

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Cadmium Ingot, Enriched Cadmium Ingot
Form	Solid Ingot
CAS No.	7440-43-9
Chemical Formula	Cd
Molecular Weight	112.41 amu
Supplier Address*	ISOFLEX USA PO Box 472615 San Francisco CA 94147 United States
Telephone	+1 415-440-4433
Fax	+1 415-563-4433
Emergency Phone Number (both supplier and manufacturer)	Infotrac/ +1 800-535-5053 *May include subsidiaries or affiliate companies/divisions
Email	iusa@isoflex.com
Website	www.isoflex.com
Preparation Information	ISOFLEX USA Product Safety +1 415-440-4433

2. HAZARDS IDENTIFICATION

Emergency Overview:

- **Very Toxic (T+) and Dangerous to the Environment (N)**
- May Cause Cancer, and very toxic by inhalation (R45/26)
- Danger of serious damage to health by prolonged exposure through inhalation and if swallowed (R48/23/25)
- Possible risk of impaired fertility (R62)
- Possible risk of irreversible effects (R68)
- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment (R50/53)
- Possible risk of harm to unborn child (R63)
- California Proposition 65 carcinogen

NFPA Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 2 Flammability = 2 Reactivity = 0



HMIS Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 2 Flammability = 2 Physical Hazard = 0

HEALTH HAZARD	2
FLAMMABILITY	2
PHYSICAL HAZARD	0

RTECS

EU9800000

Potential Health Effects

Inhalation

N/A (ingot cannot be inhaled)

Eyes

May cause eye irritation

Skin Contact

May cause skin irritation

Ingestion

May be harmful if swallowed. Can cause nausea, salivation, vomiting and diarrhea. Ingestion of Cadmium may be fatal.

Signs and Symptoms

Exposure

Acute inhalation exposure to cadmium fumes or ingestion of metal 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.

Other Information

Tumorigenic effects have been observed on tests with laboratory animals. Reproductive effects have been observed on tests with laboratory animals. Mutagenic effects have been observed on tests with laboratory animals. To the best of our knowledge, the acute and chronic toxicity of this substance is not fully known.

Environmental Hazard

Very toxic and dangerous to the environment. See Section 12 for additional ecological information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name: Cadmium Metal Ingot
CAS No.: 7440-43-9
Chemical Formula: Cd
Molecular Weight: 112.41 amu

4. FIRST AID MEASURES

General Information

Immediately remove any clothing soiled by the product. Remove breathing apparatus only after contaminated clothing has been completely removed. In case of irregular breathing or respiratory arrest, provide artificial respiration.

Oral Exposure

Seek immediate medical advice.

Inhalation Exposure

If inhaled, remove to fresh air. Seek medical attention.

Dermal Exposure

Immediately wash skin with soap and copious amounts of water. Generally, the product does not irritate the skin.

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.

5. FIREFIGHTING MEASURES

Flash Point

N/A

Autoignition Temperature

Not determined

Flammability

N/A

Suitable Extinguishing Media

Special powder for metal fires; **do not use water.**

Protective Equipment and Precautions for Firefighters

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific Hazard(s)

Emits toxic metal oxide fumes under fire conditions

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions

Appropriate precautions to minimize direct contact with skin or eyes and prevent inhalation of dust

Environmental Precautions

Do not allow material to be released to the environment without proper governmental permits.

Methods for Cleaning Up

Sweep up, place in a bag and dispose of according to Section 13 recommendations.

7. HANDLING AND STORAGE

Handling

Keep container tightly sealed. Ensure good ventilation in workplace. Open and handle container with care to minimize contact with skin, mouth and eyes.

Storage

Store in a cool, dry place in tightly closed containers.

Storage to Protect Against Explosion

No special measures required

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Safety shower and eye bath

Personal Protective Equipment

General Protective Measures

The usual precautionary measures for handling chemicals should be followed.

<i>Respiratory Protection</i>	Not required
<i>Hand Protection</i>	Handle with protective gloves
<i>Eye Protection</i>	Safety goggles

Components with limit values that require monitoring at the workplace (mg/m³):

<i>USA PEL</i>	0.005
<i>United Kingdom TWA</i>	0.025
<i>Japan OEL</i>	0.05 (Group 1 Carcinogen)
<i>ACGIH TLV</i>	0.01 (Suspected Carcinogen)
<i>France VME</i>	0.05
<i>Germany</i>	Carcinogen
<i>Korea TLV</i>	0.01 (suspected human carcinogen)

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Solid ingot	Color:	Silver, grey
Molecular Weight	112.41 amu	Solubility:	N/A
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/cm ³
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 Coeff.:	N/A
Decomposition Temp.:	N/A	Flash Point:	N/A
Explosion Limits:	N/A	Flammability:	N/A
Auto-ignition Temp.:	N/A	Refractive Index:	N/A
Optical Rotation:	N/A	Miscellaneous Data:	N/A

N/A = not available

10. STABILITY AND REACTIVITY

<i>Chemical Stability</i>	Stable under normal conditions. Decomposition will not occur if used and stored according to specifications.
<i>Materials to Avoid</i>	Acids, oxidizing agents, potassium
<i>Hazardous Decomposition Products</i>	Cadmium/cadmium oxides
<i>Hazardous Polymerization</i>	Has not been reported

11. TOXICOLOGICAL INFORMATION

LD/LC50 values relevant for classification:

Oral	LD50	890 mg/kg (Mouse)
		2330 mg/kg (Rat)
Inhalative	LDLo	70 mg/kg (Rabbit)
	LC50/30M	25 mg/m ³ (Rat)
	LCLo/20M	39 g/m ³ (Human)

12. ECOLOGICAL INFORMATION

Toxicity	Very toxic to fish
General Notes	Do not allow product to reach ground water, water course or sewer system, even in small quantities. Danger to drinking water if even extremely small quantities leak into the ground. Also poisonous for fish and plankton in water bodies. Do not allow material to be released to the environment without proper governmental permits.

13. DISPOSAL CONSIDERATIONS

Product	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. Offer surplus and non-recyclable solutions to a licensed disposal company. Consult state, local and national regulations to ensure proper disposal.
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14. TRANSPORT INFORMATION**DOT**

Proper Shipping Name	Toxic solid, inorganic, n.o.s. (Cadmium)
UN	UN 3288
Hazard Class	6.1
Packing Group	II

IATA

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Hazard Class	6.1
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15. REGULATORY INFORMATION

OSHA Hazards	Carcinogen
SARA 302 Components	No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Components	This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.
SARA 311/312 Hazards	Chronic Health Hazard
Massachusetts Right to Know Components	No components are subject to the Massachusetts Right to Know Act.
Pennsylvania Right to Know Components	Cadmium / CAS No. 7440-43-9
New Jersey Right to Know Components	Cadmium / CAS No. 7440-43-9
California Prop. 65 Components	This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Prepared By ISOFLEX USA
PO Box 472615
San Francisco CA 94147
United States

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Revision Note Update Supplier Address

ISOFLEX USA's Commonly Used Abbreviations and Acronyms*

ACGIH American Conference of Governmental Industrial Hygienists
ADR European Agreement Concerning the International Carriage of Dangerous Goods by Road
AICS Australian Inventory of Chemical Substances
ALARA As Low As Is Reasonably Achievable
AMU Atomic Mass Unit
ANSI American National Standards Institute
BLS Basic Life Support
BOD5 Biochemical Oxygen Demand
CAM Continuous Air Monitor
CAS Chemical Abstracts Service (division of the American Chemical Society)
CEN European Committee for Standardization
CERCLA Comprehensive Environmental Response Compensation and Liability Act
CLP Classification, Labelling and Packaging (European Union)
COD Chemical Oxygen Demand
CPR Controlled Products Regulations (Canada)
CWA Clean Water Act (USA)
DAC Derived Air Concentration (USA)
DOE United States Department of Energy (USA)
DOT United States Department of Transportation (USA)
DSL Domestic Substances List (Canada)
EC50 Half Maximal Effective Concentration
ECL Korean Existing Chemicals List
EINECS European Inventory of Existing Commercial Chemical Substances
EHS Environmentally Hazardous Substance
ELINCS European List of Notified Chemical Substances
EMS Emergency Response Procedures for Ships Carrying Dangerous Goods
EPA Environmental Protection Agency (USA)
EPCRA Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986
GHS Globally Harmonized System
HMIS Hazardous Materials Identification System (USA)
IARC International Agency for Research on Cancer
IATA International Air Transport Association
IBC Intermediate Bulk Containers
ICAO International Civil Aviation Organization
IDLH Immediately Dangerous to Life or Health
IECSC Inventory of Existing Chemical Substances Produced or Imported in China
IMDG International Maritime Code for Dangerous Goods

LC50	Lethal concentration, 50 percent
LD50	Lethal dose, 50 percent
LDLO	Lethal Dose Low
LOEC	Lowest-Observed-Effective Concentration
MARPOL	International Convention for the Prevention of Pollution from Ships
MSHA	Mine Safety and Health Administration (USA)
NCRP	National Council on Radiation Protection & Measurements (USA)
NDSL	Non-Domestic Substances List (Canada)
NFPA	National Fire Protection Association (USA)
NIOSH	National Institute for Occupational Safety and Health (USA)
NOEC	No Observed Effect Concentration
N.O.S.	Not Otherwise Specified
NRC	Nuclear Regulatory Commission (USA)
NTP	National Toxicology Program (USA)
OSHA	Occupational Safety and Health Administration (USA)
PBT	Persistent Bioaccumulative and Toxic Chemical
PEL	Permissible Exposure Limit
PICCS	Philippines Inventory of Chemicals and Chemical Substances
PIH	Poisonous by Inhalation Hazard
RCRA	Resource Conservation and Recovery Act (USA)
RCT	Radiation Control Technician
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Europe)
RID	Regulations Concerning the International Transport of Dangerous Goods by Rail
RQ	Reportable Quantity
RTECS	Registry of Toxic Effects of Chemical Substances
RTK	Right to Know
SARA	Superfund Amendments and Reauthorization Act (USA)
SNUR	Significant New Use Rule (TSCA)
TDG	Transportation of Dangerous Goods (Canada)
TIH	Toxic by Inhalation Hazard
TLV	Threshold Limit Value
TPQ	Threshold Planning Quantity
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
UN	United Nations (Number)
VOC	Volatile Organic Compound
vPvB	Very Persistent Very Bioaccumulative Chemical
WGK	Wassergefährdungsklassen (Germany: Water Hazard Classes)
WHMIS	Workplace Hazardous Materials Information System

*One or more of the above-listed items may not appear in this document.

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