

Chromic Acid Crystals (Chromium Trioxide)

This document provides a brief description of Chromic Acid Crystals, uses for the chemical, and 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:	Chromic Acid Crystals
Chemical Name:	Chromium trioxide
Synonym(s):	Chromium (VI) Oxide Chromic anhydride
CAS Number:	1333-82-0

Description

Overview:	LANXESS Chromic Acid Crystals is a dark red, odorless solid in crystal form at ambient temperatures.	
Uses:	Chromic Acid Crystals is produced synthetically for use in metal finishing operations (e.g., chrome plating), corrosion inhibitor in recirculating water systems and as a chemical intermediate in the production of copper chrome arsenate (CCA) wood preservatives but it also occurs naturally.	
Properties:	Melting Point:	Approx. 384.8°F (196°C)
	Solubility in Water:	High

Potential Human Health Effects

Occupational Exposure

Potential for occupational exposure to Chromic Acid Crystals exists during manufacture, at transloading, storage and staging areas, and during mixing and sampling operations when the chemical is used as an intermediate in the manufacture of certain products. A lesser potential for exposure exists within facilities using Chromic Acid Crystals in closed manufacturing processes by trained personnel.

Employee Training

Workers handling Chromic Acid Crystals are trained to implement proper handling procedures and to understand the potential health and physical hazards of this product. A NIOSH approved positive pressure air-supplied respirator is recommended for transloading, unloading and other operations not contained within a closed system. In addition, LANXESS recommends that tight fitting, non-vented chemical goggles, permeation resistant clothing, rubber or polyvinyl gloves and foot protection be worn when handling Chromic Acid Crystals.

Consumer Exposure

LANXESS does not sell this product to the general public. Incidental contact with products containing Chromic Acid Crystals would not be expected to produce any adverse health effects.

Short-Term Health Effects

Chromic Acid Crystals are corrosive and highly toxic if inhaled in sufficient quantities. Symptoms of inhalation exposure include coughing and burning. An allergic respiratory reaction may also be produced in susceptible individuals, with symptoms of wheezing, shortness of breath, bronchospasm (a narrowing of small airways in the lungs) and reduced lung function. Short-term skin contact may cause burns or allergic reactions, with symptoms of redness, itching, burning or swelling. Permanent tissue damage is possible. Eye contact may also produce irreversible injury/damage. Swallowing Chromic Acid Crystals may produce severe digestive tract injury, with symptoms of burning, ulceration, abdominal pain, nausea, vomiting or diarrhea. Swallowing a sufficient quantity of the chemical may be fatal.

Long-Term Health Effects

Long-term or repeated exposure to Chromic Acid Crystals may result in skin sensitization, asthma, kidney, liver or lung damage. Although research shows no direct link to Chromic Acid Crystals as a carcinogen, the U.S. Environmental Protection Agency (EPA) lists other chromium compounds as a carcinogen, and stated that "the classification of chromium (IV) as a known human carcinogen raises a concern for the carcinogenic potential of chromium (III)". The International Agency for Research on Cancer (IARC) has not assigned Chromic Acid Crystals (chromium trioxide) an overall evaluation. However, IARC has concluded that there is sufficient evidence for the carcinogenicity of chromium [VI] compounds as encountered in chromate production, chromate pigment production and chromium plating industries.

Reproductive toxicity tests indicate that chronic exposure to Chromic Acid Crystals may have an effect on fertility and may pose developmental risks for unborn children.

Physical Hazards

Chromic Acid Crystals are powerful oxidizers and may react violently in contact with combustible materials to cause a fire. Dust on elevated surfaces may create a dust cloud explosion hazard. Exposure to heat, open flames and other potential sources of ignition must be avoided.

Potential Environmental Impact

An accidental release of Chromic Acid Crystals through spills may pose a danger to fish (slight toxicity), invertebrates (high toxicity) and aquatic plants (moderate toxicity).

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, Chromic Acid Crystals 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), CHROMIC ACID CRYSTALS, LANXESS Corporation

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

NIOSH Pocket Guide to Chemical Hazards, Chromic Acid and Chromates, National Institute for Occupational Safety and Health

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

Contact Information

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Notices

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