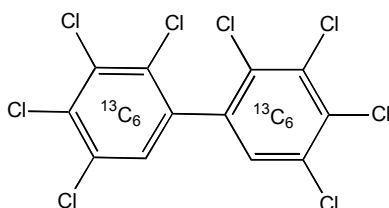


**CERTIFICATE OF ANALYSIS/DOCUMENTATION**

**PRODUCT CODE:** MBP-194 **LOT NUMBER:** MB1941299  
**COMPOUND:** 2,2',3,3',4,4',5,5'-Octachloro[<sup>13</sup>C<sub>12</sub>]biphenyl  
**STRUCTURE:**



**CAS #:** 208263-74-5  
**IUPAC #:** 204L  
**BZ #:** 204L

**MOLECULAR FORMULA:** <sup>13</sup>C<sub>12</sub>H<sub>2</sub>Cl<sub>8</sub> **MOLECULAR WEIGHT:** 441.68  
**CONCENTRATION:** 50 ± 2.5 µg/ml **SOLVENT(S):** Nonane  
**CHEMICAL PURITY:** > 98% **ISOTOPIC PURITY:** ≥ 99%  
**LAST TESTED:** (mm/dd/yyyy) 04/15/2003 (HRGC/LRMS)  
04/13/2003 (HRGC/HRMS)  
**RECOMMENDED STORAGE:** Store at 4°C protected from light  
**EXPIRY DATE:** Stability studies ongoing

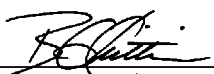
**DETAILS:**

- One-product unambiguous synthesis
- HRGC/LRMS (TIC and mass spectrum) data attached, see Figure 1
- HRGC/HRMS data attached, (10,000 RP, SIR), see Figure 2
- Structure confirmed by HRGC retention time comparison to native isomer

**ADDITIONAL INFORMATION:**

For additional information including potential hazards, handling/storage, accuracy, and shelf life please request a copy of our Reference and Handling Guide. For your convenience this can be downloaded from our website at [www.well-labs.com](http://www.well-labs.com).

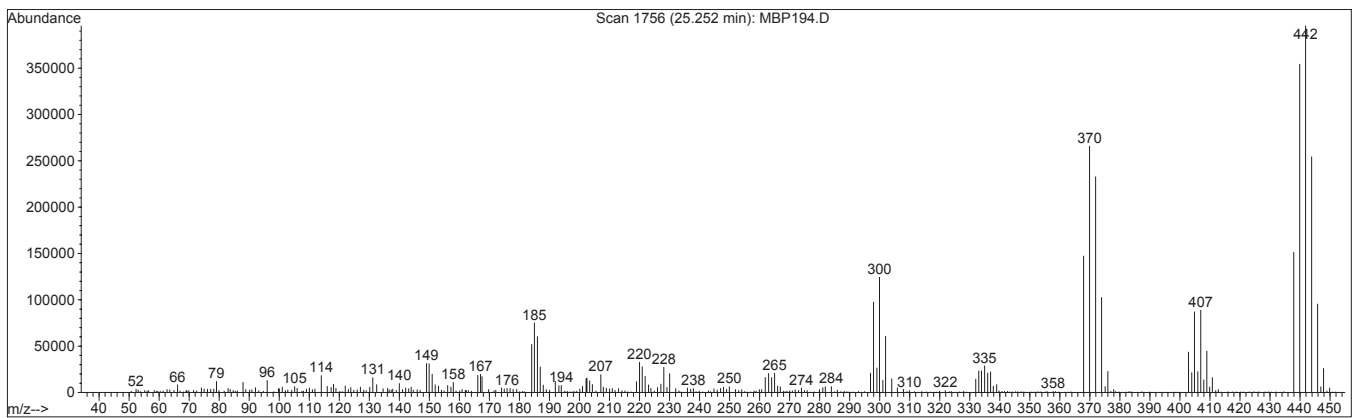
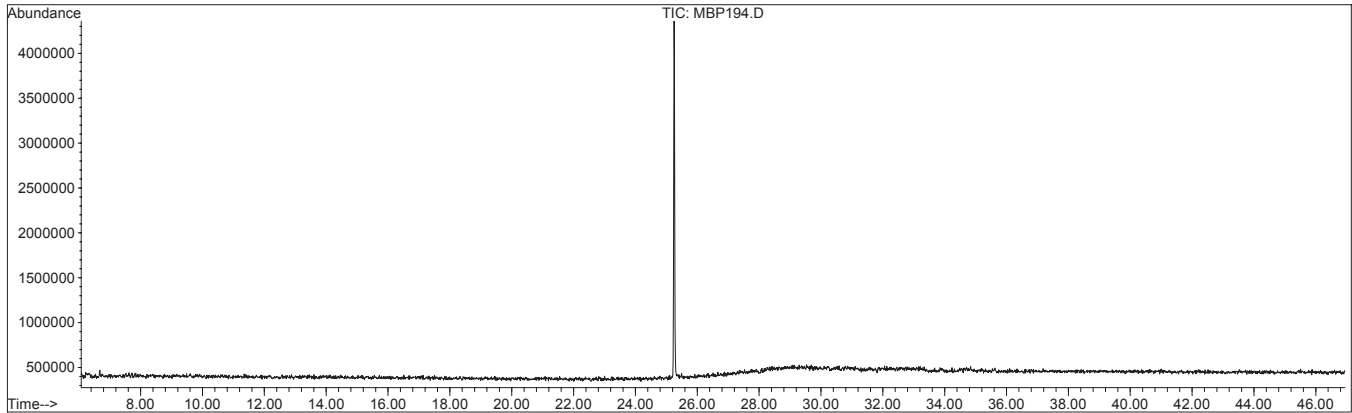
**NOT FOR HUMAN/DRUG USE  
POTENTIALLY TOXIC TO HUMANS**

**Certified By:**   
B.G. Chittim **Date:** 04/17/2003  
(mm/dd/yyyy)

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**Figure 1: MBP-194 HRGC/LRMS Data (30 m DB-5 column)**

File : F:\041503\MBP194.D  
Operator : Brian Yeo  
Acquired : 15 Apr 03 4:51 pm using AcqMethod.DOC  
Instrument : GC/MS Ins  
Sample Name: 13C-22'33'44'55'-Octachlorobiphenyl  
Misc Info : 50 ug/ml; nonane; Lot: MB1941299  
Vial Number: 1



**HRGC/LRMS:**

5890 Hewlett Packard (HRGC)  
5970 Hewlett Packard MSD (LRMS)

**Chromatographic Conditions:**

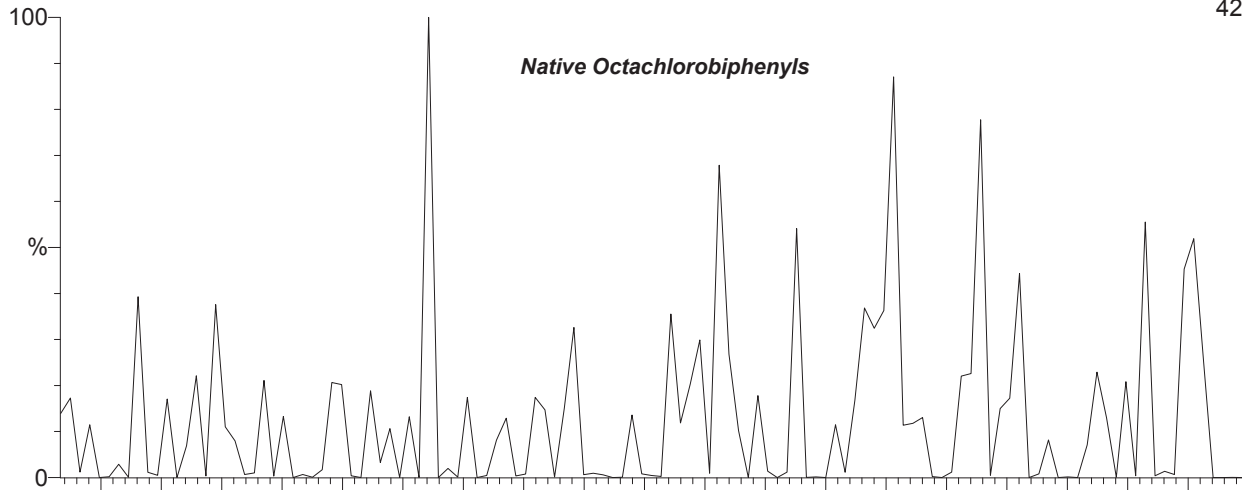
Column: 30 m DB-5 (0.25 mm id, 0.25 µm film thickness) J&W Scientific  
Injector: 250 °C (Splitless Injection)  
Oven: 100 °C (5 min)  
10°C/min to 325 °C  
325 °C (15 min)  
Detector: 250 °C  
Full Scan (50-550 amu)

**Figure 2: MBP-194 HRGC/HRMS Data (60 m DB-5 column)**

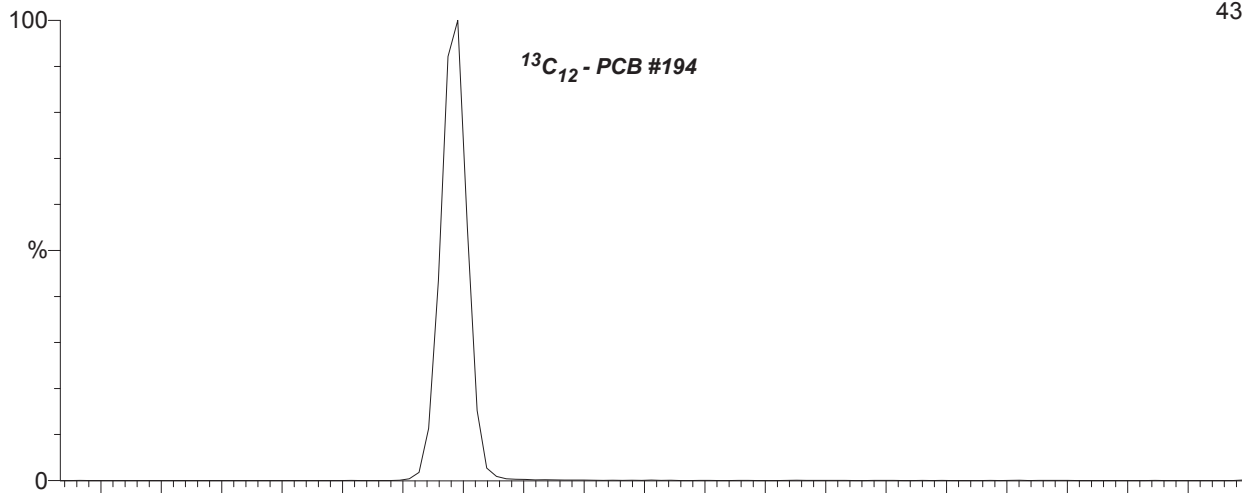
File: 13APR\_PCB, Sample #5  
2UL\_MBP-MXB

14-APR-2003 00:42:04

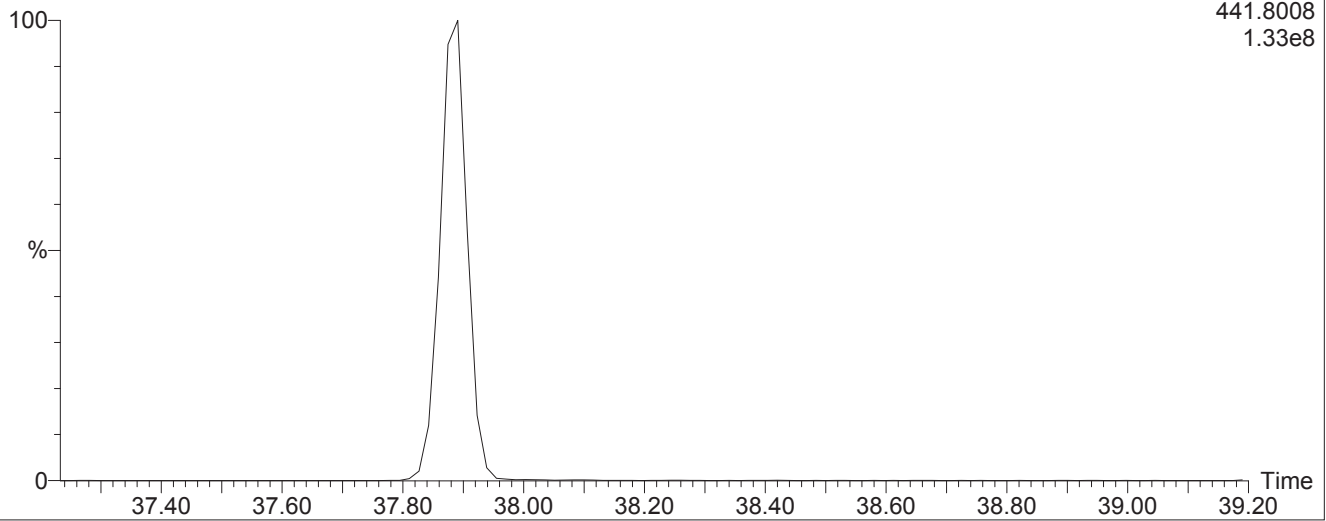
429.7606  
2.27e4



439.8038  
1.22e8



441.8008  
1.33e8



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