Pivalolactone
(3,3-dimethyl-β-propioloactone)

Pivalolactone is used in the production of copolymers for sutures and prosthetic devices, to prepare polyoxyethylene, as a plasticizer for cyanoacrylate adhesive, and to block and graft copolymers with acrylics, isoprene, butadiene, and ethylenemethacrylic acid-vinyl acetate polymer. Occupational exposure may occur during its manufacture and use.

Pivalolactone 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 gavage studies
  - 103-week exposure and additional two week observation in male and female Fischer 344 rats: NCI (1978)
    - Increase in uncommon forestomach squamous cell carcinoma and papilloma (combined) (by pairwise comparison and trend) in males and females
  - 102-week exposure and additional one week observation in male and female B6C3F1 mice: NCI (1978)
    - No treatment-related tumor findings in males or females

Other relevant data

- Genotoxicity
  - Mutagenicity in Salmonella typhimurium (positive): Dunkel et al. (1985)
  - Mutagenicity in Escherichia coli (positive): Dunkel et al. (1985)

- Structure activity considerations
  - Structural similarity to β-propiolactone, a Proposition 65 direct acting carcinogen
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.