ELISA Kit for Environmental Pollutants
Polybrominated Diphenyl Ethers (PBDEs)

PBDE ELISA Kit

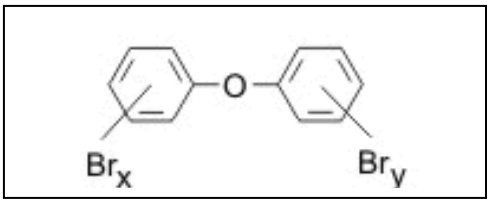
◇ The antibody binds primarily PBDE congeners 47 and 99 which compose primarily the "penta" formulation.

◇ The assay range is between 25 ppt and 1,000 ppt (based on congener 47). This supersensitive assay allows the determination of PBDEs in a wide range of environmental samples (water, soil, sediment, fish tissue, mothers' milk, etc.).

◇ Total time for measurement is approximately 70 minutes.

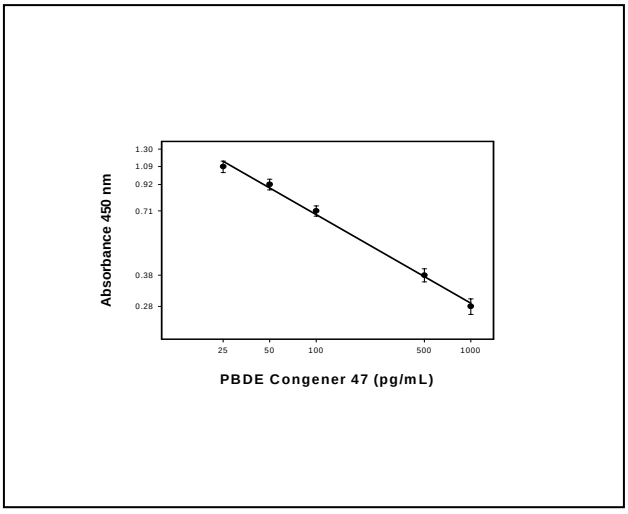
◇ The kit (100 Tests), a magnetic particle format with ready to use reagents, enables faster assay kinetics, super sensitivity, and the simultaneous measurement of multiple samples at a reasonable cost.

Chemical Structure



Polybrominated diphenyl ether (PBDEs) mixtures are manufactured as flame retardants additives for electronic equipment, plastics and textiles. PBDEs are ubiquitous environmental contaminants, their bioaccumulation has led to their detection in many species of wildlife, human blood plasma and in human mother's milk. PBDEs are structurally similar to polychlorinated biphenyls (PCBs), dioxins (TCDDs), and thyroid hormones, and therefore may act as endocrine disruptors via interference with thyroid hormone homeostasis. Because of their potential health consequences, it is desirable to have a rapid and high throughput assay to monitor PBDEs. Conventional methods for the analysis of PBDEs use high resolution GC/MS, are expensive, time-consuming, and require specialized equipment. This ELISA had the highest sensitivity for congeners 47 and 99 (the lowest quantification limit for congener 47 is 17 pg/ml).

PBDE Standard Curve



Water samples containing PBDEs within the dynamic range (25-1,000 ppt) can be directly tested in the assay after filtration.

ABRAXIS

Basic Test procedure

- Add 250 uL of sample, and 500 uL of antibody coupled magnetic particles. Vortex.
- Incubate for 20 minutes.
- Add 250 uL of conjugate. Vortex and incubate for 20 minutes.
- Separate using the magnetic separator, decant and wash.
- Add 500 uL of color solution.
- Incubate 20 minutes.
- Stop the reaction and read color at 450 nm. Quantitate results.

Cross-reactivity Pattern

The cross-reactivity of the Abraxis PBDE Assay for various PBDE assay for various PBDE congeners as well as other environmental contaminants such as PCBs, PCP, and 2,4-D can be expressed as the least detectable dose (LDD) which is estimated at 90% B/Bo, or as the dose required for the 50% absorbance inhibition (50% B/Bo)

Compound	LDD (ppt)	50% B/Bo (ppt)
BDE Congener 47	17	135
BDE Congener 99	20	150
BDE Congener 28	45	900
BDE Congener 100	55	5,500
BDE Congener 153	75	10,000
BDE Congener 154	3,500	580,000
BDE Congener 183	13,500	2,000,000
BDE Congener 209	370,000	3,000,000
PCB 1254	3,000	50,000
PCB-37	160,000	2,000,000
PCB-77	>1,000,000	>1,000,000
PCP	3,300,000	>10,000,000
2,4-D	>10,000,000	>10,000,000

Sample Correlation

This ELISA exhibits good correlation with GC/HRMS.

Kit Format

Magnetic Particle Kit format, (100Tests) PN 500090

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