

## ANEXO 8. HOJA DE SEGURIDAD DEL ACIDO CROMICO.

MSDS Number: C4400 \*\*\*\*\* Effective Date: 07/29/03 \*\*\*\*\* Supercodes: 10/31/00

### MSDS Material Safety Data Sheet

From: Mallinckrodt Baker, Inc.  
222 Red School Lane  
Phillipsburg, NJ 08865



24 Hour Emergency Telephone: 800-890-2101  
CHEMTREC: 1-800-424-9300

National Response in Canada  
CANUTEC: 610-956-6566

Outside U.S. and Canada  
Chemtec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2637) for assistance.

## CHROMIUM TRIOXIDE

### 1. Product Identification

**Synonyms:** Chromium (VI) oxide (1:3); chromic acid, solid; chromic anhydride  
**CAS No.:** 1333-82-0  
**Molecular Weight:** 99.99  
**Chemical Formula:** CrO<sub>3</sub>  
**Product Codes:**  
J.T. Baker: 1637, 1638, 1639, 1642  
Mallinckrodt: 2564, 2576

### 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Chromium(VI) Oxide (1:3)	1333-82-0	99 - 100%	Yes

### 3. Hazards Identification

Emergency Overview

**DANGER! STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE A FIRE. CORROSIVE. CAUSES SEVERE BURNS TO EVERY AREA OF CONTACT. HARMFUL IF SWALLOWED OR INHALED. AFFECTS THE RESPIRATORY SYSTEM, LIVER, KIDNEYS, EYES, SKIN AND BLOOD. MAY CAUSE ALLERGIC REACTION. CANCER HAZARD. CAN CAUSE CANCER.**

Risk of cancer depends on duration and level of exposure.

J.T. Baker SAF-T-DATA<sup>(tm)</sup> Ratings (Provided here for your convenience)

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Health Rating: 4 - Extreme (Cancer Causing)

Flammability Rating: 0 - None

Reactivity Rating: 3 - Severe (Oxidizer)

Contact Rating: 3 - Severe (Corrosive)

Lab Protective Equip: GOGGLES; LAB COAT; PROPER GLOVES

Storage Color Code: Yellow (Reactive)

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#### Potential Health Effects

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##### **Inhalation:**

Corrosive. Extremely destructive to tissues of the mucous membranes and upper respiratory tract. May cause ulceration and perforation of the nasal septum. Symptoms may include sore throat, coughing, shortness of breath, and labored breathing. May produce pulmonary sensitization or allergic asthma. Higher exposures may cause pulmonary edema.

##### **Ingestion:**

Corrosive. Swallowing can cause severe burns of the mouth, throat, and stomach, leading to death. Can cause sore throat, vomiting, diarrhea. May cause violent gastroenteritis, peripheral vascular collapse, dizziness, intense thirst, muscle cramps, shock, coma, abnormal bleeding, fever, liver damage and acute renal failure.

##### **Skin Contact:**

Corrosive. Symptoms of redness, pain, and severe burn can occur. Dusts and strong solutions may cause severe irritation. Contact with broken skin may cause ulcers (chrome sores) and absorption, which may cause systemic poisoning, affecting kidney and liver functions. May cause skin sensitization.

##### **Eye Contact:**

Corrosive. Contact can cause blurred vision, redness, pain and severe tissue burns. May cause corneal injury or blindness.

##### **Chronic Exposure:**

Repeated or prolonged exposure can cause ulceration and perforation of the nasal septum, respiratory irritation, liver and kidney damage and ulceration of the skin. Ulcerations at first may be painless, but may penetrate to the bone producing "chrome holes." Known to be a human carcinogen.

##### **Aggravation of Pre-existing Conditions:**

Persons with pre-existing skin disorders, asthma, allergies or known sensitization to chromic acid or chromates may be more susceptible to the effects of this material.

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## 4. First Aid Measures

**Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Ingestion:**

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

**Skin Contact:**

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Eye Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

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## 5. Fire Fighting Measures

**Fire:**

Not combustible, but substance is a strong oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition. Will ignite on contact with acetic acid and alcohol. Releases oxygen upon decomposition, increasing the fire hazard.

**Explosion:**

Contact with oxidizable substances may cause extremely violent combustion. Containers may explode when involved in a fire.

**Fire Extinguishing Media:**

Use water, however, the decomposing material will form a hot viscous foam and caution should be exercised against the possibility of a steam explosion.

**Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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## 6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

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## 7. Handling and Storage

Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry,

ventilated area away from sources of heat, ignition sources, moisture and incompatibilities. Do not store on wooden floors. Wear special protective equipment (Sec. 8) for maintenance break-in or where exposures may exceed established exposure levels. Wash hands, face, forearms and neck when exiting restricted areas. Shower, dispose of outer clothing, change to clean garments at the end of the day. Avoid cross-contamination of street clothes. Wash hands before eating and do not eat, drink, or smoke in workplace. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

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## 8. Exposure Controls/Personal Protection

### **Airborne Exposure Limits:**

- OSHA Permissible Exposure Limit (PEL):

For chromic acid and chromates, as CrO<sub>3</sub> = 0.1 mg/m<sup>3</sup> (ceiling)

- ACGIH Threshold Limit Value (TLV):

For water-soluble Cr(VI) compounds, as Cr = 0.05 mg/m<sup>3</sup> (TWA), A1 - confirmed human carcinogen.

### **Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

### **Personal Respirators (NIOSH Approved):**

If the exposure limit is exceeded and engineering controls are not feasible, a half facepiece particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator.

WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

### **Skin Protection:**

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

### **Eye Protection:**

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

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## 9. Physical and Chemical Properties

### **Appearance:**

Dark red deliquescent solid.

**Odor:**  
 Odorless.  
**Solubility:**  
 63g/100g water @ 20C (68F)  
**Specific Gravity:**  
 2.7  
**pH:**  
 No information found.  
**% Volatiles by volume @ 21C (70F):**  
 No information found.  
**Boiling Point:**  
 Decomposes on melting  
**Melting Point:**  
 197C (387F)  
**Vapor Density (Air=1):**  
 No information found.  
**Vapor Pressure (mm Hg):**  
 No information found.  
**Evaporation Rate (BuAc=1):**  
 No information found.

## 10. Stability and Reactivity

**Stability:**  
 Stable under ordinary conditions of use and storage.  
**Hazardous Decomposition Products:**  
 Burning may produce chrome oxides.  
**Hazardous Polymerization:**  
 Will not occur.  
**Incompatibilities:**  
 Any combustible, organic or other readily oxidizable material (paper, wood, sulfur, aluminum or plastics). Incompatible with arsenic, ammonia gas, hydrogen sulfide, phosphorus potassium; sodium and selenium will produce incandescence. Corrosive to metals.  
**Conditions to Avoid:**  
 Avoid excess heat and contact with combustible or organic materials.

## 11. Toxicological Information

Oral rat LD50: 80 mg/kg Investigated as a tumorigen, mutagen, reproductive effector.

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
-----\Cancer Lists\-----			



Chromium(VI) Oxide (1:3)  
(1333-82-0)

Yes

No

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## 12. Ecological Information

### Environmental Fate:

When released into the soil, this material may leach into groundwater. When released into water, this material is not expected to evaporate significantly. When released into the air, this material may be removed from the atmosphere to a moderate extent by wet deposition.

### Environmental Toxicity:

This material is expected to be toxic to aquatic life.

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## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

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## 14. Transport Information

### Domestic (Land, D.O.T.)

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Proper Shipping Name: CHROMIUM TRIOXIDE, ANHYDROUS

Hazard Class: 5.1, 8

UN/NA: UN1463

Packing Group: II

Information reported for product/size: 100LB

### International (Water, I.M.O.)

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Proper Shipping Name: CHROMIUM TRIOXIDE, ANHYDROUS

Hazard Class: 5.1, 8

UN/NA: UN1463

Packing Group: II

Information reported for product/size: 100LB

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## 15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----

Ingredient	TSCA	EC	Japan	Australia
Chromium(VI) Oxide (1:3) (1333-82-0)	Yes	Yes	Yes	Yes

-----\Chemical Inventory Status - Part 2\-----

Ingredient	Korea	DSL	NDSL	Phil.
Chromium(VI) Oxide (1:3) (1333-82-0)	Yes	Yes	No	Yes

-----\Federal, State & International Regulations - Part 1\-----

Ingredient	-SARA 302-		-SARA 313-	
	RQ	TPQ	List	Chemical Catg.
Chromium(VI) Oxide (1:3) (1333-82-0)	No	No	No	Chromium com

-----\Federal, State & International Regulations - Part 2\-----

Ingredient	CERCLA	-RCRA-	-TSCA-
		261.33	8(d)
Chromium(VI) Oxide (1:3) (1333-82-0)	No	No	No

Chemical Weapons Convention: No TSCA 12(b): Yes CDTA: Yes  
 SARA 311/312: Acute: Yes Chronic: Yes Fire: Yes Pressure: No  
 Reactivity: Yes (Pure / Solid)

**WARNING:**  
 THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

**Australian Hazchem Code:** 2W  
**Poison Schedule:** S6

**WHMIS:**  
 This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

## 16. Other Information

**NFPA Ratings:** Health: 3 Flammability: 0 Reactivity: 1 Other: **Oxidizer**

**Label Hazard Warning:**

DANGER! STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE A FIRE. CORROSIVE. CAUSES SEVERE BURNS TO EVERY AREA OF CONTACT. HARMFUL IF SWALLOWED OR INHALED. AFFECTS THE RESPIRATORY SYSTEM, LIVER, KIDNEYS, EYES, SKIN AND BLOOD. MAY CAUSE ALLERGIC REACTION. CANCER HAZARD. CAN CAUSE CANCER. Risk of cancer depends on duration and level of exposure.

**Label Precautions:**

Keep from contact with clothing and other combustible materials.  
 Do not get in eyes, on skin, or on clothing.  
 Do not breathe dust or mist from solutions.  
 Store in a tightly closed container.

Keep container closed.  
Use only with adequate ventilation.  
Wash thoroughly after handling.  
Do not store near combustible materials.

**Label First Aid:**

In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In all cases get medical attention immediately.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

MSDS Section(s) changed since last revision of document include: 8.

**Disclaimer:**

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Prepared by: Environmental Health & Safety  
Phone Number: (314) 654-1600 (U.S.A.)