



Polychlorinated Biphenyl (PCB) Congener Analysis

Eurofins Lancaster Laboratories Environmental can now provide PCB congener testing that utilizes several cutting-edge Thermo Scientific DFS high-resolution gas chromatographs/high-resolution mass spectrometers (HRGC/HRMS). Capitalizing on over 30 years of experience in organic extractions, and the addition of dioxin/furan analysis expertise, we built a laboratory dedicated exclusively to the challenges involved in the preparation of PCB congeners samples.

We hold NELAP accreditation from the Pennsylvania Department of Environmental Protection for the analysis of PCB congeners in water and solid samples by EPA Method 1668 and can perform this work in 47 states.

Why Choose Eurofins Lancaster Laboratories Environmental?

- Over 30 years of experience in trace residue extractions and analyses
- Expertise in sample cleanup and fractionation techniques
- Dedicated Thermo Scientific DFS high-resolution gas chromatographs/high-resolution mass spectrometers (HRGC/HRMS) for trace residue analysis
- Dedicated, isolated laboratory space for the extraction and analysis of ppt and ppq concentrations
- Extensive experience in providing various deliverable formats, both electronic and hardcopy, to summarize analytical and quality control results

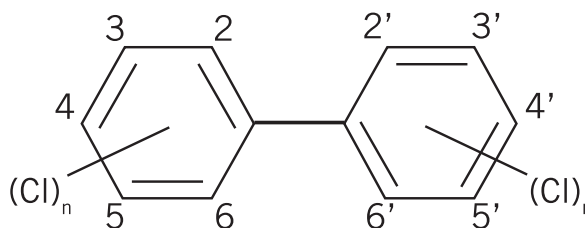
Why is PCB Congener Testing Important to You?

PCBs are any of 209 configurations of a biphenyl ring with various amounts of chlorine atoms substituted around each ring (2 to 10 possible atoms). Approximately 130 of the configurations were commonly used in industrial applications. PCBs were widely used as dielectric and coolant fluids in items like electrical transformers, capacitors and electric motors.



They were manufactured and sold in the United States under the trade name of Aroclor. Each aroclor manufactured contains a distinctive subset of the 209 congener configurations. Testing for PCBs is often done by identifying and quantitating specific aroclors (e.g., SW-846 Method 8082 and EPA Method 608). However, testing for the specific congeners gives a much more detailed analysis of the PCB composition and at substantially lower concentrations. It may be helpful to test for congeners when samples contain complex mixtures that make specific aroclor identification difficult. Some congeners are more toxic than others and have dioxin-like TEF values associated with them, so identifying and quantitating those specific congeners can help with assessing the environmental impact.

The chemical structure for PCBs:



The possible positions of chlorine atoms on the benzene rings are denoted by numbers assigned to the carbon atoms.



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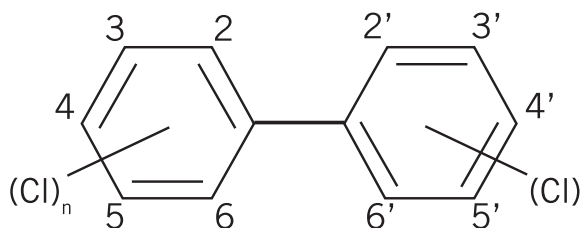
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PCBs are persistent environmental pollutants that have been extensively studied and shown to bioaccumulate in the environment. They are considered carcinogenic and are known to be endocrine disruptors. Individuals can be exposed to PCBs through breathing in contaminated air, consuming contaminated food and by skin contact with old electrical equipment that contains PCBs. Once exposed, some PCBs may change to other chemicals inside the body. These chemicals or unchanged PCBs may remain in a person's body fat or other organs for months.

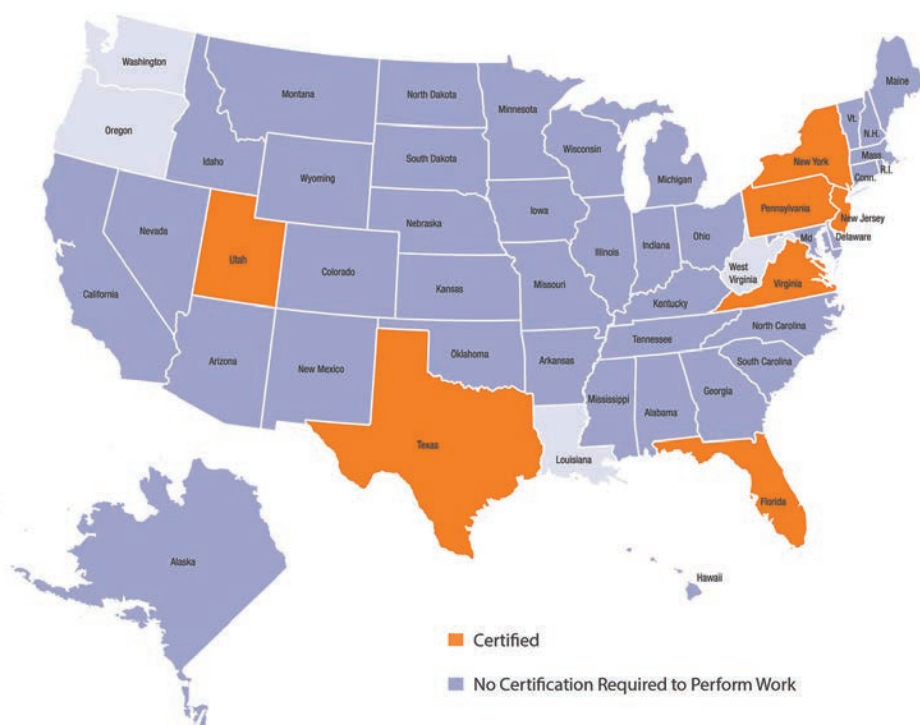
Sample Preparation

One of the challenges of sample preparation for PCB testing is controlling environmental factors so that very low concentrations of the congeners can be reliably detected. Extensive experience with trace organic residue analysis allows Eurofins

Lancaster Laboratories Environmental to understand the controls that are needed for preparing samples for PCB testing and has served as a good springboard for developing this service. Liquid/liquid and Dean-Stark extractors are used to prepare samples for analysis on HRGC/HRMS. The extractions are followed by column cleanups to aid the detection of target analytes.

Reporting

We offer several reporting format options to meet your specific project needs. Report formats are available that include all 209 congeners or can be customized to report any subset as needed. We can also provide the total PCBs within a homologue series (mono, di, tri, etc. through deca) as well as total PCBs.



www.LancasterLabsEnv.com

Standard Services:

Volatiles
Semivolatiles
Metals
Pesticides/PCBs/Herbicides
Petroleum-Related Analysis
Waste Characterization
Water Quality

Drinking Water
Vapor & Air Analysis
Sediment & Tissue Testing
Method Development
Shale Oil & Gas Analysis

Specialty Services:

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PCB Congeners
Hydrazines/NDMA
Explosives
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Alkyl PAHs, Alkanes, Biomarkers
PFC (PFOA)

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Aldehydes
1,4-Dioxane (low level)
Low-Level Mercury
PMI
Method 25D

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