

Phosphorus pentoxide

This document provides a brief description of phosphorus pentoxide, 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 material safety data sheet (SDS), product label and other safe handling literature. For additional information consult the LANXESS Corporation safety data sheet.

Identification

Product Name:	P2O5 HP
Chemical Name:	Phosphorus pentoxide
Synonym(s):	Diphosphorus pentoxide Phosphoric anhydride Phosphorus pentaoxide
CAS Number:	1314-56-3

Description

Overview:	Phosphorus pentoxide is a white solid at ambient temperatures. The product has a sharp, irritating odor and is sold in powder form.
Uses:	Phosphorus pentoxide is sold by LANXESS for use as an intermediate or dehydrating agent in the production of industrial products.
Properties:	Melting Point: 320°C (608°F) Boiling Point: 360°C (680°F)

Potential Human Health Effects

Occupational Exposure

Potential for occupational exposure exists during manufacture and in unloading, storage, staging and transfer operations at facilities using the chemical in the manufacture of other products. A much lower potential for exposure exists in facilities using phosphorus pentoxide in closed manufacturing processes by trained personnel.

Employee Training

Workers handling phosphorus pentoxide should be trained to implement proper handling procedures and to understand the potential health and physical hazards of this product. A NIOSH approved air-purifying respirator with acid gas canisters or cartridges or an air-supplied respirator is recommended. In enclosed or highly concentrated areas, only a self-contained positive pressure breathing apparatus or a full-face supplied air respirator should be utilized. In addition, LANXESS recommends chemical resistant rubber gloves, boots and apron, splash-proof goggles or face shield be worn when handling this chemical.

Consumer Exposure

LANXESS Corporation does not sell phosphorus pentoxide to the general public.

Short-Term Health Effects

Skin contact may cause burns, with symptoms of redness, itching, swelling and burning. Eye contact may damage eye tissues with symptoms of redness, tearing, swelling and burning. Inhalation may damage the respiratory tract with symptoms of coughing, burning, ulceration and pain. May cause pulmonary edema (fluid in the lungs) with symptoms of breathing difficulty and tightness of the chest. These symptoms may be delayed. Ingestion may cause burns to the mouth, throat and stomach. Symptoms of ingestion may include coughing, burning, ulceration and pain.

Long-Term Health Effects

Phosphorus pentoxide is highly corrosive and may cause permanent tissue damage.

Physical Hazards

Phosphorus pentoxide is stable under normal conditions of use. Avoid contact with combustible materials, bases, reducing agents, halogens, metal oxides, acids, peroxides, oxidizing materials, metals and metal salts. Phosphorus pentoxide reacts with water or moist air, causing the formation of a corrosive solution (phosphoric acid). Heating to decomposition may release phosphorus oxides. Avoid heat, open flames and other potential sources of ignition.

Potential Environmental Impact

Phosphorus pentoxide degrades rapidly when exposed to moisture. An accidental release may pose a danger to fish (high toxicity), invertebrates (high toxicity) and aquatic plants (high 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, phosphorus pentoxide 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)

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

Safety Data Sheet (SDS), P2O5 HP, RheinChemie Additives

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

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.