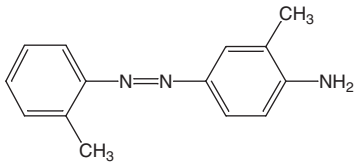
o-Aminoazotoluene
CAS No. 97-56-3

Reasonably anticipated to be a human carcinogen
First Listed in the *Fifth Annual Report on Carcinogens* (1989)



Carcinogenicity

o-Aminoazotoluene is *reasonably anticipated to be a human carcinogen* based on sufficient evidence of carcinogenicity in experimental animals (IARC 1975). When administered in the diet, *o*-aminoazotoluene induced hepatomas, lung tumors, and lung hemangioendotheliomas in mice, and liver adenomas, hepatocellular and other liver carcinomas, and cholangiomas in male rats. When administered in the diet, the compound induced hepatocellular carcinomas in male hamsters and hepatomas, urinary bladder papillomas, and urinary bladder papillary and transitional cell carcinomas in hamsters of both sexes. Also, one carcinoma and one papilloma of the gallbladder were observed in two female hamsters, and three females had mammary adenocarcinomas believed to be related to the treatment. Of four dogs that survived feeding with *o*-aminoazotoluene, two developed carcinomas of the urinary bladder, one an adenocarcinoma of the liver and gallbladder, and one an adenocarcinoma of the gallbladder with a cholangioma and a hepatoma in the liver. Repeated dermal application of the compound induced liver tumors in mice. When administered by subcutaneous injection, *o*-aminoazotoluene induced lung tumors in mice of both sexes, local fibrosarcomas in female mice, and hepatomas in female mice and rats. A single subcutaneous injection increased the incidence of hepatomas and lung adenomas in newborn mice of both sexes. When administered by intraperitoneal injection, *o*-aminoazotoluene increased the incidence of hepatomas in mice of both sexes. There is some evidence that it produces papillomas of the urinary bladder in rabbits after direct instillation in the urinary bladder and in mice after bladder implantation.

No adequate human studies of the relationship between exposure to *o*-aminoazotoluene and human cancer have been reported (IARC 1975, 1982).

Properties

o-Aminoazotoluene exists as reddish-brown to golden crystals that melt at 101°C. These crystals are practically insoluble in water, but are soluble in ethanol, ether, chloroform, acetone, cellosolve, and toluene, as well as in most oils and fats (HSDB 2001).

Use

o-Aminoazotoluene is used for coloring oils, fats, and waxes. It is also used as a chemical intermediate for the production of the dyes Solvent Red 24 and Acid Red 115. o-Aminoazotoluene is used in medicine (HSDB 2001).

Production

The USITC reported that one manufacturer produced an undisclosed amount of *o*-aminoazotoluene from 1980 to 1994 (USITC 1981-1991, 1993-1995). Five producers of the compound were reported in the United States (HSDB 2001). Chem Sources identified six domestic suppliers of *o*-aminoazotoluene in 2001 (Chem Sources 2001). In 1977, there were seven domestic manufacturers and two importers of *o*-aminoazotoluene reported in the 1979 TSCA Inventory. Three manufacturers produced an estimated total of 30,000 to 300,000 lb; the remaining four manufacturers reported no production volume for *o*-aminoazotoluene in 1977 (TSCA 1979). No import or export figures for 1977 were available. U.S. production of *o*-aminoazotoluene was estimated to be >1,000 lb in 1975 and 395,000 lb by two manufacturers in 1972 (SRI 1982). Large-scale production of *o*-aminoazotoluene in the United States began in 1914 (IARC 1975).

Exposure

The primary routes of potential human exposure to *o*-aminoazotoluene are dermal contact and inhalation. It is not approved for use in foods, drugs, or cosmetics, which could possibly reduce potential widespread exposure (IARC 1975). Occupational exposure may occur by inhalation of dust or by contact during its production, formulation, or use (HSDB 2001). The National Occupational Exposure Survey (NOES) (1981-1983) indicated that 737 workers potentially were exposed to *o*-aminoazotoluene in the workplace (NIOSH 1984). The NOES estimate was based only on observations of the actual use of the compound. The National Occupational Hazard Survey, conducted by NIOSH from 1972 to 1974, estimated that 3,811 workers were potentially exposed to *o*-aminoazotoluene in the workplace (NIOSH 1976). This estimate was derived only from observations of the use of trade name products known to contain the compound.

Regulations

EPA

Emergency Planning and Community Right-to-Know Act
Toxics Release Inventory: Listed substance subject to reporting requirements

REFERENCES

ChemSources. 2001. Chemical Sources International, Inc. http://www.chemsources.com.
HSDB. 2001. Hazardous Substances Data Base. National Library of Medicine. http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB.
IARC. 1975. Some Aromatic Azo Compounds. IARC Monographs on the Evaluation of Carcinogenic Risk of Chemicals to Humans, vol. 8. Lyon, France: International Agency for Research on Cancer. 357 pp.
IARC. 1982. Chemicals, Industrial Processes and Industries Associated with Cancer in Humans. IARC Monographs on the Evaluation of Carcinogenic Risk of Chemicals to Humans, Supplement 4. Lyon, France: International Agency for Research on Cancer. 292 pp.
NIOSH. 1976. National Occupational Hazard Survey (1972-74). Cincinnati, OH: Department of Health, Education and Welfare.
NIOSH. 1984. National Occupational Exposure Survey (1981-83). Cincinnati, OH: U. S. Department of Health and Human Services. http://www.cdc.gov/noes/noes3/empl0003.html.
SRI. 1982. Chemical Economics Handbook. Menlo Park, CA: SRI International.
TSCA. 1979. Toxic Substances Control Act, Chemical Substances Inventory.
USITC. 1981. Synthetic Organic Chemicals, United States Production and Sales, 1980. USITC Publication No 1183. Washington, D.C.: U.S. Government Printing Office.
USITC. 1982. Synthetic Organic Chemicals, United States Production and Sales, 1981. USITC Publication No 1292. Washington, D.C.: U.S. Government Printing Office.
USITC. 1983. Synthetic Organic Chemicals, United States Production and Sales, 1982. USITC Publication No 1422. Washington, D.C.: U.S. Government Printing Office.
USITC. 1984. Synthetic Organic Chemicals, United States Production and Sales, 1983. USITC Publication No 1588. Washington, D.C.: U.S. Government Printing Office.
USITC. 1985. Synthetic Organic Chemicals, United States Production and Sales, 1984. USITC Publication No 1745. Washington, D.C.: U.S. Government Printing Office.
USITC. 1986. Synthetic Organic Chemicals, United States Production and Sales, 1985. USITC Publication No 1892. Washington, D.C.: U.S. Government Printing Office.
USITC. 1987. Synthetic Organic Chemicals, United States Production and Sales, 1986. USITC Publication No 2009. Washington, D.C.: U.S. Government Printing Office.
USITC. 1988. Synthetic Organic Chemicals, United States Production and Sales, 1987. USITC Publication No 2118. Washington, D.C.: U.S. Government Printing Office.
USITC. 1989. Synthetic Organic Chemicals, United States Production and Sales, 1988. USITC Publication No 2219. Washington, D.C.: U.S. Government Printing Office.
USITC. 1990. Synthetic Organic Chemicals, United States Production and Sales, 1989. USITC Publication No 2338. Washington, D.C.: U.S. Government Printing Office.
USITC. 1991. Synthetic Organic Chemicals, United States Production and Sales, 1990. USITC Publication No 2470. Washington, D.C.: U.S. Government Printing Office.
USITC. 1993. Synthetic Organic Chemicals, United States Production and Sales, 1991. USITC Publication No 2607. Washington, D.C.: U.S. Government Printing Office.
USITC. 1994. Synthetic Organic Chemicals, United States Production and Sales, 1992. USITC Publication No 2720. Washington, D.C.: U.S. Government Printing Office.
USITC. 1995. Synthetic Organic Chemicals, United States Production and Sales, 1994. USITC Publication No 2933. Washington, D.C.: U.S. Government Printing Office.