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)

References¹


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.