

SAFETY DATA SHEET

Section 1. Identification

Product identifier : Chromium trioxide, crystals
Material Number : 05346681
Chemical name : Chromium Trioxide
Synonym : Chromic acid anhydride
Identified uses : Chemical industry, Leather industry
Supplier/Manufacturer : LANXESS Corporation
Product Safety & Regulatory Affairs
111 RIDC Park West Drive
Pittsburgh, PA 15275-1112
USA

For information: US/Canada (800) LANXESS
International +1 412 809 1000

In case of emergency : Chemtrec (800) 424-9300
International (703) 527-3887
Lanxess Emergency Phone (800) 410-3063.

Section 2. Hazards identification

HAZCOM Standard Status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Physical state : Solid.
Color : Red.

Classification of the substance or mixture : OXIDIZING SOLIDS - Category 2
ACUTE TOXICITY (oral) - Category 3
ACUTE TOXICITY (dermal) - Category 2
ACUTE TOXICITY (inhalation) - Category 2
SKIN CORROSION - Category 1A
SERIOUS EYE DAMAGE - Category 1
RESPIRATORY SENSITIZATION. - Category 1
SKIN SENSITIZATION. - Category 1
GERM CELL MUTAGENICITY - Category 1
CARCINOGENICITY - Category 1A
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (digestive system and respiratory tract) - Category 1
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (kidneys and liver) - Category 1

Hazard pictograms : 

Signal word : Danger

Hazard statements : May intensify fire; oxidizer. Fatal in contact with skin or if inhaled. Toxic if swallowed. Causes severe skin burns and eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction. May cause genetic defects. May cause cancer. Causes damage to organs. (digestive system, respiratory tract) Causes damage to organs through prolonged or repeated exposure. (kidneys, liver)

Section 2. Hazards identification

Hazard Not Otherwise Classified (HNOC) : None known.

Precautionary statements

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear respiratory protection. Wear protective gloves/ clothing and eye/face protection. Keep away from heat. - No smoking. Keep away from clothing, incompatible materials and combustible materials. Take any precaution to avoid mixing with combustibles and other incompatible materials. Use only in a well-ventilated area. Do not get in eyes, on skin, or on clothing. Do not breathe dust. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace.

Response : IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. IF ON SKIN: Gently wash with plenty of soap and water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

Storage : Store locked up.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements : Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials and food and drink.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : Chromium Trioxide

CAS number : 1333-82-0

Ingredient name	%	CAS number
Chromium Trioxide	100	1333-82-0

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of first aid measures

Eye contact : Get medical attention immediately. In case of contact with eyes, flush eyes with plenty of water for at least 30 minutes. Chemical burns must be treated promptly by a physician. In case of contact, flush eyes with plenty of water for at least 30 minutes. Use fingers to ensure that eyelids are separated and that the eye is being irrigated. Call physician immediately.

Inhalation : Get medical attention immediately. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In the event of any complaints or symptoms, avoid further exposure. If not breathing, if breathing is irregular or respiratory arrest occurs, provide artificial respiration, or oxygen by a trained professional, using a pocket type respirator.

Section 4. First aid measures

- Skin contact** : Get medical attention immediately. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. In case of contact, flush skin with plenty of water for at least 30 minutes. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : Fatal if inhaled. May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- Skin contact** : Causes severe burns. Fatal in contact with skin. May cause an allergic skin reaction.
- Ingestion** : Toxic if swallowed. May cause burns to mouth, throat and stomach.

Over-exposure signs/symptoms

- Eye contact** : Corrosive with symptoms of reddening, tearing, swelling, burning and possible permanent damage.
- Inhalation** : Corrosive with symptoms of coughing, burning, ulceration, and pain. May cause allergic respiratory reaction with symptoms of coughing, wheezing, shortness of breath, bronchospasm, and reduced lung function.
- Skin contact** : Corrosive with symptoms of reddening, itching, swelling, burning and possible permanent damage. Once sensitized, an allergic skin reaction may occur with reddening, swelling, and rash when subsequently exposed to very low levels. May cause allergic respiratory reaction with symptoms of coughing, wheezing, shortness of breath, bronchospasm, and reduced lung function.
- Ingestion** : Corrosive with symptoms of coughing, burning, ulceration, and pain. Abdominal pain, nausea, vomiting, diarrhea. In extreme case it may cause serious damage to health.

Potential chronic health effects

Causes damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. Suspected of causing cancer. Suspected of causing genetic defects.

- Notes to physician** : Treat symptomatically. No specific treatment.
- Protection of first-aiders** : If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Can only be extinguished with large quantities of water.
- Unsuitable extinguishing media** : Do not use dry chemical or foam.

Section 5. Fire-fighting measures

- Specific hazards arising from the chemical** : Oxidizing material. May intensify fire. Toxic and irritating gases/fumes may be given off during burning or thermal decomposition. Water runoff from fire fighting may be corrosive.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
metal oxide/oxides
- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

- Personal precautions, protective equipment and emergency procedures** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods and materials for containment and cleaning up** : Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal. Prevent entry into sewers, water courses, basements or confined areas.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Persons with a history of skin sensitization problems or asthma, allergies or chronic or recurrent respiratory disease should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from clothing, incompatible materials and combustible materials. Wear fire resistant clothing. Keep away from heat. Empty containers retain product residue and can be hazardous. Do not reuse container. Remove contaminated clothing and protective equipment before entering eating areas. Workers should wash hands and face before eating, drinking and smoking. Put on appropriate personal protection equipment. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed.
- Conditions for safe storage** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Separate from reducing agents and combustible materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. Empty containers retain product residue and can be hazardous. Do not reuse container. See NFPA 430, Code for the Storage of Liquid and Solid Oxidizers.

Section 8. Exposure controls/personal protection

Occupational exposure limits

Ingredient name	Exposure limits
Chromium Trioxide	ACGIH TLV (United States, 3/2016). TWA: 0.05 mg/m ³ , (measured as Cr) 8 hours. Form: Soluble OSHA PEL (United States, 6/2016). TWA: 0.005 mg/m ³ , (as Cr) 8 hours. OSHA PEL Z2 (United States, 2/2013). CEIL: 1 mg/10m ³

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Personal protection

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Respiratory protection : NIOSH approved powered air-purifying particulate respirator with N-100 filters. A NIOSH approved positive pressure air-supplied respirator is required whenever airborne concentrations are not known overexceed the recommended exposure limit. For emergency and other conditions where the exposure limits may be greatly exceeded, use an approved, positive pressure self-contained breathing apparatus. This product has poor warning properties since the concentration at which the odor can be smelled is substantially higher than the airborne concentration standard/guideline. Observe OSHA regulations for respirator use (29 CFR 1910.134).

Skin protection : Permeation resistant gloves. (rubber gloves or polyvinyl chloride (PVC) gloves)
Permeation resistant clothing and foot protection. (Tyvek coverall or equivalent)

Eye/face protection : Tight fitting chemical goggles (non-vented)

Medical Surveillance : Not available.

Section 9. Physical and chemical properties

Physical state	: Solid. [Crystals.]
Color	: Red.
Odor	: Odorless.
Odor threshold	: Not available.
pH	: <1 [Conc. (% w/w): 10%]
Boiling point	: Decomposes.
Melting point	: 196°C (384.8°F)
Flash point	: Not available.
Evaporation rate	: Not available.
Explosion limits	: Not available.
Vapor pressure	: Not available.
Density	: 2.7 g/cm ³

Section 9. Physical and chemical properties

Specific gravity (Relative density)	: Not available.
Bulk density	: 1300 kg/m ³
Solubility in water	: 1667 g/l
Partition coefficient: n-octanol/water	: Not available.
Vapor density	: Not available.
Viscosity	: Not available.
Auto-ignition temperature	: Not available.
Decomposition temperature	: 196°C

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Hazardous reactions or instability may occur under certain conditions of storage or use. Conditions may include the following: contact with combustible materials Reactions may include the following: risk of causing or intensifying fire risk of causing or intensifying fire
Conditions to avoid	: combustible materials
Incompatible materials	: Reactive or incompatible with the following materials: combustible materials reducing materials
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on the likely routes of exposure	: Dermal contact. Eye contact. Inhalation. Ingestion.
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Potential acute health effects

Eye contact	: Causes serious eye damage.
Inhalation	: Fatal if inhaled. May give off gas, vapor or dust that is very irritating or corrosive to the respiratory system. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin contact	: Causes severe burns. Fatal in contact with skin. May cause an allergic skin reaction.
Ingestion	: Toxic if swallowed. May cause burns to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: Corrosive with symptoms of reddening, tearing, swelling, burning and possible permanent damage.
Inhalation	: Corrosive with symptoms of coughing, burning, ulceration, and pain. May cause allergic respiratory reaction with symptoms of coughing, wheezing, shortness of breath, bronchospasm, and reduced lung function.
Skin contact	: Corrosive with symptoms of reddening, itching, swelling, burning and possible permanent damage. Once sensitized, an allergic skin reaction may occur with reddening, swelling, and rash when subsequently exposed to very low levels. May cause allergic respiratory reaction with symptoms of coughing, wheezing, shortness of breath, bronchospasm, and reduced lung function.
Ingestion	: Corrosive with symptoms of coughing, burning, ulceration, and pain. Abdominal pain, nausea, vomiting, diarrhea. In extreme case it may cause serious damage to health.

Potential chronic health effects

Short term exposure

Section 11. Toxicological information

Potential immediate effects : Not available.

Long term exposure

Potential delayed effects : Not available.

General : Causes damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. Suspected of causing cancer. Suspected of causing genetic defects.

Carcinogenicity : May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : May cause genetic defects.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure	Test
Chromium Trioxide	LD50 Oral	Rat	52 mg/kg	-	-
Chromium Trioxide	LD50 Dermal	Rabbit	57 mg/kg	-	-
Chromium Trioxide	LC50 Inhalation Dusts and mists	Rat	0.217 mg/l	4 hours	-

Irritation/Corrosion

Conclusion/Summary

Skin : corrosive

Eyes : corrosive

Mutagenicity

Product/ingredient name	Test	Experiment	Result
Chromium Trioxide	OECD 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria	Positive
	OECD 473 <i>In vitro</i> Mammalian Chromosomal Aberration Test	Experiment: In vitro Subject: Mammalian-Animal	Positive
	OECD 476 <i>In vitro</i> Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Mammalian-Animal	Positive

Carcinogenicity

Conclusion/Summary : Chromium Trioxide:Chromium(VI) compounds are absorbed by the body after direct contact with the skin and mucous membranes. In susceptible people sensitisation is possible. Inhalation may lead to ulceration of the mucous membranes of the nose.

Product/ingredient name	CAS #	IARC	NTP	OSHA
Chromium Trioxide	1333-82-0	1 Carcinogenic to humans	Proven.	Listed

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Chromium Trioxide	Category 1	Not determined	digestive system and respiratory tract

Specific target organ toxicity (repeated exposure)

Section 11. Toxicological information

Name	Category	Route of exposure	Target organs
Chromium Trioxide	Category 1	Not determined	kidneys and liver

Section 12. Ecological information

Toxicity

Product/ingredient name	Test	Result	Species	Exposure
Chromium Trioxide	* For risk assessment data on chromium (VI)	Acute EC50 3.5 mg/l	Bacteria - Escherichia coli	24 hours
	* For risk assessment data on chromium (VI)	Acute EC50 0.53 mg/l	Daphnia - Daphnia magna	24 hours
	* For risk assessment data on chromium (VI)	Acute IC50 0.233 mg/l	Algae - Chlorella vulgaris	72 hours
	* For risk assessment data on chromium (VI)	Acute LC50 37.5 mg/l	Fish - Carassius auratus	96 hours
	* For risk assessment data on chromium (VI)	Chronic NOEC 0.1 mg/l	Algae - Spirodela polyrhiza	8 days
	* For risk assessment data on chromium (VI)	Chronic NOEC 0.0047 mg/l	Daphnia - Ceriodaphnia dubia	7 days
	* For risk assessment data on chromium (VI)	Chronic NOEC 0.06 mg/l	Daphnia - Daphnia magna	21 days
	* For risk assessment data on chromium (VI)	Chronic NOEC 0.051 mg/l	Fish - Oncorhynchus mykiss	60 days

Conclusion/Summary : Not available.

Persistence and degradability

Conclusion/Summary : Not available.

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Waste disposal should be in accordance with existing federal state, provincial and or local environmental controls laws.

Section 13. Disposal considerations

RCRA classification

: Although this product has not been tested, it would be expected to exhibit the characteristic of toxicity under RCRA. When discarded in its purchased form, this product meets the criteria of ignitability, and should be managed as a hazardous waste (EPA Hazardous Waste Number D001). (40 CFR 261.20-24) When discarded in its purchased form, this product meets the criteria of corrosivity, and should be managed as a hazardous waste (EPA Hazardous Waste Number D002). (40 CFR 261.20-24)

Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
DOT Classification	UN1463	CHROMIUM TRIOXIDE, ANHYDROUS	5.1 (6.1, 8)	II	   	IP8, IP2, IP4, T3, TP33 The U.S. DOT regulations in Appendix B to 49 CFR § 172.101, paragraph 4 permit this material to ship as marine pollutant
IMDG Class	UN1463	CHROMIUM TRIOXIDE, ANHYDROUS	5.1 (6.1, 8)	II	   	Emergency schedules (EmS) F-A, S-Q
IATA-DGR Class	UN1463	CHROMIUM TRIOXIDE, ANHYDROUS	5.1 (6.1, 8)	II	   	Passenger aircraft 558: 5 kg Cargo aircraft 562: 25 kg

PG* : Packing group

RQ

: 0 lbs

Section 15. Regulatory information

SARA 311/312 : Fire hazard
Immediate (acute) health hazard
Delayed (chronic) health hazard

**SARA Title III Section 302
Extremely Hazardous
Substances** : None

	<u>Ingredient name</u>	<u>CAS number</u>	<u>Concentration (%)</u>
SARA Title III Section 313 Toxic Chemicals	Chromium Trioxide	1333-82-0	100

	<u>Ingredient name</u>	<u>CAS number</u>	<u>RQ</u>
US EPA CERCLA Hazardous Substances (40 CFR 302.4)	Chromium Trioxide	1333-82-0	Included in the regulation but with no data values. See regulation for further details.

[State regulations](#)

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections on the SDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

<u>Ingredient name</u>	<u>CAS number</u>	<u>State Code</u>	<u>Concentration (%)</u>
Chromium Trioxide	1333-82-0	MA - S, NJ - HS, PA - RTK HS	100

Massachusetts Substances: MA - S
Massachusetts Extraordinary Hazardous Substances: MA - Extra HS
New Jersey Hazardous Substances: NJ - HS
Pennsylvania RTK Hazardous Substances: PA - RTK HS
Pennsylvania Special Hazardous Substances: PA - Special HS

[California Prop. 65](#)

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

<u>Ingredient name</u>	<u>CAS #</u>	<u>Concentration (%)</u>	<u>Cancer</u>	<u>Reproductive</u>
Chromium Trioxide	1333-82-0	100	Yes	Yes

**U.S. Toxic Substances
Control Act** : Listed on the TSCA Inventory.

Section 16. Other information

Hazardous Material Information System	:	Health	*	3
		Flammability		2
		Physical hazards		2

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme
*=Chronic

The customer is responsible for determining the PPE code for this material. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

**National Fire Protection
Association (U.S.A.)** :

Section 16. Other information



0= Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

Our method of hazard communication is comprised of Product Labels and Safety Data Sheets. HMIS and NFPA ratings are provided as a customer service.

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Product Safety and Regulatory Affairs

Indicates information that has changed from previously issued version.

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