



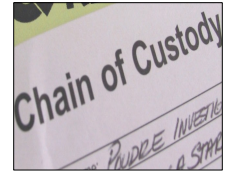
PCB Applications

Polychlorinated Biphenyls vs. U.S. EPA Methods 8080/8082 by GC

The following case studies illustrate the performance using Sitelab's UVF-3100C analyzer for testing Polychlorinated Biphenyls (PCBs). The analyzer is fitted with optical filters sensitive to the PCB Aroclors of interest. However, since PCBs are often found in transformer oils or waste oils, which may co-fluoresce at the PCB wavelength, the potential interference of the non-PCB compounds is minimized by calibrating the analyzer using the PCB concentrations reported by a confirmatory lab's GC-ECD method.



UVF-3100C



Confirmatory Lab

PCBs in Soil from Utility Pole Spills

An electric utility company in Boston, Massachusetts, performed a split sample comparison to test the accuracy of Sitelab's UVF-3100C analyzer. Soils were collected from several utility pole sites, where transformers had leaked and contaminated the soils with PCB Aroclors 1242, 1254 and 1260. Total time to test eleven soils took only 2 hours. Results correlated well to the certified lab, even despite the concentration differences reported by the lab between the three PCB Aroclors in each sample.



318 ppm	344 ppm
256 ppm	322 ppm
246 ppm	288 ppm
229 ppm	229 ppm
217 ppm	167 ppm
167 ppm	167 ppm
155 ppm	155 ppm
143 ppm	211 ppm
123 ppm	116 ppm
116 ppm	167 ppm
53 ppm	30 ppm

PCBs in Transformer Oil at Power Plant

Con Edison in New York City conducted a grant funded pilot study comparing different field screening tools to measure PCBs from different transformers at one of their power plants. Having a reliable field tool to determine if transformers contain PCBs above or below the 50 ppm action level saved them time and money.



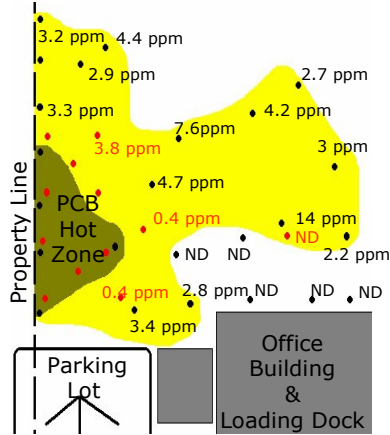
500 ppm*	548 ppm*
34 ppm	32 ppm
32 ppm	25 ppm
12 ppm	7 ppm
9 ppm	11 ppm
2.1 ppm	1.7 ppm
ND <1 ppm	ND <1 ppm
Examples of Pilot Study Evaluation Results	Exceeds 50 ppm PCB Cleanup Standard

PCB Site Investigation & Cleanup

In one day, Sitelab tested 37 samples on a site contaminated with PCBs from an abutting property.

"Using Sitelab allowed us to completely delineate the area of PCB contamination for half the cost of laboratory PCB analyses. As a result, we mobilized our contractor to excavate a prescribed area of soil, transported a known volume of soil off site, and collected confirmatory post-excitation samples in one day. The lab analyses were right in line with what we expected and we anticipate site closure without the need for further excavation."

Paragon Environmental, Inc. Norwood, Mass (USA).



Fluorescence of Soils Used for PCB Calibration	Soils Collected for Calibration: PCB Concentrations
2.1 ppm: 107 FSU	2.1 ppm
3.2 ppm: 401 FSU	3.2 ppm
4.5 ppm: 772 FSU	4.5 ppm
Calibration Curve Linearity R ² = 0.93	
"Hot Zone" Soils Pre-Excavation	"Hot Zone" Soil Post-Excavation
7 ppm	2.8 ppm
16 ppm	ND
25 ppm	0.4 ppm
31 ppm	0.3 ppm
116 ppm	3.5 ppm
● Sitelab PCB Sample Location	● Post-excitation; Lab Sample Location

How to Calibrate using Site-Specific Samples

For maximum performance and accuracy, the UVF-3100C analyzer is calibrated using the PCB concentrations reported by a certified laboratory using a small group of well representative, split samples having a range of PCB concentrations.

Step 1: Samples are first collected from the customer within the suspected area of PCB contamination.

Step 2: Samples are split and sent to a certified laboratory for PCB analysis.

Step 3: UVF-3100 analyzer is calibrated with soil extracts using the lab's PCB concentrations.



Soils (above) are extracted using Sitelab test kits. Split sample jars are then sent off-site for PCB confirmation using EPA Method 8080 or 8082 by GC. For quality control, Sitelab's analyzer can be 'zeroed' using a Non-Detect PCB sample.