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: CrO3
Product Codes:
J.T. Baker: 1637, 1638, 1639, 1642
Mallinckrodt: 2564, 2576

2. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS No</th>
<th>Percent</th>
<th>Hazardous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromium(VI) Oxide (1:3)</td>
<td>1333-82-0</td>
<td>99 - 100%</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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\textsuperscript{tm} Ratings (Provided here for your convenience)

<table>
<thead>
<tr>
<th>Rating</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Rating</td>
<td>4 - Extreme (Cancer Causing)</td>
</tr>
<tr>
<td>Flammability Rating</td>
<td>0 - None</td>
</tr>
<tr>
<td>Reactivity Rating</td>
<td>3 - Severe (Oxidizer)</td>
</tr>
<tr>
<td>Contact Rating</td>
<td>3 - Severe (Corrosive)</td>
</tr>
<tr>
<td>Lab Protective Equip</td>
<td>GOGGLES; LAB COAT; PROPER GLOVES</td>
</tr>
<tr>
<td>Storage Color Code</td>
<td>Yellow (Reactive)</td>
</tr>
</tbody>
</table>

Potential Health Effects

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.
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.

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.

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.

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.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
- OSHA Permissible Exposure Limit (PEL):
  For chromic acid and chromates, as CrO3 = 0.1 mg/m3 (ceiling)
  - ACGIH Threshold Limit Value (TLV):
    For water-soluble Cr(VI) compounds, as Cr = 0.05 mg/m3 (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
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.

<table>
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<tr>
<th>-- Cancer Lists</th>
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<td>Ingredient</td>
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<tr>
<td>Chromium(VI) Oxide (1:3) (1333-82-0)</td>
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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.

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.

14. Transport Information

Domestic (Land, D.O.T.)

Proper Shipping Name: CHROMIUM TRIOXIDE, ANHYDROUS
Hazard Class: 5.1, 8
UN/NA: UN1465
Packing Group: II
Information reported for product/size: 100LB

International (Water, I.M.O.)

Proper Shipping Name: CHROMIUM TRIOXIDE, ANHYDROUS
Hazard Class: 5.1, 8
UN/NA: UN1463
Packing Group: II
Information reported for product/size: 100LB

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  NSDL  Phil.
-----------------------------------------------  -----  ---   ----  ----- 
Chromium(VI) Oxide (1:3) (1333-82-0) Yes Yes No Yes

-Federal, State & International Regulations - Part 1:--------------------------
Ingredient                        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  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:
No Changes.

Disclaimer:
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