LANXESS
Energizing Chemistry

Dimethyl phosphite

This document provides a brief description of dimethyl phosphite, 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:	Dimethyl phosphite
Chemical Name:	Phosphonic acid dimethyl ester
Synonym(s):	Dimethyl hydrogen phosphite DMHP DMP DMPi
CAS Number:	868-85-9

Description

Overview: Dimethyl phosphite is a colorless liquid at ambient temperatures. The chemical compound has a mild odor.

Uses: Dimethyl phosphite is sold by LANXESS for use as a reactive chemical intermediate in the production of crop protection products, pharmaceuticals, fragrances and flame retardants.

Properties:

Boiling Point:	171.1°C (340°F)
Flash Point:	70°C (158°F) closed cup
Auto-Ignition:	237°C (458.6°F)
Solubility in Water:	Soluble
Melting Point:	<60°C (<140°F)

Potential Human Health Effects

Occupational Exposure

Potential for occupational exposure exists during manufacture and at transloading, storage and staging areas in facilities where the chemical is used as an intermediate in the manufacture of other products. A much lower potential for exposure exists in facilities using dimethyl phosphite in closed manufacturing processes by trained personnel.

Employee Training

Workers handling dimethyl phosphite should be trained to implement proper handling procedures and to understand the potential health and physical hazards of the chemical. A NIOSH-approved air-purifying respirator with organic vapor cartridge is recommended for transloading, unloading and other operations not contained within a closed system. In addition, LANXESS recommends that splash resistant safety glasses with side shields, permeation resistant clothing, gloves and foot protection be worn when handling dimethyl phosphite.

Consumer Exposure

LANXESS Corporation does not sell dimethyl phosphite to the general public.

Short-Term Health Effects

Dimethyl phosphite has a low level of toxicity under normal exposure levels.

Direct contact with dimethyl phosphite may be irritating to the skin, eyes and mucous membranes with symptoms of swelling, redness and/or pain. Ingestion may cause irritation of the digestive tract. Symptoms of ingestion may include nausea, vomiting and diarrhea. Inhalation of the chemical may result in coughing, tachypnea (rapid breathing) and wheezing. Pre-existing skin disorders may be aggravated by over-exposure to this product. Dimethyl phosphite is readily adsorbed through the skin and other body tissues. Sensitization may occur in susceptible individuals.

Long-Term Health Effects

Prolonged or repeated exposure may result in severe irritation to the skin, eyes or mucous membranes. Once sensitized, an allergic skin reaction may occur on subsequent exposures to dimethyl phosphite with symptoms of redness, swelling and rash.

Chronic eye exposure may result in cataracts. Dimethyl Phosphite is suspected of causing genetic defects as well as cancer. These risks depend on the duration and level of exposure. The chemical may have genotoxic potential in vivo.

Physical Hazards

Dimethyl phosphite is stable under normal conditions of use. The chemical is highly flammable in liquid form. Vapors may form explosive mixtures with air. Dimethyl phosphite is heavier than air and may travel along the ground or accumulate in spaces with low ceiling height. Avoid exposure to heat, open flames and other potential sources of ignition. Contact with water/moisture causes formation of corrosive reaction products and may release extremely flammable gases.

Potential Environmental Impact

Dimethyl phosphite hydrolyzes rapidly and is not expected to persist in the environment. An accidental release to the atmosphere will degrade rapidly in the presence of oxygen. An accidental release to water may pose a danger to fish (low toxicity), invertebrates (low toxicity) or aquatic plants (low toxicity) prior to degradation. The chemical is not readily biodegradable and is not expected to adsorb to suspended soils and sediments.

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, dimethyl phosphite is not expected to pose a significant risk to human health or the environment.

References

International Chemical Safety Card, DIMETHYL HYDROGEN PHOSPHITE, International Programme on Chemical Safety (IPCS)

Safety Data Sheet (SDS), DIMETHYL PHOSPHITE, LANXESS Corporation

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

SIDS Initial Assessment Report – Dimethyl Hydrogen Phosphite, Organization for Economic Cooperation and Development (OECD)

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

The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations are beyond our control. Therefore, it is imperative that you test our products, technical assistance and information to determine to your own satisfaction whether they are suitable for your intended uses and applications. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by us. Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale. All information and technical assistance is given without warranty or guarantee and is subject to change without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance, and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with patents covering any material or its use. No license is implied or in fact granted under the claims of any patent.