N,N'-bis(1-methylpropyl)-1,4-benzenediamine

This document provides a brief description of n,n'-Bis(1-methylpropyl)-1,4-benzenediamine, 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 Corporation safety data sheet.

Identification

Product Name:	VULKANOX 4005
Chemical Name:	N,N'-bis(1-methylpropyl)-1,4-benzenediamine
Synonym(s):	1,4-Benzenediamine, N,N'-bis(1-methylpropyl)- 1-N,4-N-di(butan-2-yl)benzene-1,4-diamine N,N'-Di-sec-butyl-p-phenyldiamine p-Phenylenediamine
CAS Number:	101-96-2

Description

Overview: N,N'-bis(1-methylpropyl)-1,4-benzenediamine is a dark red liquid at ambient temperatures. The chemical has a mild, characteristic odor.

Uses: N,N'-bis(1-methylpropyl)-1,4-benzenediamine is sold by LANXESS for use as an antioxidant additive for plastic and rubber products. The chemical compound is also used as an antioxidant for industrial lubricants and as an antioxidant, gum inhibitor and stabilizer in gasoline.

Properties:

Boiling Point:	310°C (590°F)
Flash Point:	140°C (284°F) closed cup
Melting Point:	17°C (62.6°F)
Solubility in Water:	Insoluble

Potential Human Health Effects

Occupational Exposure

Potential for exposure to N,N'-bis(1-methylpropyl)-1,4-benzenediamine exists during manufacture, at unloading, storage and staging areas and in hose connection/disconnection, sampling, cleaning and maintenance operations where the chemical is used as an additive in the manufacture of other products. A much lower potential for exposure exists in facilities using the chemical in closed manufacturing processes by trained personnel.

Employee Training

Workers handling N,N'-bis(1-methylpropyl)-1,4-benzenediamine should be trained to implement proper handling procedures and to understand the potential health and physical hazards of this product. LANXESS recommends a NIOSH approved air-purifying organic vapor respirator, splash goggles and face shield, permeation resistant gloves, clothing and foot protection be worn when handling N,N'-bis(1-methylpropyl)-1,4-benzenediamine.

Consumer Exposure

LANXESS Corporation does not sell N,N'-bis(1-methylpropyl)-1,4-benzenediamine to the general public.

Short-Term Health Effects

N,N'-bis(1-methylpropyl)-1,4-benzenediamine is corrosive to the skin, eyes, respiratory tract and digestive tract. May cause sensitization by skin contact. Eye contact may result in pain and burns. Pre-existing skin or liver disorders may be aggravated by over-exposure to this product.

Long-Term Health Effects

Sensitized individuals may experience an allergic reaction when subsequently exposed to very low levels of N,N'-bis(1-methylpropyl)-1,4-benzenediamine. Symptoms may include redness, swelling and rash.

Physical Hazards

N,N'-bis(1-methylpropyl)-1,4-benzenediamine is stable under normal conditions of use. Avoid contact with strong oxidizing agents. Heating to decomposition may release carbon monoxide, carbon dioxide, nitrogen oxides and other potentially toxic fumes or gases. Avoid heat, open flames and other potential sources of ignition.

Potential Environmental Impact

N,N'-bis(1-methylpropyl)-1,4-benzenediamine degrades rapidly with exposure to sunlight and moisture. A release to water may pose a danger to fish (high toxicity), invertebrates (high toxicity) and aquatic plants (high toxicity) prior to degradation. The chemical may adsorb to suspended soils and sediments. Bioaccumulation is not expected.

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, N,N'-bis(1-methylpropyl)-1,4-benzenediamine is not expected to pose a significant risk to human health or the environment.

References

Safety Data Sheet (SDS), VULKANOX 4005, LANXESS Corporation

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

Substituted p-Phenylenediamines Category Justification and Testing Rationale, CAS Nos. 101-96-2, 3081-01-4, 15233-47-3, and 68953-84-4 (+SIDS Chemicals 101-72-4 and 793-24-8 for data purposes), Rubber and Plastic Additives Panel, American Chemistry Council

ToxNet Hazardous Substance 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

Use and Application Information