6-Nitrobenzimidazole

6-Nitrobenzimidazole is a heterocyclic nitro-aromatic compound used as an anti-fogging agent in photographic developing solutions. Workers in the chemical industry and persons handling photographic chemicals containing this compound may be exposed.

6-Nitrobenzimidazole 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
  - 78-week exposure and additional 29-week observation in male and female Fischer 344 rats: NCI (1979)
    - No treatment-related tumor findings in males or females

- Long-term feeding studies in mice
  - 78-week exposure and additional 18-week observation in male and female B6C3F1 mice: NCI (1979)
    - Increase in hepatocellular carcinoma and hepatocellular adenoma and carcinoma (combined) in males and females (by pairwise comparison)
    - NCI noted that “the starting of high and low dose groups of … mice several months apart prevented direct evaluation of dose-related effects”

Other relevant data

- Genotoxicity
  - Mutagenicity in S. typhimurium (positive): Dunkel et al. (1985)
  - Mutagenicity in E. coli (negative): Dunkel et al. (1985)

- Structure activity considerations
  - Other imidazole compounds listed as carcinogens under Proposition 65 include
    - Metronidazole (a nitroimidazole)
    - Glu-P-1 (2-Amino-6-methylidipyrido[1,2- a:3’,2’-d]imidazole)
    - Glu-P-2 (2-Aminodipyrido[1,2-a:3’,2’-d]imidazole)
    - 4-Methylimidazole
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.