1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Cadmium oxide

Product Number: 244783
Brand: Aldrich

Company: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone: +1 800-325-5832
Fax: +1 800-325-5052
Emergency Phone #: (314) 776-6555

2. COMPOSITION/INFORMATION ON INGREDIENTS

Formula: CdO
Molecular Weight: 128.41 g/mol

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1306-19-0</td>
<td>215-146-2</td>
<td>048-002-00-0</td>
<td>-</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Target Organ Effect, Highly toxic by inhalation, Toxic by ingestion, Carcinogen

Target Organs
Kidney injury may occur., Damage to the lungs., Kidney, Lungs

HMIS Classification

Health Hazard: 4
Chronic Health Hazard: *
Flammability: 0
Physical hazards: 0

NFPA Rating

Health Hazard: 4
Fire: 0
Reactivity Hazard: 0

Potential Health Effects

Inhalation: May be fatal if inhaled. May cause respiratory tract irritation.
Skin: May be harmful if absorbed through skin. May cause skin irritation. May be fatal
4. 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. Consult a physician.

**In case of eye contact**
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

**Flammable properties**
- Flash point: not applicable
- Ignition temperature: no data available

**Suitable extinguishing media**
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

**Special protective equipment for fire-fighters**
Wear self-contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**
Wear respiratory protection. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation. Evacuate personnel to safe areas.

**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.

**Methods for cleaning up**
Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

**Handling**
Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

**Storage**
Keep container tightly closed in a dry and well-ventilated place. Keep in a dry place.
## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadmium oxide non-pyrophoric</td>
<td>1306-19-0</td>
<td>TWA</td>
<td>0.002 mg/m³</td>
<td>1994-09-01</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td><strong>Remarks</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
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<td>Suspected human carcinogen: Human data are accepted as adequate in quality but are conflicting or insufficient to classify the agent as a confirmed human carcinogen; OR, the agent is carcinogenic in experimental animals at dose(s), by route(s) of exposure, at site(s), of histologic type(s), or by mechanism(s) considered relevant to worker exposure. The A2 is used primarily when there is limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenity in experimental animals with relevance to humans. Inhalable fraction. See Appendix C, paragraph A. Inhalable Particulate Mass TLVs (IPM-TLVs) for those materials that are hazardous when deposited anywhere in the respiratory tract. Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL. Substance identified by other sources as a suspected or confirmed human carcinogen. Refers to Appendix A -- Carcinogens.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TWA</td>
<td>0.01 mg/m³</td>
<td>2007-01-01</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kidney damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Suspected human carcinogen: Human data are accepted as adequate in quality but are conflicting or insufficient to classify the agent as a confirmed human carcinogen; OR, the agent is carcinogenic in experimental animals at dose(s), by route(s) of exposure, at site(s), of histologic type(s), or by mechanism(s) considered relevant to worker exposure. The A2 is used primarily when there is limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenity in experimental animals with relevance to humans. varies</td>
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</table>
Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator. Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N99 (US) or type P2 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator 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).

Hand protection
Handle with gloves.

Eye protection
Face shield and safety glasses

Skin and body protection
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form powder

Safety data
pH no data available
Melting point no data available
Boiling point no data available
Flash point not applicable
Ignition temperature no data available
Lower explosion limit no data available
Upper explosion limit no data available
Density 8.15 g/mL at 25 °C (77 °F)
Water solubility no data available

10. STABILITY AND REACTIVITY

Storage stability
Stable under recommended storage conditions.

Materials to avoid
Oxidizing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Cadmium/cadmium oxides

11. TOXICOLOGICAL INFORMATION

Acute toxicity
LD50 Oral - rat - 72 mg/kg
LC50 Inhalation - mouse - 2 h - 250 mg/m3

Irritation and corrosion
no data available

Sensitisation
no data available

Chronic exposure
Carcinogen
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

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

OSHA: 1910.1027 (Cadmium oxide non-pyrophoric)

Signs and Symptoms of Exposure
Kidney injury may occur., Damage to the lungs.

Potential Health Effects

Inhalation May be fatal if inhaled. May cause respiratory tract irritation.
Skin May be harmful if absorbed through skin. May cause skin irritation. May be fatal if absorbed through skin.
Eyes May cause eye irritation.
Ingestion Toxic if swallowed.
Target Organs Kidney injury may occur., Damage to the lungs., Kidney, Lungs,

Additional Information
RTECS: EV1925000

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)
no data available

Ecotoxicity effects
Toxicity to fish LC50 - Pimephales promelas (fathead minnow) - 7.029 mg/l - 96 h

Further information on ecology
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

13. DISPOSAL CONSIDERATIONS

Product
Observe all federal, state, and local environmental regulations. 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.

14. TRANSPORT INFORMATION
### DOT (US)
- UN-Number: 2570  
- Class: 6.1  
- Packing group: III  
- Proper shipping name: Cadmium compounds  
- Marine pollutant: No  
- Poison Inhalation Hazard: No

### IMDG
- UN-Number: 2570  
- Class: 6.1  
- Packing group: III  
- Proper shipping name: CADMIUM COMPOUND  
- Marine pollutant: No

### IATA
- UN-Number: 2570  
- Class: 6.1  
- Packing group: III  
- Proper shipping name: Cadmium compound

### 15. REGULATORY INFORMATION

#### OSHA Hazards
- Target Organ Effect, Highly toxic by inhalation, Toxic by ingestion, Carcinogen

#### DSL Status
- All components of this product are on the Canadian DSL list.

#### SARA 302 Components
- Cadmium oxide non-pyrophoric  
  - CAS-No.: 1306-19-0  
  - Revision Date: 1993-04-24

#### SARA 313 Components
- Cadmium oxide non-pyrophoric  
  - CAS-No.: 1306-19-0  
  - Revision Date: 1993-04-24

#### 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: 1993-04-24

#### Pennsylvania Right To Know Components
- Cadmium oxide non-pyrophoric  
  - CAS-No.: 1306-19-0  
  - Revision Date: 1993-04-24

#### New Jersey Right To Know Components
- Cadmium oxide non-pyrophoric  
  - CAS-No.: 1306-19-0  
  - Revision Date: 1993-04-24

#### California Prop. 65 Components
- WARNING! This product contains a chemical known in the State of California to cause cancer.  
  - Cadmium oxide non-pyrophoric  
  - CAS-No.: 1306-19-0  
  - Revision Date: 1987-10-01

- WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.  
  - Cadmium oxide non-pyrophoric  
  - CAS-No.: 1306-19-0  
  - Revision Date: 1987-10-01

### 16. OTHER INFORMATION
Further information
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