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

1.1 Product identifier
Product Name: Vanadium Diselenide Powder
Synonyms: Vanadium selenide, Bis(selenylidene)vanadium
Chemical Name: Vanadium Diselenide
Chemical Formula: VSe₂
Product code: M2154C
CAS No.: 12299-51-3
EC No.: 235-568-0
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
Acute Tox. 3: Toxic if inhaled.
STOT RE 2: May cause damage to organs through prolonged or repeated exposure.
Chronic Aquatic Tox 1: Very toxic to aquatic life with long lasting effects.
Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

2.2 Label elements
Product Name: Vanadium Diselenide Powder
Hazard Pictogram(s)
GHS06
GHS08
GHS09
Signal Word(s)
Danger
Hazard Statement(s) H301 + H331: Toxic if swallowed or if inhaled
H373: May cause damage to organs through prolonged or repeated exposure.
H410: Very toxic to aquatic life with long lasting effects.
Precautionary Statement(s) P260: Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P273: Avoid release to the environment.
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P304 + P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing
P314: Get medical advice/attention if you feel unwell.
P405: Store locked up.

2.3 Other hazards
None known.

2.4 Additional Information
Not applicable.
SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

<table>
<thead>
<tr>
<th>HAZARDOUS INGREDIENT(S)</th>
<th>CAS No.</th>
<th>EC No. / REACH Registration No.</th>
<th>%W/W</th>
<th>Hazard Statement(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vanadium Diselenide</td>
<td>12299-51-3</td>
<td>235-568-0 &lt;=100</td>
<td>&lt;=100</td>
<td>Acute Tox. 3 (H301 + H331); STOT RE 2 (H373); Aquatic Chronic 1 (H410)</td>
</tr>
</tbody>
</table>

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. Call a poison centre/doctor.
- **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**: Rinse out mouth with water. Call a poison centre/doctor.

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.
- Avoid release to the environment.

6.2 Environmental precautions

- Avoid making dust. Use vacuum equipment for collecting spill materials, where practicable. Dispose of contents in accordance with local, state or national legislation.

6.3 Methods and material for containment and cleaning up

- Store in a well-ventilated place. Keep container tightly closed. Store locked up.

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/aerosols. Use only in a well-ventilated area. Wear protective clothing as per section 8.
- Storage temperature: Ambient.
- Storage life: Stable under normal conditions.
- Incompatible materials: None known.

7.2 Conditions for safe storage, including any incompatibilities

- Store in a well-ventilated place. Keep container tightly closed. Store locked up.

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
- No occupational exposure limit assigned.

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: Dark brown
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.
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  None 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.
Acute toxicity - Skin Contact  Not classified.
Acute toxicity - Inhalation  Toxic if inhaled.
Skin corrosion/irritation  Not classified.
Serious eye damage/irritation  Not classified.
Skin sensitization data  Not classified.
Respiratory sensitization data  Not classified.
Germ cell mutagenicity  Not classified.
Carcinogenicity  Not classified.
Reproductive toxicity  Not classified.
Lactation  Not classified.
STOT - single exposure  Not classified.
STOT - repeated exposure  May cause damage to organs through prolonged or repeated exposure.
Aspiration hazard  Not classified.

11.2 Other information  Not known.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity  Very toxic to aquatic life with long lasting effects
Toxicity - Aquatic invertebrates  Not known.
Toxicity - Fish  Not known.
Toxicity - Algae  Not known.
Toxicity - Sediment Compartment  Not classified.
Toxicity - Terrestrial Compartment  Not classified.

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

<table>
<thead>
<tr>
<th>14.1 UN number</th>
<th>UN No.</th>
<th>3283</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.2 UN proper shipping name</td>
<td>UN proper shipping name</td>
<td>SELENIUM COMPOUND, SOLID, N.O.S.</td>
</tr>
<tr>
<td>14.3 Transport hazard class(es)</td>
<td>ADR/RID Class</td>
<td>6.1</td>
</tr>
<tr>
<td></td>
<td>IMDG Class</td>
<td>6.1</td>
</tr>
<tr>
<td></td>
<td>IATA</td>
<td>6.1</td>
</tr>
<tr>
<td>14.4 Packing group</td>
<td>Packing group</td>
<td>III</td>
</tr>
<tr>
<td>14.5 Environmental hazards</td>
<td>Environmental hazards</td>
<td>Classified as a Marine Pollutant.</td>
</tr>
<tr>
<td>14.6 Special precautions for user</td>
<td>Special precautions for user</td>
<td>Not known.</td>
</tr>
<tr>
<td>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code</td>
<td>No information available</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 15: REGULATORY INFORMATION

| 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture |
| 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) | Not listed |
| Regulation (EC) N° 1005/2009 on substances that deplete the ozone layer | Not listed |
| National regulations | Not known. |
| Other | Not known. |

| 15.2 Chemical Safety Assessment | A REACH chemical safety assessment has not been carried out. |

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements:

LEGEND

<table>
<thead>
<tr>
<th>Acronyms</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN</td>
<td>European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways</td>
</tr>
<tr>
<td>ADR</td>
<td>European Agreement concerning the International Carriage of Dangerous Goods by Road</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstracts Service</td>
</tr>
<tr>
<td>CLP</td>
<td>Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures</td>
</tr>
<tr>
<td>DNEL</td>
<td>Derived No Effect Level</td>
</tr>
<tr>
<td>EC</td>
<td>European Community</td>
</tr>
<tr>
<td>EINECS</td>
<td>European Inventory of Existing Commercial Chemical Substances</td>
</tr>
<tr>
<td>IATA</td>
<td>International Air Transport Association</td>
</tr>
<tr>
<td>IBC</td>
<td>Intermediate Bulk Container</td>
</tr>
<tr>
<td>ICAO</td>
<td>International Civil Aviation Organization</td>
</tr>
<tr>
<td>IMDG</td>
<td>International Maritime Dangerous Goods</td>
</tr>
<tr>
<td>LTEL</td>
<td>Long term exposure limit</td>
</tr>
<tr>
<td>PBT</td>
<td>Persistent, Bioaccumulative and Toxic</td>
</tr>
<tr>
<td>PNEC</td>
<td>Predicted No Effect Concentration</td>
</tr>
<tr>
<td>REACH</td>
<td>Registration, Evaluation, Authorisation and Restriction of Chemicals</td>
</tr>
</tbody>
</table>
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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