Metofluthrin

Metofluthrin is a Type I pyrethroid ester pesticide that is used as a mosquito repellant. It can be dispersed into the air from two types of devices: paper strips from which the metofluthrin slowly evaporates, and personal clip-on diffusers from which metofluthrin vaporizes after activation of a battery-powered fan. Consumers will be exposed to metofluthrin through the use of these products.

Metofluthrin 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 feeding studies in rats
    - *Increase in hepatocellular carcinoma, and hepatocellular adenoma and carcinoma (combined) in males (by pairwise comparison and trend)*
    - *Increase in hepatocellular carcinoma, and hepatocellular adenoma and carcinoma (combined) in females (by pairwise comparison and trend)*

- Long-term feeding studies in mice
    - *No treatment-related tumor findings in males or females*

Other relevant data

- Genotoxicity
  - As reviewed in U.S. EPA (2007; pp. 20 - 21)
    - *Salmonella typhimurium* reverse mutagen assays (negative)
    - *Escherichia coli* WP2uvrA reverse mutation assays (negative)
    - *In vitro* chromosomal aberration assay in Chinese hamster lung cells (negative)
    - *In vivo* mouse micronucleus assay (negative)
  o Structurally similar to other Type I pyrethroid pesticides, several of which induce tumors in rodents (e.g., resmethrin, permethrin, tetramethrin, bifenthrin, transfluthrin)
    ▪ Resmethrin: Classified as “likely to be carcinogenic to humans” by U.S. EPA in 2005; listed under Proposition 65 as a carcinogen
    ▪ Permethrin: Classified as “likely to be carcinogenic to humans” by U.S. EPA in 2002

• Mechanistic considerations
  o Liver tumors and mitogenic proliferative responses: Hirose et al. (2009), Yamada et al. (2009)

Reviews

• U.S. EPA (2007)

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.