

## Material Safety Data Sheet

Version 4.6  
Revision Date 06/27/2013  
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### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Cadmium

Product Number : 265365

Brand : Aldrich

Supplier : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555

Preparation Information : Sigma-Aldrich Corporation  
Product Safety - Americas Region  
1-800-521-8956

### 2. HAZARDS IDENTIFICATION

#### Emergency Overview

##### OSHA Hazards

Carcinogen, Target Organ Effect, Highly toxic by inhalation, Toxic by ingestion, Reproductive hazard, Mutagen

##### Target Organs

Lungs, Kidney

##### GHS Classification

Acute toxicity, Inhalation (Category 2)  
Acute toxicity, Oral (Category 3)  
Germ cell mutagenicity (Category 2)  
Carcinogenicity (Category 1B)  
Reproductive toxicity (Category 2)  
Specific target organ toxicity - repeated exposure (Category 1)  
Acute aquatic toxicity (Category 1)  
Chronic aquatic toxicity (Category 1)

##### GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H301 Toxic if swallowed.  
H330 Fatal if inhaled.  
H341 Suspected of causing genetic defects.  
H350 May cause cancer.  
H361 Suspected of damaging fertility or the unborn child.  
H372 Causes damage to organs through prolonged or repeated exposure.  
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201 Obtain special instructions before use.

P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.  
P273 Avoid release to the environment.  
P281 Use personal protective equipment as required.  
P284 Wear respiratory protection.  
P310 Immediately call a POISON CENTER or doctor/ physician.  
P501 Dispose of contents/ container to an approved waste disposal plant.

#### HMIS Classification

Health hazard: 3  
Chronic Health Hazard: \*  
Flammability: 0  
Physical hazards: 0

#### NFPA Rating

Health hazard: 4  
Fire: 0  
Reactivity Hazard: 0

#### Potential Health Effects

**Inhalation** May be fatal if inhaled. May cause respiratory tract irritation.  
**Skin** May be harmful if absorbed through skin. May cause skin irritation.  
**Eyes** May cause eye irritation.  
**Ingestion** Toxic if swallowed.

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : Cd  
Molecular Weight : 112.41 g/mol

Component		Concentration
<b>Cadmium</b> Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)		
CAS-No.	7440-43-9	<=100%
EC-No.	231-152-8	
Index-No.	048-002-00-0	

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### 4. FIRST AID MEASURES

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

#### In case of eye contact

Flush eyes with water as a precaution.

#### If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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### 5. FIREFIGHTING MEASURES

#### Conditions of flammability

Not flammable or combustible.

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

#### Special protective equipment for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**

Hazardous decomposition products formed under fire conditions. - Cadmium/cadmium oxides

**6. ACCIDENTAL RELEASE MEASURES****Personal precautions**

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**Methods and materials for containment and cleaning up**

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

**7. HANDLING AND STORAGE****Precautions for safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.

**Conditions for safe storage**

Keep container tightly closed in a dry and well-ventilated place.

Air sensitive. Keep in a dry place.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Basis
Cadmium	7440-43-9	TWA	0.1 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z2
Remarks	Z37.5-1970 This standard applies to any operations or sectors for which the Cadmium standard, 1910.1027, is stayed or otherwise not in effect.			
		CEIL	0.3 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z2
	Z37.5-1970 This standard applies to any operations or sectors for which the Cadmium standard, 1910.1027, is stayed or otherwise not in effect.			
		TWA	0.0020 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Suspected human carcinogen			
		TWA	0.01 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Kidney damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Suspected human carcinogen			
		TWA	0.002 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Kidney damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Suspected human carcinogen			
	See 1910.1027. See Table Z-2 for the exposure limits for any operations or sectors where the exposure limits in 1910.1027 are stayed or are otherwise not in effect.			
		TWA	0.2 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z2

	Z37.5-1970 This standard applies to any operations or sectors for which the Cadmium standard, 1910.1027, is stayed or otherwise not in effect.			
		CEIL	0.6 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z2
	Z37.5-1970 This standard applies to any operations or sectors for which the Cadmium standard, 1910.1027, is stayed or otherwise not in effect.			
	Potential Occupational Carcinogen See Appendix A			

## Personal protective equipment

### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

### Eye protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

### Skin and body protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form powder

Colour light grey

### Safety data

pH no data available

Melting point/freezing point Melting point/range: 320.9 °C (609.6 °F) - lit.

Boiling point	765 °C (1,409 °F) - lit.
Flash point	not applicable
Ignition temperature	no data available
Auto-ignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	no data available
Density	8.65 g/cm <sup>3</sup> at 25 °C (77 °F)
Water solubility	no data available
Partition coefficient: n-octanol/water	no data available
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

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## 10. STABILITY AND REACTIVITY

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

no data available

### Conditions to avoid

no data available

### Materials to avoid

Oxidizing agents, acids

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Cadmium/cadmium oxides

Other decomposition products - no data available

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## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

#### Oral LD50

LD50 Oral - rat - 225 mg/kg

#### Inhalation LC50

LC50 Inhalation - rat - 30 h - 25 mg/m<sup>3</sup>

Remarks: Lungs, Thorax, or Respiration:Dyspnea.

#### Dermal LD50

no data available

#### Other information on acute toxicity

no data available

### Skin corrosion/irritation

no data available

### Serious eye damage/eye irritation

no data available

### Respiratory or skin sensitisation

no data available

### **Germ cell mutagenicity**

In vitro tests showed mutagenic effects

### **Carcinogenicity**

Possible human carcinogen

IARC: 1 - Group 1: Carcinogenic to humans (Cadmium)

NTP: Known to be human carcinogen (Cadmium)

Known to be human carcinogenThe reference note has been added by TD based on the background information of the NTP. (Cadmium)

OSHA: 1910.1027 (Cadmium)

### **Reproductive toxicity**

Suspected human reproductive toxicant

### **Teratogenicity**

no data available

### **Specific target organ toxicity - single exposure (Globally Harmonized System)**

no data available

### **Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

Causes damage to organs through prolonged or repeated exposure.

### **Aspiration hazard**

no data available

### **Potential health effects**

<b>Inhalation</b>	May be fatal if inhaled. May cause respiratory tract irritation.
<b>Ingestion</b>	Toxic if swallowed.
<b>Skin</b>	May be harmful if absorbed through skin. May cause skin irritation.
<b>Eyes</b>	May cause eye irritation.

### **Signs and Symptoms of Exposure**

Damage to the lungs., Kidney injury may occur., prolonged or repeated exposure can cause:, Vomiting, Diarrhoea, Lung irritation

### **Synergistic effects**

no data available

### **Additional Information**

RTECS: EU9800000

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## **12. ECOLOGICAL INFORMATION**

### **Toxicity**

Toxicity to fish	mortality LOEC - Oncorhynchus mykiss (rainbow trout) - 0.0015 mg/l - 96 h LC50 - Pimephales promelas (fathead minnow) - 1.0 µg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	mortality NOEC - Daphnia - 0.019 mg/l - 24 h  mortality LOEC - Daphnia - 0.039 mg/l - 24 h EC50 - Daphnia magna (Water flea) - 0.024 mg/l - 48 h
Toxicity to algae	Growth inhibition IC50 - Chaetoceros sp. - 0.028 mg/l - 48 h

**Persistence and degradability**

no data available

**Bioaccumulative potential**

Bioaccumulation      Oncorhynchus mykiss (rainbow trout) - 72 d  
Bioconcentration factor (BCF): 55

**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life with long lasting effects.

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**13. DISPOSAL CONSIDERATIONS****Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

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**14. TRANSPORT INFORMATION****DOT (US)**

UN number: 3288    Class: 6.1                      Packing group: II  
Proper shipping name: Toxic solid, inorganic, n.o.s. (Cadmium)  
Reportable Quantity (RQ): 10 lbs  
Marine pollutant: No  
Poison Inhalation Hazard: No

**IMDG**

UN number: 3288    Class: 6.1                      Packing group: II                      EMS-No: F-A, S-A  
Proper shipping name: TOXIC SOLID, INORGANIC, N.O.S. (Cadmium)  
Marine pollutant: No

**IATA**

UN number: 3288    Class: 6.1                      Packing group: II  
Proper shipping name: Toxic solid, inorganic, n.o.s. (Cadmium)

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**15. REGULATORY INFORMATION****OSHA Hazards**

Carcinogen, Target Organ Effect, Highly toxic by inhalation, Toxic by ingestion, Reproductive hazard, Mutagen

**SARA 302 Components**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

The following components are subject to reporting levels established by SARA Title III, Section 313:

Cadmium	CAS-No. 7440-43-9	Revision Date 1993-04-24
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**SARA 311/312 Hazards**

Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

CAS-No.	Revision Date
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Cadmium	7440-43-9	1993-04-24
<b>Pennsylvania Right To Know Components</b>		
Cadmium	CAS-No. 7440-43-9	Revision Date 1993-04-24
<b>New Jersey Right To Know Components</b>		
Cadmium	CAS-No. 7440-43-9	Revision Date 1993-04-24
<b>California Prop. 65 Components</b>		
WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No. 7440-43-9	Revision Date 2009-02-01
Cadmium		
<b>California Prop. 65 Components</b>		
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.	CAS-No. 7440-43-9	Revision Date 2009-02-01
Cadmium		

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## 16. OTHER INFORMATION

### Further information

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