

ACCORDING TO EC-REGULATIONS 1907/2006 (REACH), 1272/2008 (CLP) &amp; 2015/830

**SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**
**1.1 Product identifier**

Product Name Molybdenum Ditelluride Crystal  
 Synonyms Molybdenum (IV) telluride, Molybdenum telluride  
 Chemical Name Molybdenum ditelluride  
 Chemical Formula MoTe<sub>2</sub>  
 CAS No. 12058-20-7  
 EC No. 235-028-4  
 REACH Registration No. Not applicable.

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified Use(s) PC21 Laboratory chemicals

**1.3 Details of the supplier of the safety data sheet**

Company Identification Ossila Limited  
 Address of Supplier Solpro Business Park  
 Windsor Street  
 Sheffield  
 Postal code S4 7WB, UK  
 Telephone: +441142999180  
 E-mail info@ossila.com  
 Office hours 08:00 - 17:00

**SECTION 2: HAZARDS IDENTIFICATION**
**2.1 Classification of the substance or mixture**

Regulation (EC) No. 1272/2008 (CLP) Acute Tox. 3: Toxic if swallowed  
 Acute Tox. 4: Harmful if inhaled

**2.2 Label elements**

Product Name According to Regulation (EC) No. 1272/2008 (CLP)  
 Molybdenum Ditelluride Crystal

Hazard Pictogram(s)



GHS06

Signal Word(s) Danger

Hazard Statement(s) H301: Toxic if swallowed  
 H332: Harmful if inhaled

Precautionary Statement(s) P261: Avoid breathing dust/fume/gas/mist/vapours/spray.  
 P264: Wash hands thoroughly after handling.  
 P301 + P310 + P330: IF SWALLOWED: Immediately call a POISON CENTER/  
 doctor. Rinse mouth.  
 P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for  
 breathing.

**2.3 Other hazards**

None known.

**2.4 Additional Information**

Not applicable.

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**
**3.1 Substances**

| Hazardous ingredient(s) | CAS No.    | EC No.    | %W/W | Hazard Statement(s)                    |
|-------------------------|------------|-----------|------|--|
| Molybdenum ditelluride  | 12058-20-7 | 235-028-4 | ≤100 | Acute Tox. 3 H301<br>Acute Tox. 4 H332 |

**3.2 Mixtures**

Not applicable.

**SECTION 4: FIRST AID MEASURES**

**4.1 Description of first aid measures**

Inhalation Remove person to fresh air and keep comfortable for breathing. If not breathing give artificial respiration. Call a POISON CENTER or doctor/physician.

Skin Contact Wash with soap and flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a POISON CENTER or doctor/physician.

Eye Contact Flush with copious amounts of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a POISON CENTER or doctor/physician.

Ingestion Immediately call a POISON CENTER or doctor/ physician. Rinse mouth.

**4.2 Most important symptoms and effects, both acute and delayed**

SECTION 11: Most important symptoms and effects, both acute and delayed

**4.3 Indication of any immediate medical attention and special treatment needed**

Treat symptomatically.

**SECTION 5: FIREFIGHTING MEASURES**

**5.1 Extinguishing media**

Suitable Extinguishing media As appropriate for surrounding fire.  
 Unsuitable extinguishing media As appropriate for surrounding fire.

**5.2 Special hazards arising from the substance or mixture**

May decompose in a fire, giving off toxic and irritant vapours.

**5.3 Advice for firefighters**

Fire fighters should wear complete protective clothing including self-contained breathing apparatus.

**SECTION 6: ACCIDENTAL RELEASE MEASURES**

**6.1 Personal precautions, protective equipment and emergency procedures**

Provide adequate ventilation. Wear protective clothing as per section 8.

**6.2 Environmental precautions**

Avoid release to the environment.

**6.3 Methods and material for containment and cleaning up**

Sweep up spilled substance but avoid making dust. Use vacuum equipment for collecting spilt materials, where practicable. Dispose of contents in accordance with local, state or national legislation.

**6.4 Reference to other sections**

See Also Section 8, 13.

**SECTION 7: HANDLING AND STORAGE**

**7.1 Precautions for safe handling**

Avoid breathing dust/fume/gas/mist/vapours/spray. Use only in a well-ventilated area. Wear protective clothing as per section 8. Wash hands thoroughly after handling.

**7.2 Conditions for safe storage, including any incompatibilities**

Storage temperature Store in a well-ventilated place. Keep container tightly closed. Store locked up.  
 Storage life Ambient.  
 Incompatible materials Product is air, heat, and moisture sensitive. Handle and store under inert gas.  
 Incompatible materials None known.

**7.3 Specific end use(s)**

Not known. See Section: 1.2.

**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1 Control parameters**

**8.1.1 Occupational Exposure Limits**

UK – EH40 Workplace Exposure Limits (WEL).

| Occupational Exposure Limits                               |            |                     |                                    |            |                           |      |
|--|------------|---------------------|------------------------------------|------------|---------------------------|------|
| SUBSTANCE.   | CAS No.    | LTEL (8 hr TWA ppm) | LTEL (8 hr TWA mg/m <sup>3</sup> ) | STEL (ppm) | STEL (mg/m <sup>3</sup> ) | Note |
| Tellurium and compounds, except hydrogen telluride (as Te) | 12058-20-7 |                     | 0.1                                |            |                           |      |

Region Source  
 EU EU Occupational Exposure Limits  
 United Kingdom UK Workplace Exposure Limits EH40/2005 (Third edition, published 2018)

**8.2 Exposure controls**

8.2.1. Appropriate engineering controls Ensure adequate ventilation. A washing facility/water for eye and skin cleaning purposes should be present.

**8.2.2. Personal protection equipment**


Eye Protection

Wear eye protection with side protection (EN166).



Skin protection

Wear protective clothing and gloves: Impervious gloves (EN 374).



Respiratory protection

A suitable mask with filter type A (EN14387 or EN405) may be appropriate.



Thermal hazards

None known.

**8.2.3. Environmental Exposure Controls** Avoid release to the environment.

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**SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**


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**9.1 Information on basic physical and chemical properties**

|  |  |
|--|--|
| Appearance                                   | Solid: Crystal<br>Colour: Metallic black                         |
| Odour  | Not known.   |
| Odour threshold                              | Not known.   |
| pH   | Not known.   |
| Melting point/freezing point                 | Not known.   |
| Initial boiling point and boiling range      | Not known.   |
| Flash Point                                  | Not known.   |
| Evaporation rate                             | Not known.   |
| Flammability (solid, gas)                    | Not known.   |
| Upper/lower flammability or explosive limits | Not known.   |
| Vapour pressure                              | Not known.   |
| Vapour density                               | Not known.   |
| Density (g/ml)                               | Not known.   |
| Relative density                             | Not known.   |
| Solubility(ies)                              | Solubility (Water): Not known.<br>Solubility (Other): Not known. |
| Partition coefficient: n-octanol/water       | Not known.   |
| Auto-ignition temperature                    | Not known.   |
| Decomposition Temperature (°C)               | Not known.   |
| Viscosity                                    | Not known.   |
| Explosive properties                         | Not known.   |
| Oxidising properties                         | Not known.   |

**9.2 Other information**

None.

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**SECTION 10: STABILITY AND REACTIVITY**


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**10.1 Reactivity**

None anticipated.

**10.2 Chemical Stability**

Stable under normal conditions.

**10.3 Possibility of hazardous reactions**

Not known.

**10.4 Conditions to avoid**

Not known.

**10.5 Incompatible materials**

Not known.

**10.6 Hazardous decomposition products**

No hazardous decomposition products known.

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**SECTION 11: TOXICOLOGICAL INFORMATION**


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**11.1 Information on toxicological effects**

Acute toxicity - Ingestion No data available.

|                                |                    |
|--------------------------------|--------------------|
| Acute toxicity - Skin Contact  | No data available. |
| Acute toxicity - Inhalation    | No data available. |
| Skin corrosion/irritation      | No data available. |
| Serious eye damage/irritation  | No data available. |
| Skin sensitization data        | No data available. |
| Respiratory sensitization data | No data available. |
| Germ cell mutagenicity         | No data available. |
| Carcinogenicity                | No data available. |
| Reproductive toxicity          | No data available. |
| Lactation                      | No data available. |
| STOT - single exposure         | No data available. |
| STOT - repeated exposure       | No data available. |
| Aspiration hazard              | No data available. |

**11.2 Other information**

Not known.

**SECTION 12: ECOLOGICAL INFORMATION**

**12.1 Toxicity**

|                                    |                    |
|------------------------------------|--------------------|
| Toxicity - Aquatic invertebrates   | No data available. |
| Toxicity - Fish                    | Not known.         |
| Toxicity - Algae                   | Not known.         |
| Toxicity - Sediment Compartment    | Not known.         |
| Toxicity - Terrestrial Compartment | Not known.         |

**12.2 Persistence and Degradation**

Not known.

**12.3 Bioaccumulative potential**

Not known.

**12.4 Mobility in soil**

Not known.

**12.5 Results of PBT and vPvB assessment**

Not known.

**12.6 Other adverse effects**

Not known.

**SECTION 13: DISPOSAL CONSIDERATIONS**

**13.1 Waste treatment methods**

Dispose of contents in accordance with local, state or national legislation. Recycle only completely emptied packaging. Normal disposal is via incineration operated by an accredited disposal contractor. Send to a licensed recycler, reclaimor or incinerator.

**13.2 Additional Information**

Disposal should be in accordance with local, state or national legislation.

**SECTION 14: TRANSPORT INFORMATION**

**14.1 UN number**

UN No. 3284

**14.2 UN proper shipping name**

UN proper shipping name Tellurium compound, n.o.s. (Molybdenum ditelluride)

**14.3 Transport hazard class(es)**

|         |     |
|---------|-----|
| ADR/RID | 6.1 |
| IMDG    | 6.1 |
| IATA    | 6.1 |

**14.4 Packing group**

Packing group III

**14.5 Environmental hazards**

Environmental hazards Not classified as a Marine Pollutant.

**14.6 Special precautions for user**

Special precautions for user Not known.

**14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**

Not known.

**SECTION 15: REGULATORY INFORMATION**

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

European Regulations - Authorisations and/or Restrictions On Use

Candidate List of Substances of Very High Concern for Authorisation Not listed

High Concern for Authorisation

REACH: ANNEX XIV list of substances subject to authorisation Not listed

REACH: Annex XVII Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Not listed

Community Rolling Action Plan (CoRAP) Regulation (EC) N° 850/2004 of the European Parliament and of the Council on persistent organic pollutants

Not listed

Not listed

Regulation (EC) N° 1005/2009 on substances that deplete the ozone layer

Not listed

Regulation (EU) N° 649/2012 of the European Parliament and of the Council concerning the export and import of hazardous chemicals

Not listed

#### National regulations

Other

Not known.

#### 15.2 Chemical Safety Assessment

A REACH chemical safety assessment has not been carried out.

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### SECTION 16: OTHER INFORMATION

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The following sections contain revisions or new statements:

#### LEGEND

##### Acronyms

ADN : European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways  
ADR : European Agreement concerning the International Carriage of Dangerous Goods by Road  
CAS : Chemical Abstracts Service  
CLP : Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures  
DNEL : Derived No Effect Level  
EC : European Community  
EINECS : European Inventory of Existing Commercial Chemical Substances  
IATA : International Air Transport Association  
IBC : Intermediate Bulk Container  
ICAO : International Civil Aviation Organization  
IMDG : International Maritime Dangerous Goods  
LTEL : Long term exposure limit  
PBT : Persistent, Bioaccumulative and Toxic  
PNEC : Predicted No Effect Concentration  
REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals  
RID : Regulations concerning the International Carriage of Dangerous Goods by Rail  
STEL : Short term exposure limit  
STOT : Specific Target Organ Toxicity  
UN : United Nations  
vPvB : very Persistent and very Bioaccumulative

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