1. Identification of the substance/mixture and of the company/undertaking

1.1. Product Details

Product Code : M2107C
Product Name : Molybdenum disulfide crystal
Full Name : Molybdenum disulfide
REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration or the annual tonnage does not require a registration.
CAS No. : 1317-33-5

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

Identified uses : Laboratory chemicals

1.3. Supplier details

Supplied by : Ossila Limited
Solpro Business Park
Windsor Street, Sheffield
S4 7WB, UK
Telephone : 0114 2999 180
Email address : info@ossila.com

2. Hazards identification

2.1. Classification of the substance or mixture

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

2.2. Label elements

The product does not need to be labelled in accordance with EC directives or respective national laws.

2.3. Other hazards

None.

3. Composition/Information on ingredients

3.1. Substances

Synonyms: Molybdenum sulfide, Molybdenum disulfide, Molybdenum (IV) sulfide
Formula : MoS₂
Molecular weight : 160.07 g/mol
CAS No. : 1317-33-5

No components need to be disclosed according to the applicable regulations.
4. First aid measures

4.1. Description of first aid measures

After Inhalation
Remove person to fresh air. If not breathing, give person artificial respiration.

After skin contact
Wash with soap and water.

After eye contact
Flush with copious amounts of water as a precaution.

After Ingestion
Rinse out mouth with water.

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

The most important known symptoms and effects are described in section 11.

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

No data available.

5. Fire fighting

5.1. Extinguishing media

Suitable extinguishing media: Dry chemical, alcohol-resistant foam, carbon dioxide or water spray. Consult with local fire authorities before attempting large scale fire-fighting operations.

5.2. Special hazards arising from the substance of mixture

Hazardous combustion products: sulfur oxides, molybdenum oxides

5.3. Advice for firefighters

Wear a self-contained breathing apparatus if necessary. During a fire, irritating and highly toxic gases and vapours may be generated by thermal decomposition.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Wear personal protective equipment (section 8). Avoid dust formation. Ensure room is well ventilated. Remove all sources of ignition.

6.2. Environmental precautions

Do not let product enter drains.

6.3. Containment and cleaning

Contain and clean up spill if safe to do so using an electrically protected vacuum cleaner or by wet-brushing. Dispose of dry waste in closed container for proper disposal according to local regulations.
7. Handling and storage

7.1. Precautions for safe handling
Avoid formation of dust and aerosols. Keep away from sources of ignition and avoid the build-up of electrostatic charge. Provide exhaust ventilation in places where dust is formed.

7.2. Conditions for safe storage, including any incompatibilities
Store in a cool, dry and well-ventilated place inside of a tightly sealed container. Reseal containers that have been opened and keep upright to prevent leakage.

Quality-related information: Heat, air and moisture sensitive. Store under inert gas.

7.3. Specific end uses
Use in laboratories.

8. Exposure controls / Personal protection

8.1. Control parameters

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS #</th>
<th>Control parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molybdenum(V) sulfide</td>
<td>1317-33-5</td>
<td>20 mg/m³ (STEL)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10 mg/m³ (TWA)</td>
</tr>
</tbody>
</table>

TWA - time weighted average; STEL - Short Term Exposure Limit

8.2. Exposure controls

Engineering measures
Handle in accordance with good industrial engineering/laboratory practices for hygiene and safety. Ensure eyewash stations and safety showers are close to the laboratory workstation. Ensure good general ventilation is present when handling the product.

Personal protective equipment

Eyes: Wear safety glasses with side-shields conforming to appropriate government standards such as NOISH (US) or EN166 (EU).
Skin: Handle with appropriate gloves and use proper glove removal technique to avoid skin contact. Dispose of gloves in accordance with applicable laws. Wash and dry hands.
The selected protective gloves must satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.
Clothing: Wear complete suit protecting against chemicals; the type of equipment should be appropriate for the concentration and amount of dangerous substance used.
Respirators: Where protection from nuisance dusts is needed, use type N95 (US) or type P1 (EN 143) dust masks or those approved under appropriate government standards such as NIOSH (US) or CEN (EU).

General hygiene measures
Wash thoroughly after handling. Wash contaminated clothing before reuse.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties
Appearance: Solid black/grey crystal
## Odour
No data available

## Odour threshold
No data available

## pH
No data available

## Melting/freezing point
2,375 °C (lit.)

## Boiling point/range
No data available

## Flash point
No data available

## Evaporation rate
No data available

## Flammability
No data available

## Explosive limits
No data available

## Vapour pressure
No data available

## Vapour density
No data available

## Relative density
5.060 g/cm³ at 15 °C

## Solubility(ies)
No data available

## Partition coefficient: n-octanol/water
No data available

## Autoignition temperature
No data available

## Decomposition temperature
No data available

## Viscosity
No data available

## Explosive properties
No data available

## Oxidising properties
No data available

### 9.2. Other safety information
No data available.

### 10. Stability and reactivity

#### 10.1 Reactivity
No data available.

#### 10.2. Chemical stability
Stable under normal temperatures and pressures under recommended storage conditions.

#### 10.3. Possibility of hazardous reactions
No data available.

#### 10.4. Conditions to avoid
No data available.

#### 10.5. Incompatible materials
Strong oxidising agents.

#### 10.6. Hazardous decomposition products
No known hazardous decomposition products.

### 11. Toxicological information

#### 11.1. Information on toxicological effects

**Acute toxicity**
No data available.

**Skin corrosion/irritation**
No data available.
Serious eye damage/eye irritation
No data available.

Respiratory or skin sensitization
No data available.

Germ cell mutagenicity
No data available.

Carcinogenicity
No data available.

Reproductive toxicity
No data available.

Specific target organ toxicity - single exposure
No data available.

Specific target organ toxicity - repeated exposure
No data available.

Aspiration hazard
No data available.

Routes of exposure
Eye contact, ingestion, inhalation, skin contact.

Signs and Symptoms of Exposure
No data available.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. Ecological information

12.1. Toxicity
No data available.

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. Other adverse effects
No data available.

13. Disposal

13.1. Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state and local environmental regulations and directives on waste and hazardous waste. Offer surplus material to a licensed professional waste disposal professional.
Contaminated packaging
Dispose of as unused product.

14. Transport
Non-hazardous for road, air and sea transport.

IATA: Not regulated as a hazardous material.
IMO: Not regulated as a hazardous material.
RID/ADR: Not regulated as a hazardous material.

15. Regulatory information
This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006, the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
No data available.

15.2 Chemical safety assessment
No chemical safety report/assessment was carried out for this product.

16. Other information

Warranty
This material is for research and development use only. The information provided here is based upon the available information from material suppliers but not warranted as complete and is provided only as a guide. Ossila Limited shall not be held responsible for any damage resulting from use or handling of this product.