

# Cadmium

## Material Safety Data Sheet

### Section 1. Product and Company Identification

**Product Name** Cadmium

**Product Code** VW3307

**Manufacturer** EMD Chemicals Inc.

P.O. Box 70  
480 Democrat Road  
Gibbstown, NJ 08027

**Effective Date** 3/3/2003

Prior to January 1, 2003 EMD Chemicals Inc. was  
EM Industries, Inc. or EM Science, Division of  
EM Industries, Inc.

#### For More Information Call

856-423-6300 Technical Service  
Monday-Friday: 8:00 AM - 5:00 PM

#### In Case of Emergency Call

800-424-9300 CHEMTREC  
(USA)  
613-996-6666 CANUTEC  
(Canada)  
24 Hours/Day: 7 Days/Week

**Synonym** NONE

**Material Uses** Analytical reagent.

**Chemical Family** Metal.

---

### Section 2. Composition and Information on Ingredients

**Component**

**CAS # % by Weight**

CADMIUM

7440-43-9 100

---

### Section 3. Hazards Identification

**Physical State and Appearance** Solid.

**Emergency Overview**

DANGER!  
CANCER HAZARD.  
CAN CAUSE CANCER.  
HARMFUL IF INHALED OR SWALLOWED.  
CADMIUM POWDER OR DUST IS A FLAMMABLE SOLID.  
DUST IRRITATING.  
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE  
FOLLOWING ORGANS: BLOOD, KIDNEYS, LUNGS,  
RESPIRATORY TRACT, PROSTATE.  
MAY BE HARMFUL IF ABSORBED THROUGH SKIN.  
VERY TOXIC TO AQUATIC ORGANISMS.  
MAY BE HARMFUL TO ENVIRONMENT IF RELEASED IN LARGE  
AMOUNTS.  
WARNING: This product contains chemicals known to the State of  
California to cause cancer and birth defects or other reproductive harm.

**Routes of Entry** Inhalation. Ingestion.

**Potential Acute Health Effects**

**Eyes** Dust may cause mechanical irritation to eye.

**Skin** May be hazardous in case of skin contact (permeator).

## Cadmium

**Inhalation** Hazardous in case of inhalation.

**Ingestion** Hazardous in case of ingestion.

### Potential Chronic Health Effects

**Carcinogenic Effects** Classified 1 (Proven for human.) by IARC, 1 (Known To Be Human Carcinogens.) by NTP, + (Proven.) by OSHA, + (Proven.) by NIOSH. Classified A2 (Suspected for human.) by ACGIH.

Additional information See Toxicological Information (section 11)

**Medical Conditions Aggravated by Overexposure:** Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

### Section 4. First Aid Measures

**Eye Contact** Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

**Skin Contact** In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

**Inhalation** If inhaled, 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 unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

### Section 5. Fire Fighting Measures

**Flammability of the Product** May be combustible at high temperature.

**Auto-ignition Temperature** Not available.

**Flash Points** Not available.

**Flammable Limits** Not available.

**Products of Combustion** Some metallic oxides.

**Fire Hazards in Presence of Various Substances** Not available.

**Explosion Hazards in Presence of Various Substances** **Risks of explosion of the product in presence of static discharge:** No.

**Risks of explosion of the product in presence of mechanical impact:** No.

**Fire Fighting Media and Instructions** SMALL FIRE: Use DRY chemical powder.

LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Protective Clothing (Fire)** Be sure to use an approved/certified respirator or equivalent.

**Special Remarks on Fire Hazards** Not available.

**Special Remarks on Explosion Hazards** Not available.

## Cadmium

### Section 6. Accidental Release Measures

<b>Small Spill and Leak</b>	Use appropriate tools to put the spilled solid in a convenient waste disposal container.
<b>Large Spill and Leak</b>	Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.
<b>Spill Kit Information</b>	No specific spill kit required for this product.

---

### Section 7. Handling and Storage

<b>Handling</b>	Avoid prolonged contact with eyes, skin, and clothing. Do not ingest. Avoid breathing dust. Keep container closed.
<b>Storage</b>	Keep container in a cool, well-ventilated area.

---

### Section 8. Exposure Controls/Personal Protection

<b>Engineering Controls</b>	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
<b>Personal Protection</b>	
<b>Eyes</b>	Safety glasses.
<b>Body</b>	Lab coat.
<b>Respiratory</b>	Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.
<b>Hands</b>	Gloves.
<b>Feet</b>	Not applicable.
<b>Protective Clothing (Pictograms)</b>	
<b>Personal Protection in Case of a Large Spill</b>	Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Product Name**  
CADMIUM

#### **Exposure Limits**

**INRS (France, 1996).**

VME: 0.05 mg/m<sup>3</sup>

**EH40-MEL (United Kingdom (UK), 1997).**

TWA: 0.025 mg/m<sup>3</sup>

**BMWA\_TRK (Austria, 2001).**

STEL: 0.06 mg/m<sup>3</sup>

TWA: 0.015 mg/m<sup>3</sup>

**NOHSC (Australia, 1995). Notes: National Commission documentation available for these values**

TWA: 0.01 mg/m<sup>3</sup>

**Lijst Grenswaarden (Belgium, 1999).**

VL: 0.002 mg/m<sup>3</sup> Form: Dust

## Cadmium

VL: 0.002 mg/m<sup>3</sup> Form: Particulate

**SUVA (Switzerland, 2001). Notes: Not Temporary**

MAK: 0.03 mg/m<sup>3</sup> Form: Dust

**TRGS900 (Germany, 2000). Notes: Technische Richtkonzentra**

Spitzenbegrenzung: 0.06 mg/m<sup>3</sup> Form: Dust and aerosols

MAK: 0.015 mg/m<sup>3</sup> Form: Dust and aerosols

**Arbejdstilsynet (Denmark, 2000).**

GV: 0.005 mg/m<sup>3</sup>

GV: 0.005 mg/m<sup>3</sup> Form: Powder, dust and fume

**Tyterveyslaitos (Finland, 2001). Skin**

TWA: 0.02 mg/m<sup>3</sup>

**NAOSH (Ireland, 1999).**

OEL: 0.025 mg/m<sup>3</sup>

**JSOH (Japan, 1996).**

TWA: 0.05 mg/m<sup>3</sup>

**Ministry of Labor (KR, 1997).**

TWA: 0.05 mg/m<sup>3</sup>

**Secretary of Work and Social Security (MX, 1994).**

CPT: 0.002 mg/m<sup>3</sup> Period: 8 hour(s).

**Nationale MAC-lijst (Netherlands, 2001). Notes: Legal**

TGG 8 uur: 0.005 mg/m<sup>3</sup> Form: Dust

**Arbejdstilsynet (Norway, 2001).**

AN: 0.05 mg/m<sup>3</sup>

**NZ OSH (NZ, 1994). Notes: Exposure can also be estimated by biological monitoring.**

TWA: 0.002 mg/m<sup>3</sup> Form: Respirable dust

**AFS (Sweden, 2000).**

NGV: 0.01 mg/m<sup>3</sup> Form: Dust

**ACGIH TLV (United States, 2000). Notes: Substance identified by other sources as a suspected or confirmed human carcinogen. Respirable fraction. The concentration of respirable dust for the application of this limit is to be determined for the fraction passing a size-selector with the characteristics defined in the "C." paragraph of Appendix D. Identifies substances identified in the BEI documentations for Methemoglobin inducers (for which methemoglobin is the principle toxicity) and organophosphorous cholinesterase inhibitors are part of this notation. Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL. Refers to Appendix A -- Carcinogens.**

TWA: 0.002 mg/m<sup>3</sup>

**OSHA PEL 1989 (United States, 1989). Notes: See Table Z-2. Sec.1910.1027 Cadmium.**

CEIL: 0.6 mg/m<sup>3</sup> Form: Dust

CEIL: 0.3 mg/m<sup>3</sup> Form: Fume

TWA: 0.2 mg/m<sup>3</sup> Form: Dust

TWA: 0.1 mg/m<sup>3</sup> Form: Fume

## Cadmium

TWA: 5 ?g/m3

**OSHA PEL Z2 (United States, 2000).**

CEIL: 0.6 mg/m3 Form: Dust

CEIL: 0.3 mg/m3 Form: Fume

TWA: 0.2 mg/m3 Form: Dust

TWA: 0.1 mg/m3 Form: Fume

---

### Section 9. Physical and Chemical Properties

<b>Odor</b>	Not available.
<b>Color</b>	Grey.
<b>Physical State and Appearance</b>	Solid.
<b>Molecular Weight</b>	112.4 g/mole
<b>Molecular Formula</b>	Cd
<b>pH</b>	Not applicable.
<b>Boiling/Condensation Point</b>	766.9°C (1412.4°F)
<b>Melting/Freezing Point</b>	320.8°C (609.4°F)
<b>Specific Gravity</b>	8.64 (Water = 1)
<b>Vapor Pressure</b>	Not available.
<b>Vapor Density</b>	Not available.
<b>Odor Threshold</b>	Not available.
<b>Evaporation Rate</b>	Not available.
<b>LogKow</b>	Not available.
<b>Solubility</b>	Insoluble in water.

---

### Section 10. Stability and Reactivity

<b>Stability and Reactivity</b>	The product is stable.
<b>Conditions of Instability</b>	Not available.
<b>Incompatibility with Various Substances</b>	Reactive with oxidizing agents, acids.
<b>Rem/Incompatibility</b>	Not available.
<b>Hazardous Decomposition Products</b>	Cd
<b>Hazardous Polymerization</b>	Will not occur.

---

### Section 11. Toxicological Information

#### RTECS Number:

Cadmium EU9800000

<b>Toxicity</b>	Acute oral toxicity (LD50): 890 mg/kg [Mouse].
<b>Chronic Effects on Humans</b>	<b>CARCINOGENIC EFFECTS:</b> Classified 1 (Proven for human.) by IARC, 1 (Known To Be Human Carcinogens.) by NTP, + (Proven.) by OSHA, + (Proven.) by NIOSH. Classified A2 (Suspected for human.) by ACGIH.
<b>Acute Effects on</b>	May be hazardous in case of skin contact (permeator). Hazardous in case

## Cadmium

<b>Humans</b>	of inhalation. Hazardous in case of ingestion.
<b>Synergetic Products (Toxicologically)</b>	Not available.
<b>Irritancy</b>	Draize Test: Not available.
<b>Sensitization</b>	Not available.
<b>Carcinogenic Effects</b>	Classified 1 (Proven for human.) by IARC, 1 (Known To Be Human Carcinogens.) by NTP, + (Proven.) by OSHA, + (Proven.) by NIOSH. Classified A2 (Suspected for human.) by ACGIH.
<b>Toxicity to Reproductive System</b>	Tests on laboratory animals for reproductive effects are cited in Registry of Toxic Effects on Chemical Substances (RTECS).
<b>Teratogenic Effects</b>	Not available.
<b>Mutagenic Effects</b>	Tests on laboratory animals for mutagenic effects are cited in Registry of Toxic Effects of Chemical Substances (RTECS).

---

### Section 12. Ecological Information

<b>Ecotoxicity</b>	Not available.
<b>BOD5 and COD</b>	Not available.
<b>Toxicity of the Products of Biodegradation</b>	The products of degradation are less toxic than the product itself.

---

### Section 13. Disposal Considerations

<b>EPA Waste Number</b>	D006
<b>Treatment</b>	Specified Technology – Contact your local permitted waste disposal site (TSD) for permissible treatment sites. Always contact a permitted waste disposal (TSD) to assure compliance with all current local, state, and Federal Regulations.

---

### Section 14. Transport Information

<b>DOT Classification</b>	Proper Shipping Name: METAL POWDERS, FLAMMABLE, N.O.S. (CADMIUM POWDER) Hazard Class: 4.1 UN number: UN3089 Packing Group: III RQ: Not applicable.
<b>TDG Classification</b>	Not available.
<b>IMO/IMDG Classification</b>	Proper Shipping Name: METAL POWDERS, FLAMMABLE, N.O.S. (CADMIUM POWDER) Hazard Class: 4.1 UN number: UN3089 Packing Group: III RQ: Not applicable.
<b>ICAO/IATA Classification</b>	Not available.

---

### Section 15. Regulatory Information

## Cadmium

### U.S. Federal Regulations

TSCA 8(b) inventory: CADMIUM

SARA 302/304/311/312 extremely hazardous substances: No products were found.

SARA 302/304 emergency planning and notification: No products were found.

SARA 302/304/311/312 hazardous chemicals: CADMIUM

SARA 311/312 MSDS distribution – chemical inventory – hazard identification: CADMIUM: Fire Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard

SARA 313 toxic chemical notification and release reporting: CADMIUM

Clean Water Act (CWA) 307: CADMIUM

Clean Water Act (CWA) 311: No products were found.

Clean air act (CAA) 112 accidental release prevention: No products were found.

Clean air act (CAA) 112 regulated flammable substances: No products were found.

Clean air act (CAA) 112 regulated toxic substances: No products were found.

### WHMIS (Canada)

Class D–1B: Material causing immediate and serious toxic effects (TOXIC).

Class D–2A: Material causing other toxic effects (VERY TOXIC).

Cadmium has a WHMIS B4 classification as powder or dust.

CEPA DSL: CADMIUM

This product has been classified in accordance with the hazard criteria of the Controlled Product Regulations and the MSDS contains all required information.

### International Regulations

EINECS CADMIUM 231–152–8

DSCL (EEC) R20/21/22– Harmful by inhalation, in contact with skin and if swallowed.  
R50/53– Very toxic to aquatic organisms, may cause long–term adverse effects in the aquatic environment.

International Lists Australia (NICNAS): CADMIUM

China: CADMIUM

Korea (TCCL): CADMIUM

Philippines (RA6969): CADMIUM

China: CADMIUM

### State Regulations

Pennsylvania RTK: CADMIUM: (environmental hazard, generic environmental hazard)

Massachusetts RTK: CADMIUM

New Jersey: CADMIUM

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: CADMIUM

California prop. 65: This product contains the following ingredients for which the State of California has found to cause reproductive harm (male)

## Cadmium

which would require a warning under the statute: CADMIUM  
California prop. 65 (no significant risk level): CADMIUM: 0.05 mg/day  
(inhalation)

California prop. 65: This product contains the following ingredients for  
which the State of California has found to cause birth defects which would  
require a warning under the statute: CADMIUM

California prop. 65: This product contains the following ingredients for  
which the State of California has found to cause cancer which would  
require a warning under the statute: CADMIUM

---

### Section 16. Other Information

<b>National Fire Protection Association (U.S.A.)</b>	<b>1</b>	<b>Fire</b>
	<b>20</b>	<b>Hazard</b>
	<b>Health</b>	<b>Reactivity</b>
		<b>Specific Hazard</b>

**Other Special** NFPA for powder or dust is 2-2-0.

**Considerations**

**Changed Since Last  
Revision** +

**Notice to Reader**

**The statements contained herein are based upon technical data that EMD Chemicals Inc. believes to be reliable, are offered for information purposes only and as a guide to the appropriate precautionary and emergency handling of the material by a properly trained person having the necessary technical skills. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use, storage and disposal of these materials and the safety and health of employees and customers and the protection of the environment. EMD CHEMICALS INC. MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, WITH RESPECT TO THE INFORMATION HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS.**

---