



SAFETY DATA SHEET

Creation Date 09-Dec-2010

Revision Date 18-Sep-2013

Revision Number 4

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Description: Cadmium sulfate, 8/3-hydrate
Cat No. : 403760000; 403760050; 403765000
Synonyms None Known.
Molecular Formula Cd3 O12 S3 . 8 H2 O

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

Recommended Use Laboratory chemicals
Uses advised against No Information available

1.3. Details of the supplier of the safety data sheet

Company Acros Organics BVBA
Janssen Pharmaceuticaaan 3a
2440 Geel, Belgium
E-mail address begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99
CHEMTREC Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - Regulation (EC) No 1272/2008

Physical hazards

Based on available data, the classification criteria are not met

Health hazards

| | |
|--|-------------|
| Acute oral toxicity | Category 3 |
| Acute Inhalation Toxicity - Dusts and Mists | Category 2 |
| Germ Cell Mutagenicity | Category 1B |
| Carcinogenicity | Category 1B |
| Reproductive Toxicity | Category 1B |
| Specific target organ toxicity - (repeated exposure) | Category 1 |

Environmental hazards

| | |
|--------------------------|------------|
| Acute aquatic toxicity | Category 1 |
| Chronic aquatic toxicity | Category 1 |

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Symbol(s) T+ - Very toxic
N - Dangerous for the environment

SECTION 2: HAZARDS IDENTIFICATION**R-phrases(s)**

R45 - May cause cancer
 R46 - May cause heritable genetic damage
 R60 - May impair fertility
 R61 - May cause harm to the unborn child
 R25 - Toxic if swallowed
 R26 - Very toxic by inhalation
 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

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16

2.2. Label elements**Signal Word****Danger****Hazard Statements**

H350 - May cause cancer
 H340 - May cause genetic defects
 H360FD - May damage fertility. May damage the unborn child
 H330 - Fatal if inhaled
 H301 - Toxic if swallowed
 H372 - Causes damage to organs through prolonged or repeated exposure
 H410 - Very toxic to aquatic life with long lasting effects

Precautionary Statements

P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
 P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician
 P310 - Immediately call a POISON CENTER or doctor/ physician
 P308 + P313 - IF exposed or concerned: Get medical advice/ attention
 P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
 P260 - Do not breathe dust/fume/gas/mist/vapors/spray
 P273 - Avoid release to the environment

2.3. Other hazards

No information available.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**3.1. Substances**

| Component | CAS-No | EC-No. | Weight % | CLP Classification - Regulation (EC) No 1272/2008 | DSD Classification - 67/548/EEC |
|--------------------------|-----------|--------|----------|---|---|
| Cadmium sulfate, hydrate | 7790-84-3 | | 99 | Acute Tox. 3 (H301) Acute Tox. 2 (H330) Muta. 1B (H340) Carc. 1B (H350) Repr. 1B (H360) STOT RE 1 (H372) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410) | T; R25 T+; R26 R48/23/25 R45 R46 R60 R61 N; R50-53 |

For the full text of the R-phrases and H-Statements mentioned in this Section, see Section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

| | |
|-----------------------------------|---|
| Eye Contact | Immediate medical attention is required. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. |
| Skin Contact | Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required. |
| Ingestion | Call a physician immediately. Clean mouth with water. |
| Inhalation | Remove from exposure, lie down. Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Obtain medical attention. |
| Protection of First-aiders | Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination |

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

No information available

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

| | |
|---------------------------|-----------------------|
| Notes to Physician | Treat symptomatically |
|---------------------------|-----------------------|

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

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

Extinguishing media which must not be used for safety reasons

No information available.

5.2. Special hazards arising from the substance or mixture

Non-combustible. Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous Combustion Products

Fumes, Highly toxic fumes, Cadmium oxide, Sulfur oxides.

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. Should not be released into the environment.

6.3. Methods and material for containment and cleaning up

Avoid dust formation. Wear self-contained breathing apparatus and protective suit. Sweep up or vacuum up spillage and collect in suitable container for disposal.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Do not get in eyes, on skin, or on clothing. Minimize dust generation and accumulation. Do not ingest. Use only in area provided with appropriate exhaust ventilation.

7.2. Conditions for safe storage, including any incompatibilities

Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from direct sunlight.

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s):

UK - EH40/2005 Containing the workplace exposure limits (WELs) for use with the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended). Updated by September 2006 official press release and October 2007 Supplement.

| Component | European Union | The United Kingdom | France | Belgium | Spain |
|--------------------------|----------------|---|---|---------|---|
| Cadmium sulfate, hydrate | | STEL: 0.075 mg/m ³ 15 min TWA: 0.025 mg/m ³ 8 hr | TWA / VME: 0.05 mg/m ³ (8 heures). | | TWA / VLA-ED: 0.01 mg/m ³ (8 horas) TWA / VLA-ED: 0.002 mg/m ³ (8 horas) |

| Component | Italy | Germany | Portugal | The Netherlands | Finland |
|--------------------------|-------|---------|--------------------------------------|-----------------|---------|
| Cadmium sulfate, hydrate | | Haut | TWA: 0.002 mg/m ³ 8 horas | | |

| Component | Austria | Denmark | Switzerland | Poland | Norway |
|--------------------------|---------|---------|--|--------|-------------------------------------|
| Cadmium sulfate, hydrate | | | Skin MAK: 0.015 mg/m ³ 8 Stunden | | TWA: 0.05 mg/m ³ 8 timer |

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies.

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Cadmium sulfate, 8/3-hydrate

| Component | European Union | United Kingdom | France | Spain | Germany |
|--------------------------|----------------|----------------|---|-------|---------|
| Cadmium sulfate, hydrate | | | Cadmium: 0.005 mg/g creatinine urine not critical Cadmium: 0.005 mg/L blood not critical | | |

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.

MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

MDHS10/2 Cadmium and inorganic compounds of cadmium in air Laboratory method using flame atomic absorption spectrometry or electrothermal atomic absorption spectrometry

Derived No Effect Level (DNEL) No information available.

| Route of exposure | Acute effects (local) | Acute effects (systemic) | Chronic effects (local) | Chronic effects (systemic) |
|------------------------------|-----------------------|--------------------------|-------------------------|----------------------------|
| Oral Dermal Inhalation | | | | |

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)

Hand Protection Protective gloves

| Glove material | Breakthrough time | Glove thickness | EU standard | Glove comments |
|---|-----------------------------------|-----------------|-------------|-----------------------|
| Natural rubber Nitrile rubber Neoprene PVC | See manufacturers recommendations | - | EN 374 | (minimum requirement) |

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure

Respiratory Protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly.

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced..
Recommended Filter type: Particulates filter conforming to EN 143.

| | |
|---------------------------------|---|
| Small scale/Laboratory use | Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Recommended half mask:- Particle filtering: EN149:2001 When RPE is used a face piece Fit Test should be conducted. |
| Hygiene Measures | Handle in accordance with good industrial hygiene and safety practice |
| Environmental exposure controls | Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained. |

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

| | | |
|---|---------------------------|------------------------------------|
| Appearance | White | |
| Physical State | Solid. | |
| Odor | odorless | |
| Odor Threshold | No data available | |
| pH | 4.5-6.0 | |
| Melting Point/Range | 41°C / 105.8°F | |
| Softening Point | No data available | |
| Boiling Point/Range | No information available. | |
| Flash Point | No information available. | Method - No information available. |
| Evaporation Rate | No data available | |
| Flammability (solid,gas) | No information available. | |
| Explosion Limits | No data available. | |
| Vapor Pressure | No data available | |
| Vapor Density | No data available | (Air = 1.0) |
| Specific Gravity / Density | No data available | |
| Bulk Density | No data available | |
| Water Solubility | 1130 g/L (20°C) | |
| Solubility in other solvents | No information available. | |
| Partition Coefficient (n-octanol/water) | | |
| Autoignition Temperature | No data available | |
| Decomposition temperature | No data available | |
| Viscosity | No data available | |
| Explosive Properties | No information available. | |
| Oxidizing Properties | No information available. | |

9.2. Other information

| | |
|-------------------|---------------------|
| Molecular Formula | Cd3 O12 S3 . 8 H2 O |
| Molecular Weight | 769.51 |

SECTION 10: STABILITY AND REACTIVITY

| | |
|--|--|
| 10.1. Reactivity | None known, based on information available. |
| 10.2. Chemical stability | Stable under recommended storage conditions. |
| 10.3. Possibility of hazardous reactions | |

**Hazardous Polymerization
Hazardous Reactions**

Hazardous polymerization does not occur.
No information available.

10.4. Conditions to avoid

Avoid dust formation, Incompatible products, Exposure to moist air or water.

10.5. Incompatible materials

Oxidizing agents. Aluminium. Zinc., Alkali metals.

10.6. Hazardous decomposition products

Fumes, Highly toxic fumes, Cadmium oxide, Sulfur oxides.

SECTION 11: TOXICOLOGICAL INFORMATION**11.1. Information on toxicological effects****Product Information****(a) acute toxicity;**

| | |
|------------|-------------------|
| Oral | Category 3 |
| Dermal | No data available |
| Inhalation | Category 2 |

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; No data available

(d) respiratory or skin sensitization;

| | |
|-------------|-------------------|
| Respiratory | No data available |
| Skin | No data available |

(e) germ cell mutagenicity; Category 1B

Animal experiments showed mutagenic and teratogenic effects

(f) carcinogenicity; Category 1B

Possible cancer hazard. May cause cancer based on animal data

**(g) reproductive toxicity;
Teratogenicity**

Category 1B
Teratogenic effects have occurred in experimental animals..

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; Category 1

Target Organs No information available.

(j) aspiration hazard; Not applicable
Solid

**Other Adverse Effects
Symptoms / effects,
both acute and delayed**

See actual entry in RTECS for complete information
No information available.

SECTION 12: ECOLOGICAL INFORMATION**12.1. Toxicity**

SECTION 12: ECOLOGICAL INFORMATION

| | |
|---|---|
| Ecotoxicity effects | Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Do not allow material to contaminate ground water system.. |
| 12.2. Persistence and degradability | The product includes heavy metals. Prevent release into the environment. Special pretreatment required May persist, based on information available. Not relevant for inorganic substances. Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants. |
| Persistence | |
| Degradability | |
| Degradation in sewage treatment plant | |
| 12.3. Bioaccumulative potential | May have some potential to bioaccumulate |
| 12.4. Mobility in soil | The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils. |
| 12.5. Results of PBT and vPvB assessment | No data available for assessment |
| 12.6. Other adverse effects | |
| Endocrine Disruptor Information | This product does not contain any known or suspected endocrine disruptors |
| Persistent Organic Pollutant | This product does not contain any known or suspected substance |
| Ozone Depletion Potential | This product does not contain any known or suspected substance |

SECTION 13: DISPOSAL CONSIDERATIONS

| | |
|--|---|
| 13.1. Waste treatment methods | |
| Waste from Residues / Unused Products | Should not be released into the environment. Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations. |
| Contaminated Packaging | Dispose of this container to hazardous or special waste collection point.. |
| European Waste Catalogue (EWC) | According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. |
| Other Information | Do not dispose of waste into sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not let this chemical enter the environment. |

SECTION 14: TRANSPORT INFORMATION**IMDG/IMO**

| | |
|---|------------------|
| 14.1. UN number | 2570 |
| 14.2. UN proper shipping name | CADMIUM COMPOUND |
| 14.3. Transport hazard class(es) | 6.1 |
| 14.4. Packing group | III |

ADR

| | |
|---|------------------|
| 14.1. UN number | 2570 |
| 14.2. UN proper shipping name | CADMIUM COMPOUND |
| 14.3. Transport hazard class(es) | 6.1 |
| 14.4. Packing group | III |

IATA

| | |
|---|------------------|
| 14.1. UN number | 2570 |
| 14.2. UN proper shipping name | CADMIUM COMPOUND |
| 14.3. Transport hazard class(es) | 6.1 |
| 14.4. Packing group | III |

| | |
|--|---------------------------------|
| 14.5. Environmental hazards | No hazards identified |
| 14.6. Special precautions for user | No special precautions required |
| 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable, packaged goods |

SECTION 15: REGULATORY INFORMATION**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

International Inventories X = listed

| Component | EINECS | ELINCS | NLP | TSCA | DSL | NDSL | PICCS | ENCS | CHINA | AICS | KECL |
|--------------------------|--------|--------|-----|------|-----|------|-------|------|-------|------|------|
| Cadmium sulfate, hydrate | - | - | | - | - | - | X | X | X | X | - |

National Regulations

Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment
Take note of Dir 94/33/EC on the protection of young people at work
Take note of Dir 92/85/EC on the protection of pregnant and breastfeeding women at work
Take note of Dir 76/769/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations
Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION**Full text of R-phrases referred to under sections 2 and 3**

R25 - Toxic if swallowed
R26 - Very toxic by inhalation
R45 - May cause cancer
R46 - May cause heritable genetic damage
R60 - May impair fertility
R61 - May cause harm to the unborn child
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

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

Legend

CAS - Chemical Abstracts Service
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Existing and Evaluated Chemical Substances

WEL - Workplace Exposure Limit
ACGIH - American Conference of Industrial Hygiene
DNEL - Derived No Effect Level
RPE - Respiratory Protective Equipment
LC50 - Lethal Concentration 50%
NOEC - No Observed Effect Concentration
PBT - Persistent, Bioaccumulative, Toxic

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road
IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code
OECD - Organisation for Economic Co-operation and Development
BCF - Bioconcentration factor

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japan Existing and New Chemical Substances
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

TWA - Time Weighted Average
IARC - International Agency for Research on Cancer
PNEC - Predicted No Effect Concentration
LD50 - Lethal Dose 50%
EC50 - Effective Concentration 50%
POW - Partition coefficient Octanol:Water
vPvB - very Persistent, very Bioaccumulative

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association
MARPOL - International Convention for the Prevention of Pollution from Ships
ATE - Acute Toxicity Estimate
VOC - Volatile Organic Compounds

Key literature references and sources for data

Suppliers safety data sheet,
Chemadvisor - LOLI,
Merck index,
RTECS

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

First aid for chemical exposure, including the use of eye wash and safety showers.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

Chemical incident response training.

| | |
|----------------------------|---|
| Creation Date | 09-Dec-2010 |
| Revision Date | 18-Sep-2013 |
| Revision Summary | |
| Reason for revision | Update to Format, (M)SDS sections updated, 2, 3, 8, 10, 11, 12, 13, 16. |

This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Safety Data Sheet