p-Nitrotoluene

This document provides a brief description of p-Nitrotoluene, its uses, and the potential hazards associated with short and long term exposure. Environmental impact information for accidental releases is included. This information is general in nature and is not intended as a replacement for the safety data sheet (SDS), product label and other safe handling literature. For additional information consult the LANXESS safety data sheet.

Identification

Product Name: p-Nitrotoluene
Chemical Name: 4-Nitrotoluene
Synonym(s): 1-Methyl-4-nitrobenzene
p-Methylnitrobenzene
PNT
CAS Number: 99-99-0

Description

Overview: p-Nitrotoluene is a light yellow to gray solid at ambient temperatures. The chemical has a slight, characteristic odor and is typically transported in a molten (liquid) state.

Uses: p-Nitrotoluene occurs naturally but is also produced synthetically for use as an intermediate in the manufacture of a variety of chemical products. LANXESS's p-Nitrotoluene is sold primarily for use in the manufacture of optical brightening agents (additives used to enhance the appearance of colors in fabrics and on papers).

Properties:

- Melting Point: Approx. 123.8°F (51°C)
- Boiling Point: Approx. 464°F (240°C)
- Flash Point: Approx. 217.4°F (103°C)
- Solubility in Water: Slight
Potential Human Health Effects

Occupational Exposure
Occupational exposure to p-Nitrotoluene may occur during maintenance or repair work in manufacturing operations. A much lower potential for exposure exists during normal manufacturing processes and within facilities using the chemical in the manufacture of other products, since the majority of p-Nitrotoluene sold by LANXESS is manufactured, transported and used in closed manufacturing processes by trained personnel.

Employee Training
Workers handling p-Nitrotoluene are trained to implement proper handling procedures and to understand the potential health and physical hazards of this product. A NIOSH approved positive pressure air-purifying respirator or self-contained breathing apparatus (SCBA) is recommended for employees involved in maintenance or other operations not contained within a closed system. In addition, LANXESS recommends that goggles, permeation resistant clothing, gloves and foot protection be worn when handling p-Nitrotoluene.

Consumer Exposure
LANXESS does not sell this product to the general public and no residuals are expected in products manufactured using this chemical as an intermediate. Consumers may be exposed to small amounts of p-Nitrotoluene from cigarette smoke.

Short-Term Health Effects
p-Nitrotoluene is readily absorbed through the skin, eyes and respiratory tract. Inhalation of p-Nitrotoluene is expected to be toxic with symptoms of coughing, sore throat and runny nose. Inhalation of sufficient quantities or concentrations may result in headache, dizziness, shortness of breath or methemoglobinemia, a temporary condition that reduces the ability of blood to carry oxygen. Symptoms of methemoglobinemia include cyanosis, a purple or bluish coloring of the skin, fingernails and lips. Symptoms may be delayed.

Skin or eye contact is not expected to be irritating although contact with heated p-Nitrotoluene may result in burns. Ingestion may be slightly toxic. Symptoms of skin absorption and ingestion are similar to those described for inhalation but may also include nausea or vomiting.

Long-Term Health Effects
Long-term or repeated exposure to p-Nitrotoluene may cause kidney or liver damage.

Physical Hazards
p-Nitrotoluene is stable at ambient temperatures. Avoid contact with bases, amines, oxidizing agents, reducing agents, acids, ether and sodium compounds. Heating, burning or contact with incompatible materials may result in an explosion and release of irritating or toxic gases. Care must be taken to avoid exposure to heat above the melting point temperature, open flames and other potential sources of ignition. Extreme cold should be avoided.

Potential Environmental Impact
p-Nitrotoluene degrades when exposed to sunlight and is not expected to persist in the environment in significant quantities. Accidental release through spills or untreated wastewater may pose a danger to fish (high toxicity), invertebrates (high toxicity) and aquatic plants (low toxicity) prior to degradation.
Conclusion

Under normal conditions of anticipated use as described in this Product Safety Assessment and if the recommended safe use and handling procedures are followed, p-Nitrotoluene is not expected to pose a significant risk to human health or the environment.

References

International Chemical Safety Card, International Programme on Chemical Safety (IPCS)

Safety Data Sheet (SDS), p-Nitrotoluene, LANXESS Corporation

MedlinePlus Medical Encyclopedia, U.S. National Library of Medicine and the National Institutes of Health

NIOSH Pocket Guide to Chemical Hazards, p-Nitrotoluene, National Institute for Occupational Safety and Health

SIDS Initial Assessment Report - 4-Nitrotoluene, Organization for Economic Cooperation and Development (OECD)

ToxNet Hazardous Substances Data Bank, U.S. National Library of Medicine, National Institutes of Health and the U.S. Department of Health and Human Services

Contact Information

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Notices

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