



SIGMA-ALDRICH

Material Safety Data Sheet

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Version 1.70

Section 1 - Product and Company Information

Product Name: Cadmium sulfide, powder, 99.995%
Product Number: 217921
Brand: Aldrich Chemical
Company: Sigma-Aldrich
Street Address: 3050 Spruce Street
City, State, Zip, Country: SAINT LOUIS, MO 63103 US
Technical Phone: 800-325-5832
Fax: 800-325-5052
Emergency Phone: 314-776-6555

Section 2 - Composition/Information on Ingredient

Table with 5 columns: Substance Name, CAS #, SARA 313, EC no, Annex I Index Number. Row 1: CADMIUM SULFIDE, 1306-23-6, Yes, 215-147-8, 048-010-00-4

Formula: CdS
Synonyms: Cadmium golden 366, Cadmium lemon Yellow 527, Cadmium monosulfide, Cadmium Orange, Cadmium primrose 819, Cadmium sulphide, Cadmium Yellow, Cadmium Yellow 000, Cadmium Yellow 892, Cadmium Yellow Conc. Deep, Cadmium Yellow Conc. Golden, Cadmium Yellow Conc. Lemon, Cadmium Yellow Conc. Primrose, Cadmium Yellow 10G Conc, Cadmium Yellow OZ Dark, Cadmium Yellow Primrose 47-4100, Cadmopur Golden Yellow N, Cadmopur Yellow, Capsebon, C.P. Golden Yellow 55, Ferro Lemon Yellow, Ferro Orange Yellow, Ferro Yellow, Greenockite, GSK, NCI-C02711, PC 108, Primrose 1466

Section 3 - Hazards Identification

Emergency Overview

Toxic. May cause cancer. Also harmful if swallowed. Also toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed. Possible risk of impaired fertility. Possible risk of harm to the unborn child. Also possible risks of irreversible effects. May cause long-term adverse effects in the aquatic environment. Danger: Contains cadmium. Cancer hazard. Avoid creating dust. Can cause lung and kidney disease. Calif. Prop. 65 carcinogen & reproductive hazard.

HMIS Rating
Health: 1\* Flammability: 0 Reactivity: 0

NFPA Rating
Health: 1 Flammability: 0 Reactivity: 0

\*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

Oral Exposure

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

Inhalation Exposure

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

Dermal Exposure

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

Eye Exposure

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

Autoignition Temp: N/A

Extinguishing Media

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

Firefighting

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

Procedure to be Followed in Case of Leak or Spill

Evacuate area.

Procedure(s) of Personal Precaution(s)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

Methods for Cleaning Up

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

Handling

User Exposure

Do not breathe dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

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**Storage**  
Suitable  
Keep tightly closed.

## Section 8 - Exposure Controls / PPE

**Engineering Controls**  
Safety shower and eye bath. Mechanical exhaust required.

### Personal Protective Equipment

**Respiratory**  
Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator.

**Hand**  
Compatible chemical-resistant gloves.

**Eye**  
Chemical safety goggles.

**General Hygiene Measures**  
Wash thoroughly after handling.

### Exposure Limits, RTECS

Country	Source	Type	Value
USA	ACGIH	TWA	0.01 MG(CD)/M3
<b>Remarks:</b> inhalable dust			
USA	ACGIH	TWA	0.002 MG(CD)/M3
<b>Remarks:</b> respirable dust			
USA	MSHA Standard-air	TWA	0.2 MG(CD)/M3
New Zealand	OEL		
<b>Remarks:</b> check ACGIH TLV			
USA	NIOSH		LOWEST FEASIBLE CONC.

## Section 9 - Physical/Chemical Properties

Appearance	Color	Form
Physical State Solid	Yellow	Powder

Molecular Weight: 144.46 AMU

pH	N/A
BP/BP Range	N/A
MP/MP Range	999 °C
Freezing Point	N/A
Vapor Pressure	N/A
Vapor Density	N/A
Saturated Vapor Conc.	N/A
SG/Density	4.82 g/cm <sup>3</sup>
Bulk Density	N/A
Odor Threshold	N/A
Volatile%	N/A
VOC Content	N/A
Water Content	N/A
Solvent Content	N/A
Evaporation Rate	N/A
Viscosity	N/A

Partition Coefficient	Log Kow: 2.886
Decomposition Temp.	N/A
Flash Point °F	N/A
Flash Point °C	N/A

Explosion Limits N/A

Flammability	N/A
Autoignition Temp	N/A
Solubility	N/A

N/A = not available

## Section 10 - Stability and Reactivity

**Stability**  
Stable  
Stable,  
**Materials to Avoid**  
Strong oxidizing agents.

**Hazardous Decomposition Products**  
**Hazardous Decomposition Products**  
Sulfur oxides, Cadmium/cadmium oxides.

**Hazardous Polymerization**  
**Hazardous Polymerization**  
Will not occur.

## Section 11 - Toxicological Information

**Route of Exposure**  
**Skin Contact**  
May cause skin irritation.  
**Skin Absorption**  
May be harmful if absorbed through the skin.

**Eye Contact**  
May cause eye irritation.

**Inhalation**  
Material may be irritating to mucous membranes and upper respiratory tract. May be harmful if inhaled.  
**Ingestion**  
Harmful if swallowed.

**Target Organ(s) or System(s)**  
Lungs, Kidneys, Bones, Liver, Pancreas, Male reproductive system.

**Signs and Symptoms of Exposure**  
Acute inhalation exposure to cadmium fumes may cause "metal fume fever" with flu-like symptoms of weakness, fever, headache, chills, nausea, vomiting, dizziness, sweating, muscular pain, cough and difficulty breathing. Acute pulmonary edema may develop within 24 hours and reaches a maximum by three days. The first chronic effect of exposure to cadmium is generally kidney damage, manifested by excretion of excessive protein in the urine, followed by anemia, teeth discoloration and loss of smell. Cadmium also is believed to cause pulmonary emphysema and bone disease.

**RTECS Number:** EV3150000

**Toxicity Data**  
Oral - Rat: 7080 mg/kg (LD50)  
Oral - Mouse: 1166 mg/kg (LD50)

**Chronic Exposure - Carcinogen**  
Result: This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification. Chronic exposure to cadmium may cause lung and prostate cancer.

Rat - Subcutaneous: 90 MG/KG  
Result: Tumorigenic: Carcinogenic by RTECS criteria. Tumorigenic: Tumors at site or application.

Rat - Intramuscular: 120 MG/KG  
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Tumorigenic: Tumors at site or application.

Rat - Subcutaneous: 135 MG/KG  
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Tumorigenic: Tumors at site or application.

Rat - Subcutaneous: 250 MG/KG  
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Blood: Lymphomas including Hodgkin's disease.  
Tumorigenic: Tumors at site or application.

**OSHA Carcinogen List**  
Rating  
cancer hazard

**IARC Carcinogen List**  
Rating  
Group 1

**NTP Carcinogen List**  
Rating  
Known to be carcinogenic.

**ACGIH Carcinogen List**  
Rating  
A2  
A2

**IRIS/EPA Carcinogen List**  
Rating  
Group B2

**Chronic Exposure - Teratogen**  
Result: Possible risk of congenital malformation in the fetus.

<u>Species</u>	<u>Dose</u>	<u>Cell Type</u>	<u>Mutation test</u>
Human	62 UG/L	leukocyte	Cytogenetic analysis
Hamster	1 MG/L	Embryo	Morphological transformation.
Hamster	10 MG/L	ovary	DNA damage

**Chronic Exposure - Reproductive Hazard**  
Result: Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

## Section 12 - Ecological Information

### Acute Ecotoxicity Tests

<b>Test Type</b>	
EC50 Daphnia	
<b>Species</b>	
Daphnia magna	
<b>Time:</b>	<b>Value:</b>
48.0 h	0.16 mg/l
<b>Test Type</b>	
LC50 Fish	
<b>Species</b>	
Pimephales promelas (Fathead minnow)	
<b>Time:</b>	<b>Value:</b>
96.0 h	0.1 - 0.3 mg/l

## Section 13 - Disposal Considerations

### Appropriate Method of Disposal of Substance or Preparation

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.  
Observe all federal, state, and local environmental regulations.

## Section 14 - Transport Information

### DOT

**Proper Shipping Name:** Environmentally hazardous substances, solid, n.o.s.  
**UN#:** 3077  
**Class:** 9  
**Packing Group:** Packing Group III  
**Hazard Label:** Class 9  
**PIH:** Not PIH

### IATA

**Proper Shipping Name:** Environmentally hazardous substance, solid, n.o.s.  
**IATA UN Number:** 3077  
**Hazard Class:** 9  
**Packing Group:** III

## Section 15 - Regulatory Information

### EU Directives Classification

**Symbol of Danger:** T  
**Indication of Danger**

Toxic.

**Risk Statements** R: 45 22 48/23/25 62 63 68 53

May cause cancer. Also harmful if swallowed. Also toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed. Possible risk of impaired fertility. Possible risk of harm to the unborn child. Also possible risks of irreversible effects. May cause long-term adverse effects in the aquatic environment.

**Safety Statements** S: 53 45 61

Restricted to professional users. Attention - Avoid exposure - obtain special instructions before use. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Avoid release to the environment. Refer to special instructions/safety data sheets.

### US Classification and Label Text

**Indication of Danger**

Toxic.

**Risk Statements**

May cause cancer. Also harmful if swallowed. Also toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed. Possible risk of impaired fertility. Possible risk of harm to the unborn child. Also possible risks of irreversible effects. May cause long-term adverse effects in the aquatic environment.

**Safety Statements**

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**US Statements**

Danger: Contains cadmium. Cancer hazard. Avoid creating dust. Can cause lung and kidney disease. Calif. Prop. 65 carcinogen & reproductive hazard.

### United States Regulatory Information

**SARA Listed:** Yes

**Deminimis:** 0.1 %

**Notes:** This product is subject to SARA section 313 reporting requirements - cadmium compounds.

**TSCA Inventory Item:** Yes

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**United States - State Regulatory Information**  
**California Prop - 65**

This product is or contains chemical(s) known to the state of California to cause developmental toxicity. This product is or contains chemical(s) known to the state of California to cause cancer.

**Canada Regulatory Information**

**WHMIS Classification**

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

**DSL:** Yes

**NDSL:** No

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**Section 16 - Other Information**

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**Disclaimer**

For R&D use only. Not for drug, household or other uses.

**Warranty**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2007 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.