

# Phosphorus trichloride

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This document provides a brief description of phosphorus trichloride, 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

<b>Product Name:</b>	Phosphorus trichloride
<b>Chemical Name:</b>	Phosphorus trichloride
<b>Synonym(s):</b>	Chloride of phosphorus Phosphine, trichloro- Phosphorus chloride
<b>CAS Number:</b>	7719-12-2

## Description

<b>Overview:</b>	Phosphorus trichloride is a colorless liquid at ambient temperatures. The chemical has a low viscosity, pungent odor and fumes on exposure to air.	
<b>Uses:</b>	Phosphorous trichloride is sold by LANXESS for use as a chlorinating agent in organic synthesis, and as a catalyst used in the production of pesticides, pharmaceuticals, plastic additives and other industrial products.	
<b>Properties:</b>	<b>Boiling Point:</b>	76°C (168.8°F)
	<b>Freezing Point:</b>	-94.5°C (-137.2°F)
	<b>Solubility in Water:</b>	Hydrolyzes

## **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 phosphorus trichloride in closed manufacturing processes by trained personnel.

### **Employee Training**

Workers handling phosphorus trichloride should be trained to implement proper handling procedures and to understand the potential health and physical hazards of the chemical. A NIOSH-approved air-supplied respirator that has been deemed suitable based on environmental monitoring of exposure levels is required for all material handling operations not contained within a closed system. Respiratory protection that also protects the eyes should be employed. In addition, LANXESS recommends that eye protection, such as chemical splash goggles and a full face shield, permeation resistant clothing, suitable rubber gloves and suitable foot protection be worn when handling phosphorus trichloride.

### **Consumer Exposure**

LANXESS Corporation does not sell phosphorus trichloride to the general public and only sells this product to pre-approved customers.

### **Short-Term Health Effects**

Phosphorous trichloride is corrosive, highly toxic, and fatal if inhaled or swallowed. Skin or eye contact may result in severe irritation or burns, with symptoms of redness, itching, swelling and severe pain. Permanent damage is possible. Inhalation is corrosive to the respiratory system. Symptoms of inhalation may include coughing, burning, sore throat, nausea, vomiting, shortness of breath, ulceration and pain. Ingestion of phosphorus trichloride is corrosive to the digestive tract. Symptoms of ingestion may include coughing, burning, ulceration, abdominal pain, shock or collapse. The effects of exposure to phosphorus trichloride may be delayed. Pre-existing respiratory, skin and eye disorders may be aggravated by overexposure.

### **Long-Term Health Effects**

Prolonged or repeated exposure to phosphorus trichloride may result in adverse effects including coughing, tightness of the chest, shortness of breath, bronchitis (inflammation of lung tissues) and pulmonary edema (fluid buildup in the lungs).

### Physical Hazards

Phosphorus trichloride is stable under normal conditions of use.

Phosphorus trichloride reacts violently with water, hydrolyzing rapidly to form hydrochloric acid and phosphorus acid. Avoid contact with water, moisture, organic materials, acids, bases, amines, metal compounds, oxidizing agents, halogens, and extreme heat. Mixtures with organic material can be explosive. Heating to decomposition may release phosphorus oxides, halogenated compounds, hydrochloric acid, phosphoric acid and phosphine. Protect from freezing.

### Potential Environmental Impact

An accidental release of phosphorus trichloride to air or water will decompose rapidly into hydrochloric acid and phosphorous acid. A release to water in sufficient quantities may result in a significant pH shift, posing a potential danger to fish, invertebrates or aquatic plants.

### 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 trichloride is not expected to pose a significant risk to human health or the environment.

### References

*International Chemical Safety Card, PHOSPHORUS TRICHLORIDE*, International Programme on Chemical Safety (IPCS)

*Safety Data Sheet (SDS), PHOSPHORUS TRICHLORIDE*, LANXESS Corporation

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

*Phosphorus Trichloride Screening Information Data Set (SIDS)*, Organization for Economic Cooperation and Development

*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

LANXESS Corporation, Product Safety & Regulatory Affairs, 111 RIDC Park West Drive, Pittsburgh, PA 15275-1112, USA, Phone 1-800-526-9377 [1-800-LANXESS]

## **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.