CHROMIUM TRIOXIDE Solution to 15%
MATERIAL SAFETY DATA SHEET

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

Product Identification

Product Name: CHROMIUM TRIOXIDE Solution to 15%
Synonyms: 
Chemical Formula: Mixture
Formula Weight: NA
Chemical Family: 
Integra Product Numbers: C605.8P C605.9A C605.9B C605.9C C605.9D C605.9E C605.9F C605.9G C605.9H C605.9J C605.9K C605.9L

Hazard Overview

HMIS Rating: 4-0-3-F NFPA Rating: NE
Warning Label: 
DANGER!
POISON!

Harmful or fatal if swallowed. Causes irritation or burns. Do not allow contact with skin, eyes or clothing. Strong oxidizer. Contact with flammable or combustible materials may cause fire or explosion. Chromium trioxide is a cancer hazard. Handle with due care.

Components

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>07732-18-5</td>
<td>&gt;85</td>
</tr>
<tr>
<td>Chromium trioxide</td>
<td>01333-82-0</td>
<td>&lt;15</td>
</tr>
</tbody>
</table>

Physical Data

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling Point:</td>
<td>NA</td>
<td>Specific Gravity:</td>
</tr>
<tr>
<td>Melting Point:</td>
<td>NA</td>
<td>Evaporation Rate:</td>
</tr>
<tr>
<td>Vapor Pressure:</td>
<td>NA</td>
<td>Vapor Density:</td>
</tr>
<tr>
<td>Solubility:</td>
<td>Miscible with water.</td>
<td></td>
</tr>
<tr>
<td>Appearance and Odor:</td>
<td>Clear orange-red liquid</td>
<td></td>
</tr>
</tbody>
</table>

Fire and Explosion Data

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash Point:</td>
<td>NA</td>
<td>Test Method:</td>
</tr>
<tr>
<td>Auto-ignition Temperature:</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Flammable Limits (% by volume in air):</td>
<td>Upper: NA</td>
<td>Lower: NA</td>
</tr>
<tr>
<td>Fire Extinguishing Media:</td>
<td>Water spray.</td>
<td></td>
</tr>
<tr>
<td>Special Firefighting Procedures:</td>
<td>Use water to cool nearby containers and structures. Wear full protective equipment, including suitable respiratory protection.</td>
<td></td>
</tr>
<tr>
<td>Unusual Fire and Explosion Hazards:</td>
<td>Strong oxidizer. Contact with combustible or flammable materials can cause fire or explosion.</td>
<td></td>
</tr>
</tbody>
</table>
CHROMIUM TRIOXIDE Solution to 15%

MATERIAL SAFETY DATA SHEET

INTEGRA Chemical Company

MSDS Number: C605.8P

1216 6th Ave N

Revision Date: 23-Jul-08

Kent WA 98032

Revision No.: 004

Phone: 253-479-7000

24 Hour Emergency Response: CHEMTREC 800-424-9300 (Outside USA 703-527-3887)

Health Hazard Information

Effects of Overexposure

Skin Contact:
Corrosive material. Contact may cause severe burns.

Eye Contact:
Contact may burn or damage the eyes.

Ingestion:
Harmful or fatal if swallowed. Causes nausea, vomiting, gastrointestinal irritation, burns to the mouth and throat.

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.

Chronic Effects of Overexposure:
Repeated or prolonged contact to chromium trioxide may cause "chrome sores", ulceration and perforation of the nasal septum.

Exposure Limits:

<table>
<thead>
<tr>
<th></th>
<th>TWA</th>
<th>STEL</th>
<th>Ceiling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
</tr>
<tr>
<td>Chromium trioxide</td>
<td>NE</td>
<td>NE</td>
<td>0.1 mg/m³</td>
</tr>
</tbody>
</table>

ACGIH TLV

<table>
<thead>
<tr>
<th></th>
<th>TWA</th>
<th>STEL</th>
<th>Ceiling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
</tr>
<tr>
<td>Chromium trioxide</td>
<td>(as Cr) 0.05 mg/m³</td>
<td>NE</td>
<td>NE</td>
</tr>
</tbody>
</table>

Toxicity Data:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>No information available</td>
</tr>
<tr>
<td>Chromium trioxide</td>
<td>LC50 (inhalation, rat) 217 mg/m³</td>
</tr>
<tr>
<td></td>
<td>LD50 (skin, rabbit) 57 mg/kg</td>
</tr>
<tr>
<td></td>
<td>LD50 (oral, rat) 52 mg/kg</td>
</tr>
<tr>
<td></td>
<td>LD50 (intraperitoneal, mouse) 29 mg/kg</td>
</tr>
</tbody>
</table>

Medical Conditions Generally Aggravated by Exposure:

No Information Available.

Target Organs:
Eyes, skin, blood. Respiratory system, liver and kidneys.

Reproductive Effects:
No Information Available.

Carcinogenicity:
Chromium trioxide is listed as a human carcinogen by the NTP and IARC

<table>
<thead>
<tr>
<th>Component</th>
<th>NTP Listing</th>
<th>IARC Listing</th>
<th>OSHA Regulated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>No listing</td>
<td>No Listing</td>
<td></td>
</tr>
<tr>
<td>Chromium trioxide</td>
<td>Group 1, Known Carcinogen</td>
<td>Group 1, Known Human Carcinogen</td>
<td></td>
</tr>
</tbody>
</table>

Emergency First Aid Procedures
Emergency First Aid Procedures

Skin Contact:
Immediately remove contaminated clothing. Flush skin with water for at least 15 minutes. Seek immediate medical attention.

Eye Contact:
Immediately flush eyes with large amounts of water, holding lids apart to ensure rinsing of entire surface. Washing eyes within several seconds of contact is essential to achieve maximum effectiveness. Get immediate medical attention.

Inhalation:
Remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult administer oxygen. Seek medical attention.

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

Additional First aid and Treatment Notes:
Massive overexposure to chromium trioxide solutions 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 is 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.

Reactivity Data

Stability: Stable
Hazardous Polymerization: Will Not Occur
Incompatibles:
Reducing agents, organic or combustible materials.

Decomposition Products:
None identified
Conditions to Avoid:
Excessive heat.

Spill and Disposal Procedures

Spill and Leak Procedures:
Absorb with inert material and place into a container for disposal. 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.

Disposal Procedures:
Dispose in accordance with all Local, State and Federal regulations. EPA Hazardous Waste Number for chromium trioxide: D001 (ignitable waste)

Protective Equipment

Ventilation:
Use general or local exhaust ventilation to meet TLV and PEL requirements.

Respiratory Protection:
None required where adequate ventilation conditions exist. If airborne concentration exceeds PEL or TLV a
Storage and Handling Precautions

Storage Area:  CORROSIVE, ACID

Store in a cool, dry, corrosive materials storage area. Minimize exposure to air and light. Protect containers from physical damage.

Transportation Information

☑ Regulated Material domestic ground transportation
(reference: CFR Title 49, Transportation)

Proper Shipping Name: Chromic acid, solution
UN or NA Identification number: UN1755  Hazard Class and Label: 8  Corrosive
Packing Group: II  Subsidiary Risk and Label:

☑ Regulated Material via Air Transportation
(reference: ICAO Technical Instructions for the Safe Transport of Dangerous Goods by Air)

Proper Shipping Name: Chromic acid, solution
UN Identification Number: UN1755  Hazard Class and Label: 8  Corrosive
Packing Group: II  Subsidiary Risk and Label:
Packaging Instruction
Max net qty per package
Passenger Aircraft: 808/Y808  1 L/0.5L
Cargo Aircraft: 812  30 L

Regulatory Information

Component  TSCA  CERCLA  SARA EHS  SARA 313 Toxic Release
Water  □  □  □  □  □  lbs
Chromium trioxide  □  □  □  □  □  lbs

SARA Hazard Categories: Acute  Chronic  Flammability  Pressure  Reactivity
Water  □  □  □  □  □
Chromium trioxide  ✔  ✔  ✔  □  □

Clean Air Act Categories:  SOCMII  HAP  Volatile HAP  Organic HAP  Ozone Depleting
Water  □  □  □  □  □
Chromium trioxide  □  □  □  □  □

MSDS Revision History:
002 - Format revisions; updated header phone number
003 - Updated Header Information
004 - Updated Product Identification
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***** END OF MSDS *****