



MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 08/21/2013

Version 1.2

SECTION 1. Identification

Product identifier

Product number 845500
Product name Cadmium sulfate hydrate Solarpur®

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

Identified uses Photovoltaics and display technology, Chemical for synthesis

Details of the supplier of the safety data sheet

Company EMD Millipore Corporation | 290 Concord Road, Billerica, MA 01821,
United States of America | General Inquiries: +1-978-751-4321 |
Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)

Emergency telephone 800-424-9300 CHEMTREC (USA)
+1-703-527-3887 CHEMTREC (International)
24 Hours/day; 7 Days/week

SECTION 2. Hazards identification

GHS Classification

Acute toxicity, Category 3, Oral, H301
Acute toxicity, Category 2, Inhalation, H330
Germ cell mutagenicity, Category 1B, H340
Carcinogenicity, Category 1B, H350
Reproductive toxicity, Category 1B, H360FD
Specific target organ systemic 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.

GHS-Labeling

Hazard pictograms



Signal Word
Danger

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Hazard Statements

H340 May cause genetic defects.

H350 May cause cancer.

H360FD May damage fertility. May damage the unborn child.

H301 Toxic if swallowed.

H330 Fatal if inhaled.

H372 Causes damage to organs through prolonged or repeated exposure.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements

P201 Obtain special instructions before use.

P273 Avoid release to the environment.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

Restricted to professional users.

OSHA Hazards

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Formula	3 CdSO ₄ * 8 H ₂ O	Cd ₃ O ₁₂ S ₃ * 8 H ₂ O Cd ₃ O ₁₂ S ₃ * 8 H ₂ O (Hill)
CAS-No.	7790-84-3	
Molar mass	769.51 g/mol	

Hazardous ingredients

Chemical Name (Concentration)

CAS-No.

cadmium sulphate octahydrate (>= 90 % - <= 100 %)

7790-84-3

SECTION 4. First aid measures

Description of first-aid measures

General advice

First aider needs to protect himself.

Inhalation

After inhalation: fresh air. Immediately apply artificial respiration. If necessary oxygen. Immediately call in physician.

Skin contact

After skin contact: wash off with plenty of water. Remove contaminated clothing. Get medical attention.

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Eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist.

Ingestion

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

irritant effects, Cough, Shortness of breath, gastric pain, Diarrhea, Nausea, Vomiting, Headache, Convulsions, muscular weakness, death

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Not combustible.

Ambient fire may liberate hazardous vapors.

Fire may cause evolution of:

Sulfur oxides

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not empty into drains.

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Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.
Observe possible material restrictions (see sections 7 and 10).
Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

SECTION 7. Handling and storage

Precautions for safe handling

Work under hood. Do not inhale substance/mixture.
Observe label precautions.

Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.
Storage temperature: no restrictions.

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Ingredients

Basis	Value	Threshold limits	Remarks
<i>cadmium sulphate octahydrate 7790-84-3</i>			
ACGIH	Time Weighted Average (TWA):	0.01 mg/m ³	Expressed as: as Cd
	Time Weighted Average (TWA):	0.002 mg/m ³	Form of exposure: Respirable fraction. Expressed as: as Cd

Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

Eye/face protection

Safety glasses

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:

protective clothing

Respiratory protection

required when dusts are generated.

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Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

Physical state	solid
Color	off-white
Odor	odorless
Odor Threshold	No information available.
pH	3.0 - 6.0 at 50 g/l 68 °F (20 °C)
Melting point	41.5 °C
Boiling point/boiling range	(decomposition)
Flash point	does not flash
Evaporation rate	No information available.
Flammability (solid, gas)	The product is not flammable.
Lower explosion limit	not applicable
Upper explosion limit	not applicable
Vapor pressure	No information available.
Relative vapor density	No information available.
Relative density	3.10 g/cm ³ at 68 °F (20 °C)
Water solubility	1,130 g/l at 68 °F (20 °C)
Partition coefficient: n-octanol/water	No information available.
Autoignition temperature	No information available.
Decomposition temperature	> 176 °F (> 80 °C)
Viscosity, dynamic	No information available.
Explosive properties	No information available.

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Ignition temperature

not combustible

SECTION 10. Stability and reactivity

Reactivity

See below

Chemical stability

releases water of crystallization when heated.

Possibility of hazardous reactions

Violent reactions possible with:

Metals, Oxidizing agents

Conditions to avoid

Strong heating (decomposition).

Incompatible materials

no information available

Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Eye contact, Skin contact, Ingestion

Acute oral toxicity

LD50 rat: 280 mg/kg (anhydrous substance) (RTECS)

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract., gastric pain, Nausea, Vomiting

absorption

Acute inhalation toxicity

Symptoms: Cough, Shortness of breath, After a latency period:, Lung edema

absorption

Acute dermal toxicity

absorption

Genotoxicity in vitro

Mutagenicity (mammal cell test): chromosome aberration.

Result: positive

(Lit.)

Mutagenicity (mammal cell test):

Result: positive

(Lit.)

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CMR effects

Carcinogenicity:

May cause cancer.

Mutagenicity:

May cause genetic defects.

Teratogenicity:

May cause harm to the unborn child.

Reproductive toxicity:

May damage fertility.

Specific target organ systemic toxicity - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure

Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard

Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	Group 1: Carcinogenic to humans cadmium sulphate 7790-84-3 octahydrate
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	A2: Suspected human carcinogen cadmium sulphate 7790-84-3 octahydrate

Further information

After absorption:

Systemic effects:

Headache, Diarrhea, muscular weakness, Changes in the blood count, Convulsions, death pain in:

gastrointestinal tract

Damage to:

Lungs, Bone, Liver, Kidney

Further data:

This substance should be handled with particular care.

SECTION 12. Ecological information

Ecotoxicity

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Toxicity to fish

LC50 *Oncorhynchus mykiss* (rainbow trout): 0.0011 mg/l; 96 h (anhydrous substance)
(ECOTOX Database)

Toxicity to daphnia and other aquatic invertebrates

EC50 *Daphnia magna* (Water flea): 0.0016 mg/l; 48 h (anhydrous substance) (ECOTOX Database)

Persistence and degradability

No information available.

Bioaccumulative potential

No information available.

Mobility in soil

No information available.

Additional ecological information

Biological effects:

Hazard for drinking water supplies.

Further information on ecology

Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

UN number

UN 2570

Proper shipping name

CADMIUM COMPOUND (CADMIUMSULFATE)

Class

6.1

Packing group

III

Environmentally hazardous

--

Air transport (IATA)

UN number

UN 2570

Proper shipping name

CADMIUM COMPOUND (CADMIUMSULFATE)

Class

6.1

Packing group

III

Environmentally hazardous

--

Special precautions for user

no

Sea transport (IMDG)

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UN number	UN 2570
Proper shipping name	CADMIUM COMPOUND (CADMIUMSULFATE)
Class	6.1
Packing group	III
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-A S-A

SECTION 15. Regulatory information

United States of America

OSHA Hazards

Toxic by ingestion
Carcinogen
Teratogen
Reproductive hazard
Mutagen
Toxic by inhalation.

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

SARA 311/312 Hazards

Acute Health Hazard
Chronic Health Hazard

SARA 313

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

Ingredients

cadmium sulphate octahydrate 7790-84-3

SARA 302

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

DEA List I

Not listed

DEA List II

Not listed

US State Regulations

Massachusetts Right To Know

Ingredients

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cadmium sulphate octahydrate

Pennsylvania Right To Know

Ingredients

cadmium sulphate octahydrate

New Jersey Right To Know

Ingredients

cadmium sulphate octahydrate

California Prop 65 Components

WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

Ingredients

cadmium sulphate octahydrate

Notification status

TSCA:

All components of the product are listed in the TSCA-inventory.

DSL:

All components of this product are on the Canadian DSL.

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

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.
H360FD	May damage fertility. May damage 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.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Revision Date 08/21/2013

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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