

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 05/01/2009

Reviewed on 08/09/2006

1 Identification of substance:

Product details:

Product name: Cadmium chloride

Stock number: 10661

Manufacturer/Supplier:

Alfa Aesar, A Johnson Matthey Company
Johnson Matthey Catalog Company, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Emergency Phone: (978) 521-6300
CHEMTREC: (800) 424-9300
Web Site: www.alfa.com

Information Department: Health, Safety and Environmental Department

Emergency information:

During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

2 Composition/Data on components:

Chemical characterization:

Description: (CAS#)

Cadmium chloride, hydrate (CAS# 654054-66-7), 100%

Identification number(s):

EINECS Number: 233-296-7

Index number: 048-008-00-3

Additional information: Ampouled under argon

3 Hazards identification

Hazard description:



T+ Very toxic
N Dangerous for the environment

Information pertaining to particular dangers for man and environment

R 45 May cause cancer.
R 46 May cause heritable genetic damage.
R 60 May impair fertility
R 61 May cause harm to the unborn child
R 25 Also toxic if swallowed.
R 26 Also very toxic by inhalation.
R 48/23/25 Also toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

| | | |
|------------|---|----------------------------|
| HEALTH | 3 | Health (acute effects) = 3 |
| FIRE | 0 | Flammability = 0 |
| REACTIVITY | 1 | Reactivity = 1 |

GHS label elements



Danger

3.1/2 - Fatal if swallowed.
3.1/2 - Fatal if inhaled.



Danger

3.5/1A - May cause genetic defects.
3.6/1A - May cause cancer.
3.7/1A - May damage fertility or the unborn child.
3.9/1 - Causes damage to organs through prolonged or repeated exposure.

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**Warning**

4.1/1 - Very toxic to aquatic life with long lasting effects.

Prevention:

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Do not breathe dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Avoid release to the environment.

Use personal protective equipment as required.

Wear respiratory protection.

Response:

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

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

IF exposed or concerned: Get medical advice/attention.

Immediately call a POISON CENTER or doctor/physician.

Get medical advice/attention if you feel unwell.

Specific treatment is urgent (see label).

Specific treatment (see label).

Rinse mouth.

Collect spillage.

Storage:

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

Disposal:

Dispose of contents/container in accordance with local/regional/national/international regulations.

4 First aid measures**General information**

Immediately remove any clothing soiled by the product.

Remove breathing apparatus only after contaminated clothing has been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing

Do not induce vomiting; immediately call for medical help.

Seek immediate medical advice.

Information for doctor

The following symptoms may occur:

Gastric or intestinal disorders.

Nausea

5 Fire fighting measures**Suitable extinguishing agents**

Product is not flammable. Use fire fighting measures that suit the surrounding fire.

Special hazards caused by the material, its products of combustion or resulting gases:

In case of fire, the following can be released:

Hydrogen chloride (HCl)

Toxic metal oxide fume

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures**Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

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Measures for environmental protection:

Do not allow material to be released to the environment without proper governmental permits.

Measures for cleaning/collecting:

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Additional information:

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage

Handling**Information for safe handling:**

Handle under dry protective gas.

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Open and handle container with care.

Information about protection against explosions and fires: The product is not flammable**Storage****Requirements to be met by storerooms and receptacles:** No special requirements.**Information about storage in one common storage facility:**

Store away from oxidizing agents.

Store away from water/moisture.

Further information about storage conditions:

This product is hygroscopic.

Store under dry inert gas.

Protect from humidity and water.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

8 Exposure controls and personal protection

Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Components with limit values that require monitoring at the workplace:

Cadmium and compounds, as Cd

| | |
|---------------------|----------------------------------|
| | mg/m ³ |
| ACGIH TLV | 0.01; Suspected human carcinogen |
| Austria | Carcinogen |
| Belgium TWA | 0.05 |
| Denmark TWA | 0.01 |
| Finland TWA | 0.02; Carcinogen |
| France VME | 0.05 |
| Germany | Carcinogen |
| Ireland TWA | 0.025; Carcinogen |
| Japan OEL | 0.05; Group 1 carcinogen |
| Korea TLV | 0.01; Suspected human carcinogen |
| Netherlands MAC-TGG | 0.02; 0.1-MAC-K |
| Norway TWA | 0.05 |
| Poland TWA | 0.02; 0.05-STEL (fume) |
| Poland TWA | 0.04; 0.2-STEL (dust) |
| Russia | 0.01; 0.05-STEL |
| Sweden NGV | 0.05 (total dust) |
| Sweden TWA | 0.01 (resp. dust) |
| Switzerland MAK-W | 0.05; Carcinogen |
| United Kingdom TWA | 0.025 |
| USA PEL | 0.005 |

Additional information: No data**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

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Breathing equipment:

Use suitable respirator when high concentrations are present.
Refer to 29CFR1910.1027 for regulations on respiratory protection required during exposure to cadmium and cadmium compounds.

Protection of hands: Impervious gloves**Eye protection:** Safety glasses**Body protection:** Protective work clothing.**9 Physical and chemical properties:****General Information**

| | |
|---------------|----------|
| Form: | Powder |
| Color: | White |
| Odor: | Odorless |

Change in condition

| | |
|---|----------------|
| Melting point/Melting range: | Not determined |
| Boiling point/Boiling range: | Not determined |
| Sublimation temperature / start: | Not determined |

Flash point: Not applicable**Ignition temperature:** Not determined**Decomposition temperature:** Not determined**Danger of explosion:** Product does not present an explosion hazard.**Explosion limits:**

| | |
|---------------|----------------|
| Lower: | Not determined |
| Upper: | Not determined |

Vapor pressure: Not determined**Density:** Not determined**Solubility in / Miscibility with**

| | |
|---------------|---------|
| Water: | Soluble |
|---------------|---------|

10 Stability and reactivity**Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

Materials to be avoided:

Oxidizing agents
Interhalogens
Water/moisture
Alkali metals

Dangerous reactions

Reacts with alkali metals.
Reacts violently with interhalogens.

Dangerous products of decomposition:

Hydrogen chloride (HCl)
Toxic metal oxide fume

11 Toxicological information**Acute toxicity:****Primary irritant effect:****on the skin:** Irritant to skin and mucous membranes.**on the eye:** Irritating effect.**Sensitization:** No sensitizing effects known.**Other information (about experimental toxicology):**

Mutagenic effects have been observed on tests with laboratory animals.
Reproductive effects have been observed on tests with laboratory animals.
Tumorigenic effects have been observed on tests with laboratory animals.
Carcinogenic effects have been observed on tests with laboratory animals.

Subacute to chronic toxicity:

Cadmium and cadmium compounds are highly toxic and experimental carcinogens. Exposure affects the respiratory tract, kidneys, and liver. Ingestion may cause nausea, salivation, vomiting and diarrhea. Ingestion or inhalation of cadmium/cadmium compounds may be fatal.

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Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

EPA-B1: Probable human carcinogen, limited evidence of carcinogenicity from epidemiologic studies.

IARC-1: Carcinogenic to humans: sufficient evidence of carcinogenicity.

NTP-2: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals.

Carcinogen as defined by OSHA.

ACGIH A2: Suspected human carcinogen: Agent is carcinogenic in experimental animals at dose levels, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) considered relevant to worker exposure. Available epidemiologic studies are conflicting or insufficient to confirm an increased risk of cancer in exposed humans.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for components in this product.

12 Ecological information:**Ecotoxicological effects:**

Remark: Very toxic for fish

General notes:

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

Do not allow material to be released to the environment without proper governmental permits.

Very toxic for aquatic organisms

13 Disposal considerations**Product:**

Recommendation Consult state, local or national regulations to ensure proper disposal.

Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

14 Transport information**DOT regulations:**

Hazard class: 6.1
Identification number: UN2570
Packing group: II
Hazardous substance: 10 lbs, 4.54 kg
Proper shipping name (technical name): CADMIUM COMPOUND
Label: 6.1

Land transport ADR/RID (cross-border)

ADR/RID class: 6.1 (T5) Toxic substances
Danger code (Kemler): 60
UN-Number: 2570
Packaging group: II
Description of goods: 2570 CADMIUM COMPOUND (cadmium chloride)

Maritime transport IMDG:

IMDG Class: 6.1

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| | |
|-----------------------|------------------|
| UN Number: | 2570 |
| Label | 6.1 |
| Packaging group: | II |
| Proper shipping name: | CADMIUM COMPOUND |

Air transport ICAO-TI and IATA-DGR:



| | |
|-----------------------|------------------|
| ICAO/IATA Class: | 6.1 |
| UN/ID Number: | 2570 |
| Label | 6.1 |
| Packaging group: | II |
| Proper shipping name: | CADMIUM COMPOUND |

UN "Model Regulation": UN2570, CADMIUM COMPOUND, 6.1, II
 Environmental hazards: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID

15 Regulations

Product related hazard informations:

Hazard symbols:

T+ Very toxic
 N Dangerous for the environment

Risk phrases:

45 May cause cancer.
 46 May cause heritable genetic damage.
 60 May impair fertility
 61 May cause harm to the unborn child
 25 Also toxic if swallowed.
 26 Also very toxic by inhalation.
 48/23/25 Also toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Safety phrases:

53 Avoid exposure - obtain special instructions before use.
 45 In case of accident or if you feel unwell, seek medical advice immediately.
 60 This material and its container must be disposed of as hazardous waste.
 61 Avoid release to the environment. Refer to special instructions/Safety data sheets

Special labeling of certain preparations:

This product contains a chemical known to the state of California to cause cancer or reproductive toxicity.

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

This product contains a chemical known to the state of California to cause cancer or reproductive toxicity.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use:

For use only by technically qualified individuals.
 This product contains cadmium and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

Other regulations, limitations and prohibitive regulations

Refer to 29CFR1910.1027 for regulations concerning cadmium and cadmium compounds.

16 Other information:

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.

Contact: Zachariah Holt

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Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

USA