

Hydrazine Hydrate

This document provides a brief description of Hydrazine Hydrate, 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:	Hydrazine Hydrate 100% = 64% Hydrazine Hydrazine Hydrate 55% = 35% Hydrazine
Chemical Name:	Aqueous solution of Hydrazine
Synonym(s):	Aqueous Hydrazine Solution Diamide Hydrate
CAS Number:	302-01-2 (for Hydrazine)

Description

Overview:	Hydrazine Hydrate is a clear and colorless liquid at ambient temperatures, with a pungent, ammonia-like (fishy) odor.												
Uses:	LANXESS Hydrazine Hydrate is primarily used as an intermediate in the production of blowing agents, but may also be used in boiler water treatment, as an intermediate in the production of pharmaceuticals and agricultural products.												
Properties:	<table><tr><td>Vapor Pressure:</td><td>10 mbar (100%), 15 mbar (55%)</td></tr><tr><td>Boiling Point:</td><td>Approx. 248.2°F/120.11°C (100%) Approx. 228.9°F/109.39°C (55%)</td></tr><tr><td>Flash Point:</td><td>Approx. 167°F/75°C (100%) >212°F/>100°C (55%)</td></tr><tr><td>Solubility in Water:</td><td>Soluble</td></tr><tr><td>Auto-ignition:</td><td>590°F (310°C)</td></tr><tr><td>Melting Point:</td><td>-61.1°F (-51.7°C)</td></tr></table>	Vapor Pressure:	10 mbar (100%), 15 mbar (55%)	Boiling Point:	Approx. 248.2°F/120.11°C (100%) Approx. 228.9°F/109.39°C (55%)	Flash Point:	Approx. 167°F/75°C (100%) >212°F/>100°C (55%)	Solubility in Water:	Soluble	Auto-ignition:	590°F (310°C)	Melting Point:	-61.1°F (-51.7°C)
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Potential Human Health Effects

Occupational Exposure

Occupational exposure to Hydrazine Hydrate may occur through inhalation or skin contact during manufacture and at transloading, storage and staging areas. A lesser potential for exposure exists within facilities using the chemical in the manufacture of other products, since the majority of Hydrazine Hydrate sold by LANXESS is used in closed manufacturing processes by trained personnel.

Employee Training

Workers handling Hydrazine Hydrate are trained to implement proper handling procedures and to understand the potential health and physical hazards of this product. A NIOSH approved respirator is recommended for transloading, unloading and 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 Hydrazine Hydrate.

Consumer Exposure

LANXESS does not sell this product to the general public and no residuals are expected in consumer products manufactured using this chemical as an ingredient or intermediate. The general population may be exposed to hydrazine through inhalation of cigarette smoke.

Short-Term Health Effects

Hydrazine Hydrate 100% is corrosive to the eyes, skin and mucous membranes. The chemical is readily absorbed through the skin and may cause an allergic skin reaction. Short-term exposure through inhalation may be fatal or cause respiratory tract irritation, with symptoms of coughing, sore throat and runny nose. Hydrazine Hydrate 100% is toxic if swallowed and may cause digestive tract burns, central nervous system effects and methemoglobinemia, a condition that reduces the oxygen carrying capacity of the blood.

Hydrazine Hydrate 55% may produce toxic effects similar to those described above, but with skin and eye irritation rather than permanent damage likely.

Long-Term Health Effects

Long-term or repeated exposure at high concentrations may cause damage to the liver, kidneys, red blood cells or brain. The U.S. Environmental Protection Agency (EPA) classifies Hydrazine as "reasonably anticipated to be a human carcinogen," and the International Agency for Research on Cancer (IARC) classifies Hydrazine as Group 2B (possible carcinogen). These classifications indicate sufficient evidence of carcinogenicity in experimental animals after long-term exposure, but inadequate evidence in humans. Once sensitized, an allergic skin reaction may occur with reddening, swelling, and rash when subsequently exposed to very low levels.

Physical Hazards

Hydrazine Hydrate 100% is a combustible liquid. Sudden reaction and fire may result on contact with oxidizing agents and certain metals or metal oxides. Care must be taken to avoid contact with incompatible materials, such as oxidizing agents and catalytic metals. Exposure to heat, open flames and other potential sources of ignition must be avoided.

Potential Environmental Impact

Hydrazine degrades quickly in soil and air. The half-life of hydrazine in pond water was about 8.3 days and degradation occurred through a combination of abiotic and biotic mechanisms.

Product Safety Assessment: Hydrazine Hydrate

The potential for bioconcentration in aquatic organisms is low. As a result, an accidental release through spills or untreated wastewater may pose a danger to fish (high toxicity), invertebrates (high toxicity) and aquatic plants (very high toxicity).

Low potential for exposure exists within facilities using Hydrazine Hydrate as an intermediate in the manufacture of other products, since the majority of Hydrazine Hydrate sold by LANXESS is used in closed manufacturing processes.

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, Hydrazine Hydrate 100% and 55% are 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), HYDRAZINE 35%, HYDRAZINE HYDRATE 100%, LANXESS Corporation

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

Technology Transfer Network Air Toxics Web Site, Environmental Protection Agency (EPA)

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

Use and Application Information

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