



CADMIUM-116 METAL (116Cd)

Safety Data Sheet

according to Regulation (EC) No. 453/2010 and according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 16/02/2011

Revision date: 04/05/2016

Supersedes: 01/04/2016

Version: 3.0

CDLM-3759

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Substance
Substance name : CADMIUM-116 METAL (116Cd)
EC index no : 048-002-00-0 (Unlabeled)
EC no : 231-152-8 (Unlabeled)
CAS No : 7440-43-9 (Unlabeled)
Product code : CDLM-3759
Formula : ^mCd

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Main use category : Professional use
Industrial/Professional use spec : For professional use only.

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Cambridge Isotope Laboratories, Inc.
50 Frontage Road
Andover, MA 01810
USA

USA: 1-800-322-1174 Int: 1-978-749-8000
cilsales@isotope.com www.isotope.com

Emergency telephone number

Emergency numbers:

Chemtrec: 1-800-424-9300 (24 hours)
International: 1-703-741-5970 (24 hours)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute Tox. 2 (Inhalation:dust,mist) H330
Muta. 2 H341
Carc. 1B H350
Repr. 2 H361
STOT RE 1 H372
Aquatic Acute 1 H400
Aquatic Chronic 1 H410

Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC or 1999/45/EC

T; R48/23/25
T; R25
T+; R26
Carc.Cat.1; R45
Repr.Cat.3; R62
Repr.Cat.3; R63
N; R50/53
Muta.Cat.3; R68

Full text of R-phrases: see section 16

Classification (GHS-US)

Acute Tox. 2 (Inhalation:dust,mist) H330
Muta. 2 H341
Carc. 1B H350
Repr. 2 H361

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STOT RE 1
Aquatic Chronic 1

H372
H410

Adverse physicochemical, human health and environmental effects

Kidney, Lungs.

2.2. Label elements

Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



Signal word (CLP)

: Danger

Hazard statements (CLP)

: H330 - Fatal if inhaled
H341 - Suspected of causing genetic defects
H350 - May cause cancer
H361 - Suspected of damaging the unborn child, Suspected of damaging fertility, Suspected of damaging fertility. Suspected of damaging the unborn child
H372 - Causes damage to organs (blood, kidneys, stomach) through prolonged or repeated exposure
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (CLP)

: P260 - Do not breathe dust, fume, gas, mist, spray, vapors
P264 - Wash Both hands thoroughly after handling
P270 - Do no eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P280 - Wear eye protection, face protection, protective clothing, protective gloves
P284 - Wear respiratory protection
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

GHS-US labeling

Hazard pictograms (GHS-US)



Signal word (GHS-US)

: Danger

Hazard statements (GHS-US)

: H330 - Fatal if inhaled
H341 - Suspected of causing genetic defects (Dermal, Inhalation, oral)
H350 - May cause cancer (Dermal, Inhalation, oral)
H361 - blood, kidneys, stomach (Dermal, Inhalation, oral)
H372 - Causes damage to organs (blood, kidneys, stomach) through prolonged or repeated exposure (Dermal, Inhalation, oral)
H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US)

: P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe dust, fume, gas, mist, spray, vapors
P264 - Wash Both hands thoroughly after handling
P270 - Do no eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P273 - Avoid release to the environment
P280 - Wear eye protection, face protection, protective clothing, protective gloves
P284 - Wear respiratory protection
P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P308+P313 - IF exposed or concerned: Get medical advice/attention
P310 - Immediately call a POISON CENTER or doctor/physician
P314 - Get medical advice and attention if you feel unwell
P320 - Specific treatment is urgent (see Hazard pictograms (CLP) on this label)
P391 - Collect spillage
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container to Comply with applicable regulations.

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2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	%	Classification according to Directive 67/548/EEC
CADMIUM-116 METAL (116Cd) (Main constituent)	(CAS No) 7440-43-9 (Unlabeled) (EC no) 231-152-8 (Unlabeled) (EC index no) 048-002-00-0 (Unlabeled)	100	T; R48/23/25 T; R25 T+; R26 Carc.Cat.1; R45 Repr.Cat.3; R62 Repr.Cat.3; R63 N; R50/53 Muta.Cat.3; R68
Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
CADMIUM-116 METAL (116Cd) (Main constituent)	(CAS No) 7440-43-9 (Unlabeled) (EC no) 231-152-8 (Unlabeled) (EC index no) 048-002-00-0 (Unlabeled)	100	Acute Tox. 2 (Inhalation:dust,mist), H330 Muta. 2, H341 Carc. 1B, H350 Repr. 2, H361 STOT RE 1, H372 Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410

Full text of R-, H- and EUH-phrases: see section 16

Name	Product identifier	%	Classification (GHS-US)
CADMIUM-116 METAL (116Cd) (Main constituent)	(CAS No) 7440-43-9 (Unlabeled)	100	Acute Tox. 2 (Inhalation:dust,mist), H330 Muta. 2, H341 Carc. 1B, H350 Repr. 2, H361 STOT RE 1, H372 Aquatic Chronic 1, H410

Full text of H-phrases: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Move out of dangerous area. Consult a physician and show this safety data sheet.
First-aid measures after inhalation	: If breathed in, move person to fresh air. If not breathing, give artificial respiration. Consult a physician.
First-aid measures after skin contact	: Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.
First-aid measures after eye contact	: Flush eyes with water as a precaution.
First-aid measures after ingestion	: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation	: May be fatal if inhaled. May cause respiratory tract irritation.
Symptoms/injuries after skin contact	: May be harmful if absorbed through skin. May cause skin irritation.
Symptoms/injuries after eye contact	: Contact may cause eye irritation.
Symptoms/injuries after ingestion	: Toxic if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.

5.2. Special hazards arising from the substance or mixture

No additional information available

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5.3. Advice for firefighters

Protection during firefighting : Wear self-contained breathing apparatus for fire fighting if necessary. Wear suitable protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Emergency procedures : Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Avoid breathing dust.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3. Methods and material for containment and cleaning up

For containment : Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store at room temperature away from light and moisture.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

CADMIUM-116 METAL (116Cd) (7440-43-9 (Unlabeled))		
Italy - Portugal - USA ACGIH	ACGIH TWA (mg/m ³)	0.01 mg/m ³ Kidney damage. Substances for which there is a Biological Exposure Index or Indices. Suspected human carcinogen
Italy - Portugal - USA ACGIH	ACGIH STEL (mg/m ³)	0.002 mg/m ³ Kidney damage. Substances for which there is a Biological Exposure Index or Indices. Suspected human carcinogen.
USA OSHA	OSHA PEL (TWA) (mg/m ³)	0.1 mg/m ³ 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.
USA OSHA	OSHA PEL (STEL) (mg/m ³)	0.2 mg/m ³ 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.
USA OSHA	OSHA PEL (Ceiling) (mg/m ³)	0.3 mg/m ³ 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.

8.2. Exposure controls

Personal protective equipment : Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.



Eye protection : Wear safety glasses with side shields (or goggles) and a face shield.

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.

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Respiratory protection : When appropriate, use NIOSH/CEN approved respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Powder.
Molecular mass	: 116 g/mol (Labeled)
Color	: light grey.
Odor	: Odourless.
Odor threshold	: No data available
pH	: No data available
Relative evaporation rate (butyl acetate=1)	: No data available
Melting point	: 320.9 °C (609.6 °F) - lit.
Freezing point	: No data available
Boiling point	: 765 °C (1,409 °F) - lit.
Flash point	: No data available
Self ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: 8.15 g/cm ³ at 25 °C (77 °F)
Solubility	: Water: 0.0023 g/l at 20 °C (68 °F) - slightly soluble
Log Pow	: No data available
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Explosive limits	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable if stored under recommended conditions.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Not available.

10.5. Incompatible materials

Oxidizing agents.

10.6. Hazardous decomposition products

Formed under fire conditions: Cadmium/cadmium oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Fatal if inhaled.

CADMIUM-116 METAL (116Cd) (7440-43-9 (Unlabeled))	
LD50 oral rat	2330 mg/kg
LC50 inhalation rat (mg/l)	0.056 mg/l/4h male and female
ATE (oral)	2330.000 mg/kg body weight
ATE (vapors)	0.056 mg/l/4h
ATE (dust, mist)	0.056 mg/l/4h

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Skin corrosion/irritation	: Not classified No data available
Serious eye damage/irritation	: Not classified No data available
Respiratory or skin sensitization	: Not available No data available
Germ cell mutagenicity	: In vitro tests showed mutagenic effects.
Carcinogenicity	: Possible human carcinogen.
Reproductive toxicity	: Suspected of damaging the unborn child, Suspected of damaging fertility, Suspected of damaging fertility. Suspected of damaging the unborn child.
Specific target organ toxicity (single exposure)	: Not classified No data available
Specific target organ toxicity (repeated exposure)	: Causes damage to organs (blood, kidneys, stomach) through prolonged or repeated exposure. Causes damage to organs through prolonged or repeated exposure
Aspiration hazard	: Not classified
Potential Adverse human health effects and symptoms	: Kidney injury may occur. Damage to the lungs.
Symptoms/injuries after inhalation	: May be fatal if inhaled. May cause respiratory tract irritation.
Symptoms/injuries after skin contact	: May be harmful if absorbed through skin. May cause skin irritation.
Symptoms/injuries after eye contact	: Contact may cause eye irritation.
Symptoms/injuries after ingestion	: Toxic if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

CADMIUM-116 METAL (116Cd) (7440-43-9 (Unlabeled))	
LC50 fish 1	0.001 mg/l Pimephales promelas (fathead minnow) - 96h
EC50 Daphnia 1	0.024 mg/l Daphnia magna (Water flea) - 48 h
ErC50 (algae)	0.023 mg/l Selenastrum capricornutum (green algae) - 72 h (OECD Test Guideline 201)

12.2. Persistence and degradability

CADMIUM-116 METAL (116Cd) (7440-43-9 (Unlabeled))	
Persistence and degradability	Not available.

12.3. Bioaccumulative potential

CADMIUM-116 METAL (116Cd) (7440-43-9 (Unlabeled))	
BCF fish 1	Oncorhynchus mykiss (rainbow trout) - 72 d - 1.27 ug/l
Bioconcentration factor (BCF REACH)	55
Bioaccumulative potential	Not available.

12.4. Mobility in soil

CADMIUM-116 METAL (116Cd) (7440-43-9 (Unlabeled))	
Ecology - soil	Not available.

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Other adverse effects : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic organisms.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste)	: Waste materials should be disposed of under conditions which meet Federal, State, and Local environmental control regulations.
Waste treatment methods	: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact licensed disposal company to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an after burner and scrubber.

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SECTION 14: Transport information

In accordance with ADR / RID / ADNR / IMDG / ICAO / IATA

14.1. UN number

UN-No.(DOT) : 3288
DOT NA no. UN3288

14.2. UN proper shipping name

DOT Proper Shipping Name : Toxic solid, inorganic, n.o.s. (cadmium)
Department of Transportation (DOT) Hazard Classes : 6.1 - Class 6.1 - Poisonous materials 49 CFR 173.132
Hazard labels (DOT) : 6.1 - Poison inhalation hazard



DOT Symbols : G - Identifies PSN requiring a technical name
Packing group (DOT) : I - Great Danger
DOT Special Provisions (49 CFR 172.102) : IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).
IP3 - Flexible IBCs must be sift-proof and water-resistant or must be fitted with a sift-proof and water-resistant liner.
T1 - 1.5 178.274(d)(2) Normal..... 178.275(d)(2)
TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.
DOT Packaging Exceptions (49 CFR 173.xxx) : 153
DOT Packaging Non Bulk (49 CFR 173.xxx) : 213
DOT Packaging Bulk (49 CFR 173.xxx) : 240
Marine pollutant : No



14.3. Additional information

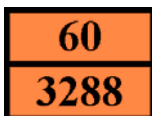
Other information : No supplementary information available.

Overland transport

Packing group (ADR) : II
Class (ADR) : 6.1 - Toxic substances
Hazard identification number (Kemler No.) : 60
Classification code (ADR) : T5
Danger labels (ADR) : 6.1 - Toxic substances



Orange plates :



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Tunnel restriction code : E
Limited quantities (ADR) : 5kg
EAC : 2X
Excepted quantities (ADR) : E1

Transport by sea

DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
MFAG-No : 151

Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 100 kg
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 200 kg
Civil Aeronautics Law : Toxic and infectious substances/Toxic substances

14.4. Environmental hazards

Dangerous for the environment :



Other information : No supplementary information available.

14.5. Special precautions for user

14.6. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

CADMIUM-116 METAL (116Cd) (7440-43-9 (Unlabeled))

Listed on SARA Section 302 (Specific toxic chemical listings)
Listed on SARA Section 313 (Specific toxic chemical listings)

SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard
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15.2. International regulations

CANADA

CADMIUM-116 METAL (116Cd) (7440-43-9 (Unlabeled))

Listed on the Canadian DSL (Domestic Substances List) inventory.

15.2.1. National regulations

No additional information available

15.3. US State regulations

CADMIUM-116 METAL (116Cd)(7440-43-9 (Unlabeled))

State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - New Jersey - Right to Know Hazardous Substance List WARNING! This product contains a chemical known by the state of California to cause cancer, birth defects or other reproductive harm.
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SECTION 16: Other information

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Other information : This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

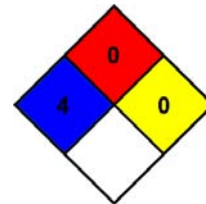
Full text of R-, H- and EUH-phrases::

Acute Tox. 2 (Inhalation:dust,mist)	Acute toxicity (inhalation:dust,mist) Category 2
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Carc. 1B	Carcinogenicity Category 1B
Muta. 2	Germ cell mutagenicity Category 2
Repr. 2	Reproductive toxicity Category 2
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
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
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects
R25	Toxic if swallowed
R26	Very toxic by inhalation
R45	May cause cancer
R48/23/25	Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R62	Possible risk of impaired fertility
R63	Possible risk of harm to the unborn child
R68	Possible risk of irreversible effects
N	Dangerous for the environment
T	Toxic
T+	Very toxic

NFPA health hazard : 4 - Very short exposure could cause death or serious residual injury even though prompt medical attention was given.

NFPA fire hazard : 0 - Materials that will not burn.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health : 4 Severe Hazard - Life-threatening, major or permanent damage may result from single or repeated overexposures

Flammability : 0 Minimal Hazard

Physical : 0 Minimal Hazard

CIL Multi-Solvent Mixture SDS

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product