



Dioxin & Furan Analysis

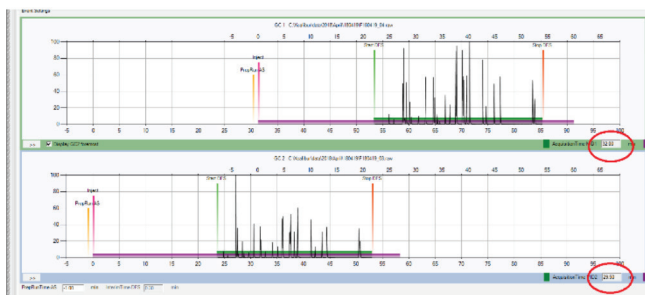
Polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs) can be formed as byproducts of combustion and certain industrial manufacturing processes. They are persistent organic compounds in the environment and can bioaccumulate in the food chain.

There are 7 PCDD isomers and 10 PCDF isomers. The most studied isomer from this family of compounds is 2,3,7,8-tetrachlorodibenzop-dioxin (2,3,7,8-TCDD), which is used as the relative toxicity reference for the other isomers. Given the toxicity concerns, applicable regulatory criteria established for various environmental media are typically in the parts per trillion and parts per quadrillion ranges.

Analytical Approaches:

Alpha Analytical offers PCDD / PCDF analysis by both EPA methods 8290A and 1613B for the reporting of the 17 dioxin and furan isomers as well as the tetra- thru octachlorinated dioxin and furan homolog series. Applicable sample matrices include aqueous, soil, sediment, and tissues.

Please see the PCDD/PCDF target compound list included below for reporting limit information.



Analysis Alpha Analytical utilizes Thermo high resolution mass spectrometer (HRMS) instrumentation equipped with dual Model 1310 gas chromatographs. This dual data acquisition configuration greatly increases analytical efficiencies and productivity. A number of different sample extraction and extract clean up protocols are available, depending on the sample media and project specific requirements.



Reporting Formats:

Several reporting format options are also available including reporting only 2,3,7,8-TCDD. Report formats include total dioxins and furans within a homolog series, as well as total dioxins and furans. Toxic Equivalents (TEQ) are also reported using the Toxic Equivalency Factor (TEF) values specified in a project-specific Quality Assurance Project Plan (QAPP).

Certification:

Alpha Analytical holds NELAP as well as several other state certification for dioxins and furans. Alpha also holds Department of Defense (DOD) certification and we are fully compliant with DOD/DOE QSM 5.1 Appendix B, 2017.

Parameter	Acronym	CAS	Aqueous Reporting Limit, pg/L	Soil Reporting Limit, pg/g
Polychlorodibenzo-p-Dioxins (PCDDs)				
2,3,7,8-Tetrachlorodibenzo-p-dioxin	2,3,7,8-TeCDD	1746-01-6	5.0	0.5
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	1,2,3,7,8-PeCDD	40321-76-4	25.0	2.5
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	1,2,3,4,7,8-HxCDD	39227-28-6	25.0	2.5
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	1,2,3,6,7,8-HxCDD	57653-85-7	25.0	2.5
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	1,2,3,7,8,9-HxCDD	19408-74-3	25.0	2.5
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	1,2,3,4,6,7,8-HpCDD	35822-46-9	25.0	2.5
Octachlorodibenzo-p-dioxin	OCDD	3268-87-9	50.0	5.0
Total Tetrachlorodibenzo-p-dioxin	Total-TCDD	41903-57-5	5.0	0.5
Total Pentachlorodibenzo-p-dioxin	Total-PeCDD	36088-22-9	25.0	2.5
Total Hexachlorodibenzo-p-dioxin	Total-HxCDD	34465-46-8	25.0	2.5
Total Heptachlorodibenzo-p-dioxin	TotalHpCDD	37871-00-4	25.0	2.5
Polychlorodibenzofurans (PCDFs)				
2,3,7,8-Tetrachlorodibenzofuran	2,3,7,8-TeCDF	51207-31-9	5.0	0.5
1,2,3,7,8-Pentachlorodibenzofuran	1,2,3,7,8-PeCDF	57117-41-6	25.0	2.5
2,3,4,7,8-Pentachlorodibenzofuran	2,3,4,7,8-PeCDF	57117-31-4	25.0	2.5
1,2,3,4,7,8-Hexachlorodibenzofuran	1,2,3,4,7,8-HxCDF	70648-26-9	25.0	2.5
1,2,3,6,7,8-Hexachlorodibenzofuran	1,2,3,6,7,8-HxCDF	57117-44-9	25.0	2.5
1,2,3,7,8,9-Hexachlorodibenzofuran	1,2,3,7,8,9-HxCDF	72918-21-9	25.0	2.5
2,3,4,6,7,8-Hexachlorodibenzofuran	2,3,4,6,7,8-HxCDF	60851-34-5	25.0	2.5
1,2,3,4,6,7,8-Heptachlorodibenzofuran	1,2,3,4,6,7,8-HpCDF	67562-39-4	25.0	2.5
x 1,2,3,4,7,8,9-Heptachlorodibenzofuran	1,2,3,4,7,8,9-HpCDF	55673-89-7	25.0	2.5
Octachlorodibenzofuran	OCDF	39001-02-0	50.0	5.0
Total Tetrachlorodibenzofuran	Total-TCDF	55722-27-5	5.0	0.5
Total Pentachlorodibenzofuran	Total-PeCDF	30402-15-4	25.0	2.5
Total Hexachlorodibenzofuran	Total-HxCDF	55684-94-1	25.0	2.5
Total Heptachlorodibenzofuran	TotalHpCDF	38998-75-3	25.0	2.5

Alpha Analytical is the 6th largest environmental laboratory in the United States providing quality and reliability for over 30 years.

Alpha is the largest privately-owned laboratory in the country operating more than 50,000 square feet of LEAN state-of-the-art laboratory facilities and a reputation of quality and reliability. Our 400+ employees offer absolute commitment to data integrity and the industry's highest ethical and professional standards.

Our core services include air, water and soil analysis with expertise in the highly specialized fields of sediment, tissue, emerging contaminants and petroleum forensics.

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