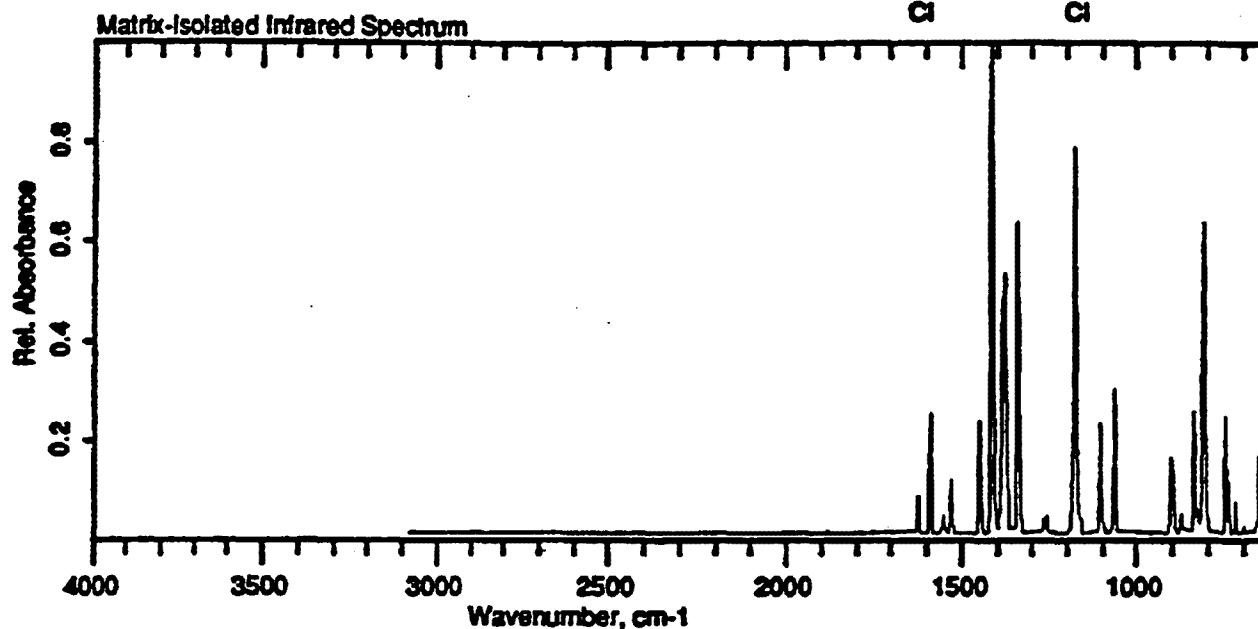
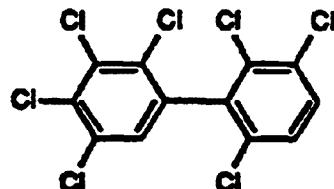


m/z	abun	m/z	abun	m/z	abun	m/z	abun
73.05	0.21	143.00	0.21	182.00	0.19	323.95	1.00
85.00	0.16	144.00	0.32	198.90	0.14	326.00	0.63
106.00	0.21	144.90	0.16	197.90	0.13	328.00	0.19
109.05	0.22	146.00	0.14	252.00	0.49	356.95	0.25
126.05	0.29	160.95	0.39	254.05	0.46	358.95	0.46
126.95	0.27	161.95	0.63	256.05	0.14	360.95	0.38
131.95	0.15	162.95	0.41	321.95	0.62	362.95	0.15

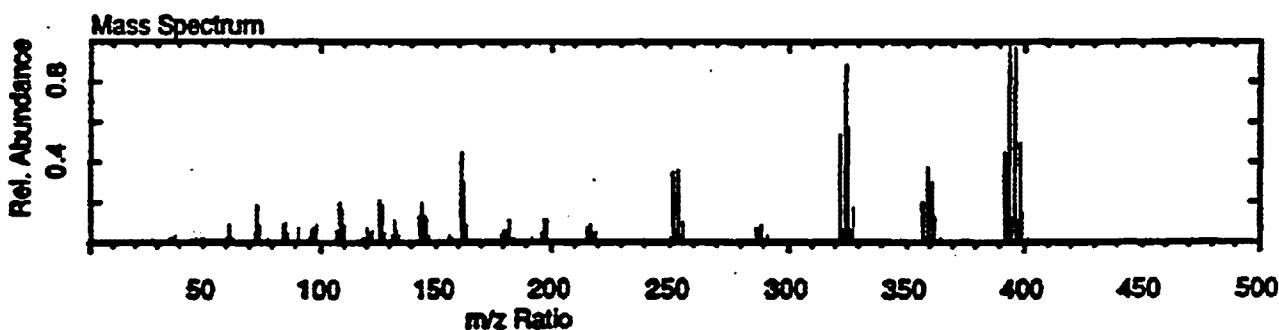
IUPAC Congener No. 174

2,2',3,3',4,5,6'-HEPTACHLOROBIPHENYL

CAS No. 38411-25-5



cm^{-1}	abs								
658.40	0.17	833.33	0.06	1110.70	0.23	1380.72	0.53	1556.47	0.05
724.94	0.08	842.34	0.26	1182.36	0.78	1387.04	0.48	1591.21	0.25
744.31	0.11	879.71	0.05	1261.79	0.05	1418.14	1.00		
753.83	0.25	906.41	0.16	1270.61	0.05	1451.55	0.24		
814.63	0.53	1069.28	0.30	1345.53	0.63	1533.33	0.12		

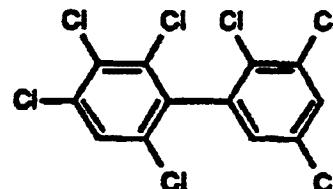


m/z	abun.								
73.05	0.19	144.00	0.21	196.90	0.12	326.00	0.58	393.90	1.00
108.00	0.21	144.90	0.14	197.90	0.11	327.90	0.18	394.90	0.13
109.05	0.17	146.00	0.13	251.90	0.35	356.95	0.20	395.90	0.99
125.95	0.22	160.95	0.28	253.95	0.36	358.95	0.38	396.95	0.12
126.95	0.20	161.95	0.46	321.95	0.54	360.95	0.30	397.95	0.51
131.95	0.11	162.95	0.31	323.95	0.89	362.95	0.13	399.95	0.16
143.00	0.15	182.00	0.12	325.00	0.12	391.90	0.46		

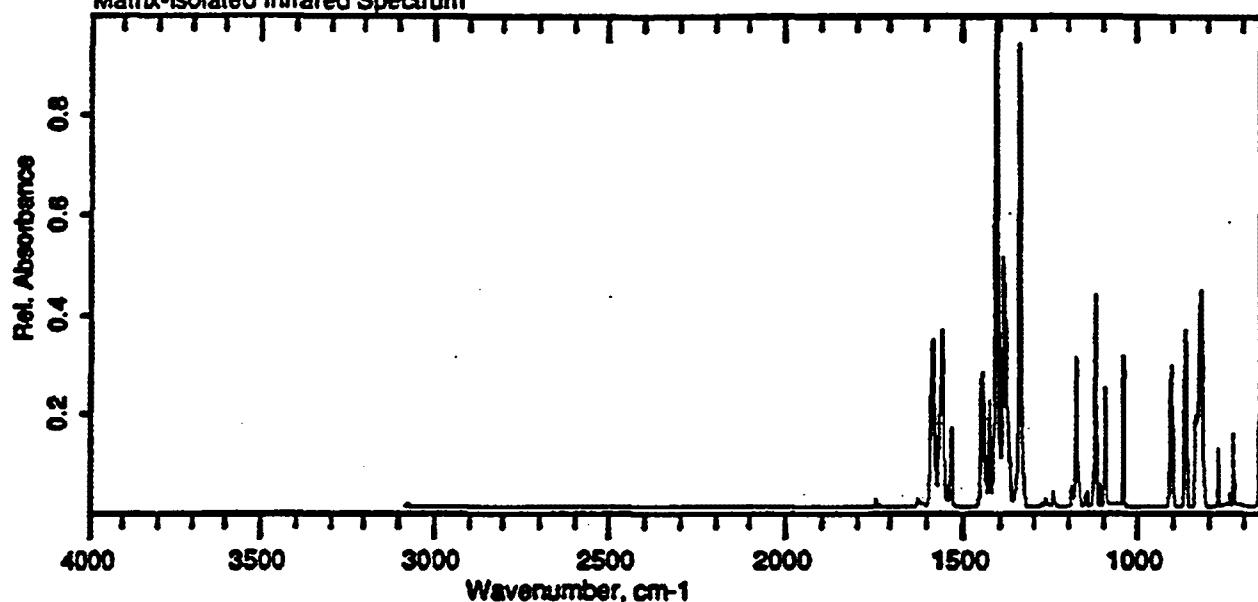
IUPAC Congener No. 175

2,2',3,3',4,5',6-HEPTACHLOROBIPHENYL

CAS No. 40186-70-7

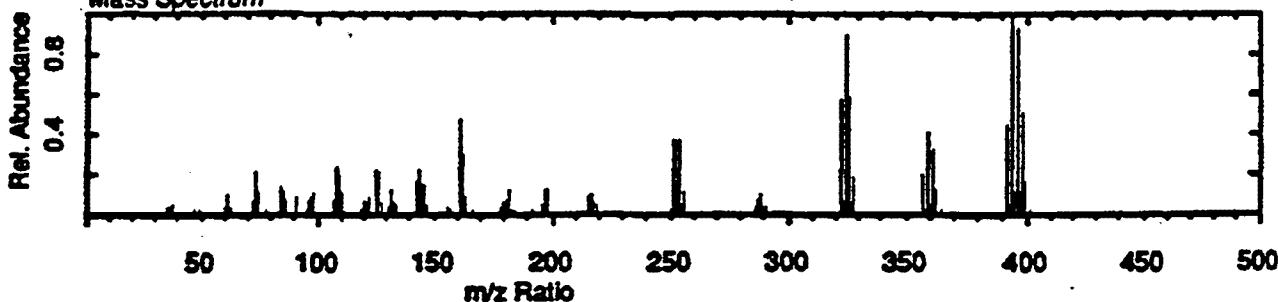


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
654.23	0.19	868.62	0.37	1124.79	0.44	1389.20	0.52	1559.78	0.37
732.07	0.16	908.55	0.30	1180.57	0.31	1407.81	1.00		
776.05	0.13	1045.53	0.32	1193.83	0.05	1428.52	0.23		
823.67	0.45	1096.20	0.25	1343.00	0.95	1448.93	0.28		
839.16	0.19	1111.49	0.06	1380.76	0.39	1534.49	0.17		

Mass Spectrum

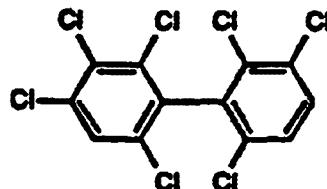


m/z	abun								
73.05	0.22	131.95	0.13	162.95	0.31	323.95	0.91	391.90	0.46
83.95	0.14	143.00	0.17	182.00	0.13	326.00	0.59	393.90	1.00
106.00	0.25	144.00	0.24	196.90	0.14	328.00	0.19	394.90	0.12
109.05	0.21	145.00	0.16	197.90	0.13	356.95	0.21	395.90	0.93
110.05	0.12	146.00	0.16	252.00	0.39	358.95	0.41	397.95	0.52
126.05	0.23	160.95	0.30	254.05	0.38	360.95	0.33	399.95	0.16
126.95	0.22	161.95	0.48	321.95	0.58	362.95	0.13		

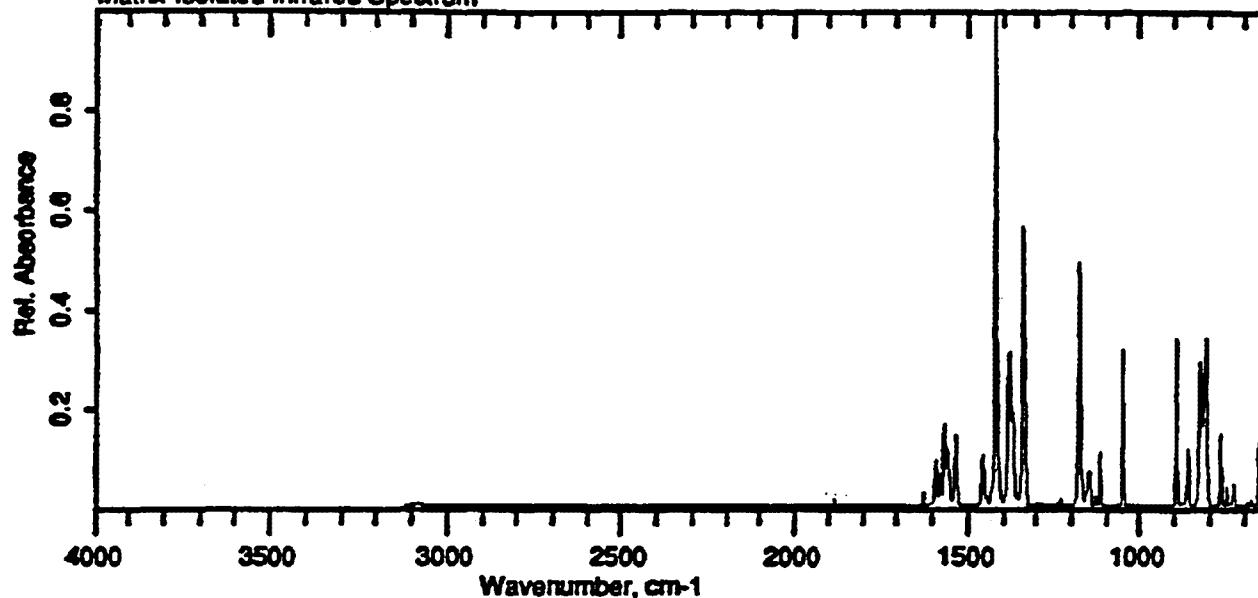
IUPAC Congener No. 176

2,2',3,3',4,6,6'-HEPTACHLOROBIPHENYL

CAS No. 52663-65-7

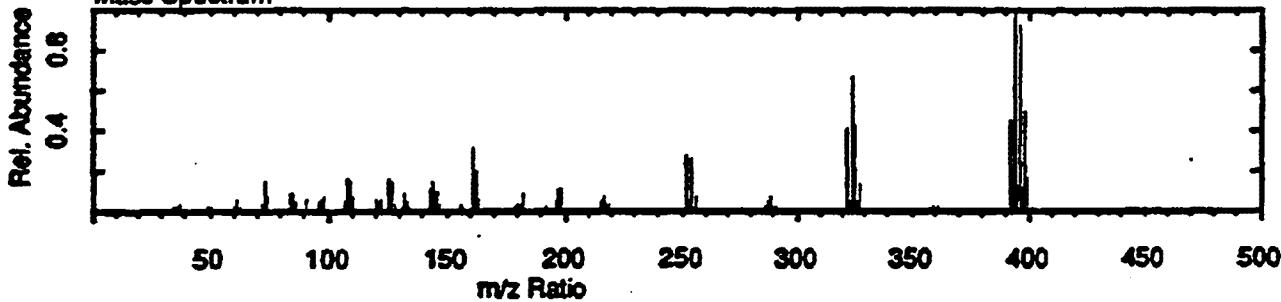


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
654.85	0.14	830.57	0.29	1152.67	0.07	1423.81	1.00	1579.09	0.07
659.12	0.12	864.53	0.12	1180.59	0.49	1460.56	0.11		
732.91	0.05	898.49	0.34	1343.01	0.56	1535.62	0.15		
770.64	0.15	1054.23	0.32	1374.29	0.19	1559.03	0.12		
813.83	0.34	1121.17	0.12	1383.69	0.31	1568.16	0.17		

Mass Spectrum

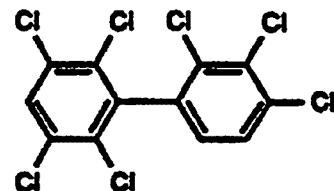


m/z	abun								
73.05	0.16	126.95	0.16	161.95	0.32	256.05	0.08	394.00	1.00
83.95	0.09	131.95	0.09	162.95	0.21	321.95	0.42	394.90	0.13
85.00	0.09	143.00	0.11	182.10	0.09	323.95	0.68	396.05	0.93
108.00	0.17	144.00	0.16	196.90	0.12	325.00	0.09	396.95	0.12
109.05	0.15	145.00	0.11	197.90	0.11	326.00	0.43	397.95	0.51
110.05	0.09	146.00	0.11	252.00	0.28	328.00	0.14	399.95	0.17
126.05	0.16	160.95	0.21	254.05	0.26	391.90	0.46		

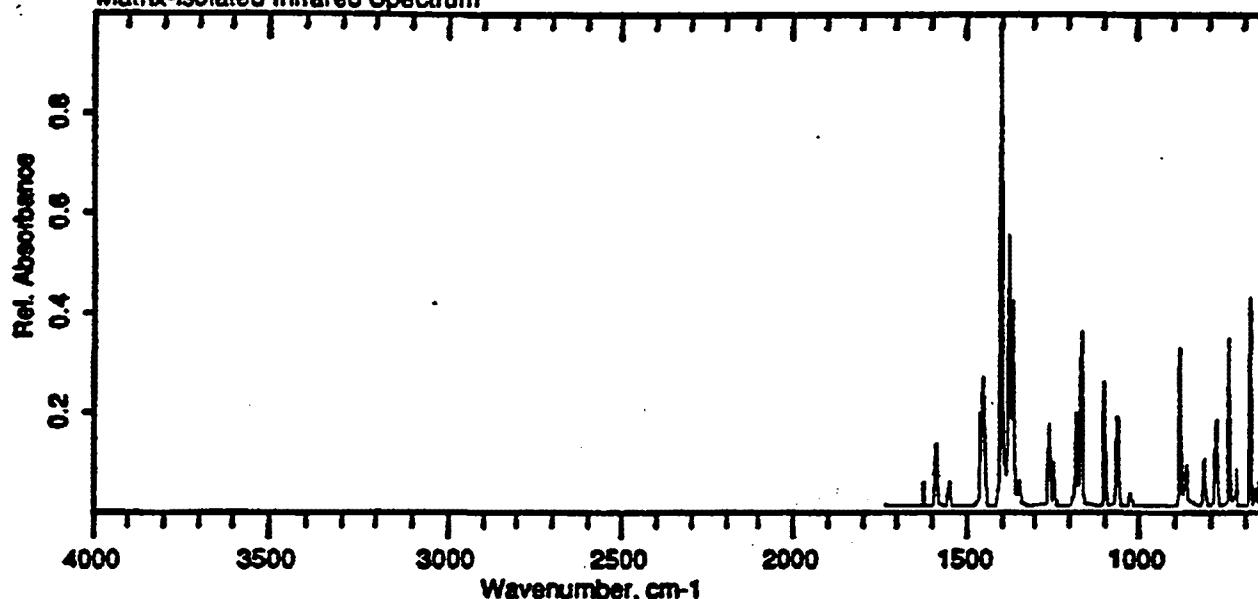
IUPAC Congener No. 177

2,2',3,3',4',5,6-HEPTACHLOROBIPHENYL

CAS No. 52663-70-4

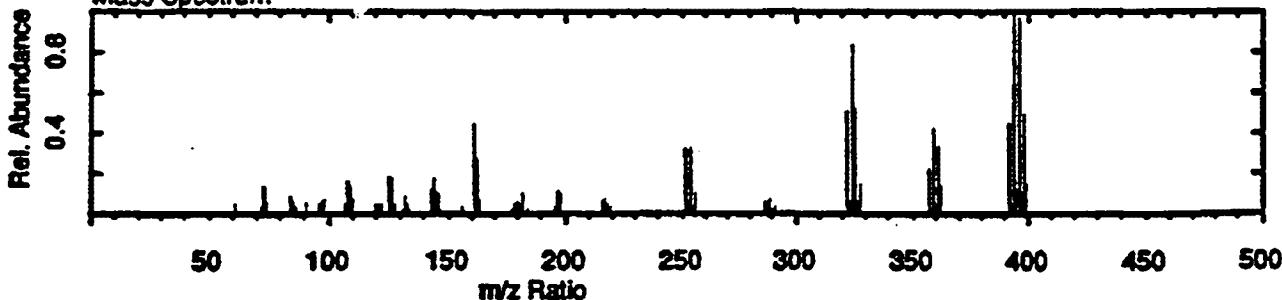


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
662.85	0.06	785.55	0.18	1101.68	0.26	1348.55	0.07	1461.21	0.20
670.83	0.05	821.23	0.10	1166.45	0.36	1367.00	0.43	1550.97	0.06
686.65	0.42	871.22	0.10	1181.58	0.19	1378.90	0.55	1590.54	0.14
726.75	0.09	889.67	0.33	1246.39	0.10	1401.70	1.00		
750.06	0.35	1064.84	0.19	1259.43	0.17	1452.73	0.27		

Mass Spectrum

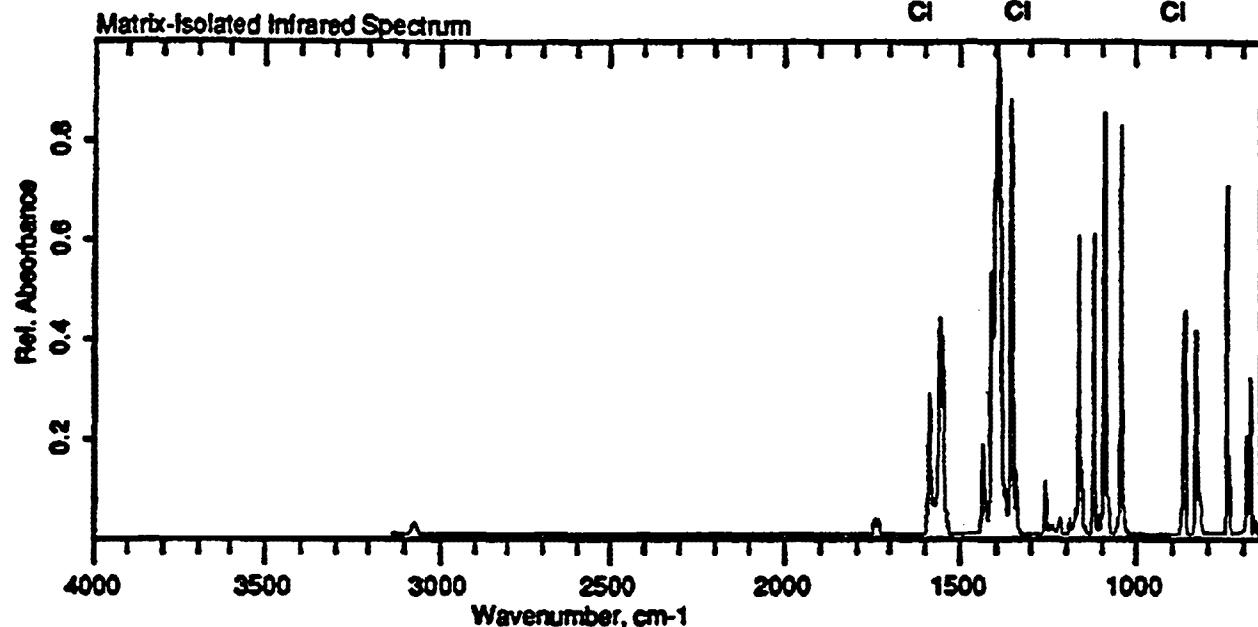
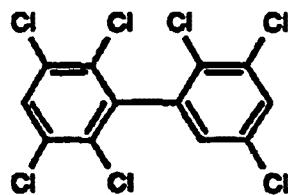


m/z	abun	m/z	abun	m/z	abun	m/z	abun
73.05	0.14	145.00	0.12	197.90	0.11	326.00	0.53
108.00	0.17	146.00	0.11	251.90	0.33	328.00	0.16
109.05	0.15	160.95	0.28	253.95	0.33	356.95	0.23
120.05	0.19	161.95	0.45	255.95	0.10	358.95	0.43
126.95	0.18	162.95	0.28	321.95	0.52	360.95	0.34
143.00	0.13	182.00	0.11	323.95	0.84	362.95	0.14
144.00	0.19	196.90	0.11	325.00	0.11	391.90	0.46

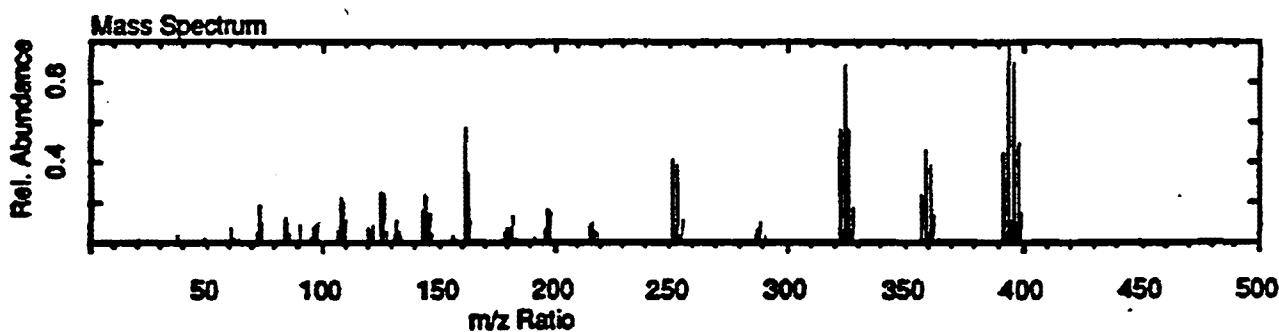
IUPAC Congener No. 178

2,2',3,3',5,5',6-HEPTACHLOROBIPHENYL

CAS No. 52663-67-9



cm^{-1}	abs								
680.12	0.32	870.02	0.45	1167.59	0.61	1393.85	1.00	1576.93	0.08
689.40	0.21	1048.08	0.83	1177.77	0.06	1401.03	0.72		
741.39	0.17	1095.18	0.87	1262.77	0.12	1412.10	0.53		
747.34	0.71	1110.59	0.05	1344.00	0.14	1435.97	0.19		
827.40	0.09	1125.56	0.61	1358.77	0.88	1552.07	0.41		
836.86	0.42	1159.50	0.14	1374.80	0.10	1561.02	0.44		

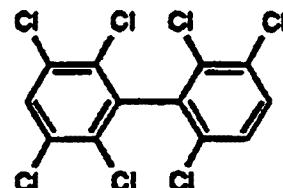


m/z	abun								
73.05	0.19	143.00	0.17	182.00	0.14	326.00	0.56	393.90	1.00
83.95	0.13	144.00	0.24	196.90	0.16	328.00	0.18	394.90	0.12
108.00	0.24	145.00	0.16	197.90	0.16	356.95	0.24	395.90	0.91
109.05	0.21	146.00	0.16	252.00	0.42	358.95	0.47	397.95	0.50
126.05	0.25	160.95	0.36	254.05	0.39	360.95	0.40	399.95	0.16
126.95	0.24	161.95	0.58	321.95	0.57	362.95	0.15		
131.95	0.12	162.95	0.36	323.95	0.89	391.90	0.45		

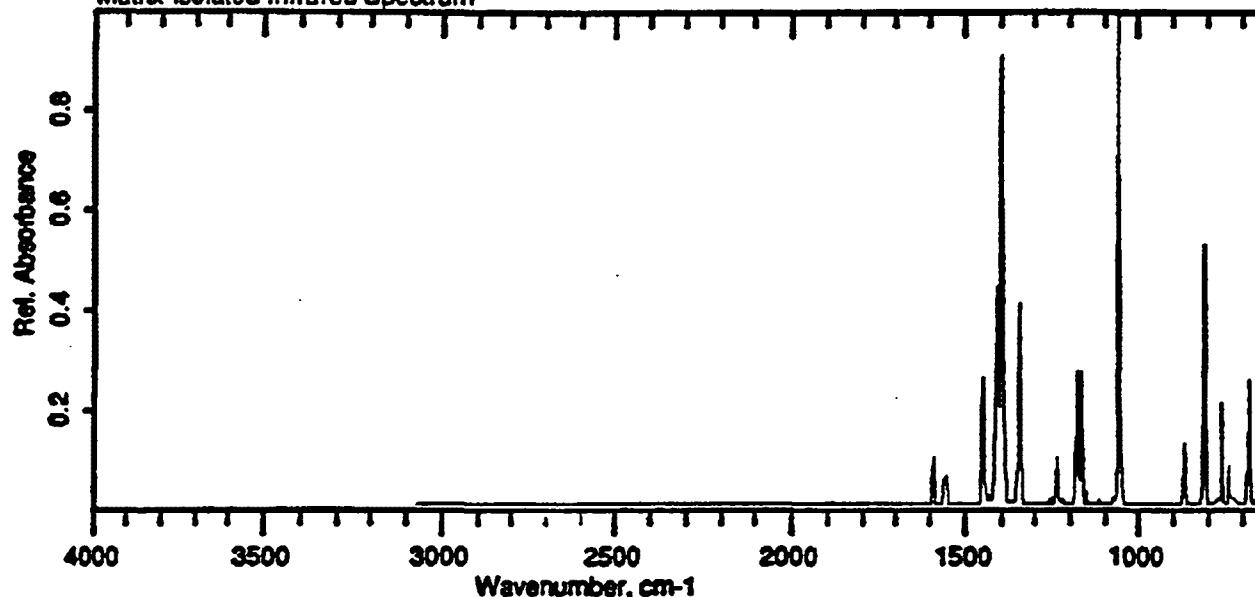
IUPAC Congener No. 179

2,2',3,3',5,6,6'-HEPTACHLOROBIPHENYL

CAS No. 52663-64-6

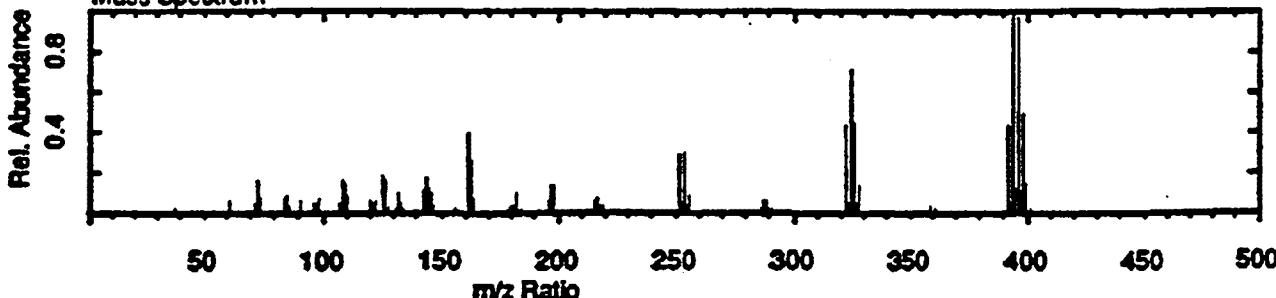


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
656.48	0.05	763.56	0.21	1180.17	0.28	1399.17	0.90	1590.88	0.11
677.45	0.08	813.18	0.52	1185.84	0.15	1410.68	0.44		
682.48	0.26	871.64	0.13	1239.45	0.11	1452.23	0.26		
689.38	0.07	1062.58	1.00	1348.40	0.41	1554.08	0.06		
743.25	0.09	1170.70	0.27	1355.70	0.07	1560.98	0.06		

Mass Spectrum

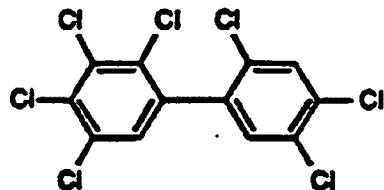


m/z	abun								
73.05	0.16	144.00	0.18	196.90	0.14	325.00	0.09	396.95	0.12
108.00	0.17	145.00	0.13	197.90	0.14	326.00	0.46	397.95	0.50
109.05	0.15	146.00	0.11	252.00	0.30	328.00	0.14	399.95	0.16
126.05	0.19	160.95	0.24	254.05	0.30	391.90	0.45		
126.95	0.17	161.95	0.40	256.05	0.09	393.90	1.00		
131.95	0.10	162.95	0.27	321.95	0.44	394.90	0.13		
143.00	0.12	182.00	0.10	323.95	0.72	395.90	0.98		

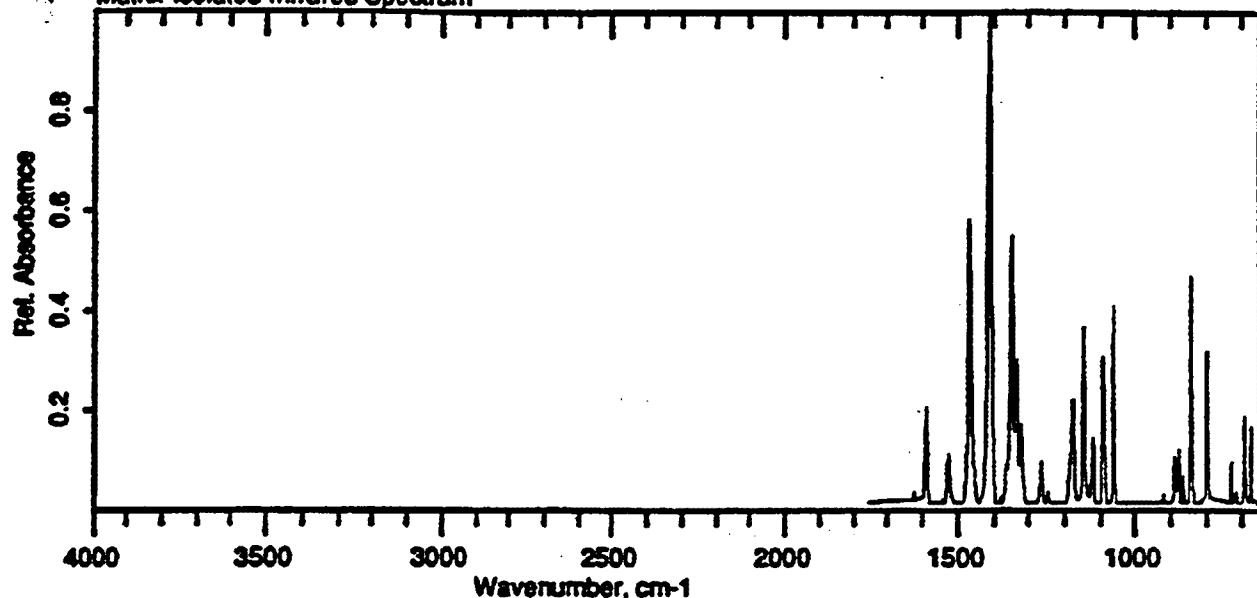
IUPAC Congener No. 180

2,2',3,4,4',5,5'-HEPTACHLOROBIPHENYL

CAS No. 35065-29-3

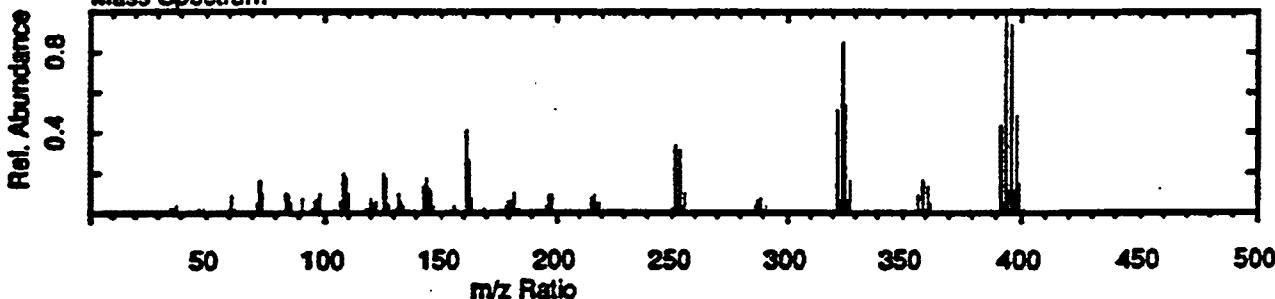


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
674.51	0.17	869.65	0.07	1123.21	0.15	1337.64	0.30	1528.94	0.11
693.26	0.19	880.69	0.12	1150.82	0.37	1352.17	0.55		
731.43	0.10	882.78	0.11	1180.05	0.22	1386.97	0.09		
801.85	0.32	1066.71	0.41	1268.30	0.09	1412.96	1.00		
847.18	0.48	1095.69	0.31	1324.25	0.17	1469.73	0.58		

Mass Spectrum

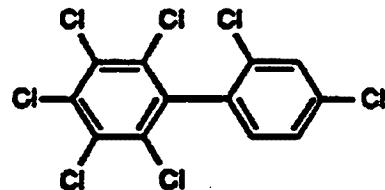


m/z	abun								
73.05	0.17	144.00	0.18	252.00	0.34	358.95	0.17	398.05	0.49
83.95	0.11	145.00	0.13	254.05	0.32	360.95	0.14	399.95	0.16
108.00	0.21	146.00	0.12	321.95	0.52	392.00	0.44		
109.05	0.18	161.05	0.26	323.95	0.86	394.00	1.00		
126.05	0.20	161.95	0.42	325.00	0.11	395.00	0.12		
126.95	0.18	162.95	0.27	326.00	0.54	396.05	0.94		
143.00	0.14	182.00	0.11	328.00	0.17	397.05	0.12		

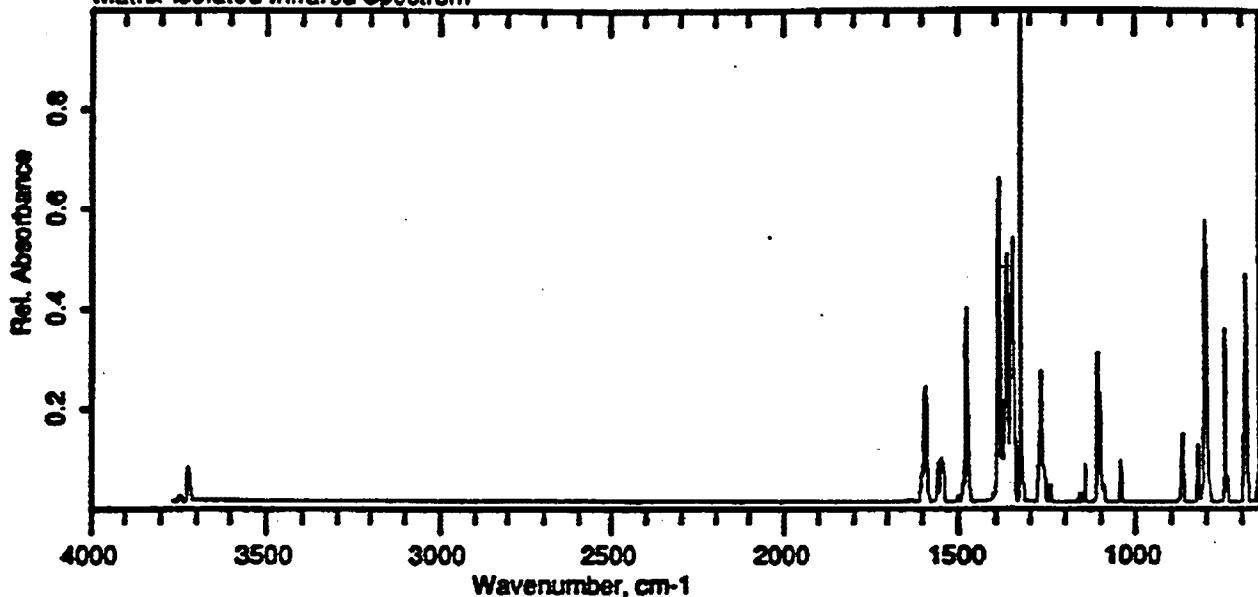
IUPAC Congener No. 181

2,2',3,4,4',5,6-HEPTACHLOROBIPHENYL

CAS No. 74472-47-2

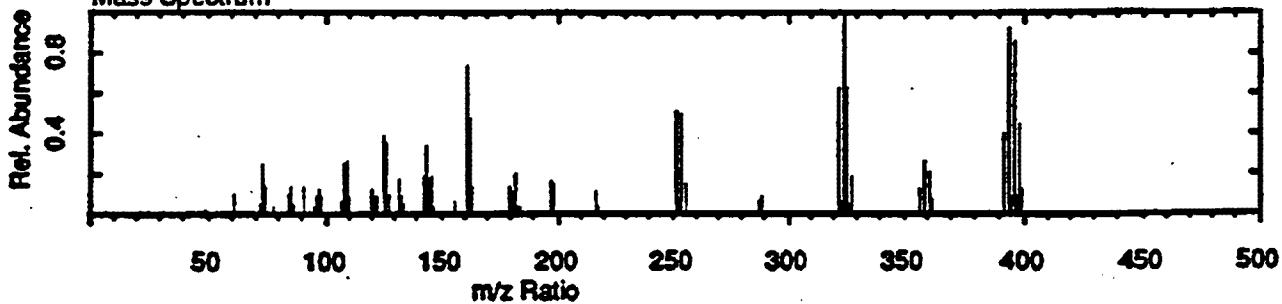


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
654.22	0.07	825.22	0.13	1272.40	0.27	1368.58	0.50	1549.87	0.10
687.86	0.46	870.14	0.15	1279.43	0.09	1374.06	0.21	1559.32	0.09
694.04	0.14	1046.41	0.09	1321.66	0.05	1382.10	0.10	1594.65	0.24
740.39	0.08	1103.65	0.23	1330.29	1.00	1390.85	0.65	1603.55	0.07
748.40	0.36	1110.13	0.31	1346.24	0.13	1479.72	0.40		
803.88	0.57	1145.91	0.09	1352.22	0.53	1543.93	0.09		

Mass Spectrum

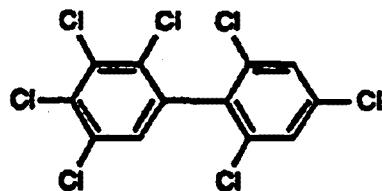


m/z	abun								
73.05	0.26	131.95	0.18	162.95	0.48	254.05	0.50	360.95	0.22
74.05	0.14	143.00	0.20	163.95	0.14	256.05	0.15	391.90	0.41
90.60	0.15	144.00	0.35	179.45	0.14	321.95	0.64	393.90	0.93
108.00	0.25	145.00	0.18	182.00	0.21	323.95	1.00	395.90	0.87
109.05	0.27	146.00	0.19	196.90	0.16	326.00	0.63	397.95	0.46
126.05	0.39	161.05	0.46	198.00	0.15	328.00	0.19		
127.05	0.36	161.95	0.75	252.00	0.52	358.95	0.27		

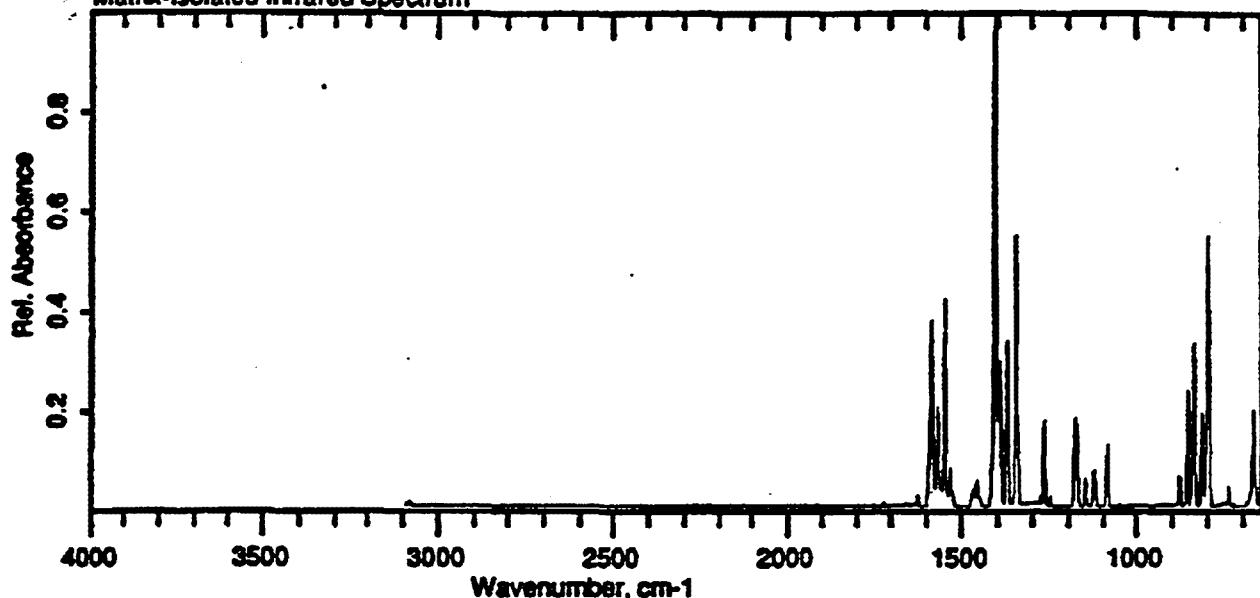
IUPAC Congener No. 182

2,2',3,4,4',5,6'-HEPTACHLOROBIPHENYL

CAS No. 60145-23-5

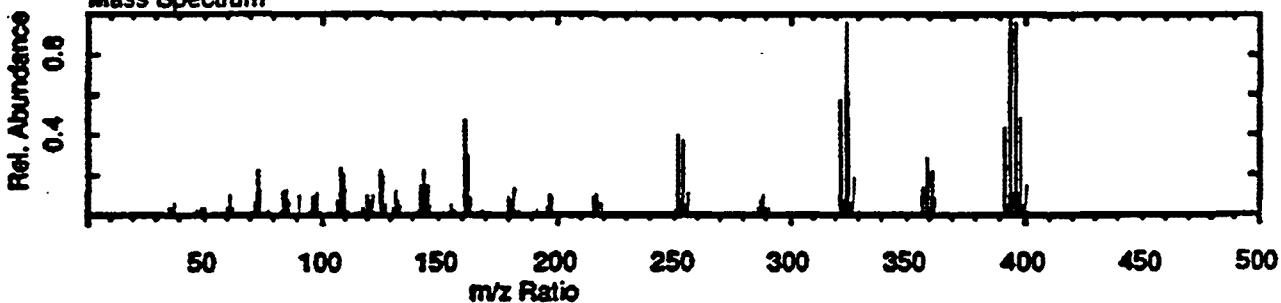


Matrix-isolated Infrared Spectrum



<u>cm-1</u>	<u>abs</u>								
653.39	0.05	841.48	0.34	1154.39	0.07	1373.45	0.34	1548.83	0.42
672.51	0.20	860.31	0.24	1181.87	0.17	1393.69	0.30	1570.66	0.21
741.32	0.05	883.23	0.07	1185.14	0.18	1406.47	1.00		
800.70	0.55	1092.54	0.13	1271.84	0.18	1456.28	0.06		
818.75	0.19	1128.82	0.08	1349.69	0.56	1532.66	0.09		

Mass Spectrum

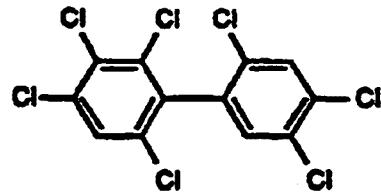


<u>m/z</u>	<u>abun</u>								
73.05	0.23	131.95	0.13	182.95	0.31	328.00	0.19	398.05	0.50
74.05	0.13	143.00	0.16	182.10	0.14	358.95	0.15	400.05	0.16
85.00	0.13	144.00	0.23	252.00	0.41	358.95	0.29		
108.00	0.25	145.00	0.15	254.05	0.39	360.95	0.23		
109.05	0.22	146.00	0.15	321.95	0.58	392.00	0.45		
126.05	0.23	161.05	0.30	323.95	0.97	394.00	1.00		
126.95	0.21	161.95	0.48	326.00	0.62	396.05	0.97		

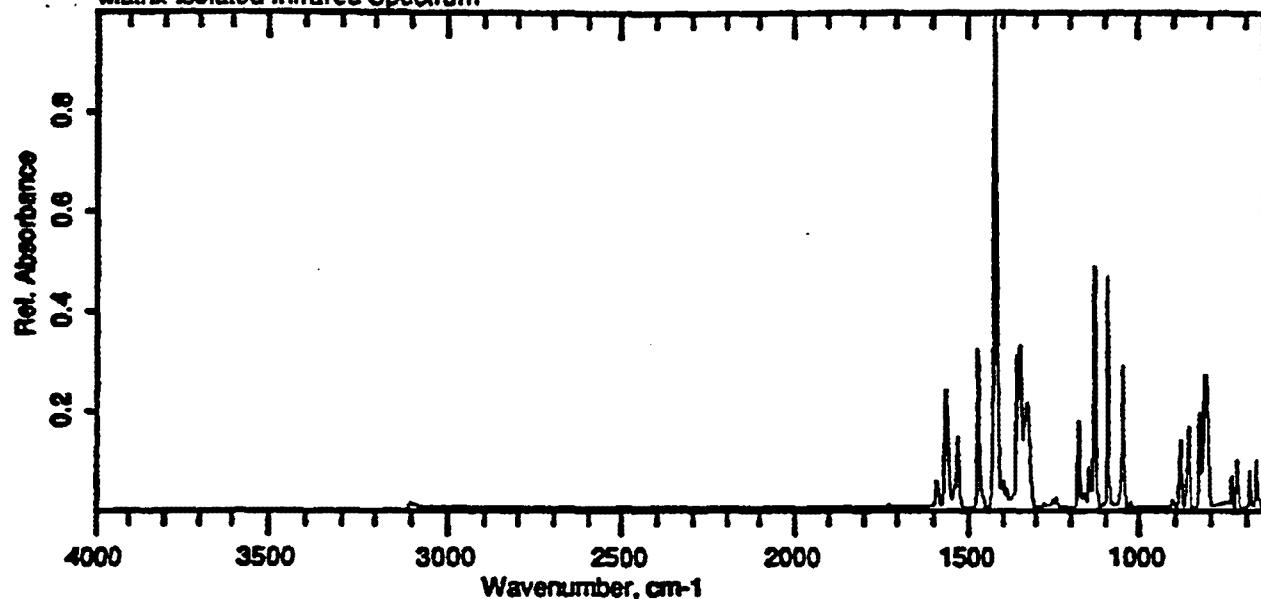
IUPAC Congener No. 183

2,2',3,4,4',5',6-HEPTACHLOROBIPHENYL

CAS No. 52663-69-1



Matrix-Isolated Infrared Spectrum



cm-1 abs

673.25	0.10
692.63	0.08
729.08	0.10
743.64	0.07
818.00	0.27

cm-1 abs

835.77	0.20
866.93	0.17
889.63	0.14
1052.49	0.29
1095.64	0.46

cm-1 abs

1133.84	0.49
1150.40	0.09
1180.73	0.18
1328.29	0.22
1349.96	0.33

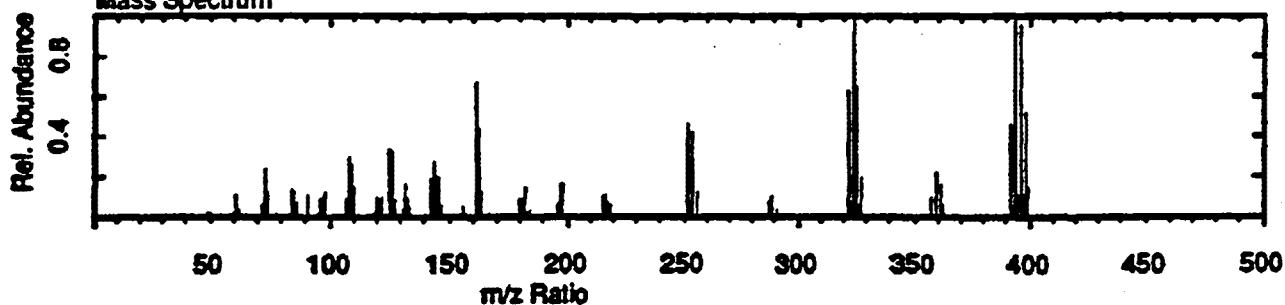
cm-1 abs

1357.53	0.31
1398.49	0.06
1424.20	1.00
1474.05	0.33
1533.91	0.15

cm-1 abs

1543.57	0.05
1569.16	0.24
1591.36	0.05

Mass Spectrum



m/z abun

73.05	0.25
83.95	0.14
108.00	0.31
109.05	0.26
110.05	0.15
126.05	0.34
126.95	0.33

m/z abun

131.95	0.17
143.00	0.19
144.00	0.28
145.00	0.20
146.00	0.20
161.05	0.43
161.95	0.68

m/z abun

162.95	0.45
182.00	0.16
196.90	0.17
197.90	0.17
252.00	0.47
254.05	0.43
321.95	0.63

m/z abun

323.95	1.00
326.00	0.66
328.00	0.20
358.95	0.23
360.95	0.17
391.90	0.47
393.90	1.00

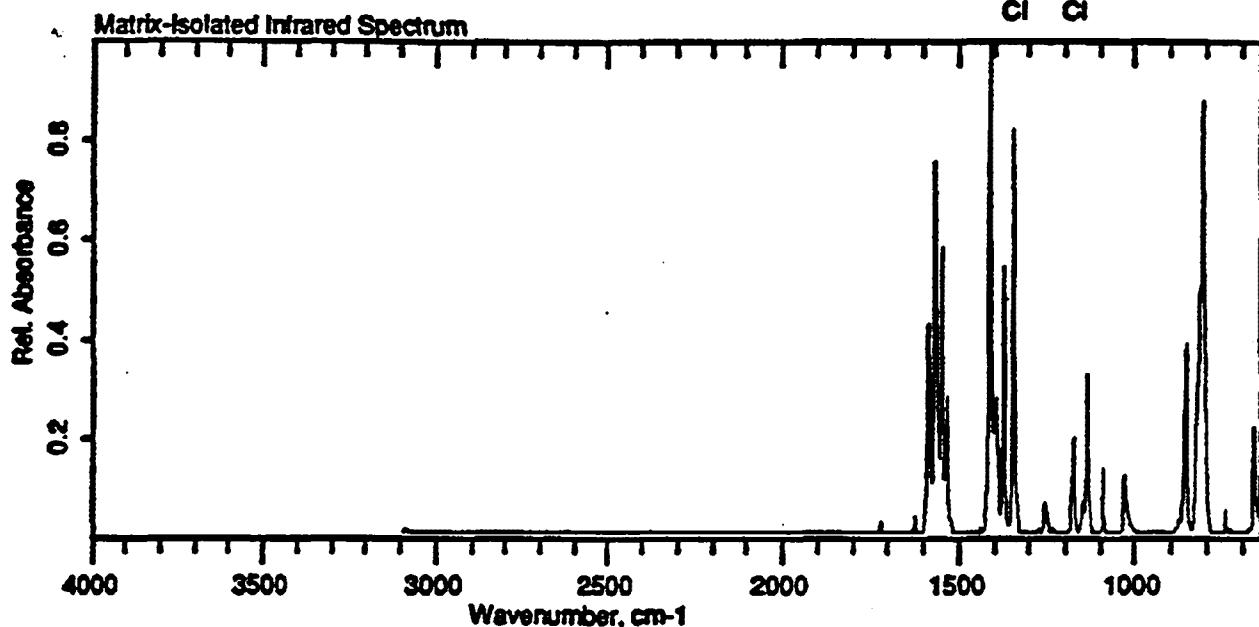
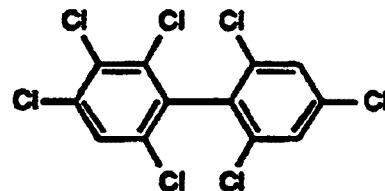
m/z abun

395.90	0.97
397.95	0.53
399.95	0.15

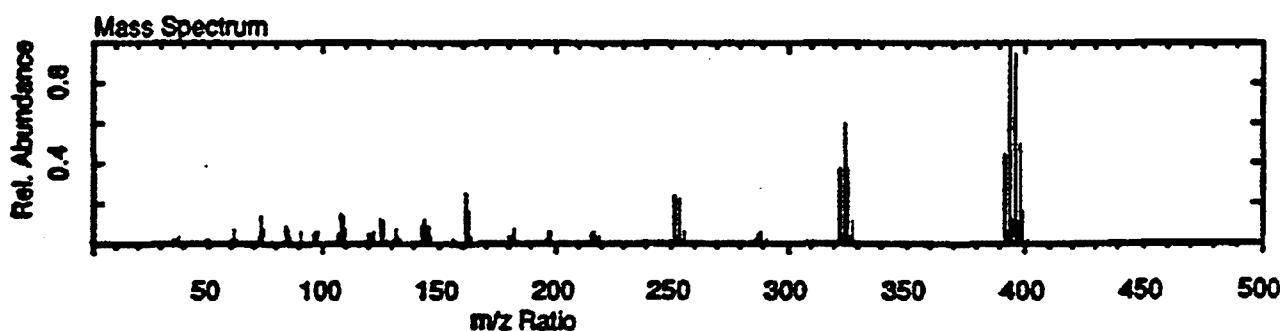
IUPAC Congener No. 184

2,2',3,4,4',6,6'-HEPTACHLOROBIPHENYL

CAS No. 74472-48-3



cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
653.37	0.09	820.43	0.50	1152.63	0.07	1395.81	0.28		
659.43	0.08	859.40	0.39	1179.67	0.20	1413.49	1.00		
868.35	0.22	1032.45	0.13	1258.95	0.07	1536.37	0.28		
750.16	0.06	1094.55	0.14	1346.93	0.82	1549.89	0.58		
813.02	0.87	1141.51	0.33	1373.93	0.55	1569.58	0.76		

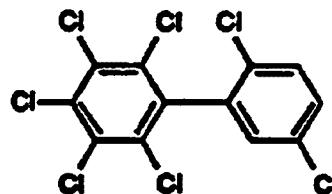


m/z	abun								
73.05	0.15	126.95	0.12	161.95	0.26	325.00	0.08	396.95	0.12
83.95	0.09	131.95	0.08	162.95	0.17	326.00	0.39	397.95	0.51
85.00	0.09	143.00	0.09	182.00	0.08	328.00	0.12	399.95	0.17
108.00	0.16	144.00	0.13	252.00	0.24	391.90	0.45		
109.05	0.14	145.00	0.09	254.05	0.23	393.90	1.00		
110.05	0.09	146.00	0.10	321.95	0.38	394.90	0.13		
126.05	0.13	160.95	0.17	323.95	0.60	395.90	0.96		

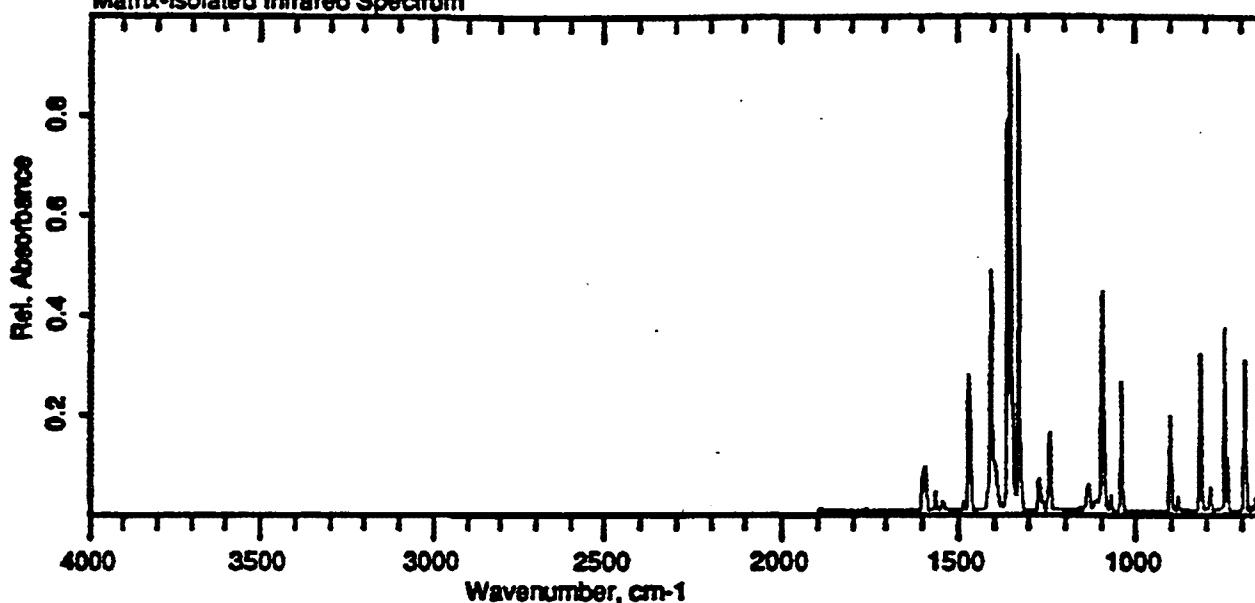
IUPAC Congener No. 185

2,2',3,4,5,5',6-HEPTACHLOROBIPHENYL

CAS No. 52712-05-7



Matrix-Isolated Infrared Spectrum



cm^{-1} abs

690.21 0.31
695.99 0.16
740.94 0.11
749.82 0.38

cm^{-1} abs

781.05 0.05
818.27 0.32
906.18 0.19
1045.65 0.26

cm^{-1} abs

1098.76 0.44
1136.71 0.06
1245.28 0.16
1275.48 0.07

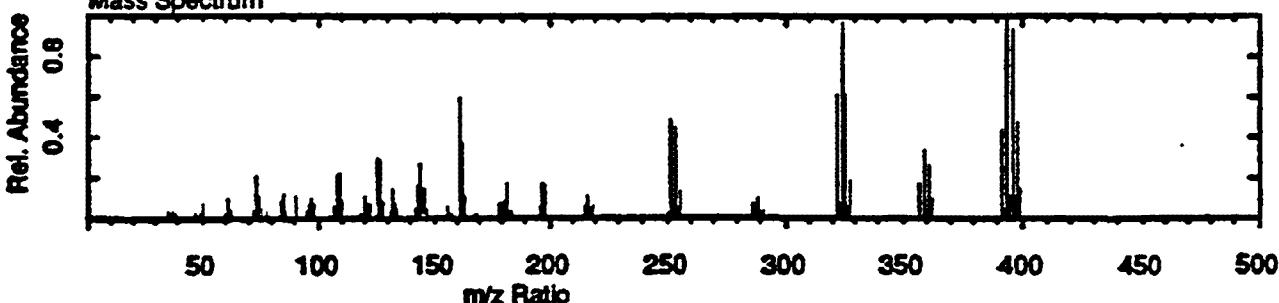
cm^{-1} abs

1330.62 0.92
1347.19 0.20
1353.64 1.00
1361.08 0.78

cm^{-1} abs

1408.62 0.49
1471.59 0.27
1565.46 0.05

Mass Spectrum



m/z abun

73.05 0.21
74.05 0.12
85.00 0.13
90.60 0.12
108.00 0.22
109.05 0.24
126.05 0.31

m/z abun

126.95 0.29
131.95 0.16
143.00 0.17
144.00 0.28
145.00 0.15
146.00 0.16
160.95 0.38

m/z abun

161.95 0.60
162.95 0.38
182.00 0.18
196.90 0.18
197.90 0.17
251.90 0.49
253.95 0.46

m/z abun

255.95 0.15
321.95 0.62
323.95 0.98
326.00 0.61
327.90 0.19
356.95 0.18
358.95 0.34

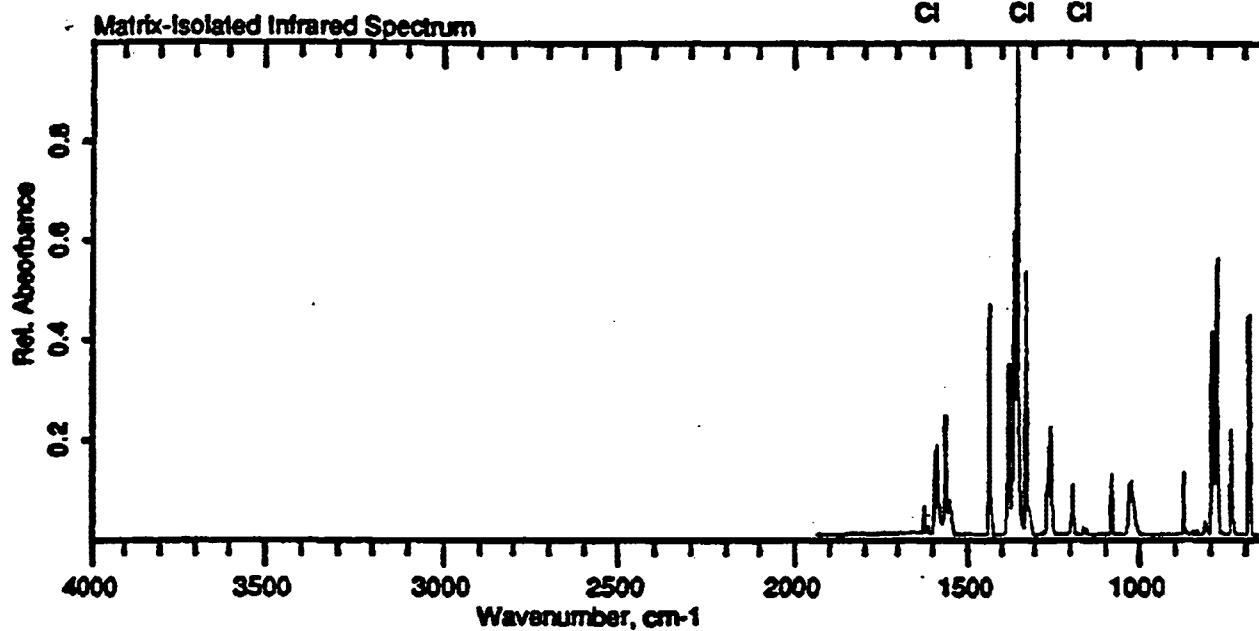
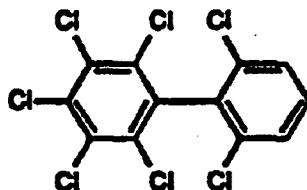
m/z abun

360.95 0.27
391.90 0.45
393.90 1.00
395.90 0.94
397.95 0.49
399.95 0.16

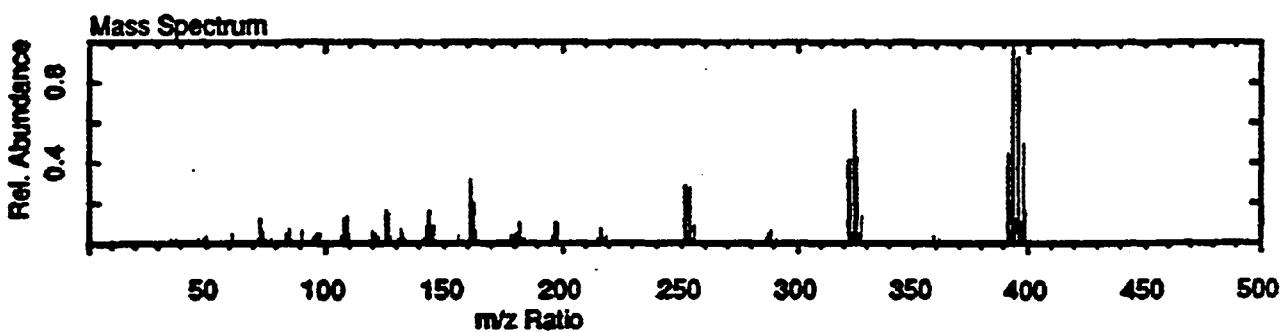
IUPAC Congener No. 186

2,2',3,4,5,6,6'-HEPTACHLOROBIPHENYL

CAS No. 74472-49-4



cm^{-1}	abs								
689.95	0.45	1030.48	0.12	1319.79	0.06	1437.60	0.47	1594.62	0.18
742.19	0.22	1085.08	0.13	1328.54	0.55	1554.93	0.08		
782.36	0.57	1195.00	0.11	1353.84	1.00	1565.74	0.25		
797.10	0.42	1258.34	0.23	1363.26	0.63	1585.39	0.07		
879.54	0.14	1267.97	0.09	1380.54	0.35	1591.24	0.19		

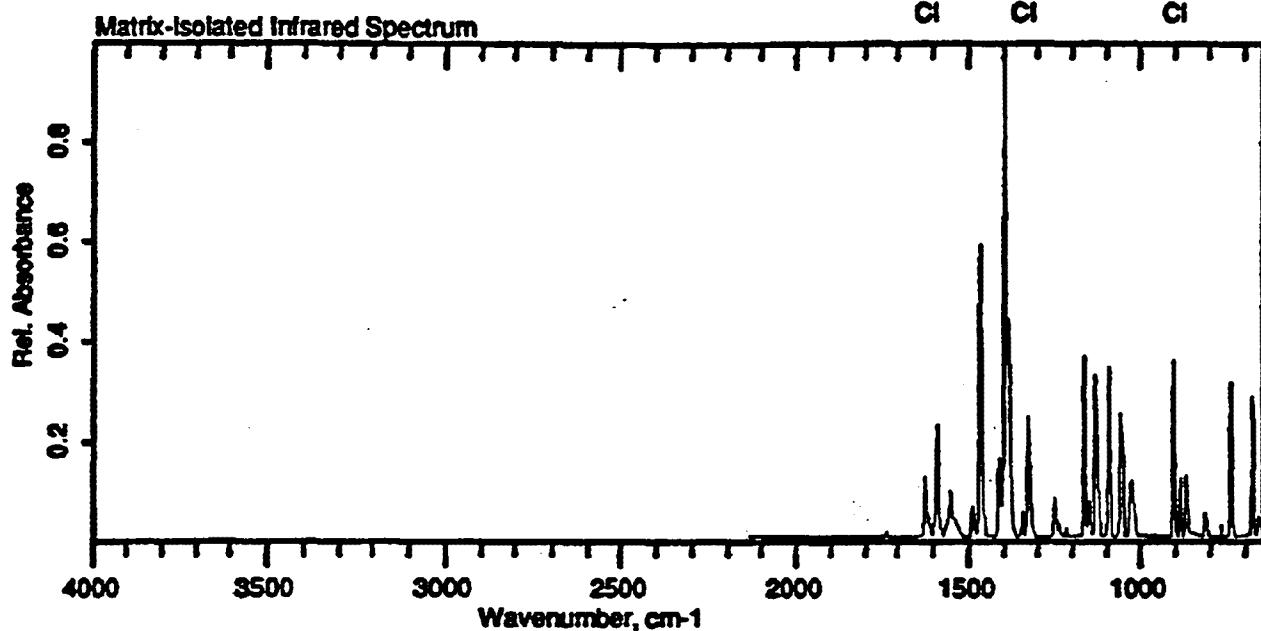
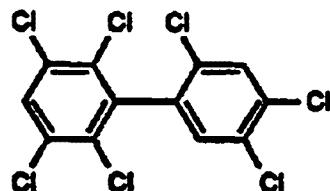


m/z	abun								
73.05	0.13	144.00	0.17	196.90	0.11	325.00	0.09	396.95	0.12
108.00	0.13	144.90	0.09	197.90	0.10	326.00	0.43	397.95	0.51
109.05	0.14	146.00	0.09	252.00	0.30	328.00	0.14	399.95	0.17
125.95	0.16	161.05	0.20	254.05	0.28	391.90	0.45		
126.95	0.15	161.95	0.32	256.05	0.09	393.90	1.00		
131.95	0.09	162.95	0.21	321.95	0.42	394.90	0.13		
143.00	0.10	182.00	0.11	323.95	0.67	395.90	0.93		

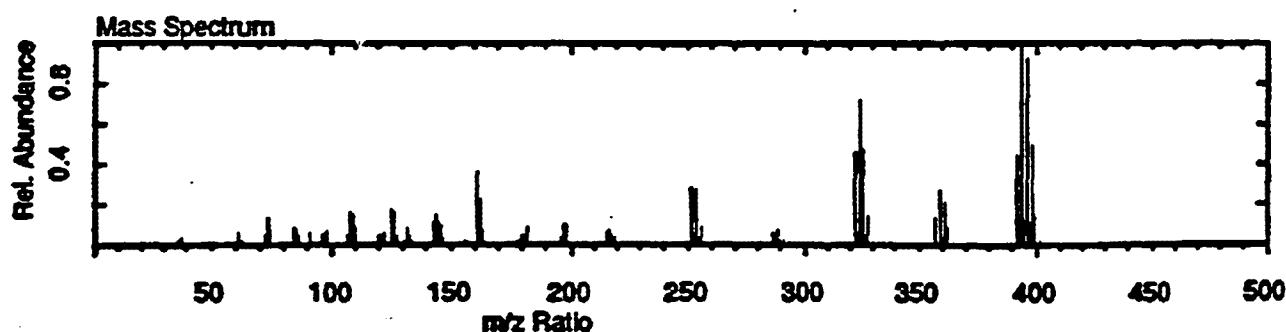
IUPAC Congener No. 187

2,2',3,4',5,5',6-HEPTACHLOROBIPHENYL

CAS No. 52663-68-0



cm^{-1}	abs								
663.73	0.05	889.42	0.13	1135.16	0.33	1347.36	0.06	1490.89	0.07
679.20	0.29	908.69	0.36	1152.81	0.08	1389.13	0.44	1541.86	0.05
741.78	0.31	1031.53	0.12	1167.74	0.37	1398.16	1.00	1554.48	0.10
817.58	0.06	1062.07	0.25	1255.21	0.09	1413.51	0.16	1590.97	0.23
871.68	0.13	1094.34	0.35	1331.92	0.25	1468.39	0.59		

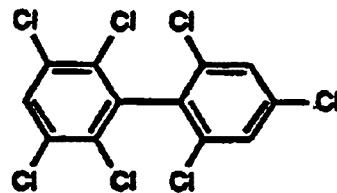


m/z	abun	m/z	abun	m/z	abun	m/z	abun
73.05	0.15	144.90	0.12	251.90	0.30	358.95	0.28
108.00	0.17	146.00	0.11	253.95	0.29	360.95	0.22
109.05	0.15	160.95	0.23	321.95	0.47	391.90	0.46
125.95	0.18	161.95	0.37	323.95	0.74	393.90	1.00
126.95	0.17	162.95	0.23	326.00	0.48	394.90	0.13
143.00	0.11	196.90	0.11	327.90	0.15	395.90	0.94
144.00	0.16	197.90	0.10	356.95	0.14	396.95	0.12

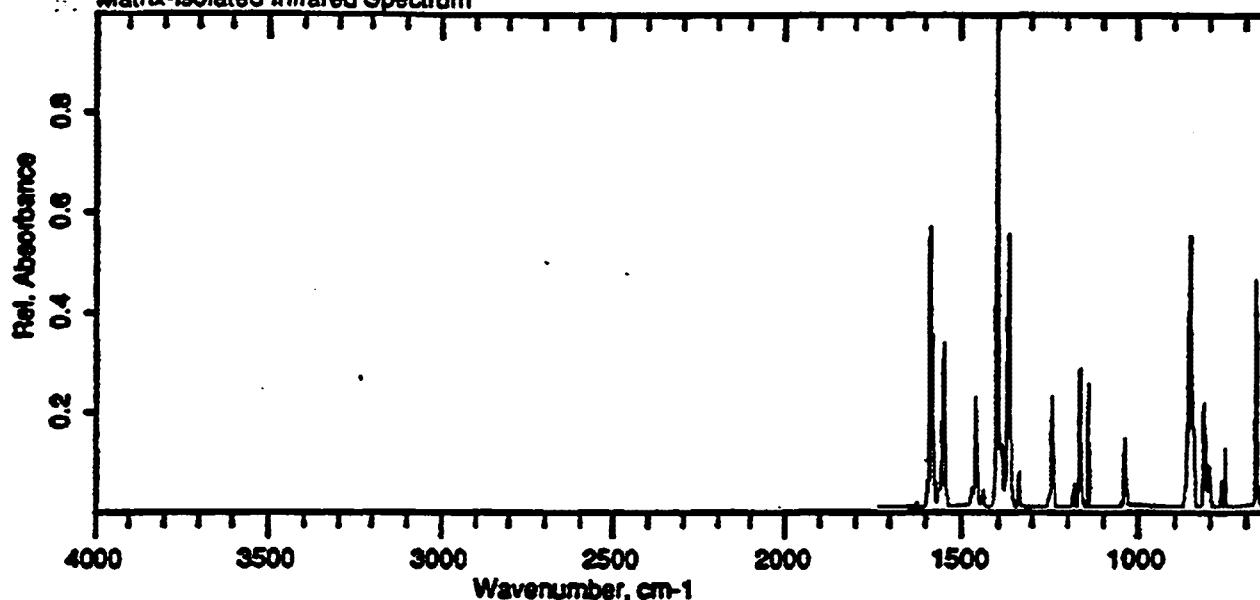
IUPAC Congener No. 188

2,2',3,4',5,6,6'-HEPTACHLOROBIPHENYL

CAS No. 74487-85-7

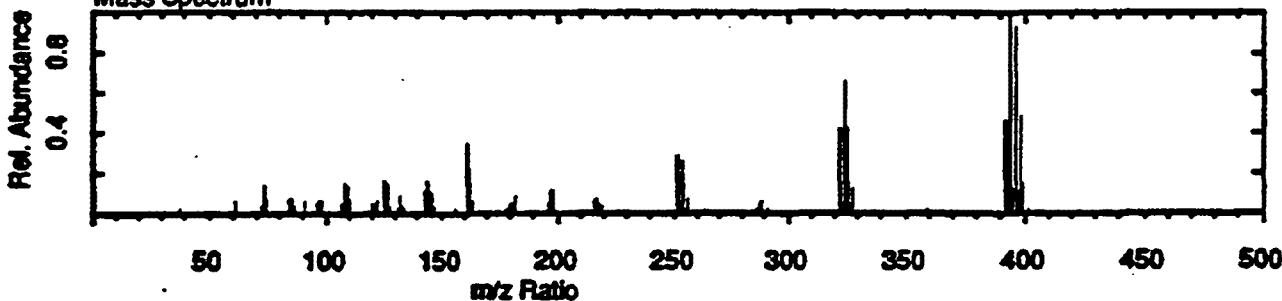


Matrix-isolated Infrared Spectrum



cm^{-1}	abs								
665.89	0.05	820.21	0.22	1044.18	0.15	1341.38	0.08	1473.52	0.05
672.21	0.46	852.89	0.17	1143.97	0.25	1368.95	0.56	1549.32	0.34
760.63	0.13	859.78	0.55	1168.29	0.29	1390.13	0.13		
772.23	0.06	870.80	0.14	1184.63	0.05	1400.99	1.00		
805.82	0.09	1039.73	0.06	1247.63	0.23	1462.66	0.23		

Mass Spectrum

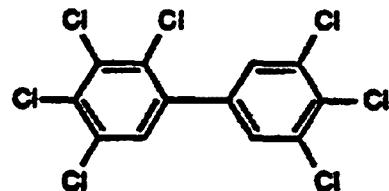


m/z	abun								
73.05	0.14	143.00	0.12	182.00	0.10	323.95	0.57	396.05	0.94
108.00	0.16	144.00	0.16	196.80	0.12	325.00	0.09	397.05	0.12
109.05	0.15	145.00	0.11	197.90	0.12	326.00	0.43	398.05	0.49
110.05	0.09	146.00	0.11	252.00	0.29	328.00	0.14	399.95	0.16
126.05	0.17	160.95	0.23	254.05	0.27	392.00	0.46		
126.95	0.16	161.95	0.36	256.05	0.09	394.00	1.00		
131.95	0.10	162.95	0.23	321.95	0.43	395.00	0.13		

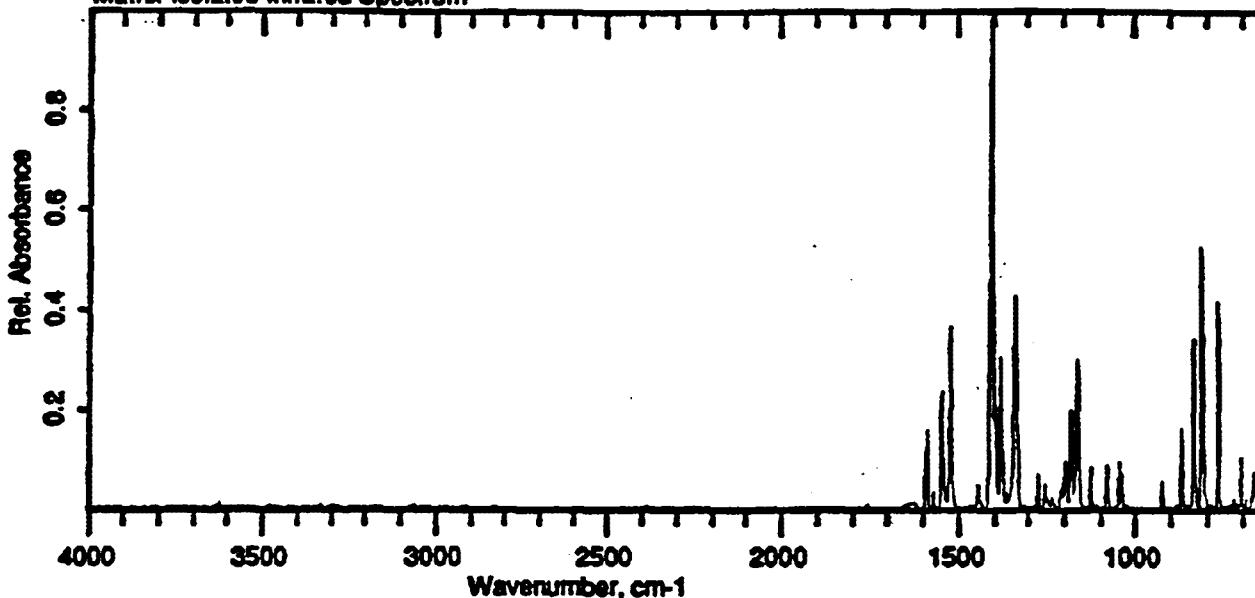
IUPAC Congener No. 189

2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL

CAS No. 39635-31-9

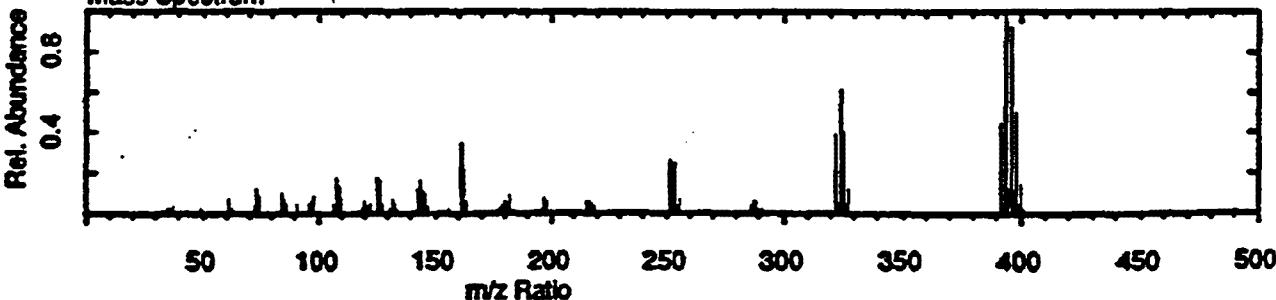


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
658.48	0.09	840.30	0.34	1129.73	0.08	1339.77	0.42	1549.87	0.23
668.59	0.08	873.59	0.16	1165.44	0.30	1382.77	0.30		
706.34	0.11	927.67	0.05	1183.90	0.19	1397.56	0.20		
771.57	0.41	1042.22	0.07	1200.83	0.09	1406.65	1.00		
817.56	0.52	1051.17	0.09	1257.50	0.05	1446.58	0.05		
835.25	0.05	1083.93	0.09	1277.29	0.07	1524.59	0.36		

Mass Spectrum

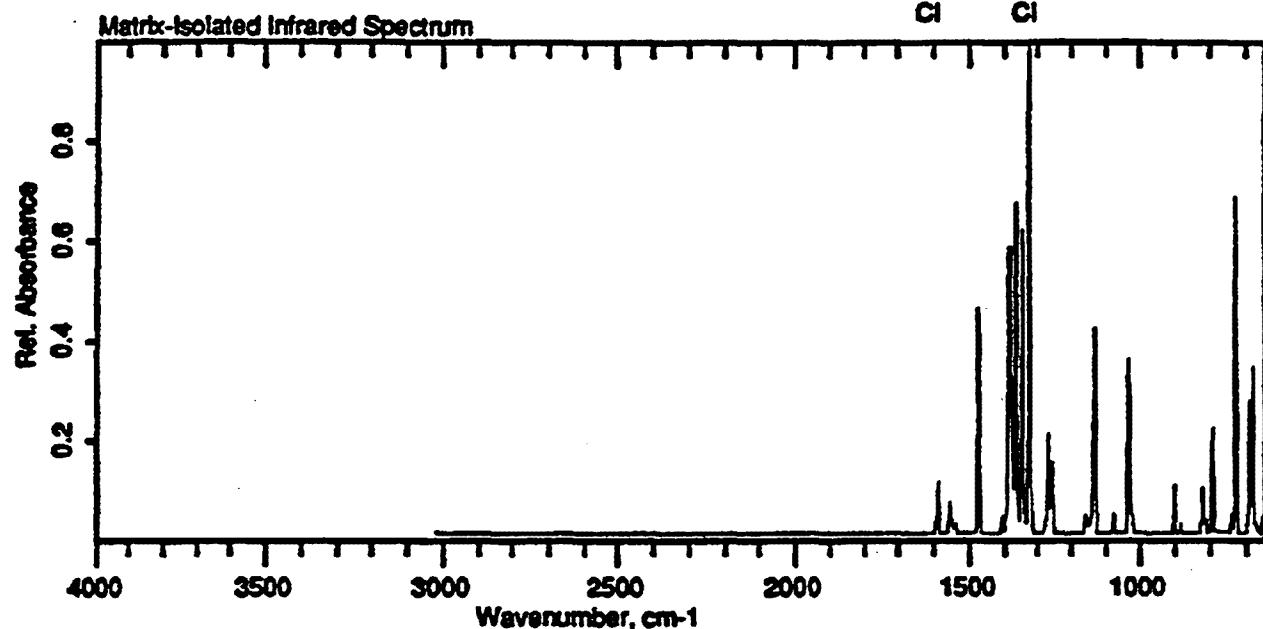
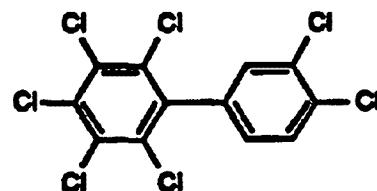


m/z	abun								
73.05	0.14	126.05	0.18	161.05	0.23	321.95	0.39	396.05	0.93
74.05	0.09	126.95	0.17	161.95	0.36	323.95	0.62	397.05	0.12
83.95	0.11	131.95	0.08	162.95	0.23	326.00	0.40	398.05	0.50
98.00	0.10	143.00	0.13	182.10	0.09	328.00	0.13	400.05	0.16
108.00	0.18	144.00	0.17	252.00	0.27	392.00	0.46		
109.05	0.14	145.00	0.12	254.05	0.26	394.00	1.00		
110.05	0.08	146.00	0.11	256.05	0.08	395.00	0.13		

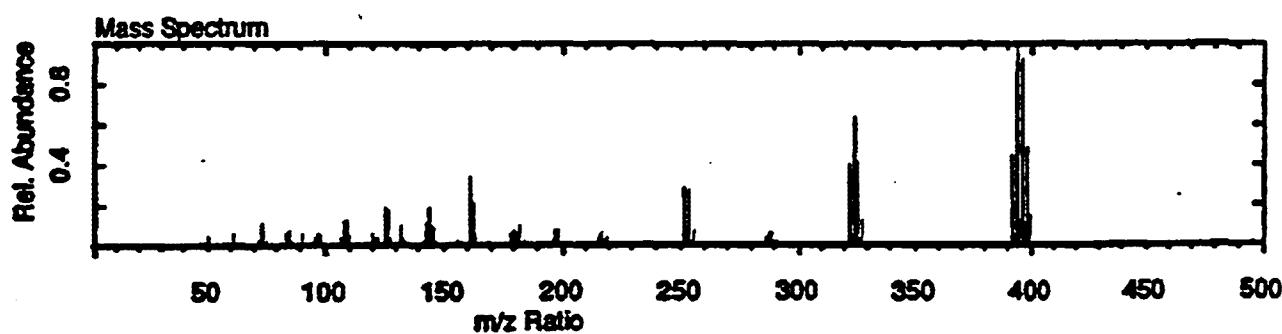
IUPAC Congener No. 190

2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL

CAS No. 41411-64-7



cm^{-1}	abs								
657.50	0.05	796.11	0.23	1134.73	0.43	1350.60	0.63	1477.80	0.47
683.45	0.35	824.86	0.11	1163.28	0.05	1368.42	0.68	1559.42	0.08
693.04	0.28	905.87	0.11	1260.91	0.16	1380.01	0.32		
731.15	0.69	1038.38	0.37	1273.56	0.22	1387.99	0.59		
742.78	0.05	1080.24	0.05	1329.80	1.00	1407.04	0.05		

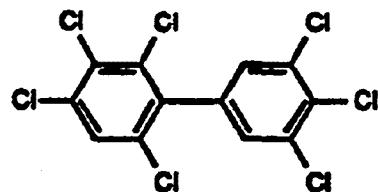


m/z	abun								
73.05	0.12	131.95	0.10	162.95	0.22	323.95	0.64	396.05	0.93
74.05	0.08	143.00	0.12	182.10	0.10	325.00	0.08	397.05	0.12
85.00	0.08	144.00	0.19	197.00	0.08	326.00	0.42	398.05	0.50
108.00	0.13	145.00	0.11	252.00	0.29	328.00	0.13	399.95	0.16
109.05	0.13	146.00	0.10	254.05	0.28	392.00	0.46		
126.05	0.19	161.05	0.23	256.05	0.08	394.00	1.00		
126.95	0.18	161.95	0.35	321.95	0.41	395.00	0.13		

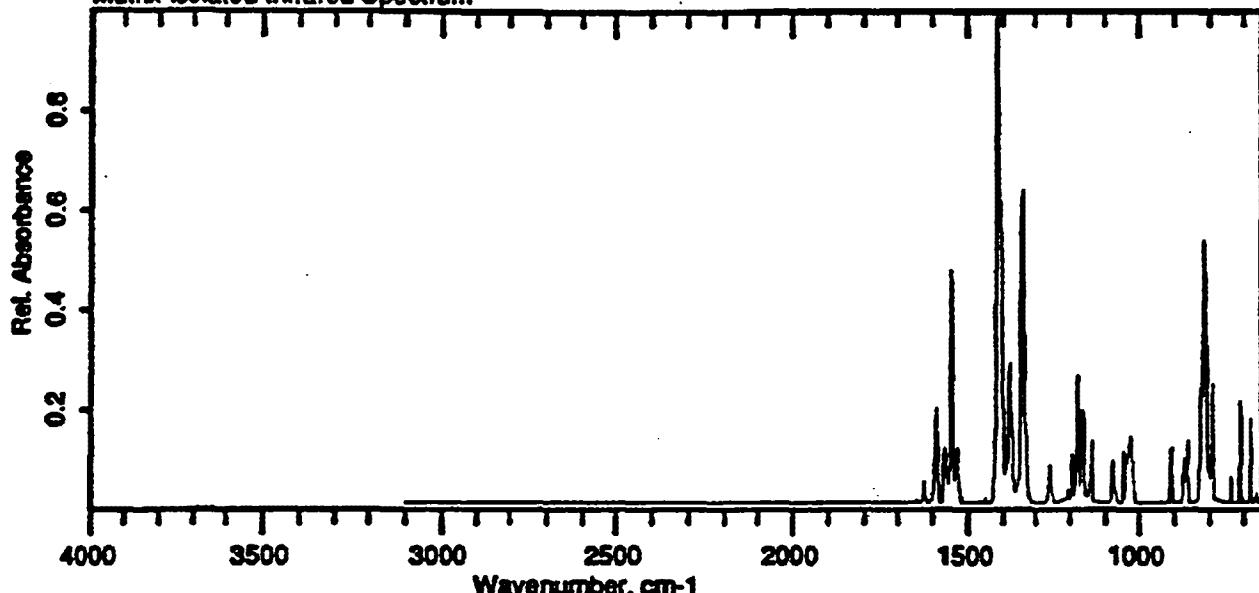
IUPAC Congener No. 191

2,3,3',4,4',5,6-HEPTACHLOROBIPHENYL

CAS No. 74472-50-7

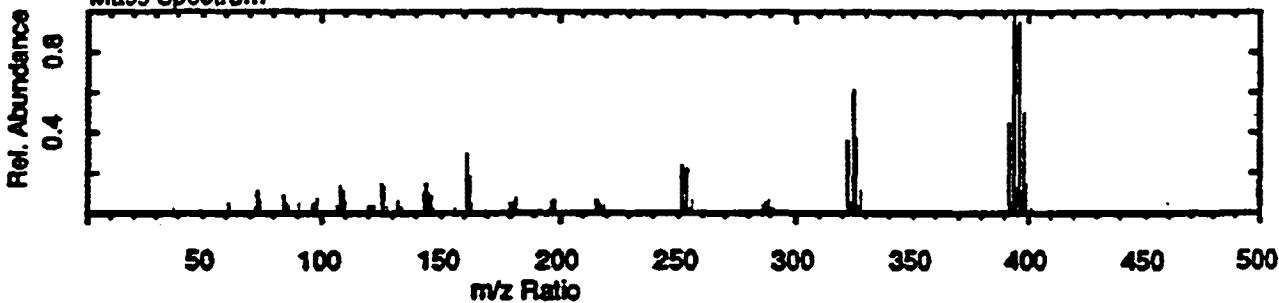


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
679.77	0.18	826.83	0.24	1050.89	0.11	1261.21	0.09	1531.59	0.12
710.19	0.22	866.96	0.14	1081.68	0.10	1341.12	0.64	1547.77	0.48
737.08	0.06	878.56	0.10	1140.48	0.14	1373.05	0.16	1568.03	0.12
793.61	0.25	913.41	0.12	1165.39	0.20	1379.73	0.29	1591.16	0.20
805.26	0.09	1030.25	0.14	1180.00	0.27	1405.70	0.62		
817.61	0.53	1039.82	0.11	1196.03	0.11	1414.95	1.00		

Mass Spectrum

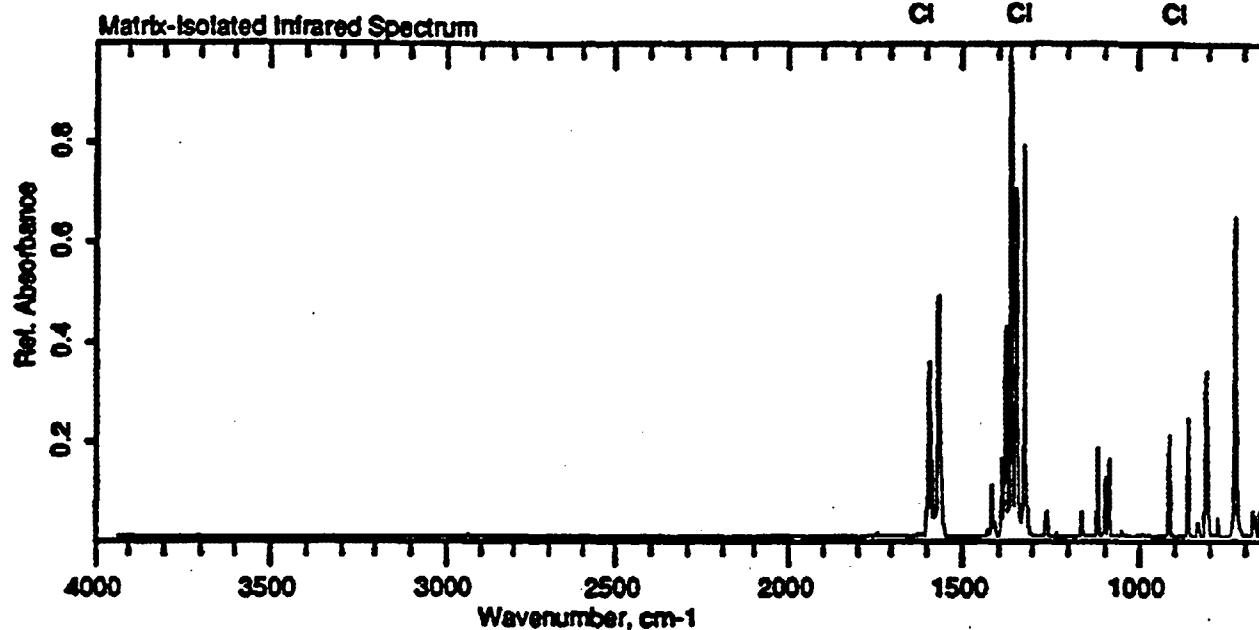
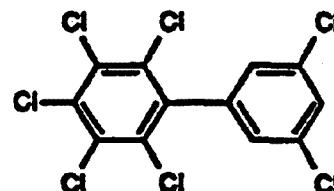


m/z	abun								
73.05	0.12	128.95	0.14	161.95	0.31	325.00	0.08	396.95	0.12
83.95	0.09	131.95	0.07	162.95	0.19	326.00	0.39	397.95	0.51
98.00	0.08	143.00	0.11	182.00	0.08	327.90	0.12	399.95	0.16
108.00	0.14	144.00	0.15	251.90	0.24	391.90	0.45		
109.05	0.12	145.00	0.10	253.95	0.23	393.90	1.00		
110.05	0.07	146.00	0.09	321.95	0.37	394.90	0.13		
126.05	0.15	160.95	0.19	323.95	0.62	395.90	0.96		

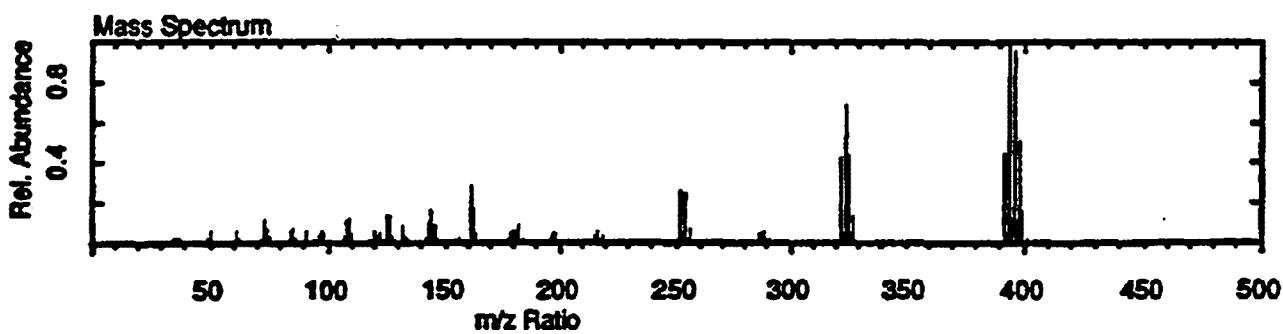
IUPAC Congener No. 192

2,3,3',4,5,5',6-HEPTACHLOROBIPHENYL

CAS No. 74472-51-8



cm^{-1}	abs								
861.68	0.06	812.31	0.34	1102.52	0.13	1327.07	0.79	1391.79	0.17
872.44	0.05	865.41	0.25	1122.10	0.19	1349.97	0.71	1418.72	0.11
880.70	0.06	919.73	0.21	1164.89	0.06	1365.70	1.00	1569.34	0.49
728.07	0.65	1090.85	0.16	1262.59	0.06	1380.19	0.43		

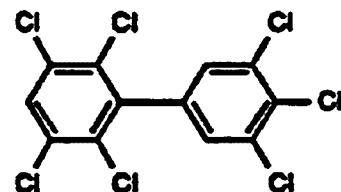


m/z	abun								
73.05	0.12	126.95	0.14	161.95	0.29	323.95	0.70	395.90	0.97
74.05	0.08	131.95	0.10	162.95	0.18	325.00	0.09	396.95	0.12
85.00	0.08	143.00	0.11	182.00	0.09	325.90	0.45	397.95	0.51
97.00	0.07	144.00	0.16	251.90	0.27	327.90	0.14	399.95	0.17
108.00	0.12	145.00	0.09	253.95	0.26	391.90	0.45		
109.05	0.13	146.00	0.09	255.95	0.08	393.90	1.00		
125.95	0.15	160.95	0.18	321.95	0.43	394.90	0.13		

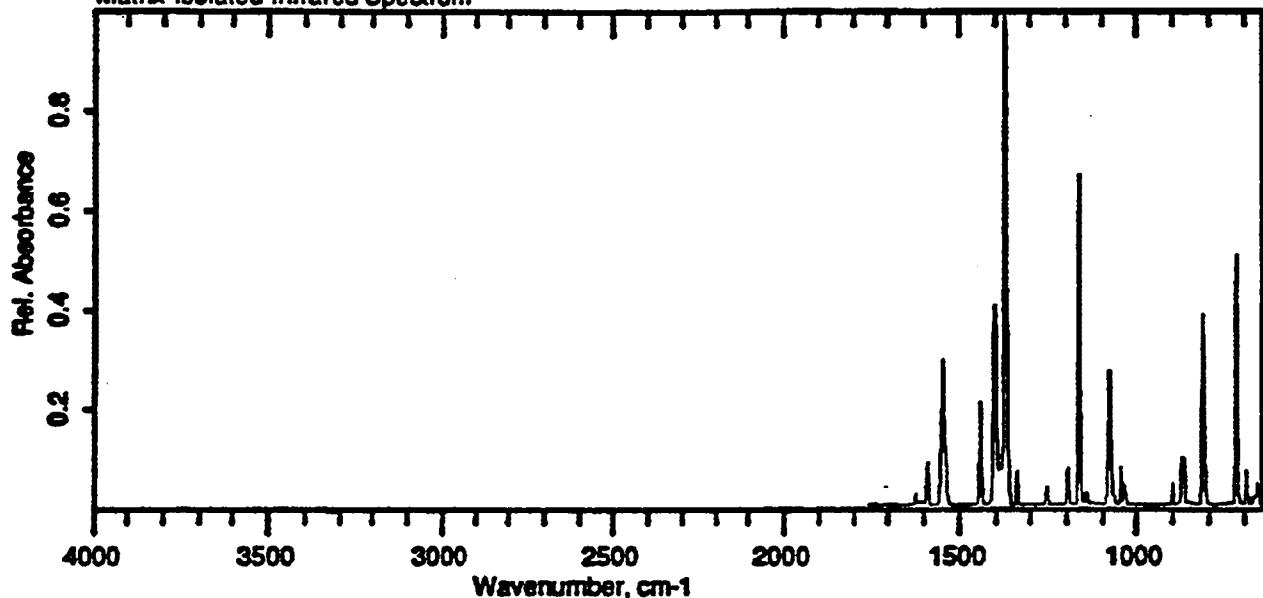
IUPAC Congener No. 193

2,3,3',4',5,5',6-HEPTACHLOROBIPHENYL

CAS No. 69782-91-8

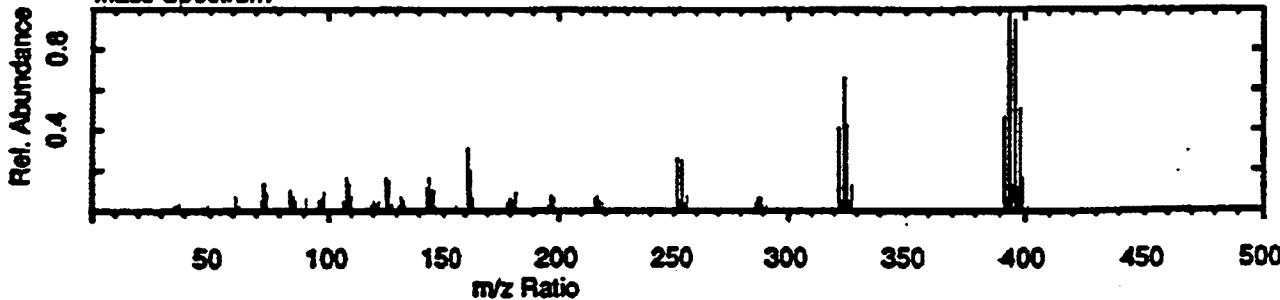


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
663.40	0.05	872.82	0.10	1050.07	0.08	1340.92	0.07	1442.53	0.21
694.82	0.08	876.54	0.10	1080.44	0.28	1373.19	1.00	1547.21	0.30
724.21	0.51	903.86	0.05	1167.50	0.68	1388.92	0.08		
818.97	0.39	1040.83	0.05	1198.62	0.08	1401.50	0.41		

Mass Spectrum

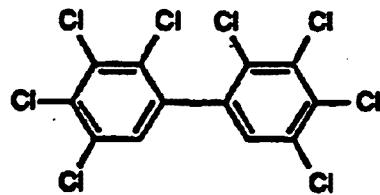


m/z	abun								
73.05	0.14	126.05	0.17	161.05	0.20	323.95	0.67	395.90	0.96
74.05	0.09	126.95	0.15	161.95	0.32	325.00	0.09	396.95	0.12
83.95	0.11	131.95	0.09	162.95	0.21	326.00	0.43	397.95	0.52
98.00	0.10	143.00	0.12	182.00	0.09	328.00	0.14	399.95	0.17
108.00	0.17	144.00	0.16	252.00	0.27	391.90	0.47		
109.05	0.15	145.00	0.11	254.05	0.26	393.90	1.00		
110.05	0.08	146.00	0.11	321.95	0.42	394.90	0.13		

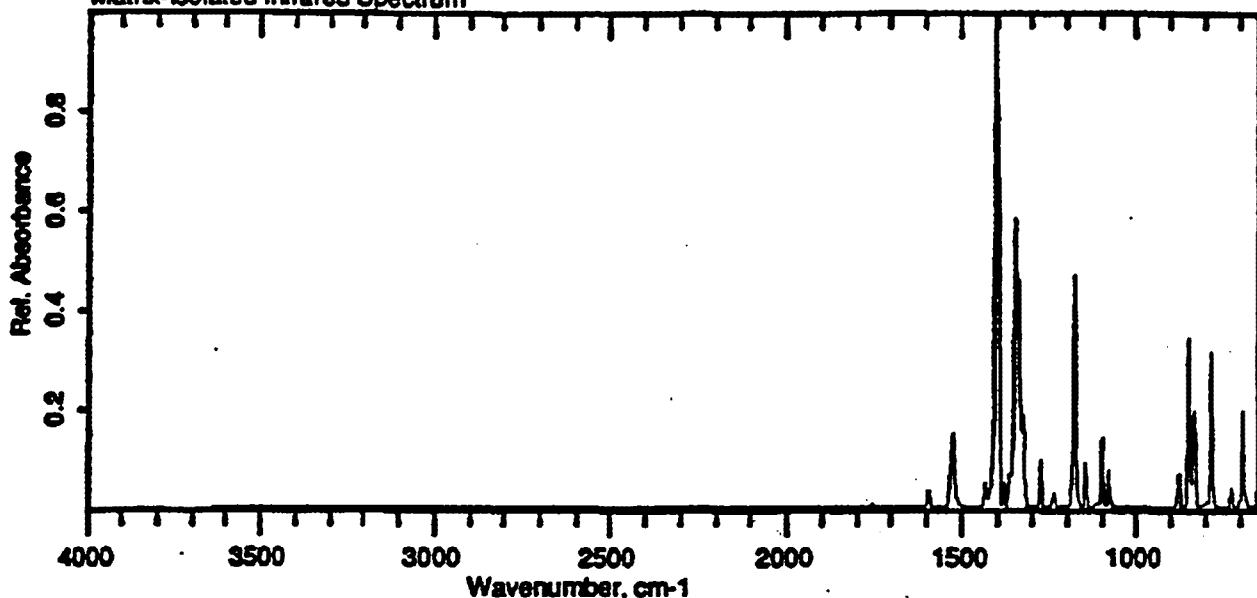
IUPAC Congener No. 194

2,2',3,3',4,4',5,5'-OCTACHLOROBIPHENYL

CAS No. 35694-08-7

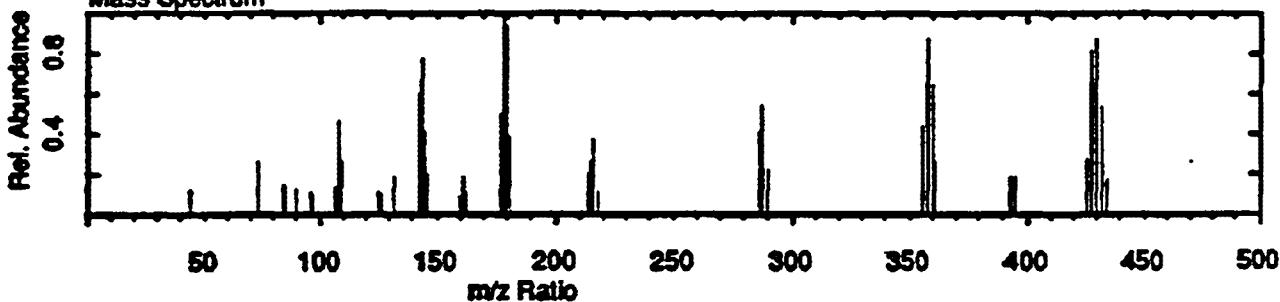


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
692.59	0.20	878.62	0.07	1181.82	0.47	1349.90	0.58	1434.20	0.05
785.33	0.31	1082.59	0.08	1278.94	0.10	1365.37	0.07		
835.79	0.20	1102.52	0.14	1328.51	0.19	1381.70	0.05		
852.29	0.34	1150.83	0.10	1341.97	0.46	1403.09	1.00		

Mass Spectrum

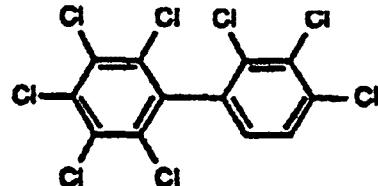


m/z	abun								
73.05	0.27	143.00	0.60	179.95	0.94	289.90	0.23	425.90	0.28
83.95	0.16	144.00	0.78	181.00	0.40	355.95	0.44	427.90	0.82
85.00	0.14	145.00	0.42	213.95	0.21	357.95	0.88	429.90	0.89
107.00	0.15	146.00	0.20	214.95	0.27	359.95	0.65	431.90	0.55
108.00	0.47	161.05	0.19	215.95	0.38	361.95	0.26	433.90	0.18
109.05	0.27	177.95	0.51	286.00	0.41	392.90	0.20		
131.95	0.19	178.95	1.00	287.90	0.54	394.90	0.20		

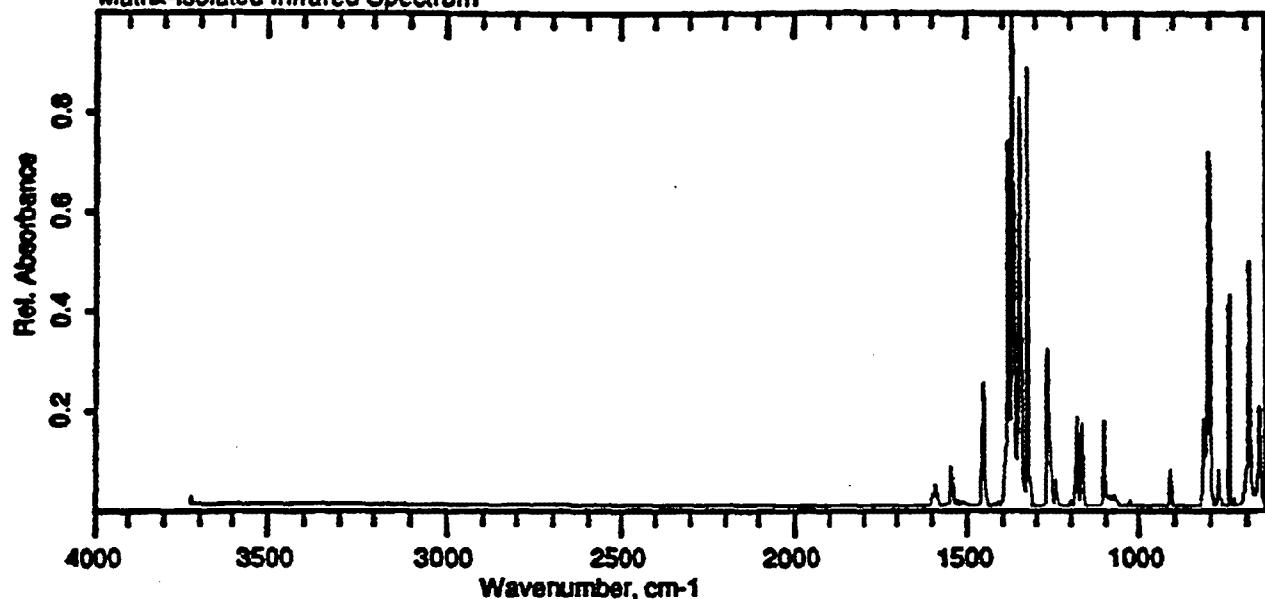
IUPAC Congener No. 195

2,2',3,3',4,4',5,6-OCTACHLOROBIPHENYL

CAS No. 52663-78-2

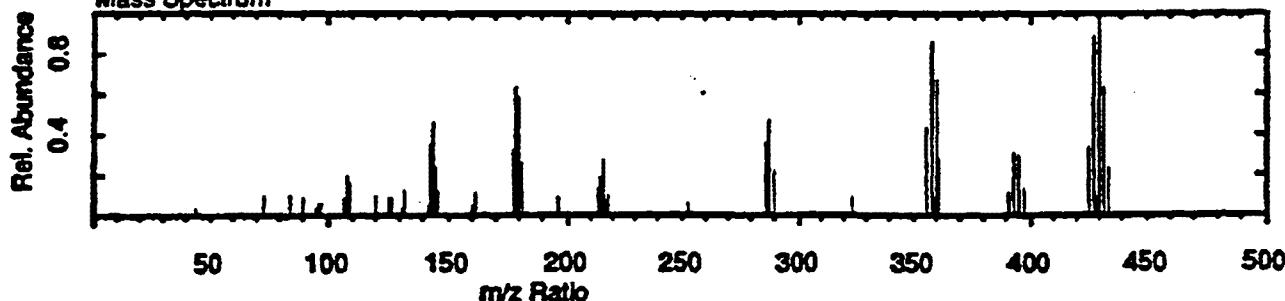


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
667.60	0.20	821.99	0.18	1246.70	0.06	1367.97	0.65		
695.13	0.49	915.99	0.08	1264.56	0.13	1372.91	1.00		
751.14	0.42	1106.54	0.17	1271.86	0.31	1384.41	0.74		
780.72	0.08	1170.94	0.17	1328.29	0.88	1455.22	0.25		
806.43	0.71	1185.62	0.18	1350.80	0.81	1546.71	0.09		

Mass Spectrum

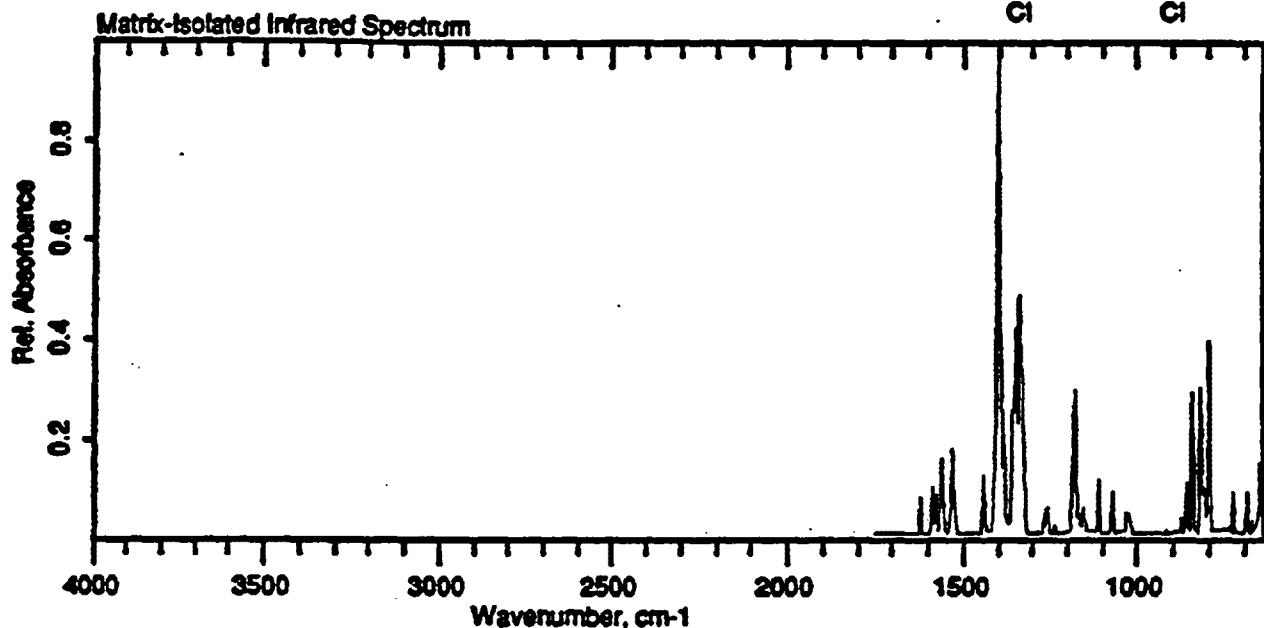
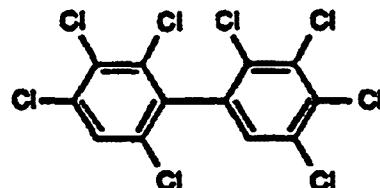


m/z	abun								
108.00	0.21	161.05	0.12	214.95	0.19	359.95	0.68	428.00	0.89
109.05	0.17	161.45	0.11	215.95	0.28	361.95	0.29	430.00	1.00
131.95	0.13	177.95	0.33	286.00	0.37	390.90	0.12	431.90	0.64
143.00	0.35	178.95	0.64	288.00	0.48	392.90	0.31	433.90	0.24
144.00	0.47	179.95	0.59	290.00	0.23	394.90	0.31		
145.00	0.25	181.00	0.27	355.95	0.45	396.95	0.15		
146.00	0.13	213.95	0.14	357.95	0.87	426.00	0.34		

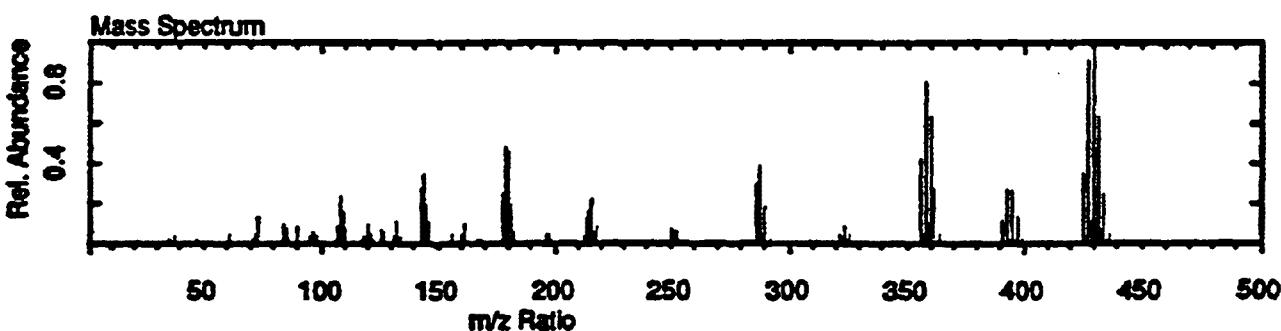
IUPAC Congener No. 196

2,2',3,3',4,4',5',6-OCTACHLOROBIPHENYL

CAS No. 42740-50-1



cm^{-1}	abs								
655.32	0.12	826.68	0.30	1113.79	0.12	1341.64	0.49	1445.01	0.13
681.48	0.16	850.37	0.30	1158.58	0.07	1350.01	0.42	1535.80	0.19
694.52	0.10	865.60	0.12	1169.08	0.05	1360.36	0.26	1565.26	0.16
734.55	0.10	1029.49	0.05	1181.75	0.30	1378.08	0.05	1580.93	0.09
802.84	0.40	1033.57	0.05	1261.17	0.06	1385.72	0.21	1590.60	0.11
816.99	0.11	1075.17	0.10	1335.66	0.34	1402.43	1.00		

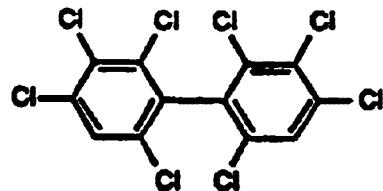


m/z	abun								
73.05	0.14	146.00	0.12	215.95	0.23	361.95	0.28	429.00	0.12
108.00	0.25	177.95	0.26	286.00	0.31	390.90	0.12	430.00	1.00
109.05	0.16	178.95	0.49	288.00	0.40	392.90	0.28	431.00	0.13
131.95	0.12	179.95	0.47	290.00	0.19	394.90	0.27	432.00	0.65
143.00	0.28	181.00	0.21	355.95	0.43	396.95	0.14	433.90	0.26
144.00	0.36	213.95	0.13	357.95	0.81	426.00	0.36		
145.00	0.21	214.95	0.17	359.95	0.65	428.00	0.92		

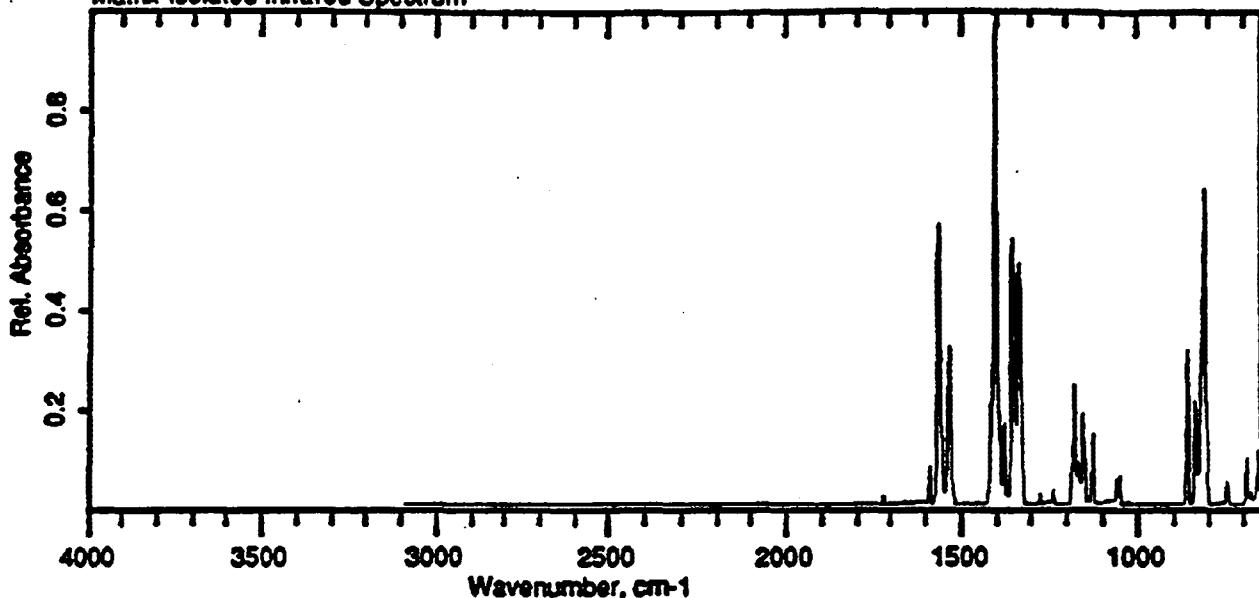
IUPAC Congener No. 197

2,2',3,3',4,4',6,6'-OCTACHLOROBIPHENYL

CAS No. 33091-17-7

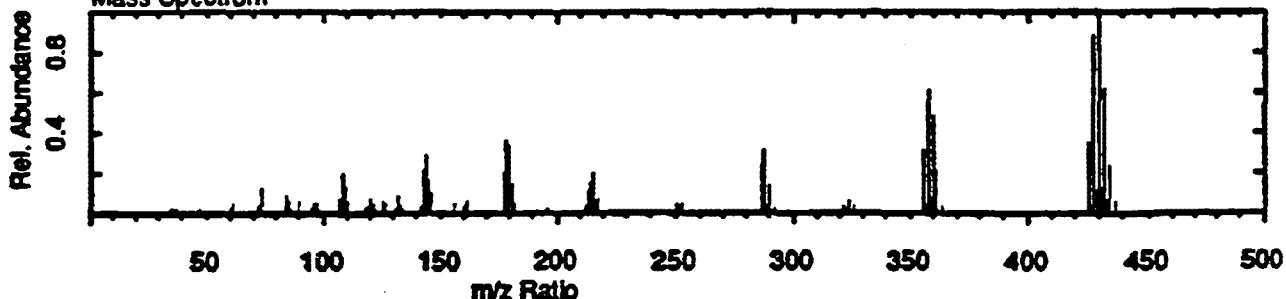


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
660.03	0.12	841.75	0.22	1156.35	0.19	1356.82	0.54		
692.13	0.10	864.64	0.33	1170.58	0.09	1380.17	0.17		
749.85	0.05	1055.23	0.07	1180.28	0.25	1403.35	1.00		
813.95	0.63	1062.61	0.06	1336.15	0.49	1535.62	0.33		
826.00	0.27	1128.98	0.15	1340.07	0.48	1564.41	0.57		

Mass Spectrum

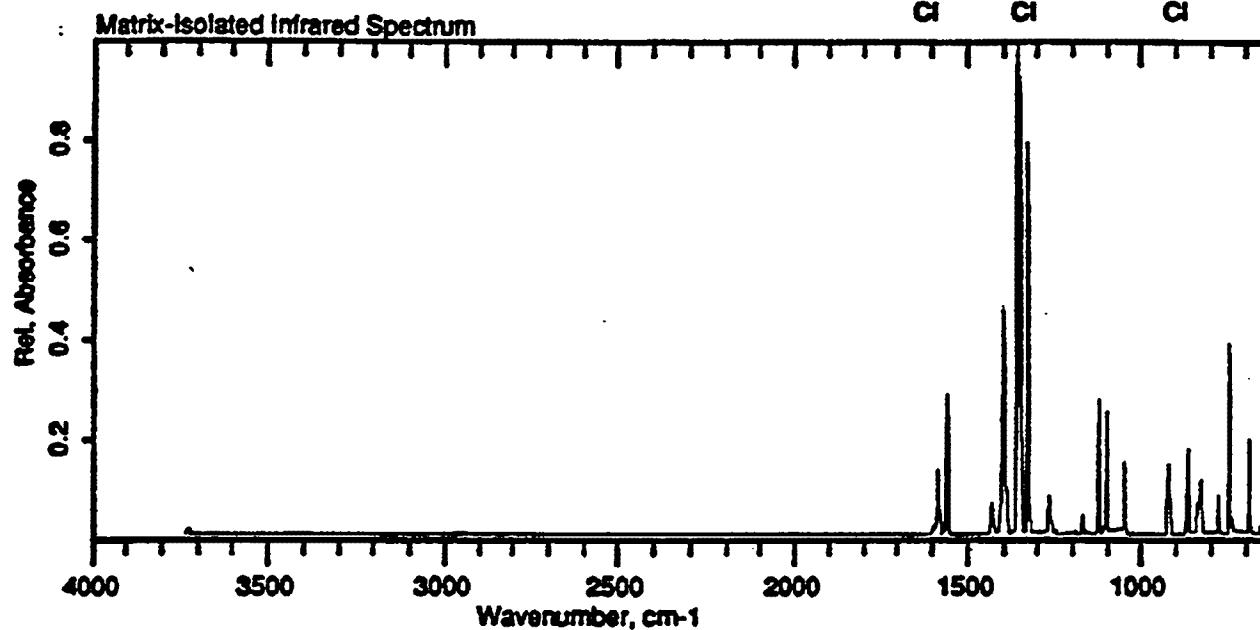
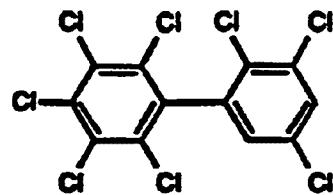


m/z	abun								
73.05	0.13	143.00	0.22	181.00	0.16	290.00	0.15	428.00	0.89
83.95	0.10	144.00	0.29	213.95	0.12	355.95	0.32	429.00	0.12
107.00	0.08	145.00	0.17	214.95	0.16	357.95	0.62	430.00	1.00
108.00	0.21	146.00	0.10	215.95	0.20	358.95	0.08	431.00	0.13
109.05	0.14	177.95	0.21	217.95	0.08	359.95	0.50	432.00	0.63
120.05	0.08	178.95	0.37	286.00	0.25	361.95	0.21	434.00	0.25
131.95	0.10	179.95	0.35	288.00	0.32	426.00	0.36		

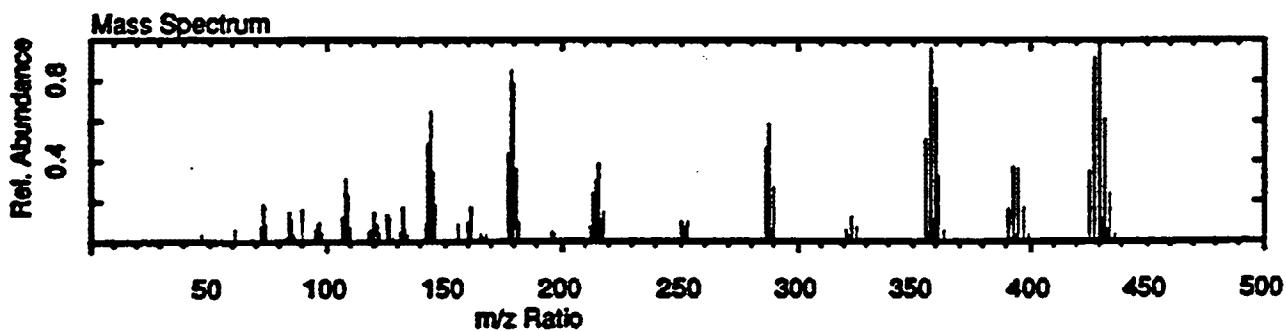
IUPAC Congener No. 198

2,2',3,3',4,5,5',6-OCTACHLOROBIPHENYL

CAS No. 68194-17-2



cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
690.71	0.20	869.57	0.18	1174.41	0.05	1360.82	1.00		
748.95	0.40	925.29	0.15	1269.77	0.09	1392.85	0.10		
781.56	0.09	1052.95	0.16	1331.10	0.80	1401.34	0.46		
832.30	0.12	1104.65	0.26	1347.18	0.10	1433.82	0.07		
840.59	0.07	1128.15	0.28	1353.83	0.93	1559.32	0.29		

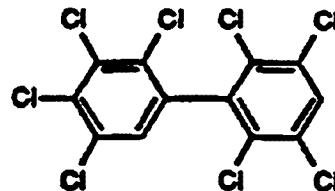


m/z	abun.								
73.05	0.19	145.00	0.35	181.00	0.37	355.95	0.51	396.95	0.18
90.10	0.16	146.00	0.20	213.95	0.25	357.95	0.97	426.00	0.35
108.00	0.32	161.05	0.18	214.95	0.30	359.95	0.76	428.00	0.92
109.05	0.25	161.55	0.16	215.95	0.40	361.95	0.33	430.00	1.00
131.95	0.18	177.95	0.44	286.00	0.47	390.90	0.16	432.00	0.62
143.00	0.49	178.95	0.85	288.00	0.59	392.90	0.38	433.90	0.25
144.00	0.66	179.95	0.80	290.00	0.29	394.90	0.37		

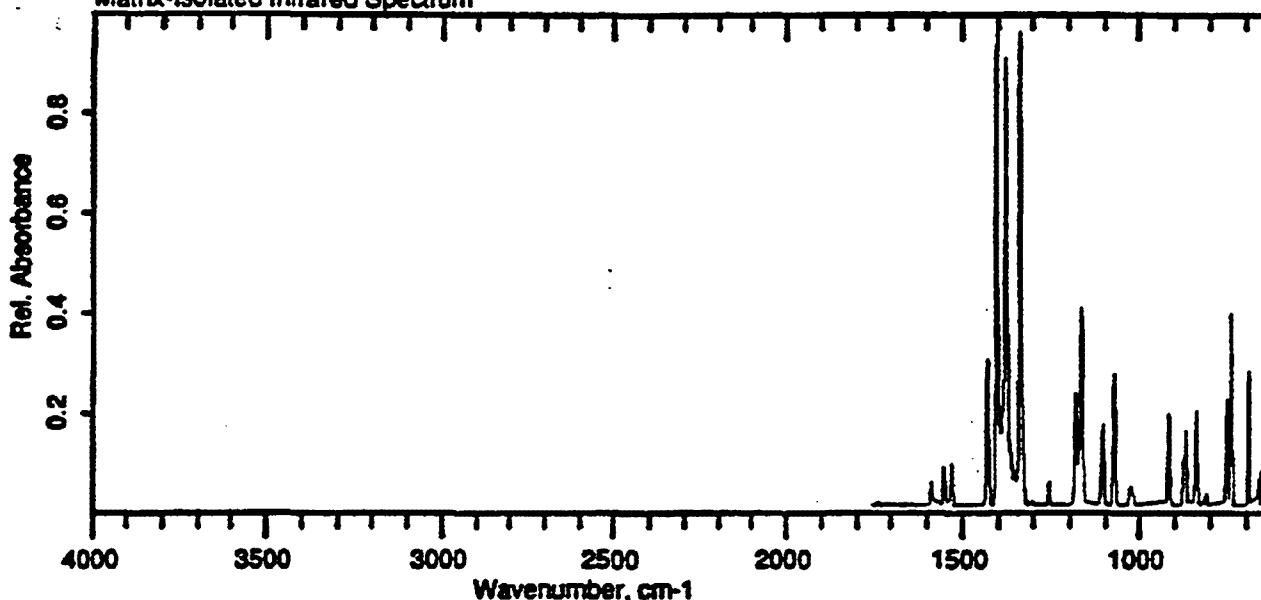
IUPAC Congener No. 199

2,2',3,3',4,5,5',6'-OCTACHLOROBIPHENYL

CAS No. 52663-75-9



Matrix-Isolated Infrared Spectrum



cm^{-1} abs

660.03 0.09
666.78 0.07
694.88 0.29
740.31 0.13
745.63 0.40
757.31 0.23

cm^{-1} abs

843.15 0.21
872.48 0.17
878.09 0.11
922.00 0.20
1030.54 0.05
1076.55 0.28

cm^{-1} abs

1081.02 0.12
1109.17 0.17
1168.98 0.41
1176.09 0.15
1185.39 0.24
1260.46 0.06

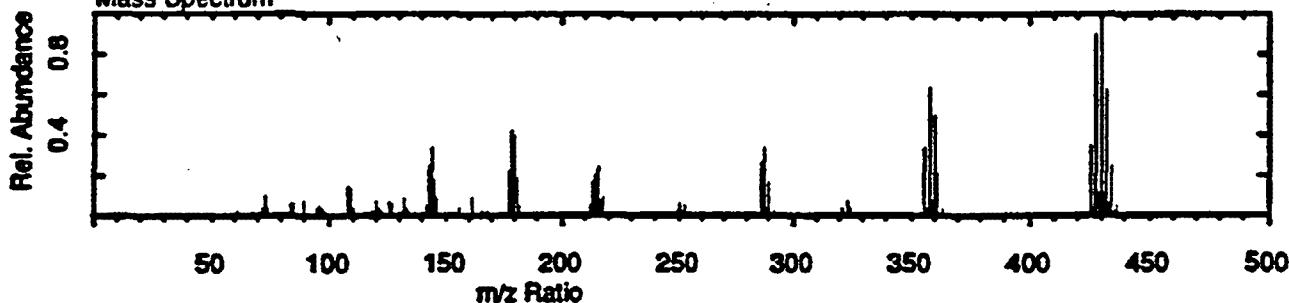
cm^{-1} abs

1338.33 0.97
1349.15 0.07
1355.63 0.07
1377.34 0.91
1403.29 1.00
1430.04 0.31

cm^{-1} abs

1531.28 0.10
1554.08 0.09

Mass Spectrum



m/z abun

73.05 0.10
108.00 0.16
109.05 0.14
131.95 0.10
143.00 0.26
144.00 0.34
145.00 0.18

m/z abun

146.00 0.10
177.95 0.23
178.95 0.43
179.95 0.41
181.00 0.20
213.95 0.17
214.95 0.21

m/z abun

215.95 0.25
217.95 0.10
285.90 0.27
287.90 0.34
289.90 0.17
355.95 0.34
357.95 0.64

m/z abun

359.95 0.51
361.95 0.21
425.90 0.36
427.90 0.91
428.90 0.11
429.90 1.00
430.90 0.12

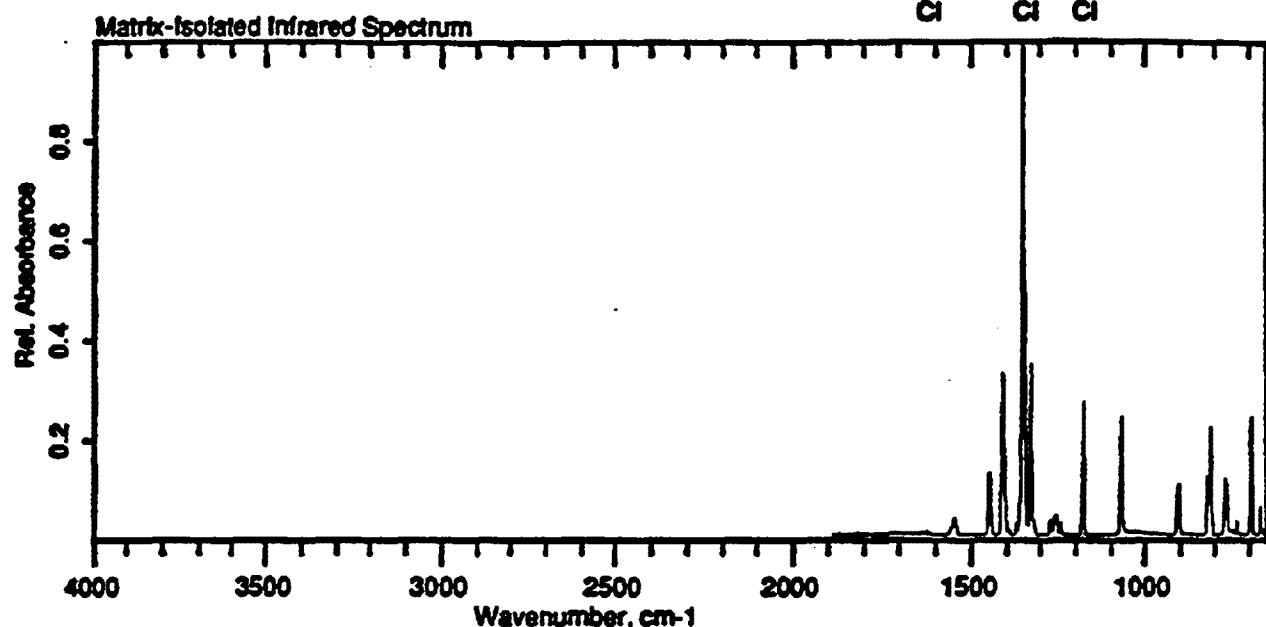
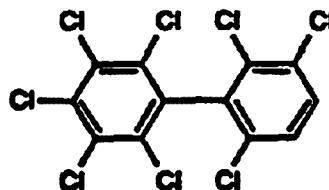
m/z abun

431.90 0.63
433.90 0.25

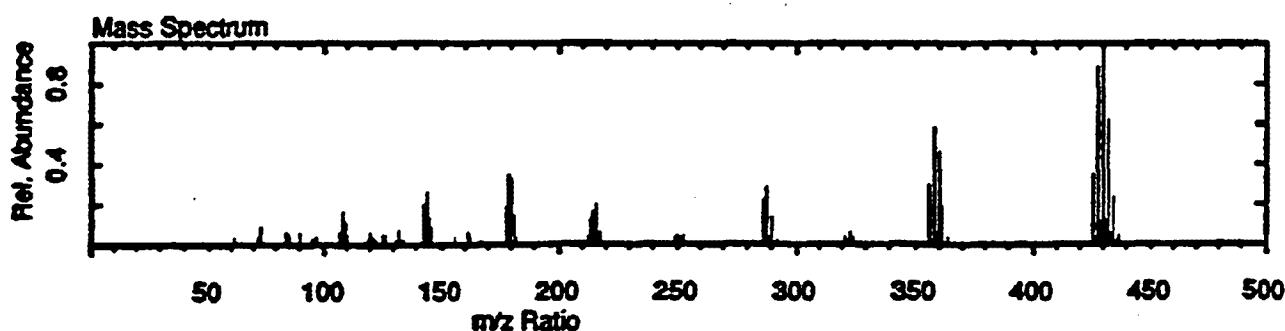
IUPAC Congener No. 200

2,2',3,3',4,5,6,6'-OCTACHLOROBIPHENYL

CAS No. 52663-73-7



cm^{-1}	abs								
667.97	0.07	772.57	0.12	908.54	0.11	1258.91	0.05	1411.56	0.33
693.43	0.24	813.46	0.22	1073.94	0.25	1329.20	0.35		
765.06	0.11	822.54	0.12	1181.70	0.28	1353.56	1.00		

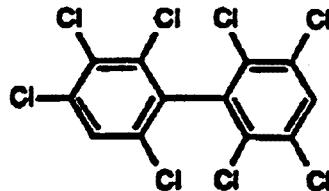


m/z	abun								
73.05	0.10	145.00	0.15	213.95	0.13	355.85	0.31	428.90	0.12
108.00	0.17	148.00	0.09	214.95	0.17	357.85	0.60	429.90	1.00
109.05	0.12	177.95	0.19	215.95	0.20	359.85	0.47	430.90	0.13
131.95	0.08	178.95	0.36	285.90	0.23	361.85	0.20	431.90	0.63
143.00	0.21	179.95	0.34	287.90	0.29	425.90	0.35	433.90	0.25
144.00	0.27	181.00	0.16	289.90	0.14	427.90	0.89		

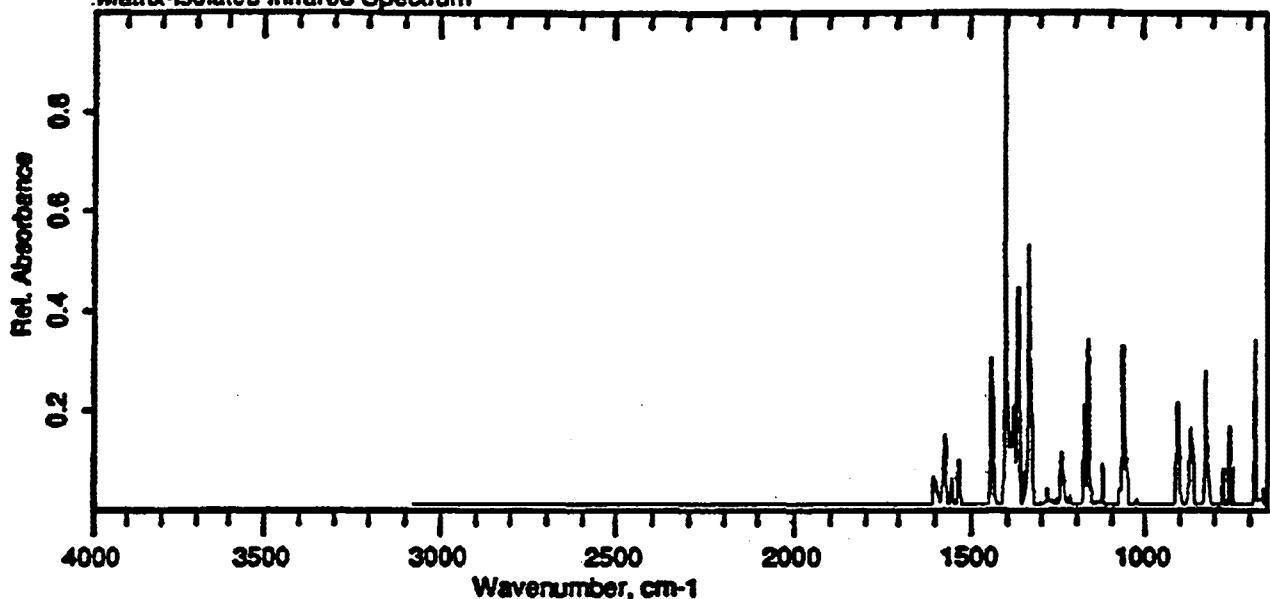
IUPAC Congener No. 201

2,2',3,3',4,5',6,6'-OCTACHLOROBIPHENYL

CAS No. 40186-71-8

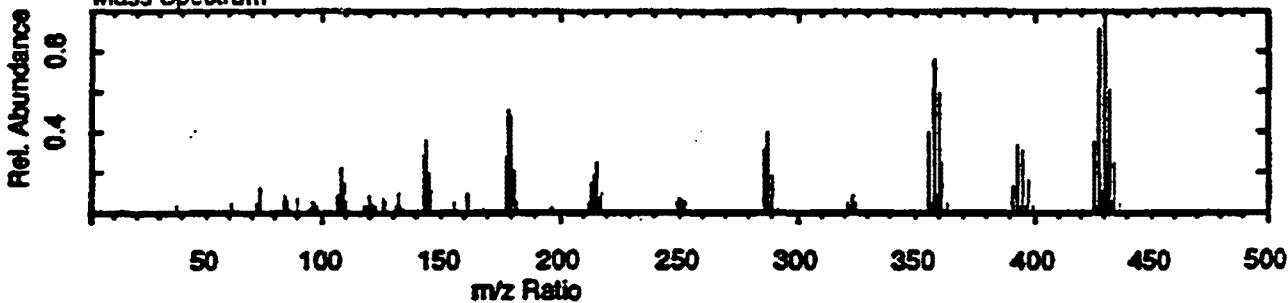


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
652.18	0.07	827.76	0.27	1126.59	0.09	1368.28	0.44	1555.66	0.06
685.32	0.34	865.23	0.12	1168.97	0.33	1380.35	0.20	1574.74	0.15
747.20	0.08	871.95	0.18	1180.69	0.20	1389.79	0.13		
759.65	0.17	909.66	0.21	1247.00	0.11	1403.79	1.00		
777.91	0.08	1058.47	0.10	1337.95	0.52	1444.28	0.30		
820.57	0.09	1068.17	0.33	1349.77	0.08	1535.71	0.10		

Mass Spectrum

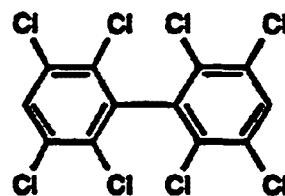


m/z	abun								
73.05	0.13	177.95	0.28	285.90	0.31	390.90	0.15	429.90	1.00
108.00	0.24	178.95	0.52	287.90	0.40	392.90	0.34	430.90	0.12
109.05	0.15	179.95	0.49	289.90	0.19	394.90	0.32	431.90	0.62
143.00	0.29	181.00	0.22	355.95	0.41	396.95	0.17	433.90	0.25
144.00	0.37	213.95	0.15	357.95	0.76	425.90	0.35		
145.00	0.21	214.95	0.19	359.95	0.61	427.90	0.92		
146.00	0.12	215.95	0.26	361.95	0.26	428.90	0.12		

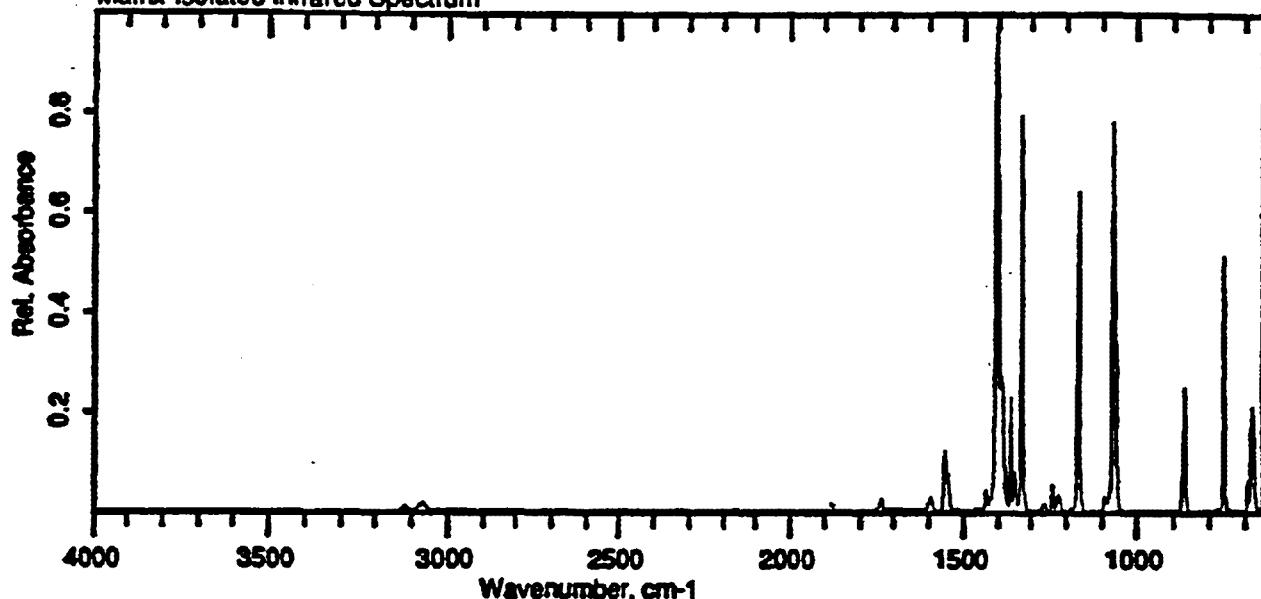
IUPAC Congener No. 202

2,2',3,3',5,5',6,6'-OCTACHLOROBIPHENYL

CAS No. 2136-99-4

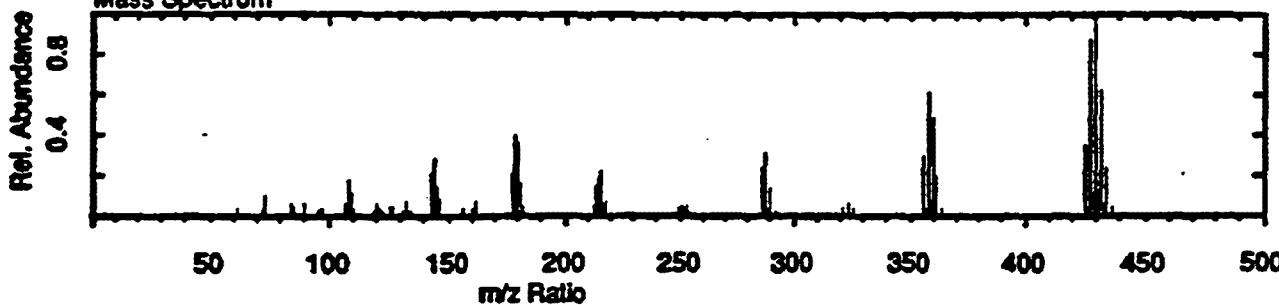


Matrix-isolated Infrared Spectrum



cm^{-1}	abs								
680.28	0.21	872.17	0.25	1169.05	0.64	1351.80	0.08	1406.36	1.00
692.66	0.06	1066.91	0.44	1241.92	0.05	1362.91	0.23	1546.41	0.08
760.55	0.53	1073.61	0.78	1331.33	0.81	1390.06	0.27		

Mass Spectrum

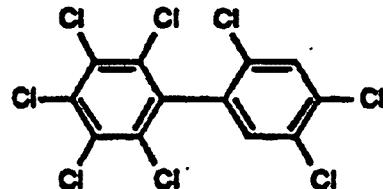


m/z	abun								
73.05	0.10	145.00	0.16	213.95	0.16	355.95	0.31	428.90	0.12
108.00	0.18	146.00	0.09	214.95	0.19	357.95	0.62	429.90	1.00
109.05	0.12	177.95	0.22	215.95	0.23	359.95	0.50	430.90	0.13
131.95	0.08	178.95	0.40	286.00	0.24	361.95	0.20	431.90	0.63
143.00	0.22	179.95	0.37	287.90	0.32	425.90	0.35	433.90	0.25
144.00	0.29	181.00	0.17	289.90	0.14	427.90	0.88		

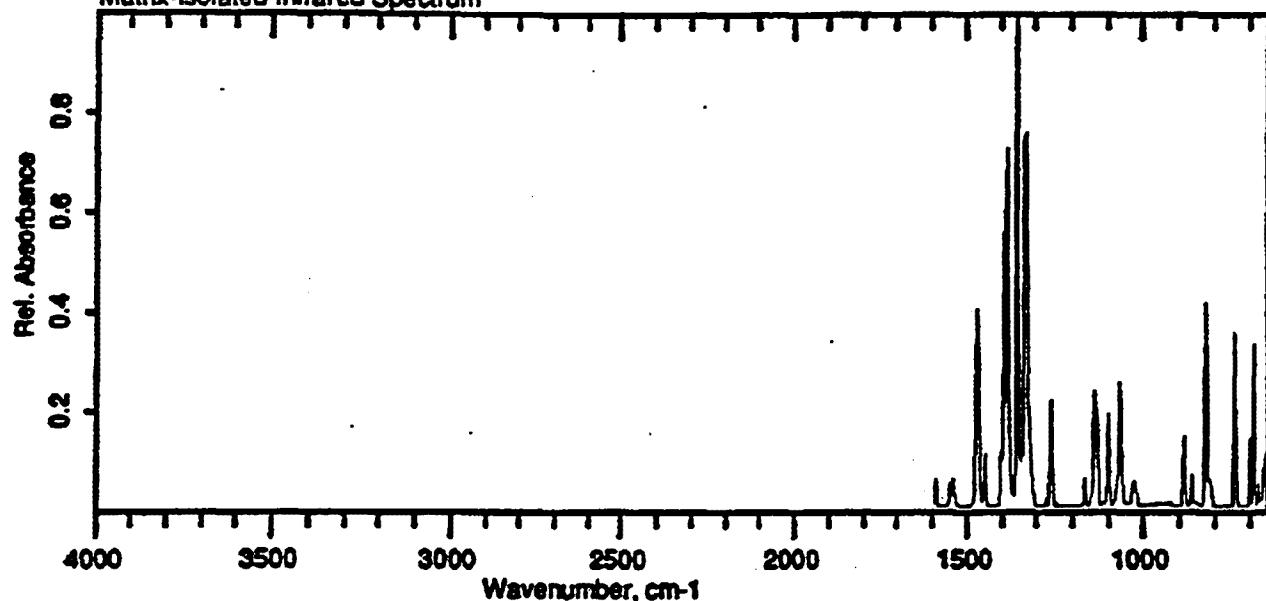
IUPAC Congener No. 203

2,2',3,4,4',5,5',6-OCTACHLOROBIPHENYL

CAS No. 52663-76-0

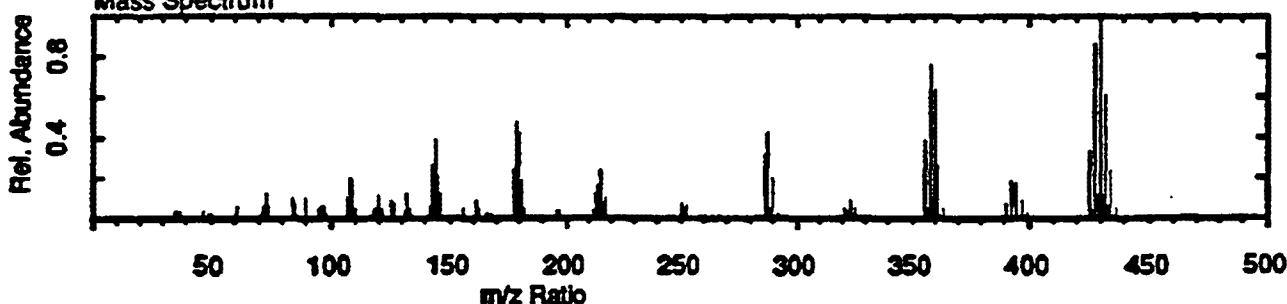


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
654.98	0.12	816.78	0.07	1101.33	0.19	1333.91	0.75	1448.55	0.11
662.96	0.09	826.88	0.42	1133.49	0.20	1347.33	0.11	1470.03	0.40
676.16	0.06	868.32	0.08	1139.61	0.24	1356.07	1.00	1542.31	0.07
688.71	0.33	889.97	0.15	1168.36	0.06	1383.34	0.73	1549.92	0.05
700.19	0.15	1029.71	0.06	1260.60	0.22	1393.47	0.56		
744.81	0.36	1069.30	0.26	1329.63	0.76	1402.51	0.12		

Mass Spectrum

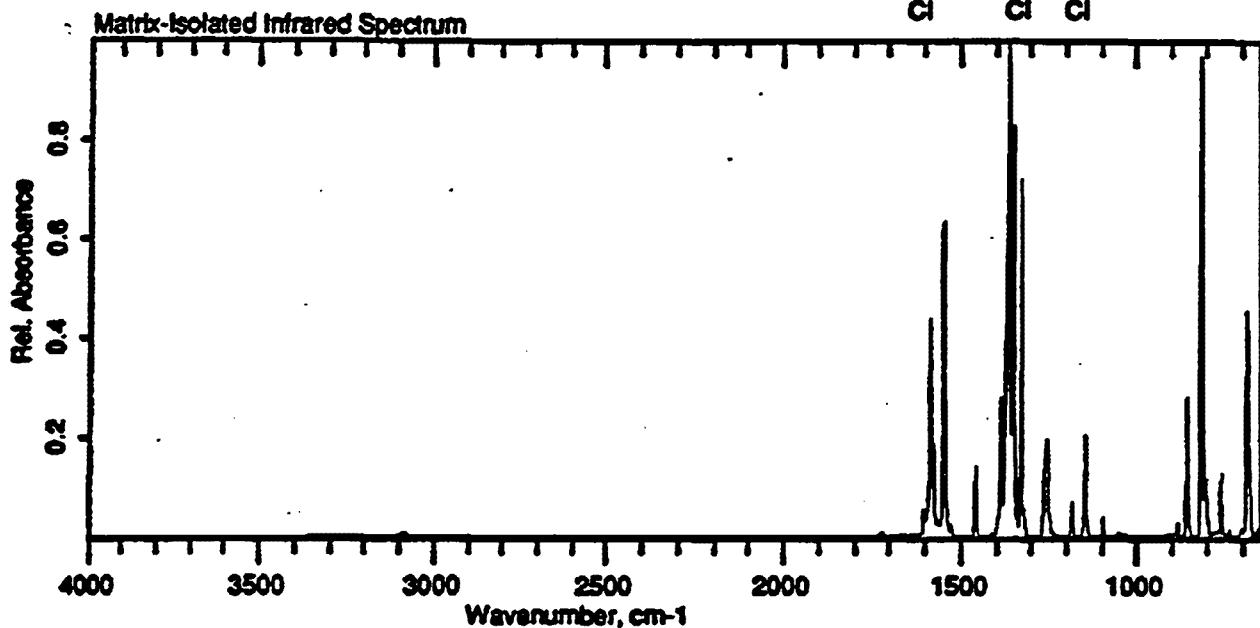
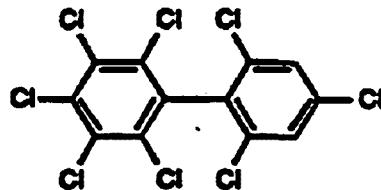


m/z	abun								
73.05	0.13	145.00	0.21	214.95	0.17	359.95	0.64	430.00	1.00
108.00	0.21	146.00	0.13	215.95	0.24	361.95	0.27	431.00	0.12
109.05	0.19	177.95	0.25	286.00	0.31	392.90	0.19	432.00	0.62
120.05	0.11	178.95	0.48	288.00	0.43	394.90	0.18	434.00	0.25
131.95	0.13	179.95	0.43	290.00	0.20	426.00	0.34		
143.00	0.27	181.00	0.20	355.95	0.39	428.00	0.87		
144.00	0.39	213.95	0.13	357.95	0.77	429.00	0.11		

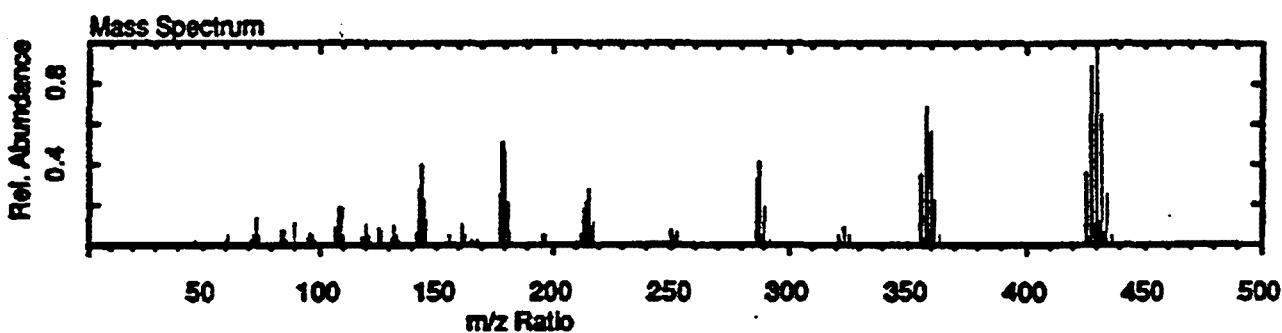
IUPAC Congener No. 204

2,2',3,4,4',5,6,6'-OCTACHLOROBIPHENYL

CAS No. 74472-52-9



cm^{-1}	abs								
680.38	0.13	859.71	0.28	1263.74	0.18	1373.63	0.43	1597.39	0.06
687.93	0.46	1149.25	0.21	1322.16	0.06	1387.81	0.28		
762.64	0.13	1186.85	0.07	1331.10	0.72	1460.06	0.14		
805.29	0.12	1251.30	0.05	1353.20	0.83	1550.06	0.64		
817.23	0.97	1258.07	0.20	1385.73	1.00	1587.18	0.44		

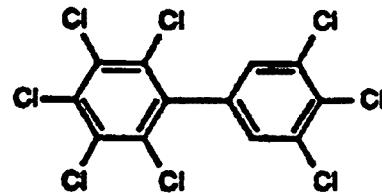


m/z	abun								
73.05	0.14	144.00	0.41	179.95	0.47	288.00	0.42	428.00	0.90
90.10	0.12	145.00	0.23	181.00	0.22	290.00	0.19	429.00	0.11
108.00	0.20	146.00	0.14	213.95	0.18	355.95	0.36	430.00	1.00
109.05	0.19	161.05	0.10	214.95	0.21	357.95	0.69	431.00	0.12
120.05	0.11	161.55	0.10	215.95	0.28	359.95	0.57	432.00	0.65
131.95	0.11	177.95	0.26	217.95	0.11	361.95	0.24	434.00	0.25
143.00	0.28	178.95	0.52	286.00	0.33	426.00	0.37		

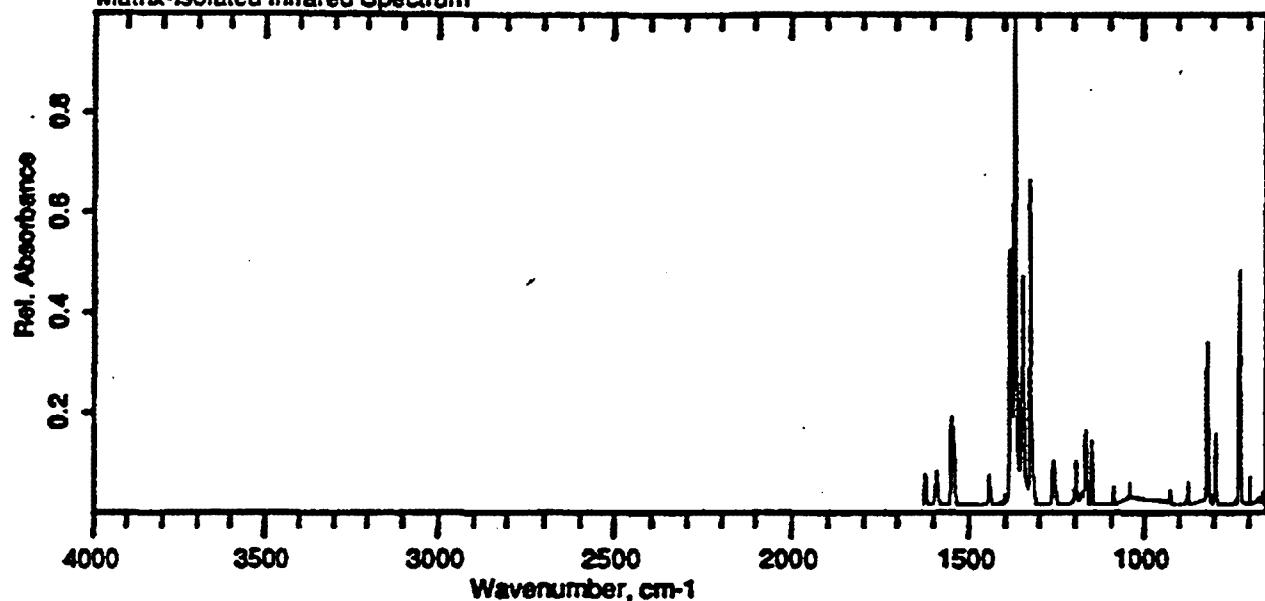
IUPAC Congener No. 205

2,3,3',4,4',5,5',6-OCTACHLOROBIPHENYL

CAS No. 74472-53-0

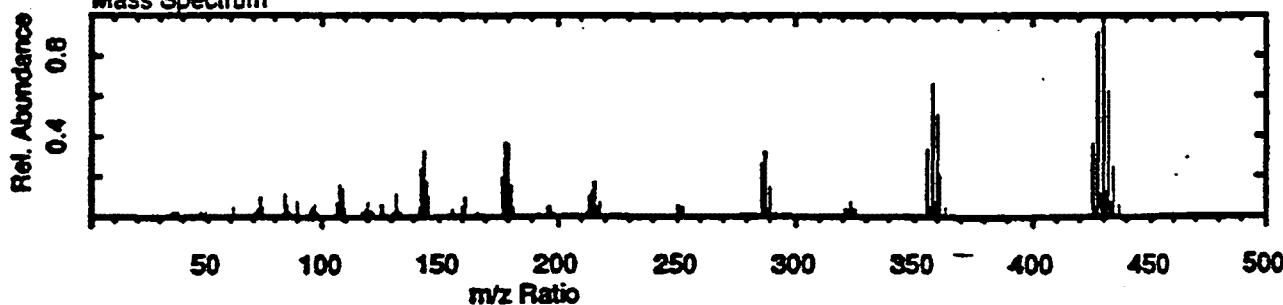


Matrix-isolated Infrared Spectrum



cm^{-1}	abs								
653.35	0.06	876.49	0.06	1171.64	0.18	1370.02	1.00	1592.38	0.08
697.41	0.07	930.17	0.05	1189.42	0.10	1383.86	0.52		
727.29	0.48	1050.27	0.06	1262.70	0.10	1444.72	0.08		
797.36	0.16	1094.80	0.05	1327.52	0.66	1545.19	0.16		
820.34	0.34	1155.10	0.14	1349.37	0.46	1548.83	0.19		

Mass Spectrum

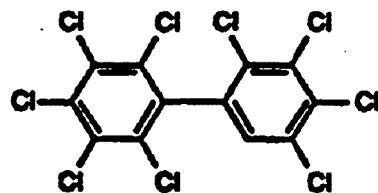


m/z	abun								
73.05	0.11	145.00	0.18	213.95	0.10	357.95	0.67	431.00	0.13
83.95	0.11	146.00	0.10	214.95	0.13	359.95	0.52	432.00	0.63
108.00	0.17	161.05	0.10	215.95	0.19	361.95	0.22	434.00	0.26
109.05	0.14	177.95	0.20	286.00	0.27	426.00	0.36		
131.95	0.12	178.95	0.39	288.00	0.33	428.00	0.92		
143.00	0.25	179.95	0.37	290.00	0.16	429.00	0.12		
144.00	0.33	181.00	0.17	355.95	0.35	430.00	1.00		

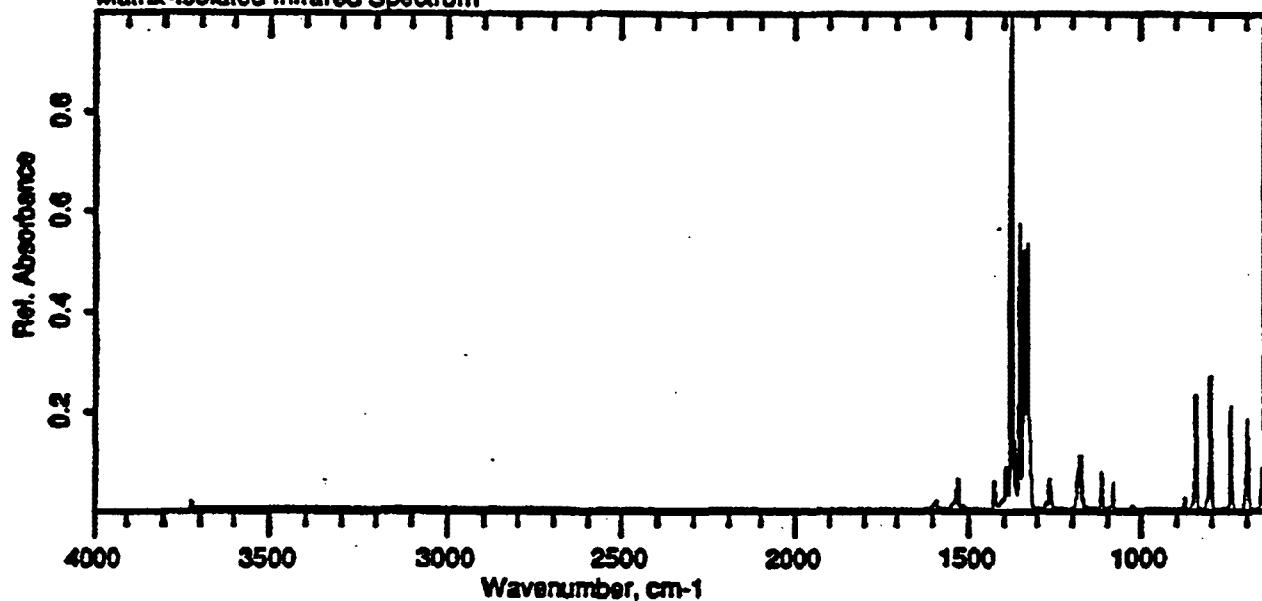
IUPAC Congener No. 206

2,2',3,3',4,4',5,5',6-NONACHLOROBIPHENYL

CAS No. 40186-72-9

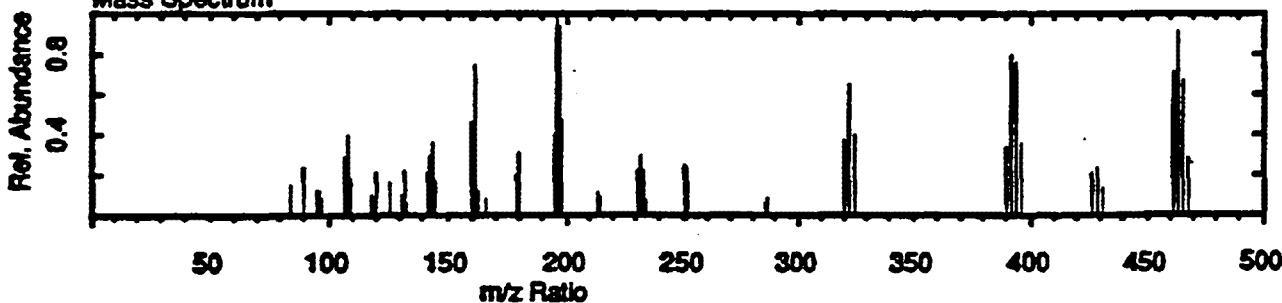


Matrix-isolated Infrared Spectrum



cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
680.73	0.08	848.25	0.23	1187.59	0.07	1354.58	0.58		
699.56	0.18	1065.53	0.06	1267.81	0.06	1378.38	1.00		
747.31	0.21	1119.27	0.08	1331.28	0.53	1395.47	0.08		
805.62	0.27	1180.07	0.11	1341.52	0.52	1428.83	0.06		

Mass Spectrum

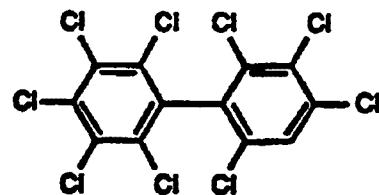


m/z	abun								
90.00	0.24	144.00	0.37	196.90	0.94	319.95	0.38	426.90	0.22
107.00	0.30	160.05	0.47	197.90	0.49	321.95	0.66	428.90	0.25
108.00	0.41	160.95	0.76	231.00	0.23	323.95	0.40	461.95	0.72
119.95	0.21	161.95	0.47	231.90	0.31	389.90	0.35	463.95	0.92
131.95	0.23	179.95	0.32	233.00	0.23	391.90	0.80	465.95	0.69
142.10	0.21	195.00	0.41	250.00	0.26	393.90	0.77	467.90	0.29
143.10	0.31	195.90	1.00	251.90	0.25	395.90	0.37		

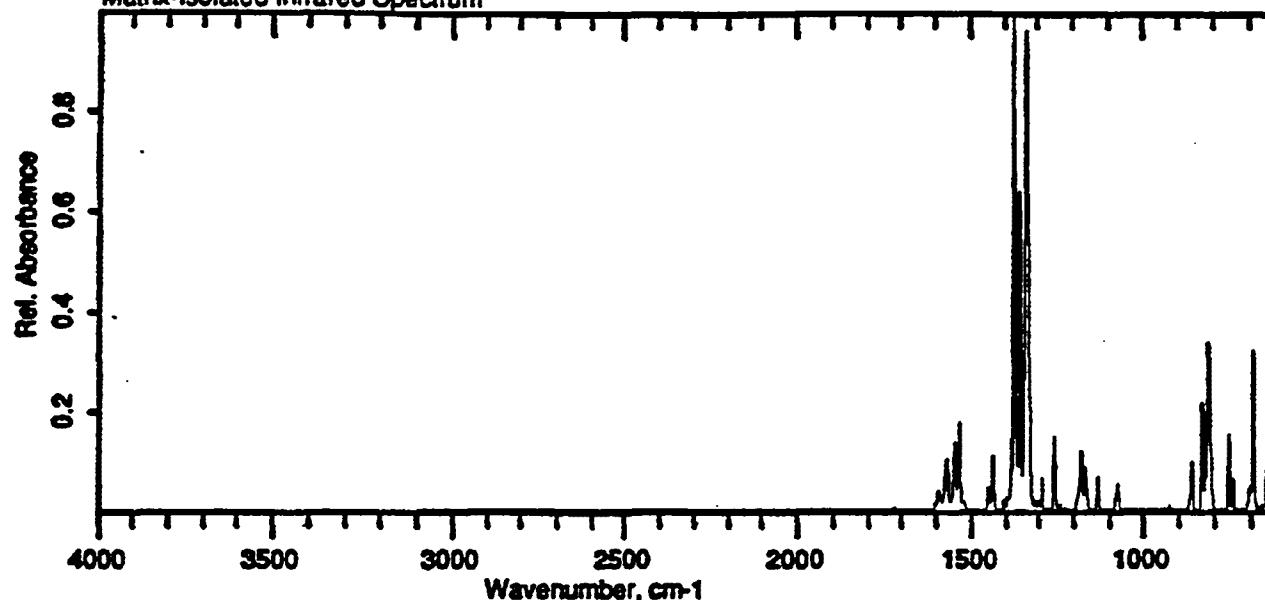
IUPAC Congener No. 207

2,2',3,3',4,4',5,6,6'-NONACHLOROBIPHENYL

CAS No. 52663-79-3

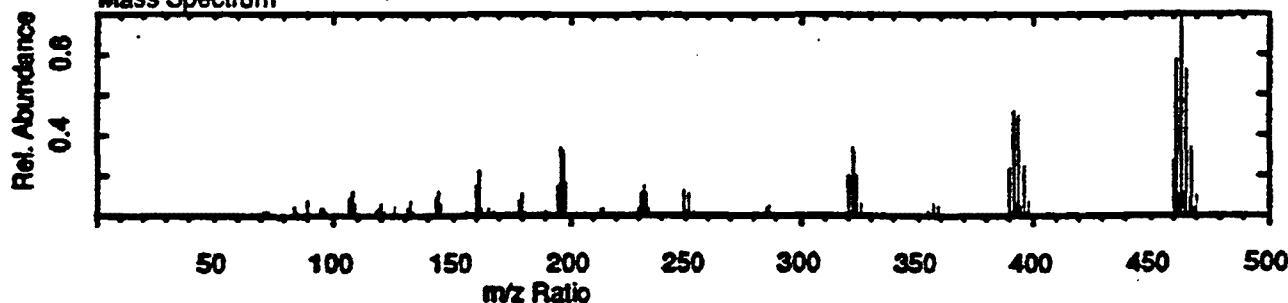


Matrix-Isolated Infrared Spectrum



cm^{-1}	abs								
657.55	0.11	818.50	0.34	1170.22	0.09	1357.87	0.84	1548.39	0.14
693.55	0.32	837.09	0.21	1180.42	0.12	1374.35	1.00		
703.76	0.05	865.21	0.10	1258.92	0.15	1438.39	0.11		
749.18	0.06	1078.04	0.05	1292.91	0.07	1450.94	0.05		
761.55	0.16	1134.79	0.07	1337.97	0.96	1535.70	0.18		

Mass Spectrum

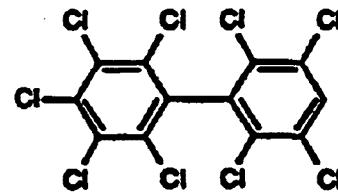


m/z	abun								
107.10	0.10	179.95	0.11	232.90	0.11	391.90	0.53	464.85	0.12
107.90	0.13	184.90	0.15	249.90	0.13	393.90	0.50	465.85	0.73
142.70	0.09	195.90	0.34	251.90	0.12	395.90	0.26	467.90	0.34
144.00	0.13	196.90	0.33	319.85	0.20	459.85	0.28	469.90	0.11
159.95	0.15	197.90	0.17	321.85	0.34	461.85	0.79		
160.95	0.24	230.90	0.12	323.85	0.21	482.85	0.10		
161.95	0.15	231.90	0.16	389.90	0.24	463.85	1.00		

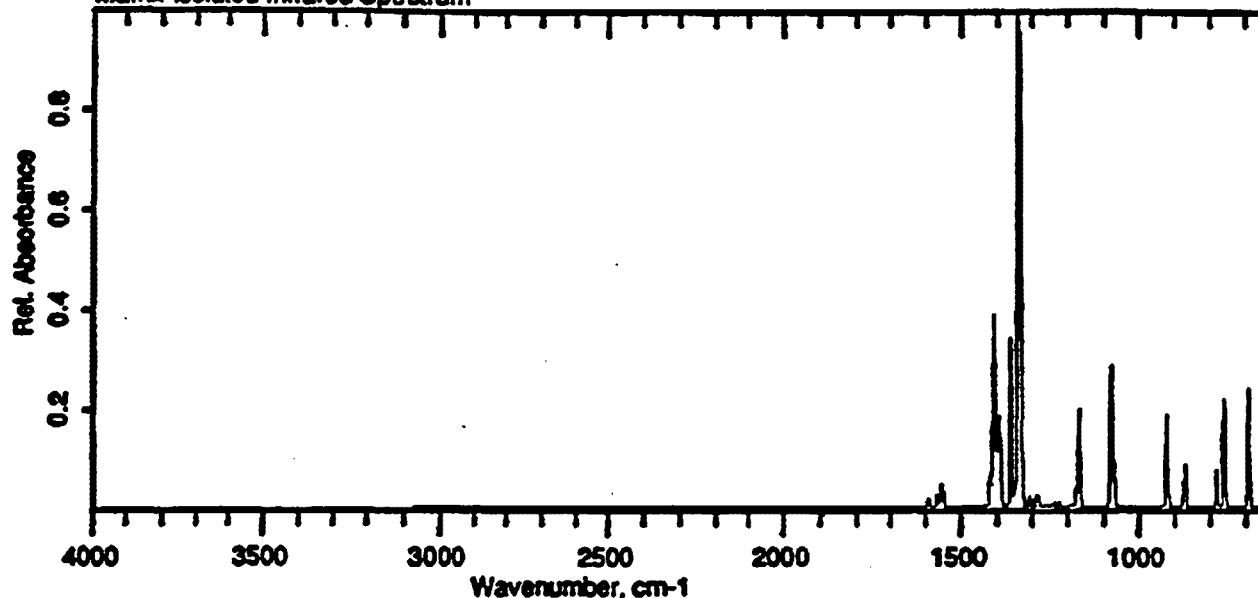
IUPAC Congener No. 208

2,2',3,3',4,5,5',6,6'-NONACHLOROBIPHENYL

CAS No. 52663-77-1

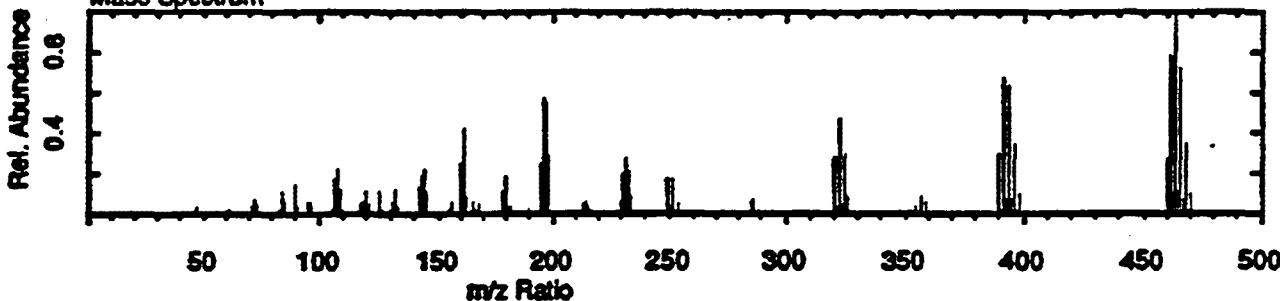


Matrix-Isolated Infrared Spectrum



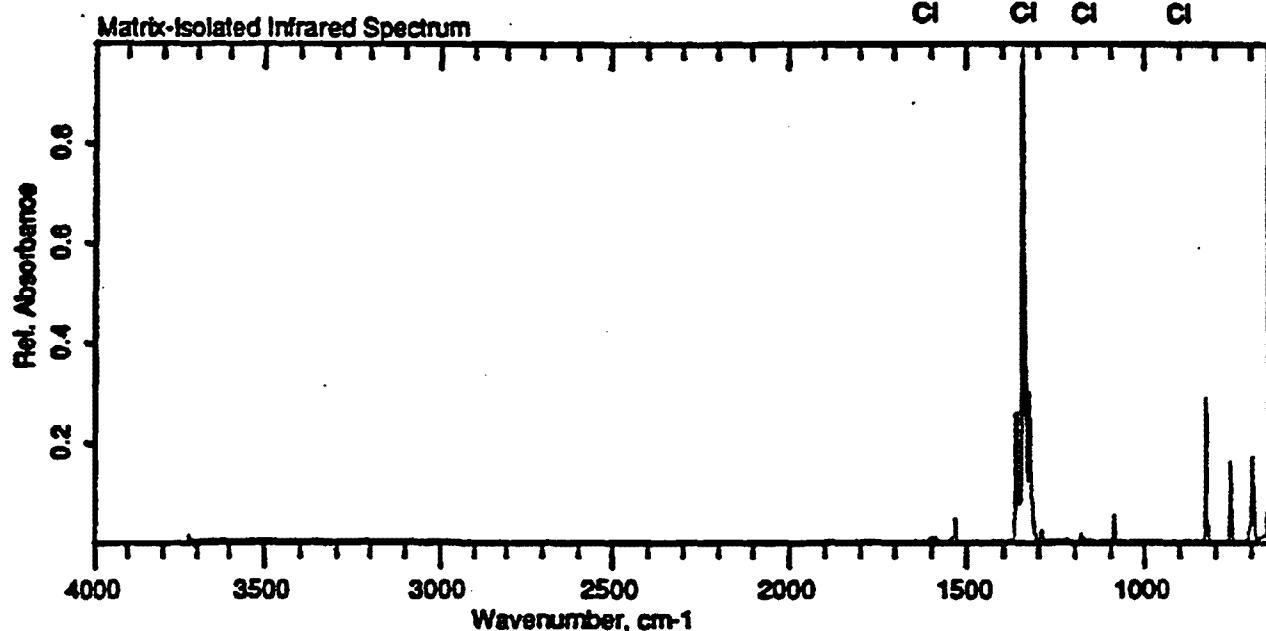
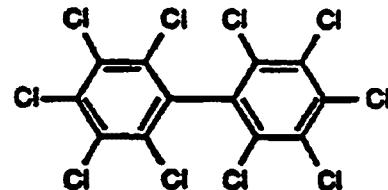
cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs	cm^{-1}	abs
691.29	0.24	872.59	0.09	1170.35	0.20	1363.30	0.34		
759.45	0.20	927.55	0.19	1178.54	0.05	1394.77	0.18		
762.02	0.22	1074.80	0.10	1338.87	0.94	1409.33	0.38		
763.21	0.08	1082.37	0.28	1343.03	1.00	1421.19	0.07		

Mass Spectrum

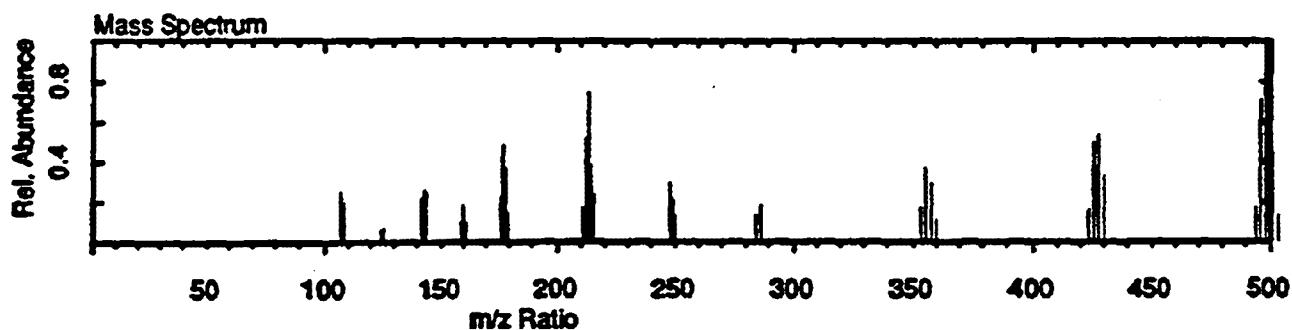


m/z	abun.								
90.00	0.15	159.95	0.26	187.90	0.29	321.95	0.48	461.95	0.80
107.00	0.18	160.95	0.43	230.90	0.21	323.95	0.31	463.95	1.00
108.00	0.23	161.95	0.27	231.90	0.28	389.90	0.31	465.95	0.73
131.95	0.14	179.95	0.19	232.90	0.21	391.90	0.68	467.90	0.36
142.10	0.15	194.90	0.26	249.90	0.19	393.90	0.64		
143.10	0.19	195.90	0.58	251.90	0.19	395.90	0.35		
144.00	0.23	196.90	0.56	319.95	0.30	459.95	0.28		

IUPAC Congener No. 209
 2,2',3,3',4,4',5,5',6,6'-DECACHLOROBIPHENYL
 CAS No. 2051-24-3



cm^{-1}	abs								
658.61	0.06	760.80	0.16	1093.60	0.05	1345.49	1.00	1364.92	0.26
696.98	0.17	829.39	0.29	1328.30	0.30	1359.13	0.09		



m/z	abun								
107.00	0.25	177.95	0.49	215.95	0.24	353.95	0.18	493.85	0.18
108.00	0.20	178.95	0.38	247.90	0.17	355.95	0.39	495.85	0.71
142.00	0.23	179.95	0.15	248.90	0.31	357.85	0.30	497.85	1.00
143.00	0.27	211.95	0.18	249.90	0.22	423.90	0.17	499.85	0.84
144.00	0.26	212.95	0.53	250.90	0.15	425.90	0.50	501.85	0.46
160.45	0.19	213.95	0.75	283.90	0.14	427.90	0.55	503.85	0.14
176.95	0.23	214.95	0.40	285.90	0.19	429.90	0.35		

TECHNICAL REPORT DATA <i>(Please read Instructions on the reverse before completing)</i>			
1. REPORT NO. EPA/600/R-96/002	2.	3. RECI	
4. TITLE AND SUBTITLE The Matrix-Isolation Infrared and Low-Resolution Mass Spectra of the 209 Polychlorobiphenyl Congeners		5. REPORT DATE February 1996	6. PERFORMING ORGANIZATION CODE EPA
7. AUTHOR(S) Don Miller, Harry Kimball, Terry Crone, and Billy J. Fairless		8. PERFORMING ORGANIZATION REPORT NO.	
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16. ABSTRACT There are 209 individual polychlorobiphenyls (PCBs), or congeners, that are derived from the commercial manufacture of polychlorinated biphenyl mixtures, such as the Aroclors. Although commercial production of PCBs in the United States ceased in 1977, they persist in the environment. Analytical reference spectra are needed for all 209 congeners in order to better interpret environmental monitoring data and assess potential risks to human health. The purpose of this report is to provide a reference library that may be used for the qualitative confirmation of individual PCB congeners observed in the human and environmental samples.			
17. KEY WORDS AND DOCUMENT ANALYSIS			
a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group	
18. DISTRIBUTION STATEMENT Release to Public		19. SECURITY CLASS (This Report) Unclassified	21. NO. OF PAGES 224
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