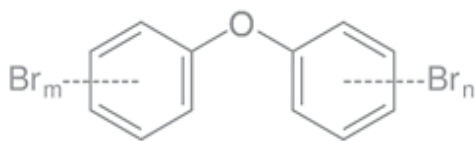


Trusted Technical Expertise.



Columbia Analytical offers the analysis of Polybrominated Diphenyl Ethers (PBDEs). These chemicals constitute one class of brominated flame-retardants that have been used globally for the past 30 years. PBDEs are used in a variety of consumer products such as electrical appliances, building materials, and textiles in order to retard their combustion. Recently they have gained increased attention as “Emergent Chemicals” because of their persistence in the environment, potential for bioaccumulation, and potential toxicity.

Our analytical method follows EPA 8270C-GC/MS procedures with modifications that include the use of a Large Volume Injector (LVI) and Selective Ion Monitoring (SIM). Sample preparation includes continuous liquid-liquid extraction for water samples. Sediment and tissue samples are freeze-dried prior to automated Soxhlet extraction. To achieve the lowest possible detection limits and to minimize potential interferences, silica gel and acid cleanup techniques are routinely employed.

Columbia Analytical has compiled a target list of PBDEs based on the most environmentally significant congeners. The following table lists these target analytes along with their achievable Method Reporting Limit (MRL) and Method Detection Limit (MDL) in various matrices.

Compound Name	BZ#	Sediment (µg/Kg)		Tissue (µg/Kg)		Water (ng/L)	
		MRL	MDL	MRL	MDL	MRL	MDL
2,2',4'-TriBDE	PBDE-17	0.1	0.03	0.1	0.06	1.0	0.2
2,4,4'-TriBDE	PBDE-28	0.1	0.03	0.1	0.09	1.0	0.2
2,2',4,4'-TetraBDE	PBDE-47	0.1	0.03	0.1	0.04	1.0	0.5
2,3',4,4'-TetraBDE	PBDE-66	0.1	0.02	0.1	0.03	1.0	0.3
2,3',4',6-TetraBDE	PBDE-71	0.1	0.002	0.1	0.03	1.0	0.4
2,2',3,4,4'-PentaBDE	PBDE-85	0.1	0.02	0.1	0.05	1.0	0.2
2,2',4,4',5-PentaBDE	PBDE-99	0.1	0.05	0.1	0.05	1.0	0.8
2,2',4',4,6-PentaBDE	PBDE-100	0.1	0.03	0.1	0.1	1.0	0.3
2,2',3,3',4,4'-HexaBDE	PBDE-128	0.1	0.03	0.1	0.04	1.0	0.2
2,2',3,4,4',5'-HexaBDE	PBDE-138	0.1	0.02	0.1	0.02	1.0	0.2
2,2',4,4',5,5'-HexaBDE	PBDE-153	0.1	0.009	0.1	0.03	1.0	0.2
2,2',4,4',5,6'-HexaBDE	PBDE-154	0.1	0.02	0.1	0.04	1.0	0.2
2,2',3,4,4',5',6-HeptaBDE	PBDE-183	0.1	0.02	0.1	0.03	1.0	0.2
2,2',3,3',4,4',5,6-HeptaBDE	PBDE-190	0.1	0.03	0.1	0.05	1.0	0.1
2,2',3,4,4',5,5',6-OctaBDE	PBDE-203	0.1	0.02	0.1	0.02	1.0	0.1
2,2',3,3',4,4',5,5',6-NonaBDE	PBDE-206	1.0	0.2	2.0	0.9	10	5
Decabromodiphenyl ether	PBDE-209	1.0	0.3	2.0	0.7	10	5