

Flame Retardant Standards

2010

205 out of 209
PBDE Congeners



J&K®



Brominated Flame Retardants in the Environment

Brominated Flame Retardants (BFRs) such as polybrominated diphenyl ethers (PBDEs) and hexabromocyclododecane (HBCD) have become ubiquitous global environmental contaminants because of their widespread use in numerous household and commercial products, such as polyurethane furniture foam, carpet, high impact cases, circuit boards, appliances, electrical equipment, polystyrene foams, and backcoating of fabrics. They have been detected in sediments, biota, house dust, sewage sludge, air, water samples, and human and wildlife tissues. In the past years an impressive amount of information has become accessible on the persistence, as well as bioaccumulative and toxic properties of PBDEs and HBCD.

There are 209 congeners of PBDEs. They are produced industrially as mixtures (designated penta-BDE, octa-BDE, and deca-BDE). Some PBDEs break down further in the environment and in the body to other PBDEs and to other compounds. AccuStandard has synthesized 205 of the 209 congeners, plus 30 of their hydroxy and 30 of their methoxy metabolites.

AccuStandard has separated the three major constituents of technical mixtures of HBCD (alpha, beta, gamma). The individual three stereoisomers, as well as a technical mixture, are available as chemical reference standards at AccuStandard.

In addition, AccuStandard offers a wide variety of PBDE mixtures and calibration sets which are designed for US EPA and International PBDE monitoring. Standards of branded technical products such as Bromkal™ and Firemaster™, and many other industrial flame retardants can also be requested. Fluorinated PBDEs, Bromobiphenyls, Bromophenols and Bromoanisols add to the increasing number of brominated compounds available through AccuStandard.

Other Industrial BFRs have come to the attention of European Pollution Control Authorities who have initiated a study to substantially reduce the release of at least 5 of the 21 targeted "prioritized" BFRs.

Upon special request, compounds can be offered in various concentrations and mixes, or as neat materials. Custom standards are an economical and time saving way to have a standard prepared for your individual needs. To make an online Custom Quotes Request, go to AccuStandard.com.

Product Highlights

*Latest list of
205 PBDE Congeners*

*Latest list of
60 PBDE Metabolites
(Hydroxy & Methoxy
derivatives)*

*Methods
EPA 1614
EPA 527
ISO/DIS 22032*

*Fluorinated PBDE
Congeners*

*Bromobiphenyl
Congeners*

*Bromophenols and
Bromoanisoles*

*New Industrial
Flame Retardants **

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* Some of the Industrial Flame Retardants were specially selected by Governmental Authorities for their significance with regards to ecotoxicity, bioconcentration and bioaccumulation.

Polybromodiphenyl Ether (PBDEs) Congeners

Compound	CAS No.	Conc.	Solvent	Cat. No.	Unit
2-Bromodiphenyl ether	7025-06-1	50 µg/mL	Isooctane	BDE-001S	1 mL
3-Bromodiphenyl ether	6876-00-2	50 µg/mL	Isooctane	BDE-002S	1 mL
4-Bromodiphenyl ether	101-55-3	50 µg/mL	Isooctane	BDE-003S	1 mL
2,2'-Dibromodiphenyl ether	51452-87-0	50 µg/mL	Isooctane	BDE-004S	1 mL
2,3-Dibromodiphenyl ether	446254-14-4	50 µg/mL	Isooctane	BDE-005S	1 mL
2,3'-Dibromodiphenyl ether	147217-72-9	50 µg/mL	Isooctane	BDE-006S	1 mL
2,4-Dibromodiphenyl ether	171977-44-9	50 µg/mL	Isooctane	BDE-007S	1 mL
2,4'-Dibromodiphenyl ether	147217-71-8	50 µg/mL	Isooctane	BDE-008S	1 mL
2,5-Dibromodiphenyl ether	33513-66-3	50 µg/mL	Isooctane	BDE-009S	1 mL
2,6-Dibromodiphenyl ether	51930-04-2	50 µg/mL	Isooctane	BDE-010S	1 mL
3,3'-Dibromodiphenyl ether	6903-63-5	50 µg/mL	Isooctane	BDE-011S	1 mL
3,4-Dibromodiphenyl ether	189084-59-1	50 µg/mL	Isooctane	BDE-012S	1 mL
3,4'-Dibromodiphenyl ether	83694-71-7	50 µg/mL	Isooctane	BDE-013S	1 mL
3,5-Dibromodiphenyl ether	46438-88-4	50 µg/mL	Isooctane	BDE-014S	1 mL
4,4'-Dibromodiphenyl ether	2050-47-7	50 µg/mL	Isooctane	BDE-015S	1 mL
2,2',3-Tribromodiphenyl ether	147217-74-1	50 µg/mL	Isooctane	BDE-016S	1 mL
2,2',4-Tribromodiphenyl ether	147217-75-2	50 µg/mL	Isooctane	BDE-017S	1 mL
2,2',5-Tribromodiphenyl ether	407606-55-7	50 µg/mL	Isooctane	BDE-018S	1 mL
2,2',6-Tribromodiphenyl ether	147217-73-0	50 µg/mL	Isooctane	BDE-019S	1 mL
2,3,3'-Tribromodiphenyl ether	147217-76-3	50 µg/mL	Isooctane	BDE-020S	1 mL
2,3,4-Tribromodiphenyl ether	337513-67-4	50 µg/mL	Isooctane	BDE-021S	1 mL
2,3,4'-Tribromodiphenyl ether	446254-15-5	50 µg/mL	Isooctane	BDE-022S	1 mL
2,3,5-Tribromodiphenyl ether	446254-16-6	50 µg/mL	Isooctane	BDE-023S	1 mL
2,3,6-Tribromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-024S	1 mL
2,3',4-Tribromodiphenyl ether	147217-77-4	50 µg/mL	Isooctane	BDE-025S	1 mL
2,3',5-Tribromodiphenyl ether	337513-75-4	50 µg/mL	Isooctane	BDE-026S	1 mL
2,3',6-Tribromodiphenyl ether	337513-53-8	50 µg/mL	Isooctane	BDE-027S	1 mL
2,4,4'-Tribromodiphenyl ether	41318-75-6	50 µg/mL	Isooctane	BDE-028S	1 mL
2,4,5-Tribromodiphenyl ether	337513-56-1	50 µg/mL	Isooctane	BDE-029S	1 mL
2,4,6-Tribromodiphenyl ether	155999-95-4	50 µg/mL	Isooctane	BDE-030S	1 mL
2,4',5-Tribromodiphenyl ether	65075-08-3	50 µg/mL	Isooctane	BDE-031S	1 mL
2,4',6-Tribromodiphenyl ether	189084-60-4	50 µg/mL	Isooctane	BDE-032S	1 mL
2',3,4-Tribromodiphenyl ether	147217-78-5	50 µg/mL	Isooctane	BDE-033S	1 mL
2',3,5-Tribromodiphenyl ether	446254-17-7	50 µg/mL	Isooctane	BDE-034S	1 mL
3,3',4-Tribromodiphenyl ether	147217-80-9	50 µg/mL	Isooctane	BDE-035S	1 mL
3,3',5-Tribromodiphenyl ether	147217-79-6	50 µg/mL	Isooctane	BDE-036S	1 mL
3,4,4'-Tribromodiphenyl ether	147217-81-0	50 µg/mL	Isooctane	BDE-037S	1 mL
3,4,5-Tribromodiphenyl ether	337513-54-9	50 µg/mL	Isooctane	BDE-038S	1 mL
3,4',5-Tribromodiphenyl ether		50 µg/mL	Isooctane	BDE-039S	1 mL
2,2',3,3'-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-040S	1 mL
2,2',3,4-Tetrabromodiphenyl ether	337513-68-5	50 µg/mL	Isooctane	BDE-041S	1 mL
2,2',3,4'-Tetrabromodiphenyl ether	446254-18-8	50 µg/mL	Isooctane	BDE-042S	1 mL
2,2',3,5-Tetrabromodiphenyl ether	446254-19-9	50 µg/mL	Isooctane	BDE-043S	1 mL
2,2',3,5'-Tetrabromodiphenyl ether	446254-20-2	50 µg/mL	Isooctane	BDE-044S	1 mL
2,2',3,6-Tetrabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-045S	1 mL
2,2',3,6'-Tetrabromodiphenyl ether	446254-22-4	50 µg/mL	Isooctane	BDE-046S	1 mL
2,2',4,4'-Tetrabromodiphenyl ether	5436-43-1	50 µg/mL	Isooctane	BDE-047S	1 mL
2,2',4,5-Tetrabromodiphenyl ether	337513-55-0	50 µg/mL	Isooctane	BDE-048S	1 mL
2,2',4,5'-Tetrabromodiphenyl ether	243982-82-3	50 µg/mL	Isooctane	BDE-049S	1 mL
2,2',4,6-Tetrabromodiphenyl ether	446254-23-5	50 µg/mL	Isooctane	BDE-050S	1 mL
2,2',4,6'-Tetrabromodiphenyl ether	189084-57-9	50 µg/mL	Isooctane	BDE-051S	1 mL
2,2',5,5'-Tetrabromodiphenyl ether	446254-24-6	50 µg/mL	Isooctane	BDE-052S	1 mL
2,2',5,6'-Tetrabromodiphenyl ether	446254-25-7	50 µg/mL	Isooctane	BDE-053S	1 mL
2,2',6,6'-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-054S	1 mL
2,3,3',4-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-055S	1 mL
2,3,3',4'-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-056S	1 mL
2,3,3',5-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-057S	1 mL
2,3,3',5'-Tetrabromodiphenyl ether		50 µg/mL	Isooctane	BDE-058S	1 mL
2,3,3',6-Tetrabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-059S	1 mL
2,3,4,4'-Tetrabromodiphenyl ether	446254-31-5	50 µg/mL	Isooctane	BDE-060S	1 mL
2,3,4,5-Tetrabromodiphenyl ether	446254-32-6	50 µg/mL	Isooctane	BDE-061S	1 mL
2,3,4,6-Tetrabromodiphenyl ether	446254-33-7	50 µg/mL	Isooctane	BDE-062S	1 mL
2,3,4',5-Tetrabromodiphenyl ether	446254-34-8	50 µg/mL	Isooctane	BDE-063S	1 mL
2,3,4',6-Tetrabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-064S	1 mL
2,3,5,6-Tetrabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-065S	1 mL
2,3',4,4'-Tetrabromodiphenyl ether	189084-61-5	50 µg/mL	Isooctane	BDE-066S	1 mL
2,3',4,5-Tetrabromodiphenyl ether	446254-37-1	50 µg/mL	Isooctane	BDE-067S	1 mL
2,3',4,5'-Tetrabromodiphenyl ether	446254-38-2	50 µg/mL	Isooctane	BDE-068S	1 mL
2,3',4,6-Tetrabromodiphenyl ether	327185-09-1	50 µg/mL	Isooctane	BDE-069S	1 mL
2,3',4',5-Tetrabromodiphenyl ether	446254-39-3	50 µg/mL	Isooctane	BDE-070S	1 mL
2,3',4',6-Tetrabromodiphenyl ether	189084-62-6	50 µg/mL	Isooctane	BDE-071S	1 mL
2,3',5,5'-Tetrabromodiphenyl ether	446254-40-6	50 µg/mL	Isooctane	BDE-072S	1 mL
2,3',5',6-Tetrabromodiphenyl ether	446254-41-7	50 µg/mL	Isooctane	BDE-073S	1 mL
2,4,4',5-Tetrabromodiphenyl ether	446254-42-8	50 µg/mL	Isooctane	BDE-074S	1 mL
2,4,4',6-Tetrabromodiphenyl ether	189084-63-7	50 µg/mL	Isooctane	BDE-075S	1 mL
2',3,4,5-Tetrabromodiphenyl ether	446254-43-9	50 µg/mL	Isooctane	BDE-076S	1 mL
3,3',4,4'-Tetrabromodiphenyl ether	93703-48-1	50 µg/mL	Isooctane	BDE-077S	1 mL
3,3',4,5-Tetrabromodiphenyl ether	446254-45-1	50 µg/mL	Isooctane	BDE-078S	1 mL

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Polybromodiphenyl Ether (PBDEs) Congeners

Compound	CAS No.	Conc.	Solvent	Cat. No.	Unit
3,3',4,5'-Tetrabromodiphenyl ether	446254-48-4	50 µg/mL	Isooctane	BDE-079S	1 mL
3,3',5,5'-Tetrabromodiphenyl ether	103173-66-6	50 µg/mL	Isooctane	BDE-080S	1 mL
3,4,4',5'-Tetrabromodiphenyl ether	446254-50-8	50 µg/mL	Isooctane	BDE-081S	1 mL
2,2',3,3',4-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-082S	1 mL
2,2',3,3',5-Pentabromodiphenyl ether	446254-51-9	50 µg/mL	Isooctane	BDE-083S	1 mL
2,2',3,3',6-Pentabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-084S	1 mL
2,2',3,4,4'-Pentabromodiphenyl ether	182346-21-0	50 µg/mL	Isooctane	BDE-085S	1 mL
2,2',3,4,5-Pentabromodiphenyl ether	446254-53-1	50 µg/mL	Isooctane	BDE-086S	1 mL
2,2',3,4,5'-Pentabromodiphenyl ether	446254-54-2	50 µg/mL	Isooctane	BDE-087S	1 mL
2,2',3,4,6-Pentabromodiphenyl ether	446254-55-3	50 µg/mL	Isooctane	BDE-088S	1 mL
2,2',3,4,6'-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-089S	1 mL
2,2',3,4',5-Pentabromodiphenyl ether	446254-57-5	50 µg/mL	Isooctane	BDE-090S	1 mL
2,2',3,4',6-Pentabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-091S	1 mL
2,2',3,5,5'-Pentabromodiphenyl ether	446254-59-7	50 µg/mL	Isooctane	BDE-092S	1 mL
2,2',3,5,6-Pentabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-093S	1 mL
2,2',3,5,6'-Pentabromodiphenyl ether	446254-61-1	50 µg/mL	Isooctane	BDE-094S	1 mL
2,2',3,5',6-Pentabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-095S	1 mL
2,2',3,6,6'-Pentabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-096S	1 mL
2,2',3',4,5-Pentabromodiphenyl ether	446254-64-4	50 µg/mL	Isooctane	BDE-097S	1 mL
2,2',3',4,6-Pentabromodiphenyl ether	38463-82-0	50 µg/mL	Isooctane	BDE-098S	1 mL
2,2',4,4',5-Pentabromodiphenyl ether	60348-60-9	50 µg/mL	Isooctane	BDE-099S	1 mL
2,2',4,4',6-Pentabromodiphenyl ether	189084-64-8	50 µg/mL	Isooctane	BDE-100S	1 mL
2,2',4,5,5'-Pentabromodiphenyl ether	446254-65-5	50 µg/mL	Isooctane	BDE-101S	1 mL
2,2',4,5,6'-Pentabromodiphenyl ether	446254-66-6	50 µg/mL	Isooctane	BDE-102S	1 mL
2,2',4,5',6-Pentabromodiphenyl ether	446254-67-7	50 µg/mL	Isooctane	BDE-103S	1 mL
2,2',4,6,6'-Pentabromodiphenyl ether	446254-68-8	50 µg/mL	Isooctane	BDE-104S	1 mL
2,3,3',4,4'-Pentabromodiphenyl ether	373594-78-6	50 µg/mL	Isooctane	BDE-105S	1 mL
2,3,3',4,5-Pentabromodiphenyl ether	446254-69-9	50 µg/mL	Isooctane	BDE-106S	1 mL
2,3,3',4',5-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-107S	1 mL
2,3,3',4,5'-Pentabromodiphenyl ether	446254-71-3	50 µg/mL	Isooctane	BDE-108S	1 mL
2,3,3',4,6-Pentabromodiphenyl ether	446254-72-4	50 µg/mL	Isooctane	BDE-109S	1 mL
2,3,3',4',6-Pentabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-110S	1 mL
2,3,3',5,5'-Pentabromodiphenyl ether	446254-74-6	50 µg/mL	Isooctane	BDE-111S	1 mL
2,3,3',5,6-Pentabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-112S	1 mL
2,3,3',5',6-Pentabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-113S	1 mL
2,3,4,4',5-Pentabromodiphenyl ether	446254-77-9	50 µg/mL	Isooctane	BDE-114S	1 mL
2,3,4,4',6-Pentabromodiphenyl ether	446254-78-0	50 µg/mL	Isooctane	BDE-115S	1 mL
2,3,4,5,6-Pentabromodiphenyl ether	189084-65-9	50 µg/mL	Isooctane	BDE-116S	1 mL
2,3,4',5,6-Pentabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-117S	1 mL
2,3',4,4',5-Pentabromodiphenyl ether	446254-80-4	50 µg/mL	Isooctane	BDE-118S	1 mL
2,3',4,4',6-Pentabromodiphenyl ether	189084-66-0	50 µg/mL	Isooctane	BDE-119S	1 mL
2,3',4,5,5'-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-120S	1 mL
2,3',4,5',6-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-121S	1 mL
2',3,3',4,5-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-122S	1 mL
2',3,4,4',5-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-123S	1 mL
2',3,4,5,5'-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-124S	1 mL
2',3,4,5,6'-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-125S	1 mL
3,3',4,4',5-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-126S	1 mL
3,3',4,5,5'-Pentabromodiphenyl ether		50 µg/mL	Isooctane	BDE-127S	1 mL
2,2',3,3',4,4'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-128S	1 mL
2,2',3,3',4,5-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-129S	1 mL
2,2',3,3',4,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-130S	1 mL
2,2',3,3',4,6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-131S	1 mL
2,2',3,3',4,6'-Hexabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-132S	1 mL
2,2',3,3',5,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-133S	1 mL
2,2',3,3',5,6-Hexabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-134S	1 mL
2,2',3,3',5,6'-Hexabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-135S	1 mL
2,2',3,3',6,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-136S	1 mL
2,2',3,4,4',5-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-137S	1 mL
2,2',3,4,4',5'-Hexabromodiphenyl ether	182677-30-1	50 µg/mL	Isooctane	BDE-138S	1 mL
2,2',3,4,4',6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-139S	1 mL
2,2',3,4,4',6'-Hexabromodiphenyl ether	243982-83-4	50 µg/mL	Isooctane	BDE-140S	1 mL
2,2',3,4,5,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-141S	1 mL
2,2',3,4,5,6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-142S	1 mL
2,2',3,4,5,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-143S	1 mL
2,2',3,4,5',6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-144S	1 mL
2,2',3,4,6,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-145S	1 mL
2,2',3,4',5,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-146S	1 mL
2,2',3,4',5,6-Hexabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-147S	1 mL
2,2',3,4',5,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-148S	1 mL
2,2',3,4',5',6-Hexabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-149S	1 mL
2,2',3,4',6,6'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-150S	1 mL
2,2',3,5,5',6-Hexabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-151S	1 mL
2,2',3,5,6,6'-Hexabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-152S	1 mL
2,2',4,4',5,5'-Hexabromodiphenyl ether	68631-49-2	50 µg/mL	Isooctane	BDE-153S	1 mL
2,2',4,4',5,6'-Hexabromodiphenyl ether	207122-15-4	50 µg/mL	Isooctane	BDE-154S	1 mL
2,2',4,4',6,6'-Hexabromodiphenyl ether	35854-94-5	50 µg/mL	Isooctane	BDE-155S	1 mL
2,3,3',4,4',5-Hexabromodiphenyl ether	35854-94-5	50 µg/mL	Isooctane	BDE-156S	1 mL
2,3,3',4,4',5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-157S	1 mL
2,3,3',4,4',6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-158S	1 mL

Polybromodiphenyl Ether (PBDEs) Congeners

Compound	CAS No.	Conc.	Solvent	Cat. No.	Unit
2,3,3',4,5,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-159S	1 mL
2,3,3',4,5,6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-160S	1 mL
2,3,3',4,5',6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-161S	1 mL
2,3,3',4',5,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-162S	1 mL
2,3,3',4',5,6-Hexabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-163S	1 mL
2,3,3',4',5',6-Hexabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-164S	1 mL
2,3,3',5,5',6-Hexabromodiphenyl ether NEW		50 µg/mL	Isooctane	BDE-165S	1 mL
2,3,4,4',5,6-Hexabromodiphenyl ether	189084-58-0	50 µg/mL	Isooctane	BDE-166S	1 mL
2,3',4,4',5,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-167S	1 mL
2,3',4,4',5',6-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-168S	1 mL
3,3',4,4',5,5'-Hexabromodiphenyl ether		50 µg/mL	Isooctane	BDE-169S	1 mL
2,2',3,3',4,4',5-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-170S	1 mL
2,2',3,3',4,4',6-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-171S	1 mL
2,2',3,3',4,4',5,5'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-172S	1 mL
2,2',3,3',4,5,6-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-173S	1 mL
2,2',3,3',4,5',6-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-175S	1 mL
2,2',3,3',4',6,6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-176S	1 mL
2,2',3,3',4',5,6-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-177S	1 mL
2,2',3,3',5,5',6-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-178S	1 mL
2,2',3,4,4',5,5'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-180S	1 mL
2,2',3,4,4',5,6-Heptabromodiphenyl ether	189084-67-1	50 µg/mL	Isooctane	BDE-181S	1 mL
2,2',3,4,4',5,6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-182S	1 mL
2,2',3,4,4',5',6-Heptabromodiphenyl ether	207122-16-5	50 µg/mL	Isooctane	BDE-183S	1 mL
2,2',3,4,4',6,6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-184S	1 mL
2,2',3,4,5,5',6-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-185S	1 mL
2,2',3,4,5,6,6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-186S	1 mL
2,2',3,4',5,5',6-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-187S	1 mL
2,2',3',4',5,6,6'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-188S	1 mL
2,3,3',4,4',5,5'-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-189S	1 mL
2,3,3',4,4',5,6-Heptabromodiphenyl ether	189084-68-2	50 µg/mL	Isooctane	BDE-190S	1 mL
2,3,3',4,4',5',6-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-191S	1 mL
2,3,3',4,5,5',6-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-192S	1 mL
2,3,3',4',5,5',6-Heptabromodiphenyl ether		50 µg/mL	Isooctane	BDE-193S	1 mL
2,2',3,3',4,4',5,5'-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-194S	1 mL
2,2',3,3',4,4',5,6-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-195S	1 mL
2,2',3,3',4,4',5,6'-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-196S	1 mL
2,2',3,3',4,4',6,6'-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-197S	1 mL
2,2',3,3',4,5,5',6-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-198S	1 mL
2,2',3,3',4,5',6,6'-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-201S	1 mL
2,2',3,3',5,5',6,6'-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-202S	1 mL
2,2',3,4,4',5,5',6-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-203S	1 mL
2,2',3,4,4',5,6,6'-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-204S	1 mL
2,3,3',4,4',5,5',6-Octabromodiphenyl ether		50 µg/mL	Isooctane	BDE-205S	1 mL
2,2',3,3',4,4',5,5',6-Nonabromodiphenyl ether		50 µg/mL	Isooctane	BDE-206S	1 mL
2,2',3,3',4,4',5,6,6'-Nonabromodiphenyl ether		10 µg/mL	Nonane	BDE-207S-R1-0.2X	1 mL
		50 µg/mL	Isooctane	BDE-207S-R1	1 mL
2,2',3,3',4,5,5',6,6'-Nonabromodiphenyl ether		50 µg/mL	Isooctane	BDE-208S	1 mL
Decabromodiphenyl ether	1163-19-5	50 µg/mL	Isooctane: Toluene 9:1	BDE-209S	1 mL



Tech Grade PBDEs, Specific Mixtures and Calibration Curve Set

Technical Grade PBDEs

PBDE Technical Grade

50 µg/mL in Isooctane	Cat. No.	Unit
Bromkal DE-70-5 (Pentas)	BDE-705	1 mL
Bromkal DE-71 (Pentas)	BDE-710	1 mL
Bromkal DE-73-6 (Hexas)	BDE-736	1 mL
Bromkal DE-79-8 (Octas)	BDE-798	1 mL
FR-300BA (Deca)	FRS-009N	10 mg
	FRS-009S*	1 mL
	* 100 µg/mL in Toluene	

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PBDE Congeners common to Technical Mixtures (Bromkal™)

BDE-BROMKAL	1 x 1 mL
10 µg/mL each in Isooctane	6 comps.
2,4,4'-Tribromodiphenyl ether (#28)	
2,2',4,4'-Tetrabromodiphenyl ether (#47)	
2,2',4,4',5-Pentabromodiphenyl ether (#99)	
2,2',4,4',6-Pentabromodiphenyl ether (#100)	
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	

DE-71 (Pentas) Great Lakes Study

BDE-710-GL	1 x 1 mL
50 µg/mL each in Isooctane	
Bromkal DE-71	

DE-79 (Octas) Great Lakes Study

BDE-798-GL	1 x 1 mL
50 µg/mL each in Isooctane	
Bromkal DE-79	

Specific Mixtures

PBDEs Most Common in the Environment

BDE-USE	1 x 1 mL
10 µg/mL each in Isooctane	5 comps.

2,2',4,4'-Tetrabromodiphenyl ether (#47)
 2,2',4,4',5-Pentabromodiphenyl ether (#99)
 2,2',4,4',6-Pentabromodiphenyl ether (#100)
 2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)
 2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)

PBDEs Common to California Environment

BDE-CAE-1	1 x 1 mL
10 µg/mL each in Isooctane	7 comps.

2,4,4'-Tribromodiphenyl ether (#28)
 2',3,4-Tribromodiphenyl ether (#33)
 2,2',4,4'-Tetrabromodiphenyl ether (#47)
 2,2',4,4',5-Pentabromodiphenyl ether (#99)
 2,2',4,4',6-Pentabromodiphenyl ether (#100)
 2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)
 2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)

California Method 750-M Standard

BDE-CALEWS	1 x 1 mL
10 µg/mL each in Isooctane	13 comps.

2,2',4-Tribromodiphenyl ether (#17)
 2,4,4'-Tribromodiphenyl ether (#28)
 2,2',4,4'-Tetrabromodiphenyl ether (#47)
 2,3',4,4'-Tetrabromodiphenyl ether (#66)
 2,3',4',6-Tetrabromodiphenyl ether (#71)
 2,2',4,4',5-Pentabromodiphenyl ether (#99)
 2,2',4,4',6-Pentabromodiphenyl ether (#100)
 2,2',3,4,4',5'-Hexabromodiphenyl ether (#138)
 2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)
 2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)
 2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)
 2,2',3,3',4,4',5,5',6,6'-Decabromodiphenyl ether (#209)
 2,2',6,6'-Tetrabromobisphenol A

PBDEs - Columbia River Study

BDE-CR	1 x 1 mL
10 µg/mL each in Isooctane	12 comps.

4,4'-Dibromodiphenyl ether (#15)
 2,4,4'-Tribromodiphenyl ether (#28)
 2',3,4-Tribromodiphenyl ether (#33)
 2,2',4,4'-Tetrabromodiphenyl ether (#47)
 2,2',4,5'-Tetrabromodiphenyl ether (#49)
 2,3',4,4'-Tetrabromodiphenyl ether (#66)
 2,4,4',6-Tetrabromodiphenyl ether (#75)
 2,2',4,4',5-Pentabromodiphenyl ether (#99)
 2,2',4,4',6-Pentabromodiphenyl ether (#100)
 2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)
 2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)
 2,2',4,4',6,6'-Hexabromodiphenyl ether (#155)

PBDEs - Lake Michigan Study

BDE-LMS	1 x 1 mL
10 µg/mL each in Isooctane	9 comps.

2,4,4'-Tribromodiphenyl ether (#28)
 2,2',4,4'-Tetrabromodiphenyl ether (#47)
 2',3,4,4'-Tetrabromodiphenyl ether (#66)
 2,2',3,4,4'-Pentabromodiphenyl ether (#85)
 2,2',4,4',5-Pentabromodiphenyl ether (#99)
 2,2',4,4',6-Pentabromodiphenyl ether (#100)
 2,2',3,4,4',5'-Hexabromodiphenyl ether (#138)
 2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)
 2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)

Method 527 - PBDE Standard

M-527-BDE	1 x 1 mL
50 µg/mL each in Isooctane:Ethyl Acetate (8:2)	5 comps.

2,2',4,4'-Tetrabromodiphenyl ether
 2,2',4,4',6-Pentabromodiphenyl ether
 2,2',4,4',5-Pentabromodiphenyl ether
 2,2',4,4',5,5'-Hexabromodiphenyl ether
 2,2',4,4',5,5'-Hexabromobiphenyl

Calibration Curve Set

ISO/DIS 22032

Calibration Curve Set

ISO/DIS-22032-SET

At stated conc. (ng/mL) in Isooctane

ISO/DIS-22032	01	02	03	04	05	06	07
2,2',4,4'-Tetrabromodiphenyl ether (#47)	5	12.5	25	50	100	150	250
2,2',4,4',5-Pentabromodiphenyl ether (#99)	5	12.5	25	50	100	150	250
2,2',4,4',6-Pentabromodiphenyl ether (#100)	5	12.5	25	50	100	150	250
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	5	12.5	25	50	100	150	250
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	5	12.5	25	50	100	150	250
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	5	12.5	25	50	100	150	250
2,3,3',4,4',5,5',6-Octabromodiphenyl ether (#205)	5	12.5	25	50	100	150	250
2,2',3,3',4,4',5,5',6,6'-Decabromodiphenyl ether (#209)	25	50	100	200	500	700	1000

ISO/DIS 22032

Internal Standard

BDE-47, 99 & 100

ISO22032-IS-1-5ML	1 x 5 mL
ISO22032-IS-1-10ML	1 x 10 mL
100 ng/mL each in Isooctane	

2,2',4,4'-Tetrabromodiphenyl ether

Internal Standard

BDE-153, 154 & 183

ISO22032-IS-2-5ML	1 x 5 mL
ISO22032-IS-2-10ML	1 x 10 mL
100 ng/mL each in Isooctane	

2,2',3,4,4',5,6-Heptabromodiphenyl ether

EPA Method 1614

Mixtures of PBDEs Standard Solution for Accuracy & Precision

BDE-AAP-A

At stated conc. in Isooctane

1 x 1 mL

39 comps.

ng/mL

2-Bromodiphenyl ether (#1)	100
3-Bromodiphenyl ether (#2)	100
4-Bromodiphenyl ether (#3)	100
2,4-Dibromodiphenyl ether (#7)	100
2,4'-Dibromodiphenyl ether (#8)	100
2,6-Dibromodiphenyl ether (#10)	100
3,3'-Dibromodiphenyl ether (#11)	100
3,4-Dibromodiphenyl ether (#12)	100
3,4'-Dibromodiphenyl ether (#13)	100
4,4'-Dibromodiphenyl ether (#15)	100
2,2',4'-Tribromodiphenyl ether (#17)	100
2,3',4'-Tribromodiphenyl ether (#25)	100
2,4,4'-Tribromodiphenyl ether (#28)	100
2,4,6-Tribromodiphenyl ether (#30)	100
2,4',6-Tribromodiphenyl ether (#32)	100
2',3,4-Tribromodiphenyl ether (#33)	100
3,3',4-Tribromodiphenyl ether (#35)	100
3,4,4'-Tribromodiphenyl ether (#37)	100
2,2',4,4'-Tetrabromodiphenyl ether (#47)	100
2,2',4,5'-Tetrabromodiphenyl ether (#49)	100
2,3',4,4'-Tetrabromodiphenyl ether (#66)	100
2,3',4',6-Tetrabromodiphenyl ether (#71)	100
2,4,4',6-Tetrabromodiphenyl ether (#75)	100
3,3',4,4'-Tetrabromodiphenyl ether (#77)	100
2,2',3,4,4'-Pentabromodiphenyl ether (#85)	150
2,2',4,4',5-Pentabromodiphenyl ether (#99)	150
2,2',4,4',6-Pentabromodiphenyl ether (#100)	150
2,3,4,5,6-Pentabromodiphenyl ether (#116)	150
2,3',4,4',5-Pentabromodiphenyl ether (#118)	150
2,3',4,4',6-Pentabromodiphenyl ether (#119)	150
3,3',4,4',5-Pentabromodiphenyl ether (#126)	150
2,2',3,4,4',5'-Hexabromodiphenyl ether (#138)	200
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	200
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	200
2,2',4,4',6,6'-Hexabromodiphenyl ether (#155)	200
2,3,4,4',5,6-Hexabromodiphenyl ether (#166)	200
2,2',3,4,4',5,6-Heptabromodiphenyl ether (#181)	250
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	250
2,3,3',4,4',5,6-Heptabromodiphenyl ether (#190)	250

BDE-AAP-A-15X

At stated conc. in Isooctane

1 x 1 mL

39 comps.

µg/mL

2-Bromodiphenyl ether (#1)	1.5
3-Bromodiphenyl ether (#2)	1.5
4-Bromodiphenyl ether (#3)	1.5
2,4-Dibromodiphenyl ether (#7)	1.5
2,4'-Dibromodiphenyl ether (#8)	1.5
2,6-Dibromodiphenyl ether (#10)	1.5
3,3'-Dibromodiphenyl ether (#11)	1.5
3,4-Dibromodiphenyl ether (#12)	1.5
3,4'-Dibromodiphenyl ether (#13)	1.5
4,4'-Dibromodiphenyl ether (#15)	1.5
2,2',4'-Tribromodiphenyl ether (#17)	1.5
2,3',4'-Tribromodiphenyl ether (#25)	1.5
2,4,4'-Tribromodiphenyl ether (#28)	1.5
2,4,6-Tribromodiphenyl ether (#30)	1.5
2,4',6-Tribromodiphenyl ether (#32)	1.5
2',3,4-Tribromodiphenyl ether (#33)	1.5
3,3',4-Tribromodiphenyl ether (#35)	1.5
3,4,4'-Tribromodiphenyl ether (#37)	1.5
2,2',4,4'-Tetrabromodiphenyl ether (#47)	1.5
2,2',4,5'-Tetrabromodiphenyl ether (#49)	1.5
2,3',4,4'-Tetrabromodiphenyl ether (#66)	1.5
2,3',4',6-Tetrabromodiphenyl ether (#71)	1.5
2,4,4',6-Tetrabromodiphenyl ether (#75)	1.5
3,3',4,4'-Tetrabromodiphenyl ether (#77)	1.5
2,2',3,4,4'-Pentabromodiphenyl ether (#85)	2.25
2,2',4,4',5-Pentabromodiphenyl ether (#99)	2.25
2,2',4,4',6-Pentabromodiphenyl ether (#100)	2.25
2,3,4,5,6-Pentabromodiphenyl ether (#116)	2.25
2,3',4,4',5-Pentabromodiphenyl ether (#118)	2.25
2,3',4,4',6-Pentabromodiphenyl ether (#119)	2.25
3,3',4,4',5-Pentabromodiphenyl ether (#126)	2.25
2,2',3,4,4',5'-Hexabromodiphenyl ether (#138)	3.0
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	3.0
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	3.0
2,2',4,4',6,6'-Hexabromodiphenyl ether (#155)	3.0
2,3,4,4',5,6-Hexabromodiphenyl ether (#166)	3.0
2,2',3,4,4',5,6-Heptabromodiphenyl ether (#181)	3.75
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	3.75
2,3,3',4,4',5,6-Heptabromodiphenyl ether (#190)	3.75

Technical Note

Responding to the need for the analysis of polybrominated diphenyl ether (PBDE) congeners, the EPA has developed Method 1614. Method 1614 is recommended for analysis of aqueous, solid, tissue, and multi-phase environmental samples. Each formulation is prepared using PBDEs which are synthesized and analyzed by AccuStandard.

Mixture of Commonly Occurring PBDE Congeners for Precision and Recovery

BDE-COC

At stated conc. in Isooctane

1 x 1 mL

14 comps.

µg/mL

2,2',4'-Tribromodiphenyl ether (#17)	5
2,4,4'-Tribromodiphenyl ether (#28)	5
2,2',4,4'-Tetrabromodiphenyl ether (#47)	5
2,3',4,4'-Tetrabromodiphenyl ether (#66)	5
2,3',4',6-Tetrabromodiphenyl ether (#71)	5
2,2',3,4,4'-Pentabromodiphenyl ether (#85)	5
2,2',4,4',5-Pentabromodiphenyl ether (#99)	5
2,2',4,4',6-Pentabromodiphenyl ether (#100)	5
2,2',3,4,4',5'-Hexabromodiphenyl ether (#138)	5
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	5
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	5
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	5
2,3,3',4,4',5,6-Heptabromodiphenyl ether (#190)	5
Decabromodiphenyl ether (#209)	25

PBDE Congeners of Primary Interest

BDE-CSM

At stated conc. in Isooctane

1 x 1 mL

8 comps.

µg/mL

2,4,4'-Tribromodiphenyl ether (#28)	20
2,2',4,4'-Tetrabromodiphenyl ether (#47)	20
2,2',4,4',5-Pentabromodiphenyl ether (#99)	20
2,2',4,4',6-Pentabromodiphenyl ether (#100)	20
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	20
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	20
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	20
Decabromodiphenyl ether (#209)	200

PBDE Congeners of Primary Interest

Calibration Mix

BDE-CM

At stated conc. in Isooctane

1 x 1 mL

8 comps.

µg/mL

2,4,4'-Tribromodiphenyl ether (#28)	2.5
2,2',4,4'-Tetrabromodiphenyl ether (#47)	2.5
2,2',4,4',5-Pentabromodiphenyl ether (#99)	2.5
2,2',4,4',6-Pentabromodiphenyl ether (#100)	2.5
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	2.5
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	2.5
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	2.5
Decabromodiphenyl ether (#209)	25

Matrix Spiking Solution

BDE-MS

At stated conc. in Isooctane

1 x 1 mL

8 comps.

ng/mL

2,4,4'-Tribromodiphenyl ether (#28)	1
2,2',4,4'-Tetrabromodiphenyl ether (#47)	1
2,2',4,4',5-Pentabromodiphenyl ether (#99)	1
2,2',4,4',6-Pentabromodiphenyl ether (#100)	1
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	1
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	1
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	1
Decabromodiphenyl ether (#209)	10

PBDEs in Method 1614 Set

BDE-EPA-SET

50 µg/mL each in Isooctane

8 x 1 mL

8 comps.

2,4,4'-Tribromodiphenyl ether (#28)	
2,2',4,4'-Tetrabromodiphenyl ether (#47)	
2,2',4,4',5-Pentabromodiphenyl ether (#99)	
2,2',4,4',6-Pentabromodiphenyl ether (#100)	
2,2',4,4',5,5'-Hexabromodiphenyl ether (#153)	
2,2',4,4',5,6'-Hexabromodiphenyl ether (#154)	
2,2',3,4,4',5',6-Heptabromodiphenyl ether (#183)	
Decabromodiphenyl ether (#209)	

PBDE Metabolites

Hydroxy & Methoxy Polybromodiphenyl Ether Congeners

Hydroxylated and methoxylated PBDEs may be formed as metabolites of the widely used PBDE flame retardants. AccuStandard's aim is to synthesize authentic OH-and MeO-PBDE reference standards for analytical and toxicological studies. Since this is an ongoing project, please check the website for the latest update of this list or request specific congeners to be synthesized.

Compound (Short Form)	Conc.	Solvent	Cat. No.	Unit
Hydroxy				
2'-Hydroxy-4-monobromodiphenyl ether (2'-OH-BDE-003)	50 µg/mL	AcCN	HBDE-1001S-CN	1 mL
3'-Hydroxy-2,4-dibromodiphenyl ether (3'-OH-BDE-007)	50 µg/mL	AcCN	HBDE-2001S-CN	1 mL
2'-Hydroxy-2,4-dibromodiphenyl ether (2'-OH-BDE-007)	10 µg/mL	AcCN	HBDE-2002S-CN-0.2X	1 mL
4'-Hydroxy-2,2',4-tribromodiphenyl ether (4'-OH-BDE-017)	50 µg/mL	AcCN	HBDE-3001S-CN	1 mL
3'-Hydroxy-2,2',4,4'-tribromodiphenyl ether (3'-OH-BDE-028)	50 µg/mL	AcCN	HBDE-3002S-CN	1 mL
2'-Hydroxy-2,2',4,4'-tribromodiphenyl ether (2'-OH-BDE-028)	50 µg/mL	AcCN	HBDE-3003S-CN	1 mL
4-Hydroxy-2,2',3,4'-tetrabromodiphenyl ether (4-OH-BDE-042)	10 µg/mL	AcCN	HBDE-4001S-CN-0.2X	1 mL
4'-Hydroxy-2,2',4,5'-tetrabromodiphenyl ether (4'-OH-BDE-049)	10 µg/mL	AcCN	HBDE-4002S-CN-0.2X	1 mL
3-Hydroxy-2,2',4,4'-tetrabromodiphenyl ether (3-OH-BDE-047)	50 µg/mL	AcCN	HBDE-4003S-CN	1 mL
5-Hydroxy-2,2',4,4'-tetrabromodiphenyl ether (5-OH-BDE-047)	50 µg/mL	AcCN	HBDE-4004S-CN	1 mL
6-Hydroxy-2,2',4,4'-tetrabromodiphenyl ether (6-OH-BDE-047)	10 µg/mL	AcCN	HBDE-4005S-CN-0.2X	1 mL
2'-Hydroxy-2,3',4,5'-tetrabromodiphenyl ether (2'-OH-BDE-068)	10 µg/mL	Toluene	HBDE-4005S-T-0.2X	1 mL
	10 µg/mL	AcCN	HBDE-4006S-CN-0.2X	1 mL
	10 µg/mL	Toluene	HBDE-4006S-T-0.2X	1 mL
	50 µg/mL	AcCN	HBDE-4006S-CN	1 mL
	50 µg/mL	Toluene	HBDE-4006S-T	1 mL
2'-Hydroxy-2,4,4',6-tetrabromodiphenyl ether (2'-OH-BDE-075)	10 µg/mL	AcCN	HBDE-4007S-CN-0.2X	1 mL
4-Hydroxy-2,2',3,4',5-pentabromodiphenyl ether (4-OH-BDE-090)	10 µg/mL	AcCN	HBDE-5001S-CN-0.2X	1 mL
6-Hydroxy-2,2',3,4,4'-pentabromodiphenyl ether (6-OH-BDE-085)	10 µg/mL	AcCN	HBDE-5002S-CN-0.2X	1 mL
6-Hydroxy-2,2',3,4,5'-pentabromodiphenyl ether (6-OH-BDE-087)	10 µg/mL	AcCN	HBDE-5003S-CN-0.2X	1 mL
6-Hydroxy-2,2',3,3',4-pentabromodiphenyl ether (6-OH-BDE-082)	10 µg/mL	AcCN	HBDE-5005S-CN-0.2X	1 mL
6'-Hydroxy-2,2',4,4',5-pentabromodiphenyl ether (6'-OH-BDE-099)	10 µg/mL	AcCN	HBDE-5006S-CN-0.2X	1 mL
5'-Hydroxy-2,2',4,4',5-pentabromodiphenyl ether (5'-OH-BDE-099)	10 µg/mL	AcCN	HBDE-5007S-CN-0.2X	1 mL
3-Hydroxy-2,2',4,4',6-pentabromodiphenyl ether (3-OH-BDE-100) NEW	50 µg/mL	AcCN	HBDE-5008S-CN	1 mL
4'-Hydroxy-2,2',4,5,5'-pentabromodiphenyl ether (4'-OH-BDE-101) NEW	50 µg/mL	AcCN	HBDE-5009S-CN	1 mL
6-Hydroxy-2,3,3',4,4',5'-hexabromodiphenyl ether (6-OH-BDE-157)	10 µg/mL	AcCN	HBDE-6001S-CN-0.2X	1 mL
6-Hydroxy-2,2',3,4,4',6'-hexabromodiphenyl ether (6-OH-BDE-140)	10 µg/mL	AcCN	HBDE-6002S-CN-0.2X	1 mL
3'-Hydroxy-2,2',4,4',5,6'-hexabromodiphenyl ether (3'-OH-BDE-154)	10 µg/mL	AcCN	HBDE-6003S-CN-0.2X	1 mL
6-Hydroxy-2,2',3,4,4',5'-hexabromodiphenyl ether (6-OH-BDE-137) NEW	10 µg/mL	AcCN	HBDE-6004S-CN-0.2X	1 mL
4-Hydroxy-2,2',3,4,4',5'-hexabromodiphenyl ether (4-OH-BDE-187) NEW	50 µg/mL	AcCN	HBDE-7001S-CN	1 mL
6-Hydroxy-2,2',3,4,4',5,5'-heptabromodiphenyl ether (6-OH-BDE-180) NEW	50 µg/mL	AcCN	HBDE-7002S-CN	1 mL
4-Hydroxy-2,2',3,4,4',5,6'-heptabromodiphenyl ether (4-OH-BDE-188) NEW	50 µg/mL	AcCN	HBDE-7003S-CN	1 mL
6-Hydroxy-2,2',3,4,4',5,6'-heptabromodiphenyl ether (6-OH-BDE-182) NEW	10 µg/mL	AcCN	HBDE-7004S-CN-0.2X	1 mL
4'-Hydroxy-2,2',3,3',4,5',6,6'-octabromodiphenyl ether (4'-OH-BDE-201) NEW	50 µg/mL	AcCN	HBDE-8001S-CN	1 mL
Methoxy				
2'-Methoxy-4-monobromodiphenyl ether (2'-MeO-BDE-003)	50 µg/mL	MeOH	MOBDE-1001S	1 mL
3'-Methoxy-2,4-dibromodiphenyl ether (3'-MeO-BDE-007)	50 µg/mL	MeOH	MOBDE-2001S	1 mL
2'-Methoxy-2,4-dibromodiphenyl ether (2'-MeO-BDE-007)	10 µg/mL	MeOH	MOBDE-2002S-0.2X	1 mL
4'-Methoxy-2,2',4-tribromodiphenyl ether (4'-MeO-BDE-017)	50 µg/mL	MeOH	MOBDE-3001S	1 mL
3'-Methoxy-2,2',4,4'-tribromodiphenyl ether (3'-MeO-BDE-028)	50 µg/mL	MeOH	MOBDE-3002S	1 mL
2'-Methoxy-2,2',4,4'-tribromodiphenyl ether (2'-MeO-BDE-028)	50 µg/mL	MeOH	MOBDE-3003S	1 mL
4-Methoxy-2,2',3,4'-tetrabromodiphenyl ether (4-MeO-BDE-042)	10 µg/mL	MeOH	MOBDE-4001S-0.2X	1 mL
4'-Methoxy-2,2',4,5'-tetrabromodiphenyl ether (4'-MeO-BDE-049)	10 µg/mL	MeOH	MOBDE-4002S-0.2X	1 mL
3-Methoxy-2,2',4,4'-tetrabromodiphenyl ether (3-MeO-BDE-047)	50 µg/mL	MeOH	MOBDE-4003S	1 mL
5-Methoxy-2,2',4,4'-tetrabromodiphenyl ether (5-MeO-BDE-047)	50 µg/mL	MeOH	MOBDE-4004S	1 mL
6-Methoxy-2,2',4,4'-tetrabromodiphenyl ether (6-MeO-BDE-047)	10 µg/mL	MeOH	MOBDE-4005S-0.2X	1 mL
2'-Methoxy-2,3',4,5'-tetrabromodiphenyl ether (2'-MeO-BDE-068)	10 µg/mL	MeOH	MOBDE-4006S-0.2X	1 mL
2'-Methoxy-2,4,4',6-tetrabromodiphenyl ether (2'-MeO-BDE-075)	50 µg/mL	MeOH	MOBDE-4007S	1 mL
4-Methoxy-2,2',3,4',5-pentabromodiphenyl ether (4-MeO-BDE-090)	10 µg/mL	MeOH	MOBDE-5001S-0.2X	1 mL
6-Methoxy-2,2',3,4,4'-pentabromodiphenyl ether (6-MeO-BDE-085)	10 µg/mL	MeOH	MOBDE-5002S-0.2X	1 mL
6-Methoxy-2,2',3,4,5'-pentabromodiphenyl ether (6-MeO-BDE-087)	10 µg/mL	MeOH	MOBDE-5003S-0.2X	1 mL
6-Methoxy-2,2',3,3',4-pentabromodiphenyl ether (6-MeO-BDE-082)	10 µg/mL	MeOH	MOBDE-5005S-0.2X	1 mL
6'-Methoxy-2,2',4,4',5-pentabromodiphenyl ether (6'-MeO-BDE-099)	10 µg/mL	MeOH	MOBDE-5006S-0.2X	1 mL
5'-Methoxy-2,2',4,4',5-pentabromodiphenyl ether (5'-MeO-BDE-099) NEW	10 µg/mL	MeOH	MOBDE-5007S-0.2X	1 mL
3-Methoxy-2,2',4,4',6-pentabromodiphenyl ether (3-MeO-BDE-100) NEW	50 µg/mL	MeOH	MOBDE-5008S	1 mL
4'-Methoxy-2,2',4,5,5'-pentabromodiphenyl ether (4'-MeO-BDE-101) NEW	50 µg/mL	MeOH	MOBDE-5009S	1 mL
6-Methoxy-2,3,3',4,4',5'-hexabromodiphenyl ether (6-MeO-BDE-157)	10 µg/mL	MeOH	MOBDE-6001S-0.2X	1 mL
6-Methoxy-2,2',3,4,4',6'-hexabromodiphenyl ether (6-MeO-BDE-140)	10 µg/mL	MeOH	MOBDE-6002S-0.2X	1 mL
3'-Methoxy-2,2',4,4',5,6'-hexabromodiphenyl ether (3'-MeO-BDE-154)	10 µg/mL	MeOH	MOBDE-6003S-0.2X	1 mL
6-Methoxy-2,2',3,4,4',5'-Hexabromodiphenyl ether (6-MeO-BDE-137) NEW	10 µg/mL	MeOH	MOBDE-6004S-0.2X	1 mL
4-Methoxy-2,2',3,4',5,5',6'-heptabromodiphenyl ether (4-MeO-BDE-187) NEW	50 µg/mL	MeOH	MOBDE-7001S	1 mL
6-Methoxy-2,2',3,4,4',5,5'-heptabromodiphenyl ether (6-MeO-BDE-180) NEW	50 µg/mL	MeOH	MOBDE-7002S	1 mL
4-Methoxy-2,2',3,4',5,6,6'-heptabromodiphenyl ether (4-MeO-BDE-188) NEW	50 µg/mL	MeOH	MOBDE-7003S	1 mL
6-Methoxy-2,2',3,4,4',5,6'-heptabromodiphenyl ether (6-MeO-BDE-182) NEW	10 µg/mL	MeOH	MOBDE-7004S-0.2X	1 mL
4'-Methoxy-2,2',3,3',4,5',6,6'-octabromodiphenyl ether (4'-MeO-BDE-201) NEW	50 µg/mL	MeOH	MOBDE-8001S	1 mL

Fluorinated PBDE Congeners

Internal Standards for PBDE Analysis

Some research suggests that a fluorine derivative of the PBDE parent compound can be used as a less costly replacement than the ¹³C labeled PBDEs currently used. In addition, FBDEs can be used for ECD (Electron Capture Detection) analysis where the more expensive ¹³C labeled PBDEs cannot. Experimental testing also suggests that the use of FBDEs as internal standards show improved precision in PBDE analysis. AccuStandard has synthesized the following FBDEs for use as internal standards and has committed to adding to this list based on requests from analytical chemists:

Compound (Short Form)	Conc.	Solvent	Cat. No.	Unit
3'-Fluoro-2,4-dibromodiphenyl ether (F-BDE-007)	25 µg/mL	Isooctane	FBDE-2001S-0.5X	1 mL
	50 µg/mL	Isooctane	FBDE-2001S	1 mL
3'-Fluoro-3,4-dibromodiphenyl ether (F-BDE-012)	25 µg/mL	Isooctane	FBDE-2002S-0.5X	1 mL
	50 µg/mL	Isooctane	FBDE-2002S	1 mL
4'-Fluoro-2,3',4-tribromodiphenyl ether (F-BDE-025)	25 µg/mL	Isooctane	FBDE-3001S-0.5X	1 mL
	50 µg/mL	Isooctane	FBDE-3001S	1 mL
4'-Fluoro-2,3',6-tribromodiphenyl ether (F-BDE-027)	25 µg/mL	Isooctane	FBDE-3002S-0.5X	1 mL
	50 µg/mL	Isooctane	FBDE-3002S	1 mL
2'-Fluoro-2,4,4'-tribromodiphenyl ether (F-BDE-028)	25 µg/mL	Isooctane	FBDE-3003S-0.5X	1 mL
	50 µg/mL	Isooctane	FBDE-3003S	1 mL
3'-Fluoro-2,4,4'-tribromodiphenyl ether (F-BDE-028)	25 µg/mL	Isooctane	FBDE-3004S-0.5X	1 mL
	50 µg/mL	Isooctane	FBDE-3004S	1 mL
4'-Fluoro-2,3',4,6-tetrabromodiphenyl ether (F-BDE-069)	25 µg/mL	Isooctane	FBDE-4001S-0.5X	1 mL
	50 µg/mL	Isooctane	FBDE-4001S	1 mL
4'-Fluoro-2,3',4,5-tetrabromodiphenyl ether (F-BDE-067)	25 µg/mL	Isooctane	FBDE-4002S-0.5X	1 mL
	50 µg/mL	Isooctane	FBDE-4002S	1 mL
6-Fluoro-2,2',4,4'-tetrabromodiphenyl ether (F-BDE-047)	25 µg/mL	Isooctane	FBDE-4003S-0.5X	1 mL
	50 µg/mL	Isooctane	FBDE-4003S	1 mL
6-Fluoro-2,3',4,4'-tetrabromodiphenyl ether (F-BDE-066)	25 µg/mL	Isooctane	FBDE-4004S-0.5X	1 mL
	50 µg/mL	Isooctane	FBDE-4004S	1 mL
5,5'-Difluoro-2,2',4,4'-tetrabromodiphenyl ether (2F-BDE-047)	25 µg/mL	Isooctane	FBDE-4005S-0.5X	1 mL
	50 µg/mL	Isooctane	FBDE-4005S	1 mL
3-Fluoro-2,2',4,4',6-pentabromodiphenyl ether (F-BDE-100)	25 µg/mL	Isooctane	FBDE-5002S-0.5X	1 mL
	50 µg/mL	Isooctane	FBDE-5002S	1 mL
3,6-Difluoro-2,2',4,4',5-pentabromodiphenyl ether (2F-BDE-099)	25 µg/mL	Isooctane	FBDE-5003S-0.5X	1 mL
	50 µg/mL	Isooctane	FBDE-5003S	1 mL
5,6-Difluoro-2,2',3,4,4'-pentabromodiphenyl ether (2F-BDE-085)	25 µg/mL	Isooctane	FBDE-5004S-0.5X	1 mL
	50 µg/mL	Isooctane	FBDE-5004S	1 mL
3,5-Difluoro-2,3',4,4',6-pentabromodiphenyl ether (2F-BDE-119)	25 µg/mL	Isooctane	FBDE-5005S-0.5X	1 mL
	50 µg/mL	Isooctane	FBDE-5005S	1 mL
4'-Fluoro-2,3,3',4,5,6-hexabromodiphenyl ether (F-BDE-160)	25 µg/mL	Isooctane	FBDE-6001S-0.5X	1 mL
	50 µg/mL	Isooctane	FBDE-6001S	1 mL
3-Fluoro-2,2',4,4',5,6-hexabromodiphenyl ether (F-BDE-139)	25 µg/mL	Isooctane	FBDE-6002S-0.5X	1 mL
	50 µg/mL	Isooctane	FBDE-6002S	1 mL
4',6-Difluoro-2,2',3,3',4,5,5',6'-octabromodiphenyl ether (2F-BDE-201)	25 µg/mL	Isooctane	FBDE-8001S-0.5X	1 mL
	50 µg/mL	Isooctane	FBDE-8001S	1 mL
4'-Fluoro-2,2',3,3',4,5,5',6,6'-nonabromodiphenyl ether (F-BDE-208)	25 µg/mL	Isooctane	FBDE-9001S-0.5X	1 mL
	50 µg/mL	Isooctane	FBDE-9001S	1 mL

HBCD Isomers, Bromobiphenyls, Bromophenols and their Methyl Ethers

Hexabromocyclododecane (HBCD) Isomers

Compound	CAS No.	Conc.	Matrix	Cat. No.	Unit
α -Hexabromocyclododecane		100 μ g/mL	Toluene	HXBCD-01	1 mL
β -Hexabromocyclododecane		100 μ g/mL	Toluene	HXBCD-02	1 mL
γ -Hexabromocyclododecane		100 μ g/mL	Toluene	HXBCD-03	1 mL

Bromobiphenyl Congeners

Compound	CAS No.	Conc.	Matrix	Cat. No.	Unit
2-Bromobiphenyl	2052-07-5	50 mg	NEAT	B-001N	1 mL
		35 μ g/mL	Isooctane	B-001S	1 mL
3-Bromobiphenyl	2113-57-7	1 mg/mL	Acetone	M-8081-SS-X	1 mL
		50 mg	NEAT	B-002N	1 mL
4-Bromobiphenyl	92-66-0	35 μ g/mL	Isooctane	B-002S	1 mL
		50 mg	NEAT	B-003N	1 mL
2,2'-Dibromobiphenyl	13029-09-9	35 μ g/mL	Isooctane	B-003S	1 mL
		10 mg	NEAT	B-004N	1 mL
2,4-Dibromobiphenyl	53592-10-2	35 μ g/mL	Isooctane	B-004S	1 mL
		10 mg	NEAT	B-007N-10MG	1 mL
2,5-Dibromobiphenyl	57422-77-2	35 μ g/mL	Isooctane	B-007S	1 mL
		25 mg	NEAT	B-009N	1 mL
2,6-Dibromobiphenyl	59080-32-9	35 μ g/mL	Isooctane	B-009S	1 mL
		5 mg	NEAT	B-010N-5MG	1 mL
4,4'-Dibromobiphenyl	92-86-4	35 μ g/mL	Isooctane	B-010S	1 mL
		10 mg	NEAT	B-015N	1 mL
2,2',5-Tribromobiphenyl	59080-34-1	35 μ g/mL	Isooctane	B-015S	1 mL
		10 mg	NEAT	B-018N	1 mL
2,3',5-Tribromobiphenyl	59080-35-2	35 μ g/mL	Isooctane	B-018S	1 mL
		10 mg	NEAT	B-026N	1 mL
2,4,5-Tribromobiphenyl	115245-07-3	35 μ g/mL	Isooctane	B-026S	1 mL
		25 mg	NEAT	B-029S	1 mL
2,4,6-Tribromobiphenyl	59080-33-0	35 μ g/mL	Isooctane	B-030N	1 mL
		10 mg	NEAT	B-030S	1 mL
2,4',5-Tribromobiphenyl	59080-35-3	35 μ g/mL	Isooctane	B-031N	1 mL
		5 mg	NEAT	B-031S	1 mL
2,2',4,5'-Tetrabromobiphenyl	60044-24-8	35 μ g/mL	Isooctane	B-049N-5MG	1 mL
		10 mg	NEAT	B-049S	1 mL
2,2',5,5'-Tetrabromobiphenyl	59080-37-4	35 μ g/mL	Isooctane	B-052N	1 mL
		5 mg	NEAT	B-052S	1 mL
2,2',5,6'-Tetrabromobiphenyl	60044-25-9	35 μ g/mL	Isooctane	B-053N-5MG	1 mL
		10 mg	NEAT	B-053S	1 mL
3,3',4,4'-Tetrabromobiphenyl	77102-82-0	35 μ g/mL	Isooctane	B-077S	1 mL
3,3',5,5'-Tetrabromobiphenyl	16400-50-3	35 μ g/mL	Isooctane	B-080S	1 mL
2,2',4,5,5'-Pentabromobiphenyl	67888-96-4	5 mg	NEAT	B-101N	1 mL
		35 μ g/mL	Isooctane	B-101S	1 mL
2,2',4,5',6-Pentabromobiphenyl	59080-39-6	5 mg	NEAT	B-103N	1 mL
		35 μ g/mL	Isooctane	B-103S	1 mL
2,2',4,4',5,5'-Hexabromobiphenyl	59080-40-9	35 μ g/mL	Isooctane	B-153S	1 mL
2,2',4,4',6,6'-Hexabromobiphenyl	59261-08-4	5 mg	NEAT	B-155N	1 mL
		35 μ g/mL	Isooctane	B-155S	1 mL
3,3',4,4',5,5'-Hexabromobiphenyl	77607-09-1	35 μ g/mL	Isooctane	B-169S	1 mL
2,2',3,3',4,5',6,6'-Octabromobiphenyl	119264-60-7	35 μ g/mL	Isooctane	B-200S	1 mL
Decabromobiphenyl	13654-09-6	25 mg	NEAT	B-209N	1 mL
		35 μ g/mL	Isooctane:Acetone (98:2)	B-209S	1 mL

Bromophenols and their Methyl Ethers

Bromophenols

1 mL each at 100 µg/mL in Toluene

Compound	CAS No.	Cat. No.	Unit
3-Bromophenol	591-20-8	BP-003S	1 mL
4-Bromophenol	106-41-2	BP-004S	1 mL
2,3-Dibromophenol	57383-80-9	BP-023S	1 mL
2,4-Dibromophenol	615-58-7	BP-024S	1 mL
2,5-Dibromophenol	28165-52-8	BP-025S	1 mL
2,6-Dibromophenol	608-33-3	BP-026S	1 mL
3,5-Dibromophenol	626-41-5	BP-035S	1 mL
2,3,4-Tribromophenol		BP-234S	1 mL
2,3,6-Tribromophenol NEW		BP-236S	1 mL
2,4,5-Tribromophenol		BP-245S	1 mL
2,4,6-Tribromophenol	118-79-6	BP-246S	1 mL
3,4,5-Tribromophenol		BP-345S	1 mL
2,3,4,5-Tetrabromophenol		BP-2345S	1 mL
2,3,4,6-Tetrabromophenol	14400-94-3	BP-2346S	1 mL
2,3,5,6-Tetrabromophenol		BP-2356S	1 mL
Pentabromophenol	608-71-9	BP-23456S	1 mL

Bromoanisoles (Bromophenyl Methyl Ethers)

1 mL each at 50 µg/mL in Methanol

Compound	CAS No.	Cat. No.	Unit
2-Bromoanisole	578-57-4	BAN-01	1 mL
3-Bromoanisole	2398-37-0	BAN-02	1 mL
4-Bromoanisole	104-92-7	BAN-03	1 mL
2,3-Dibromoanisole		BAN-04	1 mL
2,4-Dibromoanisole	21702-84-1	BAN-05	1 mL
2,5-Dibromoanisole		BAN-06	1 mL
2,6-Dibromoanisole	38603-09-7	BAN-07	1 mL
3,5-Dibromoanisole	74137-36-3	BAN-08	1 mL
2,4,5-Tribromoanisole		BAN-09	1 mL
2,4,6-Tribromoanisole	607-99-8	BAN-10	1 mL



Industrial Flame Retardants

Bromine Containing Industrial Flame Retardants (BFRs)



Priority Pollutants According to the Norwegian Pollution Control Authority (SFT)

Brominated Flame Retardants (BFRs) are a group of chemicals that inhibit combustion. They are extensively used in electrical and electronic equipment, transport equipment, building materials, paint and insulation foams. However, these show up in the environment and cause adverse health effects. Thus, it is an international target to substantially reduce the release of five prioritized BFRs before the year 2010 and completely eliminate the discharge of those five substances before the year 2020.

To review and assess the current state of knowledge on emerging "new" BFRs, the selected substances are monitored for their environmental levels including, data on toxicity and ecotoxicity, potential to bioconcentrate and bioaccumulate in the food web, possible analytical methods, their persistence in the environment and other data. This information is used to select compounds that, based on the current state of knowledge, can be relevant for further monitoring.

For this purpose, the Norwegian Pollution Control Authority (SFT) has commissioned the Environmental Research Institute of Norway (NILU), Swerea IVF (Sweden) and WECC Wania Environmental Chemist Corp. (Canada) to perform this study.

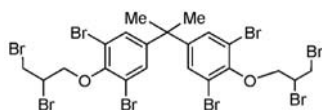
AccuStandard, Inc. has either synthesized or collected these 21 new BFR Standards and offers them to the environmental chemist for the first time in this (nearly) complete form.

Note: If you want any of these compounds in a different solvent, please request a custom quotation.

Neats at 10 mg. Solutions at 100 µg/mL in 1 mL.

Tetrabromobisphenol A bis(2,3-dibromopropyl ether)

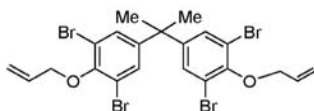
[21850-44-2] C₂₁H₂₀Br₈O₂ FW 943.61



Matrix	Cat. No.	
NEAT	FRS-034N	
Toluene	FRS-034S	

Tetrabromobisphenol A diallyl ether

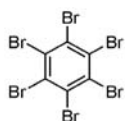
[25327-89-3] C₂₁H₂₀Br₄O₂ FW 624.0



Matrix	Cat. No.	
NEAT	FRS-045N	
Toluene	FRS-045S	

Hexabromobenzene

[87-82-1] C₆H₆ FW 551.49



Matrix	Cat. No.	
NEAT	HA-07N	
Toluene	HA-07S	

Pentabromotoluene

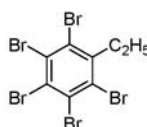
[87-83-2] C₇H₃Br₅ FW 486.62



Matrix	Cat. No.	
NEAT	FRS-018N	
Toluene	FRS-018S	

Pentabromoethylbenzene

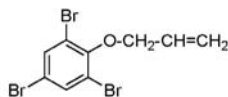
[85-22-3] C₈H₅Br₅ FW 500.65



Matrix	Cat. No.	
Toluene	FRS-048S	

2,4,6-Tribromophenyl allyl ether

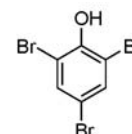
[3278-89-5] C₉H₇Br₃O FW 370.86



Matrix	Cat. No.	
NEAT	FRS-043N	
Toluene	FRS-043S	

2,4,6-Tribromophenol

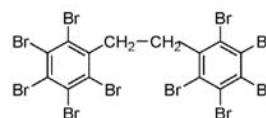
[118-79-6] C₆H₃Br₃O FW 330.80



Matrix	Cat. No.	
NEAT	BP-246N	
Toluene	BP-246S	

Decabromodiphenylethane

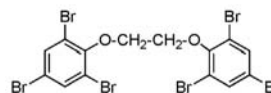
[84852-53-9] C₁₄H₄Br₁₀ FW 971.22



Matrix	Cat. No.	
NEAT	FRS-036N	
Toluene	FRS-036S	

1,2-bis(2,4,6-Tribromophenoxy)ethane

[37853-59-1] C₁₄H₈Br₆O₂ FW 687.64



Matrix	Cat. No.	
NEAT	FRS-037N	
Toluene	FRS-037S	

Industrial Flame Retardants

Bromine Containing Industrial Flame Retardants (BFRs) continued



Neats at 10 mg. Solutions at 100 µg/mL in 1 mL.

1,4-bis(Pentabromophenoxy)tetrabromobenzene

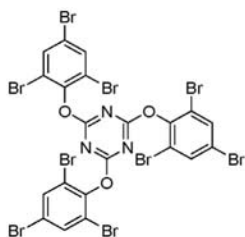
[58965-66-5] C₁₈Br₁₄O₂ FW 1366.85



Matrix	Cat. No
NEAT	FRS-052N
Toluene	FRS-052S

2,4,6-tris(2,4,6-Tribromophenoxy)-1,3,5-triazine

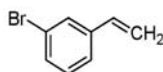
[25713-60-4] C₂₁H₆Br₉N₃O₃ FW 1067.43



Matrix	Cat. No
Toluene	FRS-049S

3-Bromostyrene

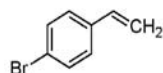
[2039-86-3] C₈H₇Br FW 183.04



Matrix	Cat. No
NEAT	FRS-050N
Toluene	FRS-050S

4-Bromostyrene

[2039-82-9] C₈H₇Br FW 183.04

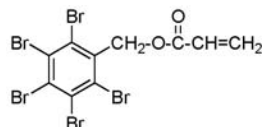


Matrix	Cat. No
NEAT	FRS-051N

Toluene FRS-051S

Pentabromobenzyl acrylate

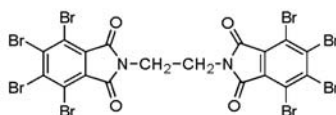
[59447-55-1] C₁₀H₅Br₅O₂ FW 556.67



Matrix	Cat. No
NEAT	FRS-035N
Toluene	FRS-035S

Ethylene bis(tetrabromophthalimide)

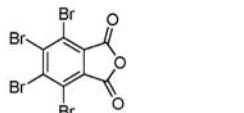
[32588-76-4] C₁₈H₄Br₈N₂O₄ FW 951.47



Matrix	Cat. No
NEAT	FRS-053N
Toluene	FRS-053S

Tetrabromophthalic anhydride

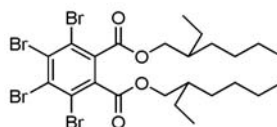
[632-79-1] C₈Br₄O₃ FW 463.7



Matrix	Cat. No
NEAT	FRS-007N
Toluene	FRS-007S

Di(2-ethylhexyl)tetrabromophthalate

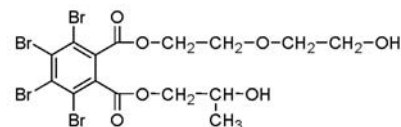
[26040-51-7] C₂₄H₃₄Br₄O₃ FW 706.14



Matrix	Cat. No
NEAT	FRS-040N
Toluene	FRS-040S

1,2-Benzenedicarboxylic acid, 3,4,5,6-tetrabromo-2-(2-hydroxyethoxy) ethyl-2-hydroxypropyl ester

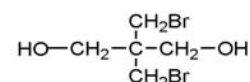
[20566-35-2] C₁₅H₁₆Br₄O₇ FW 627.9



Matrix	Cat. No
Toluene	FRS-054S

Dibromoneopentyl glycol

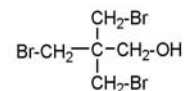
[3296-90-0] C₅H₁₀Br₂O₂ FW 261.94



Matrix	Cat. No
NEAT	FRS-011N
Toluene	FRS-011S

Tribromoneopentyl alcohol

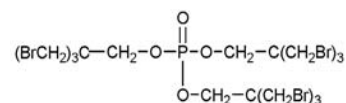
[1522-92-5 / 36483-57-5] C₅H₉Br₃O



Matrix	Cat. No
NEAT	FRS-046N
Toluene	FRS-046S

tris(Tribromoneopentyl)phosphate

[19186-97-1] C₁₅H₂₄Br₉O₄P FW 1018.46



Matrix	Cat. No
NEAT	FRS-047N
Dichloromethane	FRS-047S

Ammonium bromide

[12124-97-9] BrH₄N FW 97.94

NH₄Br

Matrix	Cat. No
NEAT	FRS-055N
Methanol	FRS-055SM

Industrial Flame Retardants

Bromine Containing Industrial Flame Retardants (BFRs)

Commercial Grade BFRs

Compound	CAS No.	Active Ingredient	Conc.	Matrix	Cat. No.	Unit
Bromkal™ DE-70-5		Penta BDEs	50 µg/mL	Isooctane	BDE-705	1 mL
Bromkal™ DE-71		Penta BDEs	50 µg/mL	Isooctane	BDE-710	1 mL
Bromkal™ DE-73-6		Hexa BDEs	50 µg/mL	Isooctane	BDE-736	1 mL
Bromkal™ DE-79-8		Octa BDEs	50 µg/mL	Isooctane	BDE-798	1 mL
Dow FR-250	27858-07-7	Mix of Octa and Nonabromobiphenyl	35 µg/mL	Isooctane	B-250S-0.35X	1 mL
			100 µg/mL	Isooctane	B-250S	1 mL
Firemaster™ BP4A	79-94-7	Tetrabromobisphenol A	10 mg	NEAT	FRS-006N	10 mg
			100 µg/mL	Toluene	FRS-006S	1 mL
Firemaster™ BP-6	59536-65-1	Hexabromobiphenyl	10 mg	NEAT	B-600N	10 mg
			35 µg/mL	Isooctane	B-600S-0.35X	1 mL
			100 µg/mL	Isooctane	B-600S	1 mL
Firemaster™ PHT4	632-79-1	Tetrabromophthalic anhydride	10 mg	NEAT	FRS-007N	10 mg
			100 µg/mL	Toluene	FRS-007S	1 mL
Firemaster™ T23P (Michigan Chemical)	126-72-7	Tris(2,3-dibromopropyl)phosphate	10 mg	NEAT	FRS-008N	10 mg
			100 µg/mL	Toluene	FRS-008S	1 mL
Firemaster™ 680 (Great Lakes)	37853-59-1	1,2-Bis(2,4,6-tribromophenoxy)ethane	50 mg	NEAT	FRS-037N	50 mg
			100 µg/mL	Toluene	FRS-037S	1 mL
Firemaster™ 2100 (Great Lakes)		Decabromodiphenylethane	50 mg	NEAT	FRS-036N	10 mg
FR-300BA	1163-19-5	Decabromodiphenyl ether 85.5%	10 mg	NEAT	FRS-009N	10 mg
			100 µg/mL	Toluene	FRS-009S	1 mL
FR-651A (Dow)	87-84-3	Pentabromochlorocyclohexane	10 mg	NEAT	FRS-010N	10 mg
			100 µg/mL	Toluene	FRS-010S	1 mL
FR-1138 (Dow)	3296-90-0	Dibromoneopentyl glycol 85.0%	10 mg	NEAT	FRS-011N	10 mg
			100 µg/mL	Toluene	FRS-011S	1 mL
HBCD SP-75C (Great Lakes)	3194-55-6-GL	1,2,5,6,9,10-Hexabromocyclododecane	10 mg	NEAT	FRS-028N	10 mg
			100 µg/mL	Toluene	FRS-028S	1 mL
Hexabromobenzene (Michigan Chemical)	87-82-1	Hexabromobenzene	10 mg	NEAT	FRS-012N	10 mg
			100 µg/mL	Toluene	FRS-012S	1 mL
Hexabromobenzene (White Chemical)	87-82-1	Hexabromobenzene	10 mg	NEAT	FRS-013N	10 mg
			100 µg/mL	Toluene	FRS-013S	1 mL
Pentabromotoluene (White Chemical)	87-83-2	Pentabromotoluene	10 mg	NEAT	FRS-018N	10 mg
			100 µg/mL	Toluene	FRS-018S	1 mL
Tetrabromo-o-chlorotoluene (White Chemical)		Tetrabromo-o-chlorotoluene (98%)	10 mg	NEAT	FRS-021N	10 mg
			100 µg/mL	Toluene	FRS-021S	1 mL
TP-69 (Great Lakes)	126-72-7	Tris(2,3-dibromopropyl)phosphate	10 mg	NEAT	FRS-023N	10 mg
			100 µg/mL	Toluene	FRS-023S	1 mL

Industrial Flame Retardants

Bromine Containing Industrial Flame Retardants (BFRs) Other BFRs (Pure)

Compound	CAS No.	Conc.	Matrix	Cat. No.	Unit
2,4,6-Tribromophenyl allyl ether NEW	3278-89-5	10 mg	NEAT	FRS-034N	10 mg
		100 µg/mL	Toluene	FRS-034S	1 mL
Di(2-ethylhexyl)tetrabromophthalate NEW	26040-51-7	10 mg	NEAT	FRS-040N	10 mg
		100 µg/mL	Toluene	FRS-040S	1 mL
2-Ethylhexyl 2,3,4,5-tetrabromobenzoate NEW	183658-27-7	10 mg	NEAT	FRS-041N	10 mg
		100 µg/mL	Toluene	FRS-041S	1 mL
Hexachlorocyclopantadienyl-dibromocyclooctane	51939-55-1	10 mg	NEAT	FRS-039N	10 mg
		100 µg/mL	Toluene	FRS-039S	1 mL
Pentabromobenzylacrylate	59447-55-1	10 mg	NEAT	FRS-035N	10 mg
		100 µg/mL	Toluene	FRS-035S	1 mL
Pentabromobenzylbromide	1163-19-5	10 mg	NEAT	FRS-030N	10 mg
		100 µg/mL	Toluene	FRS-030S	1 mL
1,2-Dibromo-4-(1,2-dibromoethyl)cyclohexane	3322-93-8	10 mg	NEAT	FRS-038N	10 mg
		100 mg/mL	MeOH	FRS-038S	1 mL
(2,3-Dibromopropyl)(2,4,6-tribromophenyl) ether (DPTE) NEW	35109-60-5	10 mg	NEAT	FRS-044N	10 mg
		100 µg/mL	Toluene	FRS-044S	1 mL
Tris(2,3-dibromopropyl) isocyanurate NEW	52434-90-9	10 mg	NEAT	FRS-042N	10 mg
		100 µg/mL	Toluene	FRS-042S	1 mL
Tetrabromobisphenol A bis(hydroxyethyl ether)	4162-45-2	50 mg	NEAT	FRS-032N	50 mg
		100 µg/mL	Toluene	FRS-032S	1 mL

Chlorine Containing Industrial Flame Retardants (CFRs)

CFRs

Compound	CAS No.	Active Ingredient	Conc.	Matrix	Cat. No.	Unit
Chlorafin™ 40	63449-39-8	Chlorinated Paraffin	10 mg	NEAT	FRS-002N	10 mg
			100 µg/mL	Toluene	FRS-002S	1 mL
Chlorendic anhydride	115-27-5	Chlorendic anhydride	10 mg	NEAT	FRS-001N	10 mg
			100 µg/mL	Toluene	FRS-001S	1 mL
bis(2-Chloroethyl)ether	111-44-4	bis(2-Chloroethyl)ether	100 µg/mL	MeOH	APP-9-027	1 mL
			5 mg/mL	MeOH	AS-E0016	1 mL
4-Chlorophenyl phenyl ether	7005-72-3	4-Chlorophenyl phenyl ether	100 µg/mL	MeOH	APP-9-047	1 mL
			5 mg/mL	MeOH	AS-E0038	1 mL
Chlorowax™ 500C	63449-39-8	Chlorinated Hydrocarbons 59.0%	10 mg	NEAT	FRS-004N	10 mg
			100 µg/mL	Toluene	FRS-004S	1 mL
Diabole 700X		Chlorinated Hydrocarbons 70.0%	10 mg	NEAT	FRS-005N	10 mg
			100 µg/mL	Toluene	FRS-005S	1 mL
Dechlorane Plus	13560-89-9	Dechlorane Plus	10 mg	NEAT	FRS-033N	10 mg
Hexachlorobutadiene	87-68-3	Hexachlorobutadiene	10 mg	NEAT	FRS-017N	10 mg
			100 µg/mL	Toluene	FRS-017S	1 mL
Paroil™ 179-HV	63449-39-8	Chlorinated Paraffin	10 mg	NEAT	FRS-015N	10 mg
			100 µg/mL	Toluene	FRS-015S	1 mL
Paroil™ 170-8	63449-39-8	Chlorinated Paraffin	10 mg	NEAT	FRS-016N	10 mg
			100 µg/mL	Toluene	FRS-016S	1 mL
Phosgard™ C 22-R	4351-70-6	Halogenated organic phosphate ester	10 mg	NEAT	FRS-019N	10 mg
			100 µg/mL	Toluene	FRS-019S	1 mL
Phosgard™ 2XC-20		Halogenated organic phosphate ester	10 mg	NEAT	FRS-020N	10 mg
			100 µg/mL	Toluene	FRS-020S	1 mL
Tetrachlorobisphenol A	79-95-8	Tetrachlorobisphenol A	10 mg	NEAT	FRS-022N	10 mg
			100 µg/mL	Toluene	FRS-022S	1 mL
Unichlor™ 40-90	63449-39-8	Chlorinated Hydrocarbons 38.5%	10 mg	NEAT	FRS-024N	10 mg
			100 µg/mL	Toluene	FRS-024S	1 mL
Unichlor™ 502-50	63449-39-8	Chlorinated Hydrocarbons 52.0%	10 mg	NEAT	FRS-025N	10 mg
			100 µg/mL	Toluene	FRS-025S	1 mL
Unichlor™ 70AX	63449-39-8	Chlorinated Hydrocarbons 70.0%	10 mg	NEAT	FRS-026N	10 mg
			100 µg/mL	Toluene	FRS-026S	1 mL

Reference Trade Marks

Chlorafin Hercules Powder Company Corp.
Chlorowax Dover Chemical Corp.

Firemaster Great Lakes Chemical Corp.
Paroil Dover Chemical Corp.

Phosgard Solutia Inc.
Unichlor Neville Chemical Co.

Bromkal Chemische Fabrik Kalk



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