SAFETY DATA SHEET: CHROMIUM TRIOXIDE

1. IDENTIFICATION

Product Name: CHROMIUM TRIOXIDE
Synonyms: Chromic acid; Chromium (VI) oxide; Chromium anhydride
Formula and Formula Weight: CrO3 99.99
Integra numbers beginning with: C604.10; C604.50
Recommended Use: Commercial/industrial use
Restrictions on Use: No information available

INTEGRA Chemical Company
24 Hour Emergency Response: CHEMTREC 800-424-9300 (Outside USA 703-527-3887)
1216 6th Ave N
Kent WA 98032
Phone: 253-479-7000

2. HAZARDS IDENTIFICATION

OSHA Classification: Hazard Category: Hazard Statement:
Acute Toxicity - Oral 3 Toxic if swallowed.
Acute Toxicity - Dermal 2 Fatal in contact with skin.
Skin Corrosion/Irritation 1A Causes severe skin burns and eye damage.
Eye Damage/Irritation 1 Causes serious eye damage.
Sensitization - Respiratory 1 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Germ Cell Mutagenicity 1B May cause genetic defects.
Carcinogenicity 1A May cause cancer.
Toxic to Reproduction 2 Suspected of damaging fertility or the unborn child.
Specific Target Organ Toxicity (repeated exposure) 1 Causes damage to organs through prolonged or repeated exposure via inhalation.
Oxidizing Solids 1 May cause fire or explosion; strong oxidizer.

Signal Word: Danger

Precautionary Statements

Prevention:
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat.
Keep away from clothing and other combustible materials.
Take any precaution to avoid mixing with combustibles.
Do not breathe dust, fume, gas, mist, vapors, spray.
Do not get in eyes, on skin, or on clothing.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves, protective clothing, eye protection, face protection.
Wear fire, flame resistant, retardant clothing.
Wear respiratory protection.

Response
If swallowed: Immediately call a poison center, doctor. Rinse mouth. Do NOT induce vomiting.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water, shower.
If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If on clothing: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
If exposed or concerned: Get medical advice, attention.
Immediately call a poison center, doctor.
Specific treatment (see first aid section on this label)
If experiencing respiratory symptoms: Call a poison center, doctor.
Take off immediately all contaminated clothing and wash it before reuse.
In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Storage
Store locked up.
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>Synonyms</th>
<th>CAS #</th>
<th>% Weight</th>
</tr>
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<tbody>
<tr>
<td>Chromium trioxide</td>
<td>Chromic acid; Chromium (VI) oxide; Chromium anhydride</td>
<td>01333-82-0</td>
<td>100</td>
</tr>
</tbody>
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4. FIRST AID MEASURES

Inhalation: Remove person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult administer oxygen. Seek medical attention.

Eye Contact: Immediately flush eyes with large amounts of water, holding lids apart to ensure rinsing of entire surface. Continue rinsing for at least 15 minutes. Remove contact lenses, if present and easy to do. Washing eyes within several seconds of contact is essential to achieve maximum effectiveness. Get immediate medical attention.

Skin Contact: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes. remove contaminated clothing. Flush skin with water for at least 15 minutes. Seek immediate medical attention.

Ingestion: Do not induce vomiting. If victim is conscious, rinse mouth, give water. Never give anything by mouth to an unconscious person. Seek immediate medical attention.

Additional notes: Symptoms and effects include irritation eyes, respiratory system; skin ulcer, skin sensitization, dermatitis; nasal septum perforation; liver, kidney damage; eye injury, conjunctivitis. Potential occupational carcinogen. Massive overexposure to chromium trioxide could lead to kidney failure and death. Death has been avoided in several cases through the use of early renal dialysis. It has been reported that there is little value from chelating agents, however ascorbic acid administered intravenously may be an effective antidote in preventing renal failure. Skin ulcers may be treated by removal from exposure, daily cleansing and debridement, and application of antibiotic cream and dressing.

5. FIRE-FIGHTING MEASURES

Extinguishing Media: Water spray.

Special Equipment and Precautions: Use water to cool nearby containers and structures. Wear full protective equipment, including suitable respiratory protection.

Specific Hazards: Strong oxidizer. Contact with combustible or flammable materials can cause fire or explosion. Fire conditions liberate toxic fumes.

Hazardous combustion products: Chromium oxides.

6. ACCIDENTAL RELEASE MEASURES

Spill Procedures: Prevent spread of spill. Sweep or scoop into suitable disposal container. Wear full protective equipment. Treat spill area with a reducing agent such as sodium metabisulfite, sodium sulfite, ferrous sulfate or ferrous chloride. Neutralize resulting solution with a weak base. Contain run-off, never flush to sewer.

7. HANDLING AND STORAGE

Incompatible Materials: Reducing agents, organic or combustible materials, phosphorus, powdered metals.

Storage and Handling: Store lock up in a cool, dry, well-ventilated area dedicated to the storage of oxidizers. Keep away from incompatible materials, especially flammable or combustible materials. Keep containers tightly closed and protect them from physical damage. Protect material from exposure to air and moisture.

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Keep away from heat.

Keep away from clothing and other combustible materials.

Take any precaution to avoid mixing with combustibles.

Do not breathe dust, fume, gas, mist, vapors, spray.

Do not get in eyes, on skin, or on clothing.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Wear protective gloves, protective clothing, eye protection, face protection.

Wear fire, flame resistant, retardant clothing.

Wear respiratory protection.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

OSHA & ACGIH Exposure Limits:

<table>
<thead>
<tr>
<th>Component</th>
<th>OSHA TWA: 5 ug/m3 [as Cr(VI)]</th>
<th>ACGIH TWA: 0.05 mg/m3 (as Cr)</th>
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<tbody>
<tr>
<td>Chromium trioxide</td>
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Engineering Controls: Use general or local exhaust ventilation to meet TLV and PEL requirements.

Respiratory Protection: Respiratory protection required if airborne concentrations exceed PEL or TLV. Use a NIOSH approved respirator with a particulate filter.

Skin/Eye Protective Equipment: Safety goggles, protective clothing and gloves appropriate for the risk of exposure. Rubber or PVC gloves are recommended. Wear fire retardant clothing.

Facilities storing or utilizing this material should have readily accessible eyewash stations and safety showers. Select respirators and other safety equipment in accordance with regulations and based upon the particular conditions of use and risk of exposure. Always use safe chemical-handling and good industrial hygiene practices.

9. PHYSICAL AND CHEMICAL PROPERTIES
Apearance: Dark red deliquescent crystals, flakes or powder
Odor: Odorless
Odor Threshold: Not available
pH: Not available
Melting/Freezing Point: 197 °C
Initial Boiling Point and Boiling Range: Not available
Flash Point: Not available
Evaporation Rate: Not available
Flammability: Not available
Partition Coefficient: n-octanol/water - Not available
Solubility: Very soluble in water
Partition Coefficient: n-octanol/water - Not available
Auto-Ignition Temperature: Not available
Decomposition Temperature: 250
Viscosity: Not available

10. STABILITY AND REACTIVITY
Reactivity: No information available
Stability: Stable
Possibility of Hazardous Reactions: Hazardous polymerization will not occur
Conditions to Avoid: Excessive heat. Moisture.
Incompatibles: Reducing agents, organic or combustible materials, phosphorus, powdered metals.
Decomposition Products: Chromium oxides.

11. TOXICOLOGICAL INFORMATION
Effects of Over Exposure:
Inhalation: Harmful if inhaled. Vapors, mists and dusts are corrosive to the mucous membranes. Effects vary from mild irritation to serious damage depending on the severity of exposure. Symptoms include coughing, sneezing and damage to the nasal or respiratory tract. High concentrations can cause lung damage. May cause cancer.
Skin Contact: Corrosive material. Contact may cause severe burns. May cause skin sensitization and dermatitis.
Eye Contact: Contact may burn or damage the eyes. May cause conjunctivitis.
Ingestion: Harmful or fatal if swallowed. Causes nausea, vomiting, gastrointestinal irritation, burns to the mouth and throat. May cause liver damage, kidney failure and death.
Chronic Effects: Repeated or prolonged contact may cause "chrome sores", ulceration and perforation of the nasal septum. Severe liver damage, central nervous system effects, lung cancer.
Target Organs: Eyes, skin, blood. Respiratory system, liver and kidneys.
Additional Effects: No information available
Reproductive Effects: May damage fertility or the unborn child. May cause genetic defects.
Carcinogenicity:
Chromium trioxide is listed as a carcinogen by OSHA, by the NTP as Known Human Carcinogen and by the IARC a Group 1, Known Human Carcinogen.

Toxicity Data:
Chromium trioxide LC50 (inhalation, rat) 217 mg/m3
LD50 (skin, rabbit) 57 mg/kg
LD50 (oral, rat) 52 mg/kg

12. ECOLOGICAL INFORMATION
Aquatic Toxicity Data: Terrestrial Toxicity Data:
Chromium trioxide LC50 Leuciscus idus: 100 mg/L - 48h; EC No information available
Persistence and degradability: No information available
Bioaccumulative potential: No information available
Mobility in soil: No information available
Other adverse effects: Very toxic to aquatic life

13. DISPOSAL CONSIDERATIONS
Disposal Procedures: Dispose of material and containers in accordance with all local, state and federal regulations.

14. TRANSPORTATION INFORMATION
This product is a regulated material for domestic ground transporation, per CFR Title 49.
UN Number: UN1463
Proper Shipping Name: Chromium trioxide, anhydrous
Packing Group: II
15. REGULATORY INFORMATION

Chromium trioxide is listed in the TSCA inventory and in SARA 313 (as chromium and compounds).

16. OTHER INFORMATION

OSHA SDS #: 25426 rev 101 3/27/2015

NE = Not established, NA = Not applicable or Not available

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***** END OF SDS *****