

ECOLOGICAL FATE OF ORGANIC POLLUTANTS: HEXABROMOCYCLODODECANE

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DOI: 10.5958/2278-4853.2023.00120.9

ABSTRACT

This report discusses the physicochemical properties, applications, and environmental impacts of 1, 2, 5, 6, 9, 10-hexabromocyclododecane (HBCD), a widely used brominated flame retardant. The report highlights HBCD's persistence, bioaccumulation, long-range transport and toxicity profile, as well as its potential for water pollution and human health impacts.

KEYWORDS: *Flame Retardant, Diastereomer, Persistence, Bioaccumulation, Solubility, Distribution Coefficient, Butadiene, Photochemical Decomposition, Biodegradation, Half-Life, Dehalogenation, Bioconcentration Factor, Expanded Polystyrene, Phenolic Foam, Fire Safety.*

LITERATURE

The information and references used in this report were taken from the following sources:

Arnot, J., McCarty, L., Armitage, J., Toose-Reid, L., Wania, F., & Cousins, I. (2009). An evaluation of hexabromocyclododecane (HBCD) for Persistent Organic Pollutant (POP) properties and the potential for adverse effects in the environment. Retrieved from https://unece.org/fileadmin/DAM/env/documents/2009/EB/wg5/wgsr45/Informal%20docs/An%20evaluation%20of%20hexabromocyclododecane_Final%20report.pdf

Christopher, H. M., Gregg, T. T., James, M. A., Jon, A. A., Lynn, M., Adrian, C., & Vince, P. (2011). Hexabromocyclododecane: Current Understanding of Chemistry, Environmental Fate and Toxicology and Implications for Global Management. *Environmental Science & Technology*, 45, 8613-8623. Retrieved from [dx.doi.org/10.1021/es201548c](https://doi.org/10.1021/es201548c)

European Chemical Agency. (2008, October 8). Member state committee support document for identification of hexabromocyclododecane and all major diastereoisomers identified as a substance of very high concern. Retrieved from <https://www.echa.europa.eu/documents/10162/1fc837ef-f922-476e-8e00-825ab60213c0>

European Chemical Agency. (2008). Data on manufacture, import, export, uses and release of HBCD as well as information on potential alternative to its use. Retrieved from <https://echa.europa.eu/documents/10162/eb5129cf-38e3-4a25-a0f7-b02df8ca4532>

National Center for Biotechnology Information. (2023). PubChem Compound Summary for CID 18529, 1,2,5,6,9,10-Hexabromocyclododecane. Retrieved February 26, 2023, from https://pubchem.ncbi.nlm.nih.gov/compound/1_2_5_6_9_10-Hexabromocyclododecane

US Environmental Protection Agency. (2010). Hexabromocyclododecane (HBCD) Action Plan. Retrieved from https://www.epa.gov/sites/default/files/2015-09/documents/rin2070-az10_hbcd_action_plan_final_2010-08-09.pdf