

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

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product Name	Molybdenum Diselenide Crystal
Synonyms	Molybdenum (IV) selenide, Molybdenum selenide
Chemical Name	Molybdenum diselenide
Chemical Formula	MoSe ₂
CAS No.	12058-18-3
EC No.	235-027-9
Index No.	034-002-00-8
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
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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. 3: Toxic if inhaled STOT RE 2: May cause damage to organs through prolonged or repeated exposure Aquatic Acute 1: Very toxic to aquatic life Aquatic Chronic 1: Very toxic to aquatic life with long lasting effects
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2.2 Label elements

Product Name	According to Regulation (EC) No. 1272/2008 (CLP) Molybdenum Diselenide Crystal
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Hazard Pictogram(s)



GHS06 GHS08 GHS09

Signal Word(s)	Danger
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Hazard Statement(s)	H301+H331: Toxic if swallowed or if inhaled H373: May cause damage to organs through prolonged or repeated exposure H400: Very toxic to aquatic life H410: Very toxic to aquatic life with long lasting effects
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Precautionary Statement(s)	P261: Avoid breathing dust/fume/gas/mist/vapours/spray. P273: Avoid release to the environment. P301 + P310 + P330: IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth. P304 + P340 + P311: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor. P314: Get medical advice/attention if you feel unwell.
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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 diselenide	12058-18-3	235-027-9	≤100	Acute Tox. 3 H301 Acute Tox. 3 H331 STOT RE 2 H373 Aquatic Acute 1 H400 Aquatic Chronic 1 H410

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	Rinse skin with water. If skin irritation occurs, get medical advice/attention.
Eye Contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
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. Ambient.
Storage life	Stable under normal conditions.
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.	LTCL (8 hr TWA ppm)	LTCL (8 hr TWA mg/m ³)	STEL (ppm)	STEL (mg/m ³)	Note
Selenium and compounds, except hydrogen selenide (as Se)	12058-18-3		0.1			

Region: EU, United Kingdom
 Source: EU Occupational Exposure Limits, 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.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES
9.1 Information on basic physical and chemical properties

Appearance	Solid: Crystal Colour: Black
Odour	Not known.
Odour threshold	Not known.
pH	Not known.
Melting point/freezing point	>1200 °C
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. 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.

SECTION 10: STABILITY AND REACTIVITY
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.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity - Ingestion Toxic if swallowed. Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2).

Acute toxicity - Skin Contact No data available.

Acute toxicity - Inhalation Toxic if inhaled. Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2).

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 Causes damage to organs through prolonged or repeated exposure. Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2).

Aspiration hazard

No data available.

11.2 Other information

Not known.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects. Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2).

Toxicity - Aquatic invertebrates

Not known.

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, reclaimer 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. 3283

14.2 UN proper shipping name

UN proper shipping name Selenium compound, solid, n.o.s. (Molybdenum diselenide)

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

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

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

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A REACH chemical safety assessment has not been carried out.

SECTION 16: OTHER INFORMATION

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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SAFETY DATA SHEET

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