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

1.1 Product identifiers

Product name : Cadmium telluride

Product Number : 256544
Brand : Aldrich
Index-No. : 048-001-00-5
CAS-No. : 1306-25-8

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 4), H302
Acute toxicity, Inhalation (Category 4), H332
Acute toxicity, Dermal (Category 4), H312
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
The life science business of Merck operates as MilliporeSigma in the US and Canada.
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

SECTION 5: Firefighting measures
5.1 Extinguishing media
No data available

5.2 Special hazards arising from the substance or mixture
Cadmium/cadmium oxides
Tellurium oxides
Not combustible.

5.3 Advice for firefighters
No data available

5.4 Further information
No data available

SECTION 6: Accidental release measures
6.1 Personal precautions, protective equipment and emergency procedures
For personal protection see section 8.

6.2 Environmental precautions
No data available

6.3 Methods and materials for containment and cleaning up
No data available

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage
7.1 Precautions for safe handling
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
No data available

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
The life science business of Merck operates as MilliporeSigma in the US and Canada.

<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 telluride</td>
<td>1306-25-8</td>
<td>TWA</td>
<td>0.1 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></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>Remarks</td>
<td>Suspected human carcinogen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td></td>
<td>0.02 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>Remarks</td>
<td>Suspected human carcinogen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td></td>
<td>0.1 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td>PEL</td>
<td></td>
<td>0.005 mg/m³</td>
<td>OSHA Specifically Regulated Chemicals/Carcinogens</td>
</tr>
<tr>
<td>Remarks</td>
<td>OSHA specifically regulated carcinogen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential Occupational Carcinogen</td>
<td>TWA</td>
<td></td>
<td>0.1 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td></td>
<td>PEL</td>
<td></td>
<td>0.1 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 telluride</td>
<td>1306-25-8</td>
<td>cadmium</td>
<td>5 µg/l</td>
<td>In blood</td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
</tr>
<tr>
<td>Remarks</td>
<td>Not critical</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>cadmium</td>
<td>5 µg/g creatinine</td>
<td>Urine</td>
<td></td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
</tr>
<tr>
<td>Remarks</td>
<td>Not critical</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8.2 Exposure controls
No data available

**SECTION 9: Physical and chemical properties**

9.1 Information on basic physical and chemical properties

a) Appearance
   Form: powder
   Color: white

b) Odor
   odorless

c) Odor Threshold
   Not applicable

d) pH
   No data available

e) Melting
   Melting point/range: 1,092 °C (1,998 °F)
The life science business of Merck operates as MilliporeSigma in the US and Canada.

### SECTION 9: Physical and chemical properties

#### 9.1 Physical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Point/freezing point</td>
<td>1,130 °C, 2,066 °F</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>1,130 °C, 2,066 °F</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>6.2 g/cm³ at 25 °C (77 °F) - lit.</td>
</tr>
<tr>
<td>Water solubility</td>
<td>0.0008 g/l at 20 °C (68 °F) - OECD Test Guideline 105 - slightly soluble</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not applicable for inorganic substances</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>none</td>
</tr>
</tbody>
</table>

### 9.2 Other safety information

No data available

### SECTION 10: Stability and reactivity

#### 10.1 Reactivity

No data available

#### 10.2 Chemical stability

No data available

#### 10.3 Possibility of hazardous reactions

No data available

#### 10.4 Conditions to avoid

No data available

#### 10.5 Incompatible materials

Strong oxidizing agents, Strong acids
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 - female - > 2,000 mg/kg
(OECD Test Guideline 423)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
LC50 Inhalation - Rat - male and female - 4 h - 2.71 mg/l - dust/mist

(OECD Test Guideline 403)
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Dermal: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 4 h
(OECD Test Guideline 404)
Skin - reconstructed human epidermis (RhE)
Result: No skin irritation - 4 h
(OECD Test Guideline 431)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation - 1 h
(OECD Test Guideline 405)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: Ames test
Test system: Escherichia coli/Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
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.

IARC: 1 - Group 1: Carcinogenic to humans (Cadmium telluride)

NTP: Known - Known to be human carcinogen

The reference note has been added by TD based on the background information of the NTP. (Cadmium telluride)

OSHA: OSHA specifically regulated carcinogen (Cadmium telluride)

**Reproductive toxicity**
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**
No data available

**Aspiration hazard**
No data available

### 11.2 Additional Information

**RTECS:** EV3330000
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.

### SECTION 12: Ecological information

#### 12.1 Toxicity

**Toxicity to fish** flow-through test LC50 - Danio rerio (zebra fish) - > 1,000 mg/l - 96 h
*(OECD Test Guideline 203)*
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

**Toxicity to daphnia and other aquatic invertebrates** static test EC50 - Daphnia magna (Water flea) - 0.4 mg/l - 48 h
*(OECD Test Guideline 202)*
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

**Toxicity to algae** static test EC50 - Pseudokirchneriella subcapitata (algae) - 3.1 mg/l - 72 h
*(OECD Test Guideline 201)*
Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)
Toxicity to bacteria
static test EC50 - activated sludge - > 1,000 mg/l - 3 h
(OECD Test Guideline 209)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
static test NOEC - Daphnia magna (Water flea) - 0.2 mg/l - 21 d
(OECD Test Guideline 211)

12.2 Persistence and degradability
The methods for determining biodegradability are not applicable to inorganic substances.

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
No data available

SECTION 14: Transport information

DOT (US)
Not dangerous goods

IMDG
UN number: 3077  Class: 9  Packing group: III  EMS-No: F-A, S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Cadmium telluride)
Marine pollutant: yes
Marine pollutant: no

IATA
UN number: 3077  Class: 9  Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Cadmium telluride)

Further information
EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids. Packages smaller than or equal to 5 kg / L, not dangerous goods of Class 9
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>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1306-25-8</td>
<td>2015-07-08</td>
</tr>
</tbody>
</table>

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

**Massachusetts Right To Know Components**
No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1306-25-8</td>
<td>2015-07-08</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.

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1306-25-8</td>
<td>2007-09-28</td>
</tr>
</tbody>
</table>

SECTION 16: Other information

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact misbranding@sial.com.

Version: 6.9   Revision Date: 04/15/2023   Print Date: 05/06/2023