

## SAFETY DATA SHEET

Version 6.0  
Revision Date 05/26/2018  
Print Date 11/19/2018

### 1. PRODUCT AND COMPANY IDENTIFICATION

#### 1.1 Product identifiers

Product name : Cadmium sulfate <SP>8</>/<SB>3</>-hydrate

Product Number : 20920

Brand : SIGALD

Index-No. : 048-009-00-9

CAS-No. : 7790-84-3

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

Identified uses : Laboratory chemicals, Synthesis of substances

#### 1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.  
3050 Spruce Street  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765

Fax : +1 800 325-5052

#### 1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

### 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 2), H330

Germ cell mutagenicity (Category 1B), H340

Carcinogenicity (Category 1B), H350

Reproductive toxicity (Category 1B), H360

Specific target organ toxicity - repeated exposure (Category 1), H372

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 Toxic if swallowed.  
H330 Fatal if inhaled.  
H340 May cause genetic defects.  
H350 May cause cancer.  
H360 May damage fertility or the unborn child.  
H372 Causes damage to organs through prolonged or repeated exposure.  
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.  
P284 Wear respiratory protection.  
P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.  
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.  
P308 + P313 IF exposed or concerned: Get medical advice/ attention.  
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 - none

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

Formula :  $\text{CdO}_4\text{S} \cdot 2.67\text{H}_2\text{O}$   
Molecular weight : 256.57 g/mol  
CAS-No. : 7790-84-3  
EC-No. : 233-331-6  
Index-No. : 048-009-00-9

### Hazardous components

| Component                      | Classification  | Concentration |
|--------------------------------|---|---------------|
| <b>Cadmium sulfate hydrate</b> | Acute Tox. 3; Acute Tox. 2; Muta. 1B; Carc. 1B; Repr. 1B; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H301, H330, H340, H350, H360, H372, 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

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

#### In case of eye contact

Flush eyes with water as a precaution.

#### If swallowed

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

### 4.3 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

Sulphur oxides, Cadmium/cadmium oxides

### 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.

Storage class (TRGS 510): 6.1B: Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

## 7.3 Specific end use(s)

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

# 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## 8.1 Control parameters

### Components with workplace control parameters

| Component               | CAS-No.   | Value   | Control parameters      | Basis   |
|-------------------------|-----------|---|-------------------------|---|
| Cadmium sulfate hydrate | 7790-84-3 | TWA   | 0.01 mg/m <sup>3</sup>  | USA. ACGIH Threshold Limit Values (TLV)           |
|                         | Remarks   | Kidney damage<br>Substances for which there is a Biological Exposure Index or Indices (see BEI® section)<br>Suspected human carcinogen varies   |                         |   |
|                         |           | TWA   | 0.002 mg/m <sup>3</sup> | USA. ACGIH Threshold Limit Values (TLV)           |
|                         |           | Kidney damage<br>Substances for which there is a Biological Exposure Index or Indices (see BEI® section)<br>Suspected human carcinogen varies   |                         |   |
|                         |           | PEL   | 0.005 mg/m <sup>3</sup> | OSHA Specifically Regulated Chemicals/Carcinogens |
|                         |           | 1910.1027<br>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 construction-related industries, which are covered under 29 CFR 1926.63.<br>OSHA specifically regulated carcinogen |                         |   |
|                         |           | Potential Occupational Carcinogen<br>See Appendix A   |                         |   |

### Biological occupational exposure limits

| Component               | CAS-No.   | Parameters   | Value            | Biological specimen | Basis                                     |
|-------------------------|-----------|--------------|------------------|---------------------|---|
| Cadmium sulfate hydrate | 7790-84-3 | cadmium      | 5 µg/l           | In blood            | ACGIH - Biological Exposure Indices (BEI) |
|                         | Remarks   | 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).

#### Skin protection

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.

Full contact  
Material: Nitrile rubber  
Minimum layer thickness: 0.11 mm  
Break through time: 480 min  
Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact  
Material: Nitrile rubber  
Minimum layer thickness: 0.11 mm  
Break through time: 480 min  
Material tested: Dermatril® (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

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.

### **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.

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## **9. PHYSICAL AND CHEMICAL PROPERTIES**

### **9.1 Information on basic physical and chemical properties**

- |   |                        |
|---|------------------------|
| a) Appearance                                   | Form: solid            |
| b) Odour  | No data available      |
| c) Odour Threshold                              | No data available      |
| d) pH   | No data available      |
| e) Melting point/freezing point                 | No data available      |
| f) Initial boiling point and boiling range      | No data available      |
| g) Flash point                                  | No data available      |
| h) Evaporation rate                             | No data available      |
| i) Flammability (solid, gas)                    | No data available      |
| j) Upper/lower flammability or explosive limits | No data available      |
| k) Vapour pressure                              | No data available      |
| l) Vapour density                               | No data available      |
| m) Relative density                             | 3.08 g/cm <sup>3</sup> |
| n) Water solubility                             | No data available      |
| o) Partition coefficient: n-octanol/water       | No data available      |

- |    |                           |                   |
|----|---------------------------|-------------------|
| p) | Auto-ignition temperature | No data available |
| q) | Decomposition temperature | No data available |
| r) | Viscosity                 | No data available |
| s) | Explosive properties      | No data available |
| t) | Oxidizing properties      | No data available |

## 9.2 Other safety information

No data available

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## 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

No data available

### 10.5 Incompatible materials

No data available

### 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Sulphur oxides, Cadmium/cadmium oxides  
Other decomposition products - No data available  
In the event of fire: see section 5

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## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - male - 107 mg/kg  
LC50 Inhalation - Rat - male - 3 h - > 0.0046 mg/l  
Dermal: No data available  
No data available

#### Skin corrosion/irritation

No data available

#### Serious eye damage/eye irritation

No data available

#### Respiratory or skin sensitisation

No data available

#### Germ cell mutagenicity

In vivo tests showed mutagenic effects  
Human

#### Carcinogenicity

Carcinogenicity- Rat- Subcutaneous  
This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.  
Possible human carcinogen

IARC: 1 - Group 1: Carcinogenic to humans (Cadmium sulfate hydrate)

NTP: Known - Known to be human carcinogenThe reference note has been added by TD based on

the background information of the NTP. (Cadmium sulfate hydrate)

OSHA: OSHA specifically regulated carcinogen (Cadmium sulfate hydrate)

**Reproductive toxicity**

Presumed human reproductive toxicant

Experiments have shown reproductive toxicity effects on laboratory animals.

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

Causes damage to organs through prolonged or repeated exposure.

**Aspiration hazard**

No data available

**Additional Information**

RTECS: Not available

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. Effects due to ingestion may include: Headache, Diarrhoea, muscle weakness, Seizures, Liver injury may occur, Kidney injury may occur.

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## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

|                  |  |
|------------------|--|
| Toxicity to fish | LC50 - <i>Ictalurus punctatus</i> - 4.48 mg/l - 96 h (Cadmium sulfate hydrate)<br>Remarks: anhydrous |
|------------------|--|

|   |  |
|---|--|
| Toxicity to daphnia and other aquatic invertebrates | LC50 - <i>Daphnia pulex</i> (Water flea) - 0.042 mg/l - 48 h (Cadmium sulfate hydrate)<br>Remarks: anhydrous |
|---|--|

### 12.2 Persistence and degradability

|                  |  |
|------------------|--|
| Biodegradability | Result: - According to the results of tests of biodegradability this product is not readily biodegradable.<br>Remarks: No data available |
|------------------|--|

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available (Cadmium sulfate hydrate)

### 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

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life with long lasting effects.

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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 sulfate hydrate)  
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 sulfate hydrate)  
Marine pollutant : yes

**IATA**

UN number: 2570      Class: 6.1      Packing group: III  
Proper shipping name: Cadmium compound (Cadmium sulfate hydrate)

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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**

The following components are subject to reporting levels established by SARA Title III, Section 313:

|                         | CAS-No.   | Revision Date |
|-------------------------|-----------|---------------|
| Cadmium sulfate hydrate | 7790-84-3 | 1993-04-24    |

**SARA 311/312 Hazards**

Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

|                         | CAS-No.   | Revision Date |
|-------------------------|-----------|---------------|
| Cadmium sulfate hydrate | 7790-84-3 | 1993-04-24    |

**Pennsylvania Right To Know Components**

|                         | CAS-No.   | Revision Date |
|-------------------------|-----------|---------------|
| Cadmium sulfate hydrate | 7790-84-3 | 1993-04-24    |

**New Jersey Right To Know Components**

|                         | CAS-No.   | Revision Date |
|-------------------------|-----------|---------------|
| Cadmium sulfate hydrate | 7790-84-3 | 1993-04-24    |

**California Prop. 65 Components**

|   | CAS-No.   | Revision Date |
|---|-----------|---------------|
| WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. | 7790-84-3 |               |

Cadmium sulfate hydrate

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**16. OTHER INFORMATION****Full text of H-Statements referred to under sections 2 and 3.**

|      |   |
|------|---|
| H301 | Toxic if swallowed.   |
| H330 | Fatal if inhaled.   |
| H340 | May cause genetic defects.                                      |
| H350 | May cause cancer.   |
| H360 | May damage 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.

**HMIS Rating**

|                        |   |
|------------------------|---|
| Health hazard:         | 4 |
| Chronic Health Hazard: | * |
| Flammability:          | 0 |
| Physical Hazard        | 0 |

**NFPA Rating**

|                    |   |
|--------------------|---|
| Health hazard:     | 4 |
| Fire Hazard:       | 0 |
| Reactivity Hazard: | 0 |

**Further information**

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**Preparation Information**

Sigma-Aldrich Corporation  
Product Safety – Americas Region  
1-800-521-8956

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