Material Safety Data Sheet
Cadmium metal, granular

Section 1 - Chemical Product and Company Identification

MSDS Name: Cadmium metal, granular
Synonyms: None.

Section 2 - Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
<th>EINECS/ELINCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-43-9</td>
<td>Cadmium</td>
<td>100</td>
<td>231-152-8</td>
</tr>
</tbody>
</table>

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: silver white granules.


Target Organs: Blood, kidneys, liver, lungs, skeletal structures, prostate.

Potential Health Effects
Eye: Causes eye irritation.
Skin: Causes skin irritation.
Ingestion: Harmful if swallowed. May cause gastrointestinal irritation with nausea, vomiting and diarrhea. Ingestion may produce fluid loss, acute renal failure, and cardiopulmonary depression.
Inhalation: May be fatal if inhaled. Inhalation of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count. Damage may be delayed. May cause nausea, vomiting, abdominal pain, diarrhea, chest tightness, weakness, and delayed pulmonary edema. In humans inhalation causes proteinuria, an excess of protein in the urine.
Chronic: May cause respiratory tract cancer. Repeated inhalation may cause chronic bronchitis. Chronic inhalation may cause nasal septum ulceration and perforation. Cadmium and compounds may cause lung, liver and kidney damage and lung and prostate cancer in humans. May cause loss of smell, emphysema, anemia, bone demineralization, and lung fibrosis. The primary target organ for chronic cadmium disease is clearly the kidney.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin: Get medical aid. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.
Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.
Inhalation: POISON material. If inhaled, get medical aid immediately. Remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Attempt rescue only after notifying at least one other person of the emergency and putting into effect established emergency procedures. Do not become a casualty yourself.
Notes to Physician: Administration of calcium disodium EDTA may be useful in acute poisoning with its use at the discretion of qualified medical personnel. Persons with kidney disease, chronic respiratory disease, liver disease, or skin disease may be at increased risk from exposure to this substance.
Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, and full protective gear. Material can spontaneously ignite (pyrophoric) when exposed to air at normal or slightly elevated temperatures. Dust can be an explosion hazard when exposed to heat or flame. Flammable solid. May burn rapidly with flare burning effect. May re-ignite after fire is extinguished. Dangerous fire hazard in the form of dust when exposed to heat or flame. **Extinguishing Media:** Use dry sand, graphite powder, dry sodium chloride-based extinguishers. **Flash Point:** Not available. **Autoignition Temperature:** Not available. **Explosion Limits, Lower:** Not available. **Upper:** Not available.

Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8. **Spills/Leaks:** Vacuum or sweep up material and place into a suitable disposal container. Avoid generating dusty conditions. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation. Place under an inert atmosphere.

Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Minimize dust generation and accumulation. Use spark-proof tools and explosion proof equipment. Avoid contact with skin and eyes. Do not breathe dust, vapor, mist, or gas. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep away from heat, sparks and flame. Do not ingest or inhale. Handle under an inert atmosphere. Store protected from air. Use only in a chemical fume hood. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. **Storage:** Keep away from heat and flame. Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Do not expose to air. Store under an inert atmosphere.

Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood. **Personal Protective Equipment**
- **Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles.
- **Skin:** Wear appropriate protective gloves to prevent skin exposure.
- **Clothing:** Wear appropriate protective clothing to prevent skin exposure.

Section 9 - Physical and Chemical Properties

**Physical State:** Granules
- **Appearance:** Silver white
- **Odor:** Odorless
- **pH:** Not available.
- **Vapor Pressure:** Not applicable.
- **Vapor Density:** Not available.
- **Evaporation Rate:** Not applicable.
- **Viscosity:** Not applicable.
- **Boiling Point:** 765 deg C @ 760 mmHg
- **Freezing/Melting Point:** 321 deg C
- **Decomposition Temperature:** Not available.
- **Solubility:** Insoluble.
**Specific Gravity/Density:** 8.64 @ 25°C  
**Molecular Formula:** Cd  
**Molecular Weight:** 112.40

### Section 10 - Stability and Reactivity

**Chemical Stability:** Oxidizes when exposed to air. Easily tarnishes in moist air. Powder or liquid is pyrophoric. Contact with acid liberates gas.  
**Conditions to Avoid:** Ignition sources, dust generation, excess heat, prolonged exposure to air.  
**Incompatibilities with Other Materials:** Strong oxidizing agents, acids, sulfur, zinc, selenium, tellurium.  
**Hazardous Decomposition Products:** Toxic cadmium oxide fumes.  
**Hazardous Polymerization:** Has not been reported.

### Section 11 - Toxicological Information

**RTECS#:**  
**CAS# 7440-43-9: EU9800000**  
**LD50/LC50:**  
**CAS# 7440-43-9:**  
- Inhalation, rat: LC50 = 25 mg/m3/30M;  
- Oral, mouse: LD50 = 890 mg/kg;  
- Oral, rat: LD50 = 2330 mg/kg;  
**Carcinogenicity:**  
CAS# 7440-43-9:  
- ACGIH: A2 - Suspected Human Carcinogen  
- California: carcinogen, initial date 10/1/87  
- NTP: Known carcinogen  
- IARC: Group 1 carcinogen

**Epidemiology:** Occupational exposure to cadmium has been implicated in a significant increase in prostate and respiratory tract cancer. There is evidence of a significant excess of respiratory cancer deaths among a cohort of cadmium production workers, and concluded that cadmium and its compounds are potential carcinogens.  
**Neurotoxicity:** No information found  
**Other Studies:**

### Section 12 - Ecological Information

**Physical:** No information available.  
**Other:** No information available.

### Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste.

### Section 14 - Transport Information

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<thead>
<tr>
<th>IATA</th>
<th></th>
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</thead>
<tbody>
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<td><strong>Shipping Name:</strong></td>
<td>TOXIC SOLIDS, FLAMMABLE, ORGANIC, N.O.S.</td>
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<tr>
<td><strong>Hazard Class:</strong></td>
<td>6.1</td>
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<tr>
<td><strong>UN Number:</strong></td>
<td>UN2930</td>
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<tr>
<td><strong>Packing Group:</strong></td>
<td>I</td>
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</tbody>
</table>
Section 15 - Regulatory Information

**Hazard Symbols:**
T+ F

**Risk Phrases:**
R 11 Highly flammable.
R 25 Toxic if swallowed.

**Safety Phrases:**
S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

Section 16 - Additional Information

**MSDS Creation Date:** 6/28/1999  
**Revision #6 Date:** 6/06/2006

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