

# Thionyl chloride

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This document provides a brief description of Thionyl chloride, 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>	Thionyl chloride
<b>Chemical Name:</b>	Thionyl chloride
<b>Synonym(s):</b>	Sulfinyl chloride Sulfur chloride oxide Sulfurous dichloride Thionyl dichloride
<b>CAS Number:</b>	7719-09-7

## Description

<b>Overview:</b>	Thionyl chloride is a colorless, pale yellow or reddish liquid at ambient temperatures. The chemical has a low viscosity and a pungent, fuming, sulfur-like odor.						
<b>Uses:</b>	Thionyl chloride is sold by LANXESS for use as an intermediate in the production of dyes, crop protection products and pharmaceuticals. The chemical compound is also used as a component (positive electrode) in the production of lithium-thionyl chloride batteries.						
<b>Properties:</b>	<table><tr><td><b>Boiling Point:</b></td><td>76°C (168.8°F)</td></tr><tr><td><b>Freezing Point:</b></td><td>-104.5°C (-156.1°F)</td></tr><tr><td><b>Solubility in Water:</b></td><td>Miscible</td></tr></table>	<b>Boiling Point:</b>	76°C (168.8°F)	<b>Freezing Point:</b>	-104.5°C (-156.1°F)	<b>Solubility in Water:</b>	Miscible
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<b>Solubility in Water:</b>	Miscible						

## **Potential Human Health Effects**

### **Occupational Exposure**

Potential for occupational exposure exists during manufacture and at bulk unloading, 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 Thionyl chloride in closed manufacturing processes by trained personnel.

### **Employee Training**

Workers handling Thionyl chloride 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 or air-purifying respirator with acid gas canisters or cartridges is recommended for transloading, unloading and other operations not contained within a closed system. For work performed in enclosed areas or in other situations where high vapor concentrations may occur, a self-contained positive pressure breathing apparatus or a full face supplied air respirator should be utilized. In addition, LANXESS recommends that chemical splash goggles or a full face shield, chemical resistant protective suit, neoprene, polyvinyl chloride (PVC) or Viton gloves and suitable protective footwear be worn when handling Thionyl chloride.

### **Consumer Exposure**

LANXESS Corporation does not sell Thionyl chloride to the general public.

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

Thionyl chloride is highly corrosive to skin, eyes and mucous membranes. Short-term exposure may result in dermatitis (inflammation of the skin), tearing of the eyes, rhinitis (inflammation of the nose), severe burns and/or pneumonia. Ingestion of Thionyl chloride is corrosive to the digestive tract and may result in gastrointestinal burns, abdominal pain, shock or collapse. Inhalation may result in pulmonary edema (fluid build up in the lungs), inflammation and spasms. Absorption or inhalation in sufficient quantities may be fatal. The effects of exposure may be delayed.

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

Prolonged or repeated exposure to Thionyl chloride vapors may cause lung irritation or bronchitis, with symptoms of coughing and/or shortness of breath.

### Physical Hazards

Thionyl chloride is stable under normal conditions of use. Thionyl chloride reacts violently with water, forming sulfur dioxide and hydrogen chloride. Avoid contact with water, moisture, reducing agents, organic materials, iron and zinc. Heating to decomposition may release chlorine, hydrogen chloride and oxides of sulfur. Avoid contact with moisture, water and extreme heat.

### Potential Environmental Impact

Thionyl chloride hydrolyzes rapidly. An accidental release to water may pose a danger to fish, invertebrates or aquatic plants 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, Thionyl chloride is not expected to pose a significant risk to human health or the environment.

### References

*International Chemical Safety Card, THIONYL CHLORIDE*, International Programme on Chemical Safety (IPCS)

*Safety Data Sheet (SDS), THIONYL CHLORIDE*, LANXESS Corporation

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

*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.