Material Safety Data Sheet

Chromium (VI) Oxide

Section 1. Product and Company Identification

Product name : Chromium (VI) Oxide

Product code : 229

Synonym : Chromium (ic) Trioxide

Material uses : Other non-specified industry: Analytical reagent.

Manufacturer : EMD Chemicals Inc.
P.O. Box 70
480 Democrat Road
Gibbstown, NJ 08027
856-423-6300 Technical Service
Monday - Friday: 8:00 - 5:00 PM

Validation date : **8/31/2006.**

Print date : 9/5/2006.

In case of emergency : 800-424-9300 CHEMTREC (USA)
613-996-6666 CANUTEC (Canada)
24 Hours/Day: 7 Days/Week

Section 2. Hazards Identification

Physical state : Solid. (Deliquescent crystals. Flakes.)

Odor : Odorless.

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Emergency overview : DANGER!

CAUSES SEVERE EYE AND SKIN BURNS.
CAUSES RESPIRATORY TRACT BURNS.
CANCER HAZARD.
CAN CAUSE CANCER.
OXIDIZER.
HARMFUL IF INHALED OR SWALLOWED.
CAUSES DAMAGE TO THE FOLLOWING ORGANS: BLOOD, KIDNEYS, LIVER, RESPIRATORY TRACT, SKIN, EYE, LENS OR CORNEA.
CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE.

WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

Do not ingest. Do not get in eyes or on skin or clothing. Do not breathe dust. Store in tightly-closed container. Avoid contact with combustible materials. Use only with adequate ventilation. Wash thoroughly after handling. Risk of cancer depends on duration and level of exposure.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Eyes : Severely corrosive to the eyes.

Skin : Severely corrosive to the skin.

Inhalation : Toxic by inhalation. Corrosive to the respiratory system.

Ingestion : Toxic if swallowed. May cause burns to mouth, throat and stomach.

Carcinogenic effects : Can cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenic effects : No known significant effects or critical hazards.

Teratogenicity / Reproductive toxicity : No known significant effects or critical hazards.

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Section 2. Hazards Identification

Medical conditions aggravated by over-exposure : Repeated skin exposure can produce local skin destruction or dermatitis. Repeated or prolonged exposure to the substance can produce lung damage. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated or prolonged exposure to the substance can produce target organs damage.

See toxicological information (section 11)

Section 3. Composition/Information on Ingredients

United States

Name	CAS number	% by Weight
Chromium (VI) Oxide	1333-82-0	100

Section 4. First Aid Measures

Eye contact : Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Chemical burns must be treated promptly by a physician.

Skin contact : Get medical attention immediately. Flush contaminated skin with plenty of water. Continue to rinse for at least 10 minutes. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing or wear gloves. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Inhalation : Get medical attention immediately. Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. 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.

Ingestion : Get medical attention immediately. Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. 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.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing or wear gloves.

Section 5. Fire Fighting Measures

Flammability of the product : This material increases the risk of fire and may aid combustion. Contact with combustible material may cause fire.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : Not available.

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.

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Section 6. Accidental Release Measures

Personal precautions : Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment. Do not touch or walk through spilled material.

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Methods for cleaning up : If emergency personnel are unavailable, carefully scoop up spilled materials and use a non-sparking or explosion-proof means to transfer material to an appropriate container for disposal by incineration. Avoid creating dusty conditions and prevent wind dispersal.

Section 7. Handling and Storage

Handling : Do not ingest. Do not get in eyes or on skin or clothing. Keep container closed. Use only with adequate ventilation. Do not breathe dust. Store in tightly-closed container. Avoid contact with combustible materials. Wash thoroughly after handling.

Storage : Keep container tightly closed. Keep container in a cool, well-ventilated area. Separate from acids, alkalis, reducing agents and combustibles.

Section 8. Exposure Controls/Personal Protection

Product name	**Exposure limits**
United States	
Chromium (VI) Oxide	**ACGIH TLV (United States, 1/2006). Notes: Measured as Cr Substance identified by other sources as a suspected or confirmed human carcinogen. 1994-1995 Adoption Substances for which there is a Biological Exposure Index or Indices Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL. Refers to Appendix A -- Carcinogens. NOC = not otherwise classified.** TWA: 0.05 mg/m^3 8 hour/hours. Form: Soluble **OSHA PEL (United States, 8/1997). Notes: as Cr** TWA: 1 mg/m^3 8 hour/hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 1 mg/m^3 8 hour/hours.

Consult local authorities for acceptable exposure limits.

Engineering measures : Use only with adequate ventilation. If user operations generate dust, fumes, vapor or mist, 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

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.
Recommended: safety glasses with side-shields , face shield

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Body: Recommended: safety apron

Respiratory : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Recommended: nitrile rubber

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Section 8. Exposure Controls/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. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 9. Physical and Chemical Properties

Physical state : Solid. (Deliquescent crystals. Flakes.)

Color : Red.

Odor : Odorless.

Molecular weight : 100 g/mole

Molecular formula : Cr-O3

Boiling/condensation point : Decomposition temperature: 250°C (482°F)

Melting/freezing point : 196.85°C (386.3°F)

Relative density : 2.7 (Water = 1)

Section 10. Stability and Reactivity

Stability and reactivity : The product is stable.

Incompatibility with various substances : Reactive or incompatible with the following materials: oxidizing materials, reducing materials and organic materials.

Hazardous decomposition products : Cr2O3

Hazardous polymerization : Will not occur.

Section 11. Toxicological Information

Toxicity data

United States

Product/ingredient name	Test	Result	Route	Species
Chromium (VI) Oxide	LD50	80 mg/kg	Oral	Rat
	LD50	127 mg/kg	Oral	Mouse
	LDLo	55 mg/kg	Dermal	Rat

Chronic effects on humans : **CARCINOGENIC EFFECTS** Classified A1 (Confirmed for humans.) by ACGIH, 1 (Proven for humans.) by IARC, 1 (Known to be human carcinogens.) by NTP, + (Proven.) by NIOSH, 1 (Proven for humans.) by European Union.
Causes damage to the following organs: blood, kidneys, liver, upper respiratory tract, skin, eye, lens or cornea.

Other toxic effects on humans : Extremely hazardous in case of skin contact (corrosive), of eye contact (corrosive).
Very hazardous in case of ingestion, of inhalation (lung corrosive).
Hazardous in case of skin contact (sensitizer).

Specific effects

Carcinogenic effects : Can cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenic effects : No known significant effects or critical hazards.

Teratogenicity / Reproductive toxicity : No known significant effects or critical hazards.

Sensitization

Ingestion : May cause burns to mouth, throat and stomach.

Inhalation : Corrosive to the respiratory system.

Eyes : Severely corrosive to the eyes.

Skin : Severely corrosive to the skin.

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Section 12. Ecological Information

Environmental precautions : Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Products of degradation : Some metallic oxides.

Toxicity of the products of biodegradation : The products of degradation are less toxic than the product itself.

Section 13. Disposal Considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Section 14. Transport Information

Regulatory information	UN number	Proper shipping name	Class	PG*	Label	Additional information
DOT Classification	UN1463	CHROMIUM TRIOXIDE, ANHYDROUS	5.1	II		**Reportable quantity** 10 lbs. (4.536 kg)

PG* : Packing group

Section 15. Regulatory Information

United States

HCS Classification : Oxidizing material
Toxic material
Corrosive material
Carcinogen
Target organ effects

U.S. Federal regulations : TSCA 8(b) inventory: Listed

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Section 15. Regulatory Information

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Chromium (VI) Oxide
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Chromium (VI) Oxide : Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard

Clean Water Act (CWA) 307: Chromium (VI) Oxide

Clean Water Act (CWA) 311: No products were found.

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

SARA 313

		Product name	CAS number	Concentration
Form R - Reporting requirements	:	Chromium (VI) Oxide	1333-82-0	100
Supplier notification	:	Chromium (VI) Oxide	1333-82-0	100

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations : Pennsylvania RTK: Chromium (VI) Oxide : (special hazard, environmental hazard, generic environmental hazard)
Massachusetts RTK: Chromium (VI) Oxide
New Jersey: Chromium (VI) Oxide

WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Chromium (VI) Oxide	Yes.	No.	No.	No.

Canada

WHMIS (Canada) : Class C: Oxidizing material.
Class D-1A: Material causing immediate and serious toxic effects (Very toxic).
Class D-2A: Material causing other toxic effects (Very toxic).
Class E: Corrosive material

CEPA DSL/CEPA NDSL : CEPA DSL: Chromium (VI) Oxide

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

EU regulations

Hazard symbol/symbols :

Risk phrases : R8- Contact with combustible material may cause fire.
R49- May cause cancer by inhalation.
R25- Toxic if swallowed.
R35- Causes severe burns.
R43- May cause sensitization by skin contact.
R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases : S53- Avoid exposure - obtain special instructions before use.
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S60- This material and its container must be disposed of as hazardous waste.
S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

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Section 15. Regulatory Information

International regulations

International lists : Australia (NICNAS): Chromium (VI) Oxide

China: Chromium (VI) Oxide

Germany water class: Chromium (VI) Oxide

Japan (METI): Chromium (VI) Oxide

Korea (TCCL): Chromium (VI) Oxide

Philippines (RA6969): Chromium (VI) Oxide

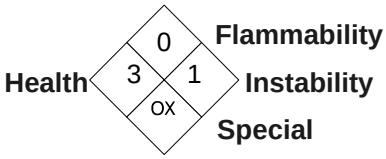
Section 16. Other Information

Label requirements : DANGER!

CAUSES SEVERE EYE AND SKIN BURNS.
CAUSES RESPIRATORY TRACT BURNS.
CANCER HAZARD.
CAN CAUSE CANCER.
OXIDIZER.
HARMFUL IF INHALED OR SWALLOWED.
CAUSES DAMAGE TO THE FOLLOWING ORGANS: BLOOD, KIDNEYS, LIVER, RESPIRATORY TRACT, SKIN, EYE, LENS OR CORNEA.
CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE.

WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

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



Notice to reader

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