N,N'-Diethylthiourea

N,N'-Diethylthiourea is a thiourea compound. It is used as a corrosion inhibitor for ferrous metals and aluminum alloys, and as a vulcanization accelerator in the manufacture of rubber and some types of paints. Exposures may occur in occupational settings, and also to consumers that come in contact with products containing N,N'-diethylthiourea (e.g., rubber wetsuits).

N,N'-Diethylthiourea 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
  - Two-year studies in male and female B6C3F1 mice: NCI (1979)
  - Two-year studies in male and female F344 rats: NCI (1979)

- Long-term diet studies of mixtures containing N,N'-diethylthiourea in rats
  - Two-year study in male F344/DuCrj rats fed a 40-chemical mixture: Takayama et al. (1989)
  - One-year study in male F344 rats fed 2,4-diaminoanisole sulfate, N,N’-diethylthiourea and 4,4’-thiodianiline: Hasegawa et al. (1991)
  - One-year study in male Wistar rats fed 2,4-diaminoanisole sulfate, N,N’-diethylthiourea and 4,4’-thiodianiline: Pomorski et al. (2002)

Other relevant data

- Genotoxicity
  - Mouse lymphoma cell mutation assay: McGregor et al. (1988)
  - DNA fragmentation and DNA repair synthesis assays in rat and human thyroid cells: Mattioli et al. (2006)

- Structural activity considerations
  - Structurally similar to ethylene thiourea and thiourea, which are listed under Proposition 65 as carcinogens.

- Thyroid hormone disruption: thioureas inhibit thyroid peroxidase (IARC, 1999, pp. 2-5 and pp. 218-220)
References


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.