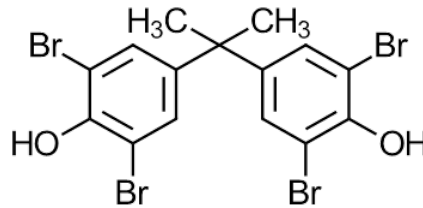


Tetrabromobisphenol A (TBBPA)

$C_{15}H_{12}Br_4O_2$



Summary of Health Effects

Tetrabromobisphenol A (TBBPA) may cause cancer in humans and affect how the thyroid works.

How is TBBPA used?

TBBPA is used as a reactant and additive flame retardant in plastics, adhesives, paper and textiles and as a plasticizer in electrical and electronic equipment.^{1,2}

Toxicity: What are its health effects?

TBBPA is a brominated flame retardant that has been associated with kidney toxicity in newborn rats.³ TBBPA is similar in structure to the thyroid hormone T4 and has been found to compete with T4 in binding to proteins in the blood which reduce overall blood serum levels of thyroid hormones.²

TBBPA is included on Washington State's PBT (Persistent, Bioaccumulative and Toxic) Rule of chemicals.⁴

A National Toxicology Program two-year bioassay study reported that there was clear cancer development in female rats that were exposed to TBBPA, and some evidence in male mice.⁵

Exposure: How can a person come in contact with it?

A person can come in contact with TBBPA by breathing it in, swallowing house dust, from skin contact, or through their diet.²

TBBPA has been detected in human milk samples from the U.K.⁶

The 2014 National Health and Nutrition Examination Survey (NHANES) report did not include data for TBBPA.

References

1. National Institute of Environmental Sciences, Research Triangle Park (2002). *Tetrabromobisphenol A: review of toxicological literature*. Retrieved from http://ntp.niehs.nih.gov/ntp/htdocs/chem_background/exsumpdf/tetrabromobisphenola_508.pdf

2. European Commission, European Chemicals Bureau (2006). *European Union risk assessment Report for 2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol (tetrabromobisphenol-A or TBBP-A) part II—Human health*. Retrieved from echa.europa.eu/documents/10162/32b000fe-b4fe-4828-b3d3-93c24c1cdd51
3. Fukuda, N., Ito, Y., Yamaguchi, M., Mitumori, K., Koizumi, M., Hasegawa, R., Kamata, E., Ema, M. (2004). Unexpected nephrotoxicity induced by tetrabromobisphenol A in newborn rats. *Toxicology Letters*, 150 (2), 145-1552. Retrieved from www.ncbi.nlm.nih.gov/pubmed/15093670
4. WA Department of Ecology PBT Initiative. *The PBT list*. Retrieved from apps.leg.wa.gov/WAC/default.aspx?cite=173-333-310
5. U.S. Department of Health and Human Services, National Toxicology Program (2014). *Two year bioassay study – Tetrabromobisphenol A – M200033*. Retrieved from ntp.niehs.nih.gov/ntp/htdocs/lt_rpts/tr587_508.pdf
6. Abdallah, M.A. and S. Harrad (2011). Tetrabromobisphenol-A, hexabromocyclododecane and its degradation products in UK human milk: relationship to external exposure. *Environment International*, 37(2), 443-8. Retrieved from www.ncbi.nlm.nih.gov/pubmed/21167604