Decabromodiphenyl ether
(DecaBDE; Decabromobiphenyl oxide)

Decabromodiphenyl ether (DecaBDE), also known as decabromobiphenyl oxide, is a flame retardant that has been used in thermoplastics such as those used in computer cases, keyboards and other computer parts, building materials, and upholstered furniture. DecaBDE is a polybrominated diphenyl ether (PBDE). DecaBDE, as other PBDEs, is prevalent in the environment and in tissues of humans and animals.

DecaBDE passed the animal data screen, underwent a preliminary toxicological evaluation, and is being brought to the Carcinogen Identification Committee for consultation. This is a compilation of the relevant studies identified during the preliminary toxicological evaluation.

Epidemiological data

No cancer epidemiology studies were identified.

Animal carcinogenicity data

- 103-week feeding studies
  - Male and female F344/N rats: NTP (1986)
    - Increases in liver neoplastic nodules and pancreatic acinar cell adenomas in males and in liver neoplastic nodules and carcinomas combined in females (by pairwise comparison and trend)
  - Male and female B6C3F1 mice: NTP (1986)
    - Increase in hepatocellular adenomas and carcinomas combined in males (by pairwise comparison)
    - No treatment-related tumor findings in females
  - Reviews of above studies:
    - U.S. EPA (2008): Group C (possible human carcinogen) because of “suggestive evidence of carcinogenic potential” based on neoplastic nodules in male and female rats and hepatocellular adenomas and carcinomas (combined) in male mice.
    - IARC (1999): There is limited evidence in experimental animals.

Other relevant data

- Genotoxicity
- Mutagenicity in *Salmonella typhimurium* reverse mutation assays (*negative*) and mouse lymphoma cells (*negative*)
- Sister chromatid exchange in Chinese hamster ovary cells (*negative*)
- Chromosomal aberrations in Chinese hamster ovary cells (*negative*)

- Structure activity considerations
  - Broad structural similarities to other polyhalogenated persistent organic pollutants including PCBs, DDT and TCDD: Hooper and McDonald (2000)

**Reviews**

- IARC (1999)

**References**


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1 Excerpts or the complete publication have been provided to members of the Carcinogen Identification Committee, in the order in which they are discussed in this document.