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

1.1 Product identifiers

Product name: Cadmium oxide

Product Number: 202894
Brand: Aldrich
Index-No.: 048-002-00-0
CAS-No.: 1306-19-0

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, Inhalation (Category 2), H330
Germ cell mutagenicity (Category 2), H341
Carcinogenicity (Category 1B), H350
Reproductive toxicity (Category 2), H361
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

Aldrich - 202894
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>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>cadmium oxide (non-pyrophoric)</td>
<td>Acute Tox. 2; Muta. 2; Carc. 1B; Repr. 2; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H330,</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>
The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada

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**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**
After swallowing: immediately make victim drink water (two glasses at most). 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

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**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**
Cadmium/cadmium oxides
Not combustible.

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For the full text of the H-Statements mentioned in this Section, see Section 16.
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**
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 preventive 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.

Handle under nitrogen, protect from moisture.

**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 oxide (non-pyrophoric)</td>
<td>1306-19-0</td>
<td>PEL</td>
<td>0.005 mg/m³</td>
<td>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>0.01 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Remarks</td>
<td>Suspected human carcinogen</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>0.02 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PEL</td>
<td>0.005 mg/m³</td>
<td>OSHA Specifically Regulated Chemicals/Carcinogens</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Remarks</td>
<td>OSHA specifically regulated carcinogen</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Remarks</td>
<td>Potential Occupational Carcinogen</td>
<td></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 oxide (non-pyrophoric)</td>
<td>1306-19-0</td>
<td>cadmium</td>
<td>5 µg/l</td>
<td>In blood</td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Remarks</td>
<td>Not critical</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>cadmium</td>
<td>5µg/g creatinine</td>
<td>Urine</td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Remarks</td>
<td>Not critical</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please...
contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: KCL 741 Dermatril® L

**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: powder  
Color: red

b) Odor  
odorless

c) Odor Threshold  
No data available

d) pH  
No data available

e) Melting point/freezing point  
Melting point/range: 870 - 950 °C (1598 - 1742 °F)

f) Initial boiling point and boiling range  
No data available

g) Flash point  
No data available

h) Evaporation rate  
No data available

i) Flammability (solid, gas)  
No data available

j) Upper/lower  
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
Violent reactions possible with:
Light metals
Risk of explosion with:
Aluminum perchlorates hydrogen sulphide hydrogen peroxide Salts of hydrazine magnesium with Heat.

10.4 Conditions to avoid
no information available
**10.5 Incompatible materials**
No data available

**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**
- Oral: No data available
- LC50 Inhalation - Rat - male and female - 4 h - 0.056 mg/l - dust/mist

- Dermal: No data available
  - No data available

**Skin corrosion/irritation**
- Remarks: No data available

**Serious eye damage/eye irritation**
- Remarks: No data available

**Respiratory or skin sensitization**
- No data available

**Germ cell mutagenicity**
- In vitro tests showed mutagenic effects

**Carcinogenicity**
- Carcinogen
- Possible human carcinogen

- **IARC:** 1 - Group 1: Carcinogenic to humans (cadmium oxide (non-pyrophoric))

- **NTP:** Known - Known to be human carcinogen
  The reference note has been added by TD based on the background information of the NTP. (cadmium oxide (non-pyrophoric))

- **OSHA:** OSHA specifically regulated carcinogen (cadmium oxide (non-pyrophoric))

**Reproductive toxicity**
- Suspected human reproductive toxicant

**Specific target organ toxicity - single exposure**
- No data available

**Specific target organ toxicity - repeated exposure**
- No data available

**Aspiration hazard**
- No data available

**11.2 Additional Information**
- Repeated dose toxicity - Rat - male and female - Oral - 90 d - NOAEL (No observed adverse effect level) - 3 mg/kg

**RTECS:** EV1925000
Kidney injury may occur., Damage to the lungs.
Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity
Toxicity to daphnia and other aquatic invertebrates
static test LC50 - Daphnia magna (Water flea) - 0.75 mg/l - 48 h
(OECD Test Guideline 202)
Toxicity to algae
static test EC50 - Pseudokirchneriella subcapitata (algae) - 0.018 mg/l - 72 h
(OECD Test Guideline 201)
Toxicity to bacteria
Respiration inhibition NOEC - Sludge Treatment - 0.353 mg/l - 3 h
(OECD Test Guideline 209)

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 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.
SECTION 14: Transport information

**DOT (US)**
- UN number: 2570  
- Class: 6.1  
- Packing group: I  
- Proper shipping name: Cadmium compounds (cadmium oxide (non-pyrophoric))  
- Reportable Quantity (RQ): Poison Inhalation Hazard: No

**IMDG**
- UN number: 2570  
- Class: 6.1  
- Packing group: I  
- EMS-No: F-A, S-A  
- Proper shipping name: CADMIUM COMPOUND (cadmium oxide (non-pyrophoric))

**IATA**
- UN number: 2570  
- Class: 6.1  
- Packing group: I  
- Proper shipping name: Cadmium compound (cadmium oxide (non-pyrophoric))

SECTION 15: Regulatory information

**SARA 302 Components**
- cadmium oxide (non-pyrophoric)  
- CAS-No. 1306-19-0  
- Revision Date 2010-08-02

**SARA 313 Components**
The following components are subject to reporting levels established by SARA Title III, Section 313:
- cadmium oxide (non-pyrophoric)  
- CAS-No. 1306-19-0  
- Revision Date 2010-08-02

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

**Massachusetts Right To Know Components**
- cadmium oxide (non-pyrophoric)  
- CAS-No. 1306-19-0  
- Revision Date 2010-08-02

**Pennsylvania Right To Know Components**
- cadmium oxide (non-pyrophoric)  
- CAS-No. 1306-19-0  
- Revision Date 2010-08-02

**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 oxide (non-pyrophoric)  
- CAS-No. 1306-19-0  
- Revision Date 2007-09-28
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: 6.6 Revision Date: 06/15/2023 Print Date: 07/08/2023