

# SAFETY DATA SHEET

## 1. PRODUCT

### 1.1 Product identifiers

Name: Cadmium selenide

CAS-No.: 1306-24-7

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

Identified uses : Laboratory chemicals, Synthesis of substances

## 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

#### GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 3), H301

Acute toxicity, Inhalation (Category 3), H331

Acute toxicity, Dermal (Category 4), H312

Carcinogenicity (Category 1A), H350


Specific target organ toxicity - repeated exposure, Oral (Category 2), Kidney, Bone, H373

Acute aquatic toxicity (Category 1), H400

Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

### 2.2 GHS Label elements, including precautionary statements

Pictogram	
Signal word	Danger
Hazard statement(s)	H301 + H331 Toxic if swallowed or if inhaled H312 Harmful in contact with skin. H350 May cause cancer. H373 May cause damage to organs (Kidney, Bone) through prolonged or repeated exposure if swallowed. H410 Very toxic to aquatic life with long lasting effects.
Precautionary statement(s)	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/ vapours/ spray. P264 Wash skin thoroughly after handling. P270 Do not 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 protective gloves/ protective clothing/ eye protection/ face protection. P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth. P302 + P352 + P312 IF ON SKIN: Wash with plenty of water.Call a POISON CENTER/doctor if you feel unwell. P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor. P308 + P313 IF exposed or concerned: Get medical advice/ attention. P363 Wash contaminated clothing before reuse. 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 an approved waste disposal plant.

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

No data available

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1 Substances

Formula: CdSe  
Molecular weight: 191.37 g/mol  
CAS-No.: 1306-24-7  
EC-No.: 215-148-3

#### Hazardous components

Component	Classification	Concentration
<b>Cadmium selenide</b>		
	Acute Tox. 3; Acute Tox. 4; Carc. 1A; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 1; H301 + H331, H312, H350, H373, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

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### 4. FIRST AID MEASURES

#### 4.1 Description of first aid measures

<b>General advice</b>
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
<b>If inhaled</b>
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
<b>In case of skin contact</b>
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.
<b>In case of eye contact</b>
Flush eyes with water as a precaution.
<b>If swallowed</b>
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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

#### 4.2 Indication of any immediate medical attention and special treatment needed

No data available

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### 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 data available

#### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

#### 5.4 Further information

No data available

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### 6. ACCIDENTAL RELEASE MEASURES

## 6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.

Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

## 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

## 6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

## 6.4 Reference to other sections

For disposal see section 13.

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## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Moisture sensitive.

Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

#### Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Cadmium selenide	1306-24-7	TWA	0.200000 mg/m <sup>3</sup>	USA. Occupational Exposure Limits (OSHA) -Table Z-1 Limits for Air Contaminants
		TWA	0.010000 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Kidney damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Suspected human carcinogen varies		
		TWA	0.002000 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
		Kidney damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Suspected human carcinogen varies		
		TWA	0.200000 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Eye irritation		

Component	CAS-No.	Value	Control parameters	Basis
		PEL	0.005000 mg/m3	OSHA Specifically Regulated Chemicals/Carcinogens
		1910.1027 This standard applies to all occupational exposures to cadmium and cadmium compounds, in all forms, and in all industries covered by the Occupational Safety and Health Act, except the constructionrelated industries, which are covered under 29 CFR 1926.63. OSHA specifically regulated carcinogen		
		Potential Occupational Carcinogen See Appendix A		
		Potential Occupational Carcinogen See Appendix A		
		TWA	0.200000 mg/m3	USA. NIOSH Recommended Exposure Limits
		PEL	0.005000 mg/m3	OSHA Specifically Regulated Chemicals/Carcinogens
		1910.1027 This standard applies to all occupational exposures to cadmium and cadmium compounds, in all forms, and in all industries covered by the Occupational Safety and Health Act, except the constructionrelated industries, which are covered under 29 CFR 1926.63. OSHA specifically regulated carcinogen		
		TWA	0.2 mg/m3	USA. Occupational Exposure Limits (OSHA) -Table Z-1 Limits for Air Contaminants
		TWA	0.01 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Kidney damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Suspected human carcinogen varies		
		TWA	0.002 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Kidney damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Suspected human carcinogen varies		
		TWA 0.2 mg/m3 USA. ACGIH Threshold Limit Values (TLV)		
		Upper Respiratory Tract irritation Eye irritation		
		PEL	0.005 mg/m3	OSHA Specifically Regulated Chemicals/Carcinogens
		1910.1027 This standard applies to all occupational exposures to cadmium and cadmium compounds, in all forms, and in all industries covered by the Occupational Safety and Health Act, except the constructionrelated industries, which are covered under 29 CFR 1926.63. OSHA specifically regulated carcinogen		
		Potential Occupational Carcinogen See Appendix A		
		TWA	0.2 mg/m3	USA. NIOSH Recommended Exposure Limits
		PEL	0.2 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

### Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Cadmium selenide	1306-24-7	cadmium	5.0000 µg/l	In blood	ACGIH -Biological Exposure Indices (BEI)
	Remarks	Not critical			
		cadmium	0.0050 mg/g	Urine	ACGIH -Biological Exposure Indices (BEI)
		Not critical			
		cadmium	5 µg/l	In blood	ACGIH -Biological Exposure Indices (BEI)
		Not critical			
		cadmium	5µg/g creatinine	Urine	ACGIH -Biological Exposure Indices (BEI)
		Not critical			

## 8.2 Exposure controls

### Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

### Personal protective equipment

Eye/face protection	Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
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Skin protection	<p>Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.</p> <p>Full contact Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: 480 min Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)</p> <p>Splash contact Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: 480 min Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374</p> <p>If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.</p>
Body Protection	Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection	Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
Control of environmental exposure	Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

Appearance	Form: granules Colour: light grey
Odour	No data available
Odour Threshold	No data available
pH	No data available
Melting point/freezing point	No data available
Initial boiling point and boiling range	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	No data available
Vapour density	No data available
Relative density	5.81 g/cm <sup>3</sup> at 25 °C (77 °F)
Water solubility	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

### 9.2 Other safety information

No data available

## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

Avoid moisture.

### 10.5 Incompatible materials

acids, Oxidizing agents

### 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Cadmium/cadmium oxides, Selenium/selenium oxides

Other decomposition products - No data available

In the event of fire: see section 5

## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

<b>Acute toxicity</b>
LD50 Oral - Rat - > 5,000 mg/kg Inhalation: No data available Dermal: No data available No data available
<b>Skin corrosion/irritation</b>
No data available
<b>Serious eye damage/eye irritation</b>
No data available
<b>Respiratory or skin sensitisation</b>
No data available
<b>Germ cell mutagenicity</b>
<b>Carcinogenicity</b>
IARC: 1 - Group 1: Carcinogenic to humans (Cadmium selenide) 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Cadmium selenide) IARC: 1 - Group 1: Carcinogenic to humans (Cadmium selenide) 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Cadmium selenide) IARC: 1 - Group 1: Carcinogenic to humans (Cadmium selenide) 3 - Group 3: Not classifiable as to its carcinogenicity to humans (Cadmium selenide) NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. OSHA: OSHA specifically regulated carcinogen (Cadmium selenide) OSHA: OSHA specifically regulated carcinogen (Cadmium selenide)
<b>Reproductive toxicity</b>
No data available
<b>Specific target organ toxicity -single exposure</b>
No data available
<b>Specific target organ toxicity -repeated exposure</b>
Ingestion - May cause damage to organs through prolonged or repeated exposure. - Kidney, Bone
<b>Aspiration hazard</b>
No data available
<b>Additional Information</b>
RTECS: EV2300000 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.

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## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

No data available

### 12.2 Persistence and degradability

No data available

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Other adverse effects

Very toxic to aquatic life with long lasting effects.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

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## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. 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.
Contaminated packaging
Dispose of as unused product.

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## 14. TRANSPORT INFORMATION

### DOT (US)

UN number: 2570 Class: 6.1 Packing group: III

Proper shipping name: Cadmium compounds (Cadmium selenide)

Reportable Quantity (RQ):

Poison Inhalation Hazard: No

### IMDG

UN number: 2570 Class: 6.1 Packing group: III EMS-No: F-A, S-A

Proper shipping name: CADMIUM COMPOUND (Cadmium selenide)

Marine pollutant:yes

### IATA

UN number: 2570 Class: 6.1 Packing group: III

Proper shipping name: Cadmium compound (Cadmium selenide)

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## 15. REGULATORY INFORMATION

### 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

Acute Health Hazard, Chronic Health Hazard

### Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

### Pennsylvania Right To Know Components

Component	CAS-No.	Revision Date
Cadmium selenide	1306-24-7	1994-07-31

### New Jersey Right To Know Components

Component	CAS-No.	Revision Date
Cadmium selenide	1306-24-7	1994-07-31

### California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

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## 16. OTHER INFORMATION

### Full text of H-Statements referred to under sections 2 and 3.

Acute Tox. Acute toxicity

Aquatic Acute Acute aquatic toxicity

Aquatic Chronic Chronic aquatic toxicity

Carc. Carcinogenicity

H301 Toxic if swallowed.

H301 + H331 Toxic if swallowed or if inhaled

H312 Harmful in contact with skin.

H331 Toxic if inhaled.

H350 May cause cancer.

H373 May cause damage to organs through prolonged or repeated exposure if swallowed.

### HMIS Rating

Health hazard: 2

Chronic Health Hazard: \*

Flammability: 0

Physical Hazard 0

### NFPA Rating

Health hazard: 2

Fire Hazard: 0

Reactivity Hazard: 0

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