

MATERIAL SAFETY DATA SHEET

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Version 1.5

Section 1 - Product and Company Information

Product Name CADMIUM, >=99% 5-20 MESH
Product Number 265330
Brand ALDRICH

Company Sigma-Aldrich
Address 3050 Spruce Street
 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
CADMIUM, POWDER	7440-43-9	Yes

Formula Cd
Synonyms Cadmium (ACGIH:OSHA) * Cadmium dust fume (OSHA) *
 Cadmium powder * C.I. 77180 * Colloidal cadmium *
 Kadmium (German)

RTECS Number: EU9800000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Toxic.

May cause cancer. Very toxic by inhalation, in contact with skin and if swallowed.

Danger: Can cause lung and kidney disease. Cancer hazard.

HMIS RATING

HEALTH: 3*

FLAMMABILITY: 0

REACTIVITY: 0

NFPA RATING

HEALTH: 3

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 immediately.

INHALATION EXPOSURE

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

Section 5 - Fire Fighting Measures

FLASH POINT

N/A

AUTOIGNITION TEMP

N/A

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

Suitable: Carbon dioxide. Dry chemical powder.

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. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING

User Exposure: Avoid contact and inhalation. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep tightly closed. Store in a dry area. Store under nitrogen.

SPECIAL REQUIREMENTS

Air sensitive.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

PERSONAL PROTECTIVE EQUIPMENT

Other: Wear appropriate government approved respirator, chemical-resistant gloves, safety goggles, other protective clothing.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling. Discard contaminated clothing and shoes.

EXPOSURE LIMITS, RTECS

Country	Source	Type	Value
USA	ACGIH	TWA	0.01 MG(CD)/M3
USA	MSHA Standard-air	TWA	0.2 MG/M3
USA	OSHA.	PEL	SEE CFR 29,1910.1027
New Zealand OEL			
Remarks: check ACGIH TLV			
USA	NIOSH		LOWEST FEASIBLE CONC.

EXPOSURE LIMITS

Country	Source	Type	Value
Poland	Polan	NDS NDS	0.01 MG/M3 0.01 MG/M3
Poland	Polan	NDSch NDSC-	- -
Poland	Polan	NDSP NDSP	- -

Section 9 - Physical/Chemical Properties

Appearance	Color: Slightly grey Form: Coarse powder	
Property	Value	At Temperature or Pressure
Molecular Weight	112.4 AMU	
pH	N/A	
BP/BP Range	765 °C	
MP/MP Range	320.9 °C	
Freezing Point	N/A	
Vapor Pressure	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	8.65 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	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	N/A	
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	N/A	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Materials to Avoid: Oxidizing agents, Acids.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Nature of decomposition products not known.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Skin Absorption: May be harmful if absorbed through the skin.

Inhalation: May be fatal if inhaled.

Ingestion: Harmful if swallowed.

TARGET ORGAN(S) OR SYSTEM(S)

Kidneys. Lungs.

SIGNS AND SYMPTOMS OF EXPOSURE

Damage to the lungs. Damage to the kidneys. Prolonged exposure can cause: Lung irritation, chest pain, and edema which may be fatal. Stomach pains, vomiting, diarrhea.

TOXICITY DATA

Oral

Rat

225 mg/kg

LD50

Inhalation

Human

39 mg/m³

LCLO

Remarks: Cardiac:Other changes. Vascular:Thrombosis distant from injection site. Lungs, Thorax, or Respiration:Respiratory depression.

Oral

Rat

2330 mg/kg

LD50

Inhalation

Rat

25 mg/m³

LC50

Remarks: Lungs, Thorax, or Respiration:Dyspnea.

Oral

Mouse

890 mg/kg

LD50

Intraperitoneal

Mouse

5700 UG/KG

LD50

CHRONIC EXPOSURE - CARCINOGEN

Result: Carcinogen.

Species: Woman

Route of Application: Inhalation

Dose: 129 UG/M³

Exposure Time: 20Y-

Frequency: C

Result: Lungs, Thorax, or Respiration:Tumors.

Tumorigenic: Carcinogenic by RTECS criteria.

Species: Rat
Route of Application: Subcutaneous
Dose: 3372 UG/KG
Result: Tumorigenic: Carcinogenic by RTECS criteria.
Tumorigenic: Tumors at site or application.

Species: Rat
Route of Application: Intramuscular
Dose: 40 MG/KG
Exposure Time: 4W
Frequency: I
Result: Musculoskeletal: Tumors. Tumorigenic: Tumors at site or application. Tumorigenic: Carcinogenic by RTECS criteria.

Species: Rat
Route of Application: Unreported
Dose: 1200 MG/KG
Result: Tumorigenic Effects: Testicular tumors.
Tumorigenic: Equivocal tumorigenic agent by RTECS criteria.
Tumorigenic: Tumors at site or application.

Species: Rat
Route of Application: Intramuscular
Dose: 70 MG/KG
Result: Tumorigenic: Tumors at site or application.
Blood: Lymphomas including Hodgkin's disease.
Tumorigenic: Equivocal tumorigenic agent by RTECS criteria.

Species: Rat
Route of Application: Intramuscular
Dose: 63 MG/KG
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Blood: Lymphomas including Hodgkin's disease.
Tumorigenic: Tumors at site or application.

Species: Rat
Route of Application: Intramuscular
Dose: 45 MG/KG
Exposure Time: 4W
Frequency: I
Result: Tumorigenic: Neoplastic by RTECS criteria.
Musculoskeletal: Tumors. 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

CHRONIC EXPOSURE - TERATOGEN

Species: Rat
Dose: 220 MG/KG
Route of Application: Oral
Exposure Time: (1-22D PREG)
Result: Effects on Embryo or Fetus: Other effects to embryo.

Species: Rat
Dose: 23 MG/KG
Route of Application: Oral
Exposure Time: (1-22D PREG)
Result: Specific Developmental Abnormalities: Blood and lymphatic system (including spleen and marrow).

Species: Rat
Dose: 1250 UG/KG
Route of Application: Intravenous
Exposure Time: (14D PREG)
Result: Specific Developmental Abnormalities: Urogenital system.
Specific Developmental Abnormalities: Body wall.

Species: Rat
Dose: 1250 UG/KG
Route of Application: Intravenous
Exposure Time: (9D PREG)
Result: Specific Developmental Abnormalities: Eye, ear. Specific Developmental Abnormalities: Central nervous system.

Species: Rat
Dose: 8 MG/KG
Route of Application: Intravenous
Exposure Time: (8-15D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Species: Mouse
Dose: 448 MG/KG
Route of Application: Oral
Exposure Time: (MULTIGENERATIONS)
Result: Effects on Embryo or Fetus: Fetal death. Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Species: Mouse
Dose: 1686 UG/KG
Route of Application: Intraperitoneal
Exposure Time: (7D PREG)
Result: Specific Developmental Abnormalities: Central nervous system.

Species: Hamster
Dose: 2 MG/KG
Route of Application: Parenteral
Exposure Time: (8D PREG)
Result: Specific Developmental Abnormalities: Craniofacial (including nose and tongue).

CHRONIC EXPOSURE - MUTAGEN

Species: Mouse
Dose: 6 UMOL/L
Cell Type: Embryo

Mutation test: Micronucleus test

Species: Hamster
Dose: 1 UMOL/L
Cell Type: ovary
Mutation test: Cytogenetic analysis

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat
Dose: 155 MG/KG
Route of Application: Oral
Exposure Time: (13W MALE/13W PRE-3W PREG)
Result: Effects on Newborn: Growth statistics (e.g., reduced weight gain). Effects on Newborn: Behavioral.

Species: Rat
Dose: 21500 UG/KG
Route of Application: Oral
Exposure Time: (MULTIGENERATIONS)
Result: Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Newborn: Germ cell effects (in offspring).

Species: Rat
Dose: 1124 UG/KG
Route of Application: Intraperitoneal
Exposure Time: (1D MALE)
Result: Paternal Effects: Spermatogenesis (including genetic material, sperm morphology, motility, and count).

Species: Rat
Dose: 250 UG/KG
Route of Application: Subcutaneous
Exposure Time: (19D PREG)
Result: Effects on Newborn: Biochemical and metabolic.

Species: Mouse
Dose: 1700 MG/KG
Route of Application: Oral
Exposure Time: (8-12D PREG)
Result: Effects on Newborn: Growth statistics (e.g., reduced weight gain). Effects on Newborn: Viability index (e.g., # alive at day 4 per # born alive).

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Material in the elemental state should be recovered for reuse or recycling. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: Cadmium compounds
UN#: 2570

Class: 6.1
Packing Group: Packing Group I
Hazard Label: Toxic substances.
PIH: Not PIH

IATA

Proper Shipping Name: Cadmium compound
IATA UN Number: 2570
Hazard Class: 6.1
Packing Group: I

Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION

Symbol of Danger: T
Indication of Danger: Toxic.
R: 45-20/21/22
Risk Statements: May cause cancer. Harmful by inhalation, in contact with skin and if swallowed.
S: 53-36-45
Safety Statements: Avoid exposure - obtain special instructions before use. Wear suitable protective clothing. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Toxic.
Risk Statements: May cause cancer. Very toxic by inhalation, in contact with skin and if swallowed.
Safety Statements: Avoid exposure - obtain special instructions before use. Do not breathe dust. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of water. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
US Statements: Danger: Can cause lung and kidney disease. Cancer hazard.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: Yes
DEMINIMIS: 0.1 %
NOTES: This product is subject to SARA section 313 reporting requirements.
TSCA INVENTORY ITEM: Yes

UNITED STATES - STATE REGULATORY INFORMATION

CALIFORNIA PROP - 65

California Prop - 65: 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 2008 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.