



SIGMA-ALDRICH

Material Safety Data Sheet

Date Printed: 07/20/2007
Date Updated: 02/05/2006
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

Substance Name	CAS #	SARA 313	EC no	Annex I Index Number
CADMIUM SULFIDE	1308-23-6	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
Remarks: inhalable dust			
USA	ACGIH	TWA	0.002 MG(CD)/M3
Remarks: respirable dust			
USA	MSHA Standard-air	TWA	0.2 MG(CD)/M3
New Zealand	OEL		
Remarks: check ACGIH TLV			
USA	NIOSH		LOWEST FEASIBLE CONC.

Section 9 - Physical/Chemical Properties

Appearance	Color	Form
Physical State	Yellow	Powder
Solid		

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/cm3
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.

Chronic Exposure - Mutagen

Species Dose
Result: May alter genetic material.

Human	62 UG/L
Hamster	1 MG/L
Hamster	10 MG/L

Cell Type

leukocyte
Embryo
ovary

Mutation test

Cytogenetic analysis
Morphological transformation.
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

Test Type
EC50 Daphnia
Species
Daphnia magna
Time: Value:
48.0 h 0.16 mg/l

Test Type
LC50 Fish
Species
Pimephales promelas (Fathead minnow)
Time: Value:
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

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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

Deminiimis: 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

Section 16 - Other Information

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.