Permethrin

Permethrin is a Type I pyrethroid insecticide. Permethrin is a general use pesticide registered for use on food and feed crops such as tree nuts and lettuce, on livestock, pets, clothing, and for structural pest control, residential use and mosquito abatement. It is also used as a treatment of head lice and scabies. According to U.S. EPA (2006a), approximately two million pounds of permethrin are applied annually in the U.S., with approximately 70 percent being used in non-agricultural settings. Exposures to the general public and to workers are expected given the multiple uses of permethrin.

Permethrin 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

- Long-term diet studies in mice
  - FMC 100-week carcinogenicity/reversibility studies in female CD-1 mice: as described in U.S. EPA (2002)

- Long-term diet studies in rats
Other relevant data

- Genotoxicity
  - Chromosomal aberration assay in Chinese hamster ovary cells: Barrueco _et al._ (1994)

- Structure activity considerations
  - Structurally similar to resmethrin, another Type I pyrethroid, which is a Proposition 65 carcinogen. Resmethrin induces liver tumors in female rats and male mice (U.S. EPA, 2006b)
  - Structurally similar to metofluthrin, another Type I pyrethroid, which induces liver tumors in male and female rats (U.S. EPA, 2006c)

Reviews

- U.S. EPA (2006a, pp. 11-12)
- CDPR (1994)
- IARC (1991)

References


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1 Copies of these listed references, as either the abstract, the relevant sections of the publication, or the complete publication, have been provided to members of the Carcinogen Identification Committee. These references have been provided in the order in which they are discussed in this document.


