STANFORD ADVANCED MATERIALS

SAFETY DATA SHEET

Date Accessed: 25/08/2023

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SECTION 1. IDENTIFICATION

Product Name: Cadmium Chloride Hemi(pentahydrate)

CAS #: 7790-78-5

Relevant identified uses of the substance: Scientific research and development

Supplier details:

Stanford Advanced Materials

E-mail: sales@samaterials.com

Tel: (949) 407-8904

Address: 23661 Birtcher Dr., Lake Forest, CA 92630 U.S.A.

SECTION 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 1), 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

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/ Vapors/ 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 or doctor/ physician. Rinse mouth.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.

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

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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula : $CdCl_2\ 2.5H_2O$

Molecular weight : 228.36 g/mol

CAS-No. : 7790-78-5

EC-No. : 233-296-7

Index-No. : 048-008-00-3

Hazardous components

Component Classification Concentration

Cadmium chloride hemipentahydrate Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)

Acute Tox. 3; Acute Tox. 1;

Muta. 1B; Carc. 1B; Repr. 1B;

STOT RE 1; Aquatic Acute 1;

Aquatic Chronic 1; H301,

H330, H340, H350, H360,

H372, H410

<= 100 %

SECTION 4. FIRST AID MEASURES4.1 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

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

Hydrogen chloride gas, Cadmium/cadmium oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid dust formation. Avoid breathing Vapors, 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.

SECTION 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.

Hygroscopic. Handle under inert gas. Protect from moisture. Air sensitive.

Storage class (TRGS 510): 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

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component CAS-No. Value Control

parameters

Basis

Cadmium chloride

hemipentahydrate

7790-78-5 TWA 0.010000

mg/m3

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/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

Potential Occupational Carcinogen

See Appendix A

Potential Occupational Carcinogen

See Appendix A

PEL 0.005000

mg/m3

OSHA Specifically Regulated

Chemicals/Carcinogens

1910.1027This 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

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 0.01 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

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

Biological occupational exposure limits

Component CAS-No. Parameters Value Biological

specimen

Basis

Cadmium chloride

hemipentahydrate

7790-78-5 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).

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 therespirator 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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance Form: crystalline

Colour: white

b) Odor No data available

c) Odor 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 N/A

h) Evaporation rate No data available

i) Flammability (solid, gas) No data available

j) Upper/lower

flammability or

explosive limits

No data available

k) Vapor pressure 13 hPa (10 mmHg) at 656 °C (1,213 °F)

l) Vapor density No data available

m) Relative density 3.327 g/cm3

n) Water solubility No data available

o) Partition coefficient: noctanol/

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

SECTION 10. STABILITY AND REACTIVITY

10.1 ReactivityNo 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

Air Avoid moisture.

10.5 Incompatible materials

Oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - No data available

In the event of fire: see section 5

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - 665 mg/kg

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

May alter genetic material.

In vivo tests showed mutagenic effects

Carcinogenicity

This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA,

ACGIH, NTP, or

EPA classification. Chronic exposure to cadmium may cause lung and prostate cancer.

Possible human carcinogen

IARC: 1 - Group 1: Carcinogenic to humans (Cadmium chloride hemipentahydrate)

1 - Group 1: Carcinogenic to humans (Cadmium chloride hemipentahydrate)

NTP: Known to be human carcinogen (Cadmium chloride hemipentahydrate)

Known to be human carcinogenThe reference note has been added by TD based on the background information of the NTP. (Cadmium chloride hemipentahydrate)

OSHA: 1910.1027 (Cadmium chloride hemipentahydrate)

OSHA specifically regulated carcinogen (Cadmium chloride hemipentahydrate)

Reproductive toxicity

May cause congenital malformation in the fetus.

Presumed human reproductive toxicant

May cause reproductive disorders.

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: EV0178000To the best of our knowledge, the chemical, physical, and toxicological properties have not been

thoroughly

investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

SECTION 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

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

Very toxic to aquatic life with long lasting effects.

SECTION 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.

SECTION 14. TRANSPORT INFORMATION

DOT (US)

UN number: 2570 Class: 6.1 Packing group: III

Proper shipping name: Cadmium compounds (Cadmium chloride hemipentahydrate)

Reportable Quantity (RQ): 10 lbs

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 chloride hemipentahydrate)

Marine pollutant:yes

IATA

UN number: 2570 Class: 6.1 Packing group: III

Proper shipping name: Cadmium compound (Cadmium chloride hemipentahydrate)

SECTION 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:

Cadmium chloride hemipentahydrate

CAS-No.

7790-78-5

Revision Date

1993-04-24

Massachusetts Right To Know Components

Cadmium chloride hemipentahydrate

CAS-No.

7790-78-5

Revision Date

1993-04-24

Pennsylvania Right To Know Components

CAS-No. Revision Date

Cadmium chloride hemipentahydrate 7790-78-5 1993-04-24

New Jersey Right To Know Components

Cadmium chloride hemipentahydrate

CAS-No.

7790-78-5

Revision Date

1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the
State of California to cause cancer.

Cadmium chloride hemipentahydrate

CAS-No.

7790-78-5

Revision Date

1987-10-01

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

Cadmium chloride hemipentahydrate

CAS-No.

7790-78-5

Revision Date

1987-10-01

SECTION 16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.