

5-Nitro-*o*-Toluidine

5-Nitro-*o*-toluidine, also called 2-amino-4-nitrotoluene, is a dye used in the textile industry. It is an intermediate in the synthesis of Pigment Red 17 and Pigment Red 22, and is a precursor in the synthesis of a number of pigments and azo dyes used in the textile industry. Exposure is likely to occur to workers in the dye and textile industries.

5-Nitro-*o*-toluidine 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 in mice
 - B6C3F₁ male and female mice (78-week treatment period + 20 weeks on control diet): NCI (1978)
- Long-term diet studies in rats
 - Fischer 344 male and female rats (78-week treatment period + 30-31 weeks on control diet): NCI (1978)
- Intraperitoneal injection studies in mice
 - A/J male and female mice (three injections per week for eight weeks + 16 weeks observation): Maronpot *et al.* (1986).

Other relevant data

- Genotoxicity
 - *Salmonella* mutagenicity assays: as reviewed in IARC (1990)
 - *E. coli* mutagenicity assays: as reviewed in IARC (1990)
- Protein binding
 - hemoglobin adduct formation in female Wistar rats, following gavage administration (2-amino-4-nitrotoluene): Zwirner-Baier *et al.* (1994)
- Metabolism
 - Formation of nitroso derivatives: Zwirner-Baier *et al.* (1994)

Reviews

- IARC (1990)

References¹

International Agency for Research on Cancer (IARC, 1990). IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Vol. 48 pp. 169-177, IARC, World Health Organization, Lyon, France.

Maronpot RR, Shimkin MB, Witschi HP, Smith LH, Cline JM (1986). Strain A mouse pulmonary tumor test results for chemicals previously tested in the National Cancer Institute carcinogenicity tests. *J Nat Cancer Inst* **76**:1101-1112.

National Cancer Institute (NCI, 1978). Bioassay of 5-Nitro-*o*-Toluidine for possible carcinogenicity, CAS No. 99-55-8, Carcinogenesis Technical Report Series No. 107, U.S. Department of Health, Education and Welfare, Public Health Service, National Institutes of Health.

Zwirner-Baier I, Kordowich F-J, Neumann H-G (1994). Hydrolyzable hemoglobin adducts of polyfunctional monocyclic N-substituted arenes as dosimeters of exposure and markers of metabolism. *Environ Health Perspect* **102**(Suppl 6):43-45.

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.