SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name: Cadmium chloride
Product Number: 655198
Brand: Aldrich
Index-No.: 048-008-00-3
CAS-No.: 10108-64-2

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 ST
ST. LOUIS MO  63103
UNITED STATES

Telephone: +1 314 771-5765
Fax: +1 800 325-5052

1.4 Emergency telephone

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

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 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
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (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.
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

SECTION 3: Composition/information on ingredients

3.1 Substances

<table>
<thead>
<tr>
<th>Formula</th>
<th>CdCl₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular weight</td>
<td>183.32 g/mol</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>10108-64-2</td>
</tr>
<tr>
<td>EC-No.</td>
<td>233-296-7</td>
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<td>Index-No.</td>
<td>048-008-00-3</td>
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</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
</table>

Aldrich - 655198
SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Consult a physician.

In case of eye contact
After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed
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.

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

For the full text of the H-Statements mentioned in this Section, see Section 16.
SECTION 5: Firefighting measures

5.1 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.

5.2 Special hazards arising from the substance or mixture

Hydrogen chloride gas
Cadmium/cadmium oxides
Not combustible.
Ambient fire may liberate hazardous vapours.

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

5.4 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

6.1 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. For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 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.

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling
Work under hood. Do not inhale substance/mixture.

Hygiene measures
Immediately change contaminated clothing. Apply preventative skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions
Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

hygroscopic Air sensitive. Store under inert gas.

Storage class
Storage class (TRGS 510): 6.1A: 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

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadmium chloride</td>
<td>10108-64-2</td>
<td>TWA</td>
<td>0.01 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

Remarks Suspected human carcinogen

<table>
<thead>
<tr>
<th>Value</th>
<th></th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA</td>
<td>0.02 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
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</tbody>
</table>

Suspected human carcinogen

<table>
<thead>
<tr>
<th>Value</th>
<th></th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL</td>
<td>0.005 mg/m³</td>
<td>OSHA Specifically Regulated Chemicals/Carcinogens</td>
</tr>
</tbody>
</table>

OSHA specifically regulated carcinogen

Potential Occupational Carcinogen

<table>
<thead>
<tr>
<th>Value</th>
<th></th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL</td>
<td>0.005 mg/m³</td>
<td>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</td>
</tr>
</tbody>
</table>

Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Parameters</th>
<th>Value</th>
<th>Biological specimen</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadmium chloride</td>
<td>10108-64-2</td>
<td>cadmium</td>
<td>5 µg/l</td>
<td>In blood</td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
</tr>
</tbody>
</table>

Remarks Not critical

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Value</th>
<th>Biological specimen</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>cadmium</td>
<td>5 µg/g creatinine</td>
<td>Urine</td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
</tr>
</tbody>
</table>

Not critical
8.2 Exposure controls

Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

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 EC 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

protective clothing

Respiratory protection
required when dusts are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance Form: solid
b) Odor odorless
c) Odor Threshold No data available
d) pH No data available
e) Melting point/freezing point Melting point/range: 568 °C (1054 °F)
f) Initial boiling point and boiling range 960 °C 1760 °F at 1,013 hPa
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) Vapor pressure 13 hPa at 656 °C (1213 °F)
l) Vapor density No data available
m) Density 4.050 g/cm3 Relative density No data available
n) Water solubility 457 g/l at 20 °C (68 °F) - OECD Test Guideline 105 - soluble
o) Partition coefficient: n-octanol/water No data available
p) Autoignition 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 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature).
10.3 **Possibility of hazardous reactions**  
No data available

10.4 **Conditions to avoid**  
Air Avoid moisture.  
no information available

10.5 **Incompatible materials**  
Oxidizing agents, Bromine trifluoride

10.6 **Hazardous decomposition products**  
In the event of fire: see section 5

---

**SECTION 11: Toxicological information**

11.1 **Information on toxicological effects**

**Acute toxicity**  
LD50 Oral - Rat - male - 107 mg/kg  
LC50 Inhalation - Rat - male - 2 h - > 4.5 mg/m3 - aerosol

Dermal: No data available  
No data available

**Skin corrosion/irritation**  
No data available

**Serious eye damage/eye irritation**  
No data available

**Respiratory or skin sensitization**  
No data available

**Germ cell mutagenicity**  
May alter genetic material.  
In vivo tests showed mutagenic effects  
Test Type: in vitro test  
Test system: S. typhimurium  
Metabolic activation: with and without metabolic activation  
Result: negative

**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)

NTP: Known - Known to be human carcinogen  
The reference note has been added by TD based on the background information of the NTP. (Cadmium chloride)

OSHA: OSHA specifically regulated carcinogen (Cadmium chloride)

**Reproductive toxicity**  
May cause congenital malformation in the fetus.  
Presumed human reproductive toxicant  
Overexposure may cause reproductive disorder(s) based on tests with 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

11.2 Additional Information
Repeated dose toxicity - Rat - male - Oral - NOAEL (No observed adverse effect level) - 0.2 mg/kg - LOAEL (Lowest observed adverse effect level) - 0.5 mg/kg

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.

To 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

Toxicity to fish
flow-through test LC50 - Carassius auratus (goldfish) - 0.748 mg/l - 96 h
Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates
static test EC50 - Daphnia magna (Water flea) - 0.036 mg/l - 48 h

Toxicity to algae
static test ErC50 - Pseudokirchneriella subcapitata (algae) - 0.070 mg/l - 72 h
(OECD Test Guideline 201)
Remarks: (referred to the cation)

Toxicity to bacteria
Respiration inhibition NOEC - Sludge Treatment - 0.2 mg/l
(OECD Test Guideline 209)

Toxicity to fish (Chronic toxicity)
Growth inhibition NOEC - Jordanella floridana - 0.0081 mg/l - 100 d

Toxicity to daphnia and other aquatic invertebrates (Chronic)
mortality LOEC - Daphnia magna (Water flea) - 0.002 mg/l - 21 d
12.2 **Persistence and degradability**
No data available

12.3 **Bioaccumulative potential**
- Bioaccumulation: *Salvelinus fontinalis - 266 d - 3.4 µg/l (Cadmium chloride)*
  - Bioconcentration factor (BCF): 882

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 **Endocrine disrupting properties**
No data available

12.7 **Other adverse effects**
No data available

---

**SECTION 13: Disposal considerations**

13.1 **Waste treatment methods**

**Product**
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

---

**SECTION 14: Transport information**

**DOT (US)**
- UN number: 2570  Class: 6.1  Packing group: III
- Proper shipping name: Cadmium compounds (Cadmium chloride)
- 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)
- Marine pollutant: yes

**IATA**
- UN number: 2570  Class: 6.1  Packing group: III
- Proper shipping name: Cadmium compound (Cadmium chloride)
SECTION 15: Regulatory information

SARA 302 Components
This material does not contain any components with a section 302 EHS TPQ.

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

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadmium chloride</td>
<td>10108-64-2</td>
<td>1989-08-11</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

<table>
<thead>
<tr>
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<th>CAS-No.</th>
<th>Revision Date</th>
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</thead>
<tbody>
<tr>
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</table>

Pennsylvania Right To Know Components

<table>
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</thead>
<tbody>
<tr>
<td>Cadmium chloride</td>
<td>10108-64-2</td>
<td>1989-08-11</td>
</tr>
</tbody>
</table>

California Prop. 65 Components
, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.Cadmium chloride

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
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<tbody>
<tr>
<td>Cadmium chloride</td>
<td>10108-64-2</td>
<td>2007-09-28</td>
</tr>
</tbody>
</table>

SECTION 16: Other information

Further information
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. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.9       Revision Date: 05/24/2023       Print Date: 01/06/2024