

Improving the navigation among BFRs

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Introducing the EFSA work on BFRs

Their recommendations

Discussion on Established - Emerging – Novel – Potential BFRs

Scientific Opinion on Polybrominated Biphenyls (PBBs) in Food

EFSA Journal 2010; 8(10):1789; 1-151

RECOMMENDATION

Since PBBs are no longer produced or used in Europe and taking into account low and declining environmental concentrations, the CONTAM Panel concluded that PBBs are a low priority for further research or monitoring efforts.

Scientific Opinion on Polybrominated Diphenyl Ethers (PBDEs) in Food

EFSA Journal 2011;9(5):2156; 1-274

RECOMMENDATIONS

- As numerous products containing PBDEs are still in use, surveillance of PBDEs should continue.
- There is a need for certified reference materials in food other than fish.
- Any further toxicological studies of PBDEs should be conducted with purified and characterized individual congeners most relevant to human exposure, and should be conducted according to appropriate and relevant study designs for risk characterization. Such studies should also include investigations of the mechanisms involved and the determination of tissue concentrations of PBDEs.
- Further epidemiological studies of PBDEs are required focusing on the relevant endpoints and with suitable estimates of human exposure.

Scientific Opinion on Hexabromocyclododecanes (HBCDDs) in Food

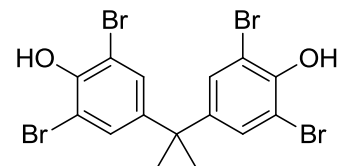
EFSA Journal 2011;9(7):2296; 1-118

RECOMMENDATIONS

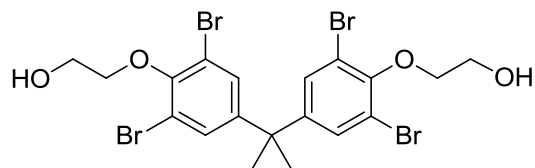
- Surveillance of HBCDDs should continue and include stereoisomer specific information, since technical HBCDD is still produced and present in numerous products in use.
- Occurrence data in food groups relevant for exposure of infants and toddlers would be of value to refine the exposure assessment.
- Monitoring of levels of HBCDD stereoisomers in humans, e.g. human milk samples, should continue.
- **Any further toxicological studies of HBCDDs should be conducted with pure and characterized individual HBCDD stereoisomers most relevant to human exposure, and carried out according to appropriate and relevant study designs for risk characterization. Such studies should also include investigations of the mechanisms involved.**
- Epidemiological studies of HBCDDs are required with suitable estimates of human exposures.

TBBPA and its derivatives

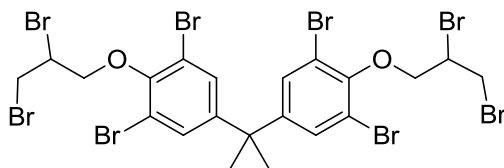
Submitted for adoption Nov. 22, 2011



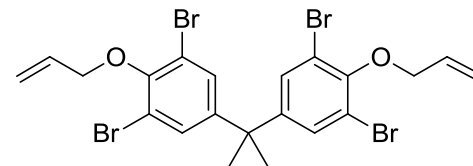
TBBPA



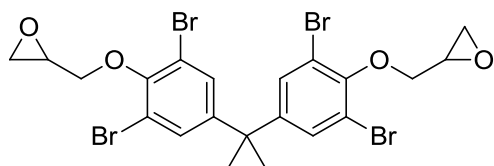
TBBPA-boHEE



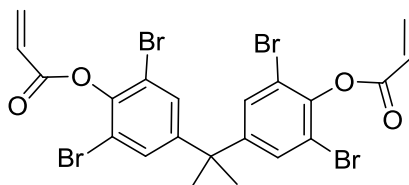
TBBPA-bDiBPrE



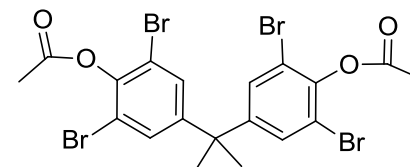
TBBPA-bAE



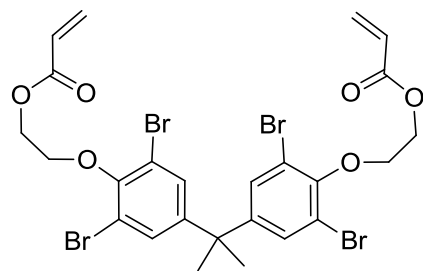
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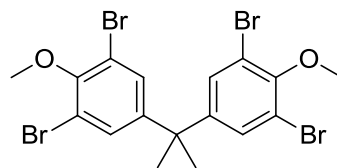
TBBPA-bAcr



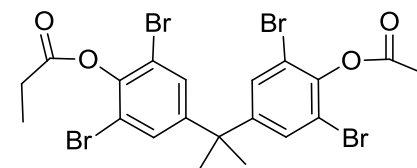
TBBPA-bAc



TBBPA-boHEE-bAcr

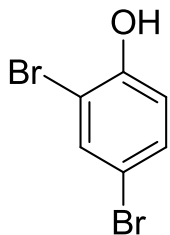


TBBPA-bME

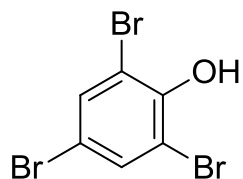


TBBPA-bPrt

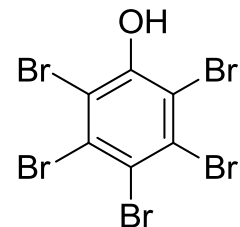
Polybromophenols as BFRs and BFR precursors



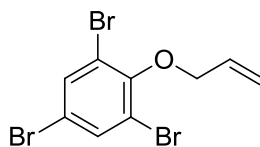
DiBP



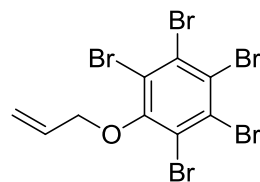
TrBP



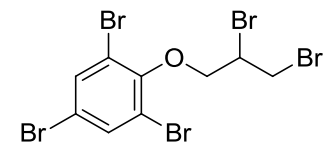
PBP



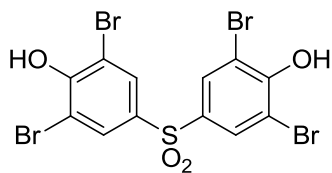
TrBP-AE



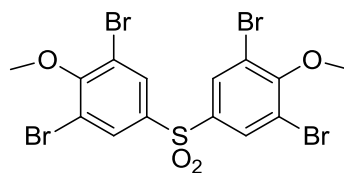
PeBPh-AE



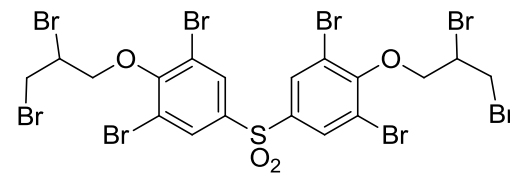
TrBPh-DiBPrE



TBBPS



TBBPS-bME



TBBPS-bDiBPrE

Definitions of Emerging, Novel & Potential BFRs

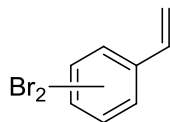
Established BFRs: There are extensive data sets describing each one of the chemical, or chemical groups, as BFRs (i.e. incl. data on their chemistry, fate, exposure, ecotox and toxicity)

Emerging BFRs: BFRs reported to occur in the abiotic environment or in biota, incl. Humans, but for which the data sets are limited and/or incomplete

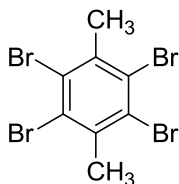
Novel BFRs: BFRs only reported to occur in material, goods/articles or in products. No data available on environmental occurrence or presence in biota.

Potential BFRs: Chemicals that are proposed (patented) for applications as BFRs

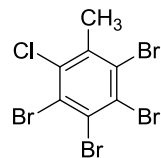
Emerging, Novel & Potential BFRs (1-11)



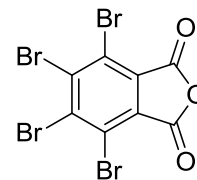
DiBSty



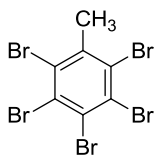
TeBDiMB



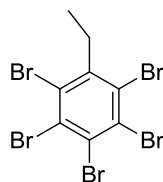
TeBCMB



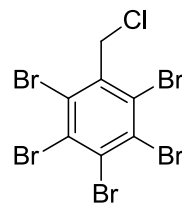
TeBPht(anhydride)



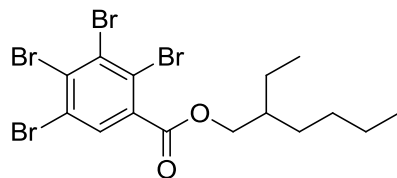
PeBMB



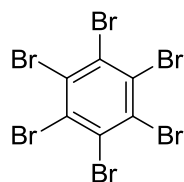
PeBEB



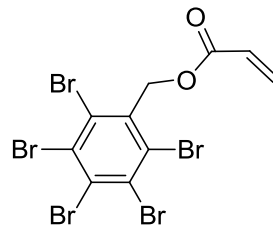
PeBBnC



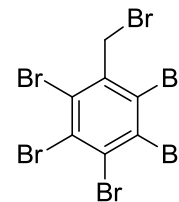
EH-TeBBzo



HBB

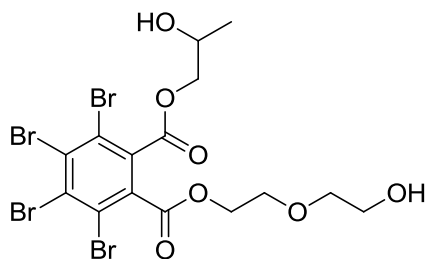


PeBBn-Acr

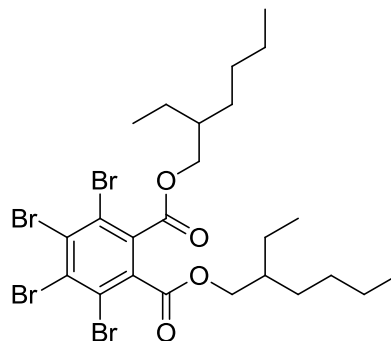


PeBBnB

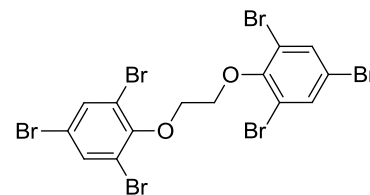
Emerging, Novel & Potential BFRs (12-17)



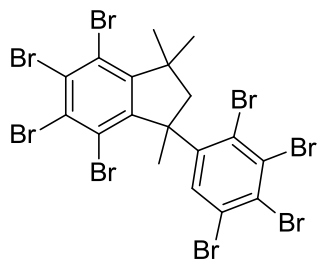
OHEtOE-OHPr-TeBPht



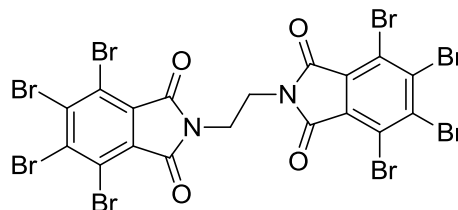
bEH-TeBPht



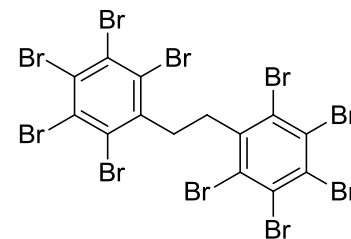
BTBPE



OBTrMPhIn

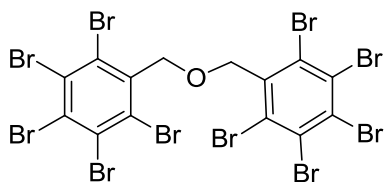


N,N'-EbTeBPhtIm

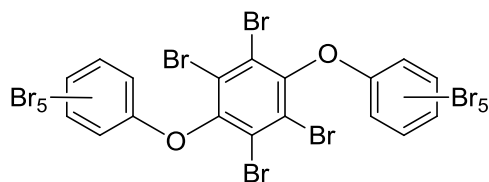


DBDPE

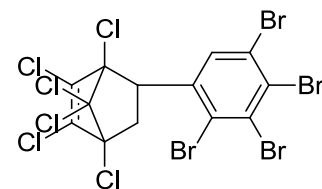
Emerging, Novel & Potential BFRs (18-27)



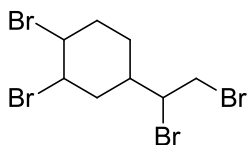
bPeBBn-E



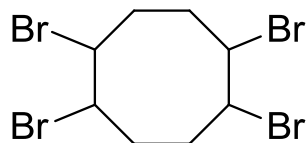
TeDB-DiPhOB



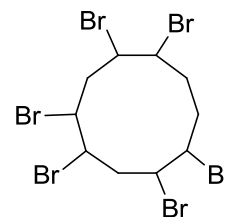
HxCTeBPh-bcHen



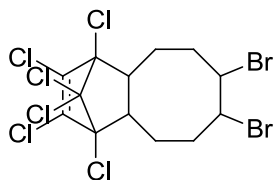
DiBE-DiBcH



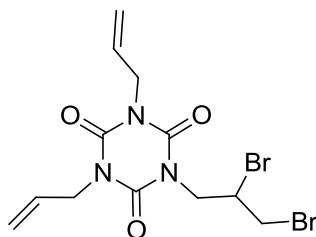
α -/ β -TeBcO



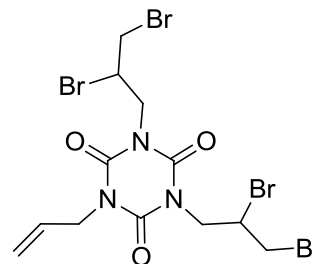
HxBcD (Br positions not certain)



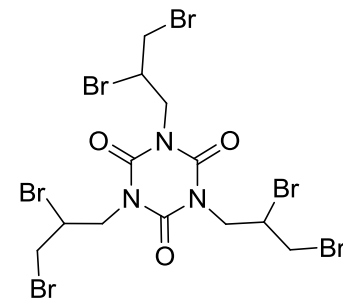
DiBHxC-TrcTrDen



DiBPr-DiA-Taz

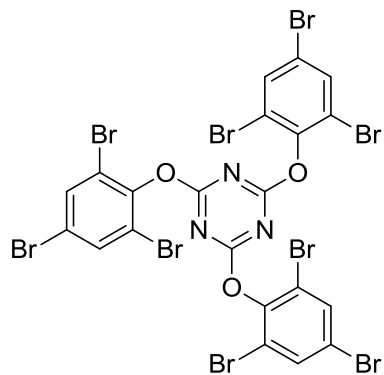


bDiBPr-A-Taz

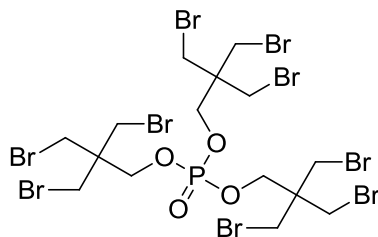


tDiBPr-Taz

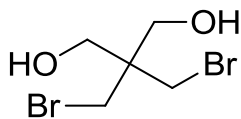
Emerging, Novel & Potential BFRs (28-31)



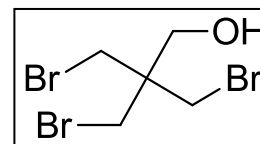
tTrBPhO-Taz



tBbBMPrP



bBM-PrDiOH



tBM-EtOH

Improving the navigation among BFRs will require:

Agreement on which they are and how to group them

Production, Use and/or Consumption data

Use of common abbreviations

Priortization of data generation and reporting