ARSENIC TRIOXIDE
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: ARSENIC TRIOXIDE
Synonyms: Arsenic oxide; Arsenic (III) oxide; Arsenic sesquioxide; Arsenous oxide; Arsenous acid anhydride; White arsenic
Chemical Formula: As2O3
Formula Weight: 197.84
Chemical Family:
Integra Product Numbers: A931.10

Hazard Overview

HMIS Rating: 4-0-1-F  NFPA Rating: 2-0-0
Warning Label:
DANGER!
POISON!
May be fatal if swallowed or inhaled. May cause irritation. Use only with adequate protective equipment and ventilation. Avoid contact with skin eyes or clothing. Wash thoroughly after handling. Cancer hazard. Handle with due care.

Components

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic trioxide</td>
<td>01327-53-3</td>
<td>100</td>
</tr>
</tbody>
</table>

Physical Data

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling Point</td>
<td>NA</td>
</tr>
<tr>
<td>Melting Point</td>
<td>sublimes @135 °C</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>3.865</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>NA</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>NA</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>NA</td>
</tr>
<tr>
<td>Solubility</td>
<td>1.2g/100ml water @2°C; 11.46g/100ml @100°C</td>
</tr>
</tbody>
</table>

Appearance and Odor:
White, transparent, glassy, amorphous lumps or crystals.

Fire and Explosion Data

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash Point</td>
<td>NA</td>
</tr>
<tr>
<td>Auto-ignition Temperature</td>
<td>NA</td>
</tr>
<tr>
<td>Flammable Limits</td>
<td>Upper: NA ; Lower: NA</td>
</tr>
</tbody>
</table>

Fire Extinguishing Media:
Material is not flammable. Use extinguishing media suitable to surrounding materials.

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

Unusual Fire and Explosion Hazards:
Fire conditions may liberate toxic and noxious fumes.

Health Hazard Information

Effects of Overexposure
Skin Contact:
Health Hazard Information

Effects of Overexposure

Skin Contact:
No irritation is likely upon brief contact. May be irritating after prolonged or repeated contact. Prolonged or repeated contact may cause dermatitis.

Eye Contact:
May irritate or burn the eyes.

Ingestion:
Harmful or fatal if swallowed. Symptoms include throat constriction, abdominal pain, vomiting and watery diarrhea. Blood may appear in vomit or stools. Onset of symptoms may be delayed by 1/2 to 4 hours. If amount ingested is sufficiently high, shock may develop due to severe fluid loss, and death may follow within 24 hours. If acute symptoms are survived they may be followed by inflammation of the skin, nerve degeneration, pain, sensory disturbances and impaired or lost reflexes.

Inhalation:
Harmful or fatal if inhaled. Acute arsenic poisoning from inhalation is rare, however, it can occur. Symptoms include cough, chest pain, dyspnea, headache and extreme general weakness followed by the symptoms outlined under ingestion.

Chronic Effects of Overexposure:
Chronic arsenic poisoning is characterized by loss of appetite, mild nausea, occasional vomiting, heaviness in the stomach and some diarrhea. This may be followed by inflammation of the mucous membranes, hoarseness and respiratory irritation. Prolonged exposure may perforate the nasal septum and cause skin sensitization and lesions.

Exposure Limits:

<table>
<thead>
<tr>
<th>Component</th>
<th>TWA (as As) mg/m3</th>
<th>STEL</th>
<th>Ceiling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic trioxide</td>
<td>0.01</td>
<td>NE</td>
<td>NE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arsenic trioxide</td>
<td>0.2</td>
<td>NE</td>
<td>NE</td>
</tr>
</tbody>
</table>

Toxicity Data:

<table>
<thead>
<tr>
<th>Component</th>
<th>TDlo (oral, woman) mg/kg</th>
<th>LD50 (oral, man) mg/kg</th>
<th>LD50 (oral, rat) mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic trioxide</td>
<td>600</td>
<td>1.43</td>
<td>15.1</td>
</tr>
</tbody>
</table>

Medical Conditions Generally Aggravated by Exposure:
None Identified

Target Organs:
Bone marrow, respiratory system, skin.

Reproductive Effects:
None Identified

Carcinogenicity:
Exposure to arsenic compounds have been linked to lung cancer and possibly skin and liver cancers.

<table>
<thead>
<tr>
<th>Component</th>
<th>NTP Listing</th>
<th>IARC Listing</th>
<th>OSHA Regulated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic 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:
Flush with water for at least 15 minutes. Seek 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:
If conscious, give victim large amounts of water. Seek medical attention.

Additional First aid and Treatment Notes:
No information available

Reactivity Data

Stability: Stable
Hazardous Polymerization: Will Not Occur

Incompatibles:
Incompatible with strong oxidizers. Chlorine trifluoride; fluorine; hydrogen fluoride; sodium chlorate. Arsine gas can be generated by contact of acid, alkalies or water with arsenic compounds in the presence of an active metal (zinc, aluminum, magnesium, manganese, sodium, iron etc.).

Decomposition Products:
Sublimes when heated. Arsine gas on decomposition.

Conditions to Avoid:
Excessive heat.

Spill and Disposal Procedures

Spill and Leak Procedures:
Wear self-contained breathing apparatus and full protective clothing. Carefully vacuum (vacuum must have a high efficiency filter system to prevent dust dispersion) the material into a clean, dry disposal container in a manner that minimizes dusting. Cover and save for proper disposal. Flush spill area with water.

Disposal Procedures:
Dispose in accordance with all Local, State and Federal regulations.

Protective Equipment

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

Respiratory Protection:
If ventilation controls do not limit airborne concentrations below PEL and TLV values, an approved high-efficiency particulate respirator must be worn.

Skin and Eye Protective Equipment:
Safety goggles, protective clothing and gloves. Maintain an eyewash station and safety shower nearby.

Storage and Handling Precautions
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MSDS Number: A931
Revision Date: 16-Apr-08
Revision No.: 004

Storage and Handling Precautions

Storage Area: HEALTH HAZARD
Store in a cool, dry well-ventilated area or cabinet dedicated to toxic storage. Isolate away from incompatible materials. Keep containers well closed.

Transportation Information

✓ Regulated Material domestic ground transportation
  (reference: CFR Title 49, Transportation)
  Proper Shipping Name: Arsenic trioxide
  UN or NA Identification number: UN1561  Hazard Class and Label: 6.1 Toxic
  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: Arsenic trioxide
  UN Identification Number: UN1561  Hazard Class and Label: 6.1 Toxic
  Packing Group: II  Subsidiary Risk and Label:
  Packing Instruction Max net qty per package
  Passenger Aircraft: 613/Y613  25/1 kg
  Cargo Aircraft: 615  100 kg

Regulatory Information

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA Inventory</th>
<th>CERCLA RQ</th>
<th>SARA EHS TPQ</th>
<th>SARA 313 Toxic Release de minimus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic trioxide</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓ 1 lb</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓ 100 lbs</td>
</tr>
<tr>
<td>SARA Hazard Categories:</td>
<td>Acute</td>
<td>Chronic</td>
<td>Flammability</td>
<td>Pressure</td>
</tr>
<tr>
<td>Arsenic trioxide</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Clean Air Act Categories:</td>
<td>SOCMi</td>
<td>HAP</td>
<td>Volatile HAP</td>
<td>Organic HAP</td>
</tr>
<tr>
<td>Arsenic trioxide</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

MSDS Revision History:
002 - Changed header phone number
003 - Format revisions; updated header phone number
004 - Updated Header Information

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***** END OF MSDS *****