1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: Multilayer Graphene nanoplates
Recommended Use: Manufacture of substances
Supplier: Graphene Manufacturing Australia Pty Ltd (GMA)
ABN: 83 614 164 877
Street Address: 90 Staghorn Street, Enoggera, 4051, Queensland, Australia
Telephone Number: +61 434 432 002
Emergency Telephone: +61 0434 432 002

2. HAZARDS IDENTIFICATION

GHS Classification – Not a hazardous substance or mixture
GHS Label elements, including precautionary statements
Pictogram: none
Signal word: none
Hazard statement(s): none
Precautionary statement(s): none
Not a hazardous substance or mixture
Other hazards – none

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components / CAS Number Proportion Risk Phrases
Substances
Formula : C
Molecular weight : 12.01 g/mol
CAS-No. : 7782-42-5
EC-No. : 231-955-3

4. FIRST AID MEASURES

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration.

In case of skin contact
Wash off with soap and plenty of water.

In case of eye contact
Flush eyes with water as a precaution.

**If swallowed**

Never give anything by mouth to an unconscious person. Rinse mouth with water.

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

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

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

No data available

---

### 5. FIRE FIGHTING MEASURES

**Extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

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

No data available

**Advice for fire-fighters**

Wear self-contained breathing apparatus for fire fighting if necessary

**Further Information**

No data available

---

### 6. ACCIDENTAL RELEASE MEASURES

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

Avoid dust formation. Avoid breathing vapours, mist or gas. For personal protection see section 8.

**Environmental precautions**

No special environmental precautions required.

**Methods and materials for containment and cleaning up**

Sweep up and shovel. Keep in suitable, closed containers for disposal.

**Reference for other sections**

For disposal see section 13

---

### 7. HANDLING AND STORAGE

**Precautions for safe handling**

Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.

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

Store in a cool place. Keep container tightly closed in a dry and well-ventilated place.
Safety Data Sheet
Version 1.0 Rev date 25.10.2017

Specific end use(s)
Apart from the uses mentioned in section 1, no other specific.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameter</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphite</td>
<td>7782-42-5</td>
<td>TWA</td>
<td>3 mg/m3</td>
<td>Australia. Workplace Exposure Standards for Airborne Contaminants.</td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
<td>See Chapter 14</td>
<td>National Commission documentation available for these values containing no asbestos and &lt;1% crystalline silica, all forms except fibres</td>
<td></td>
</tr>
<tr>
<td>TWA</td>
<td></td>
<td>3 mg/m3</td>
<td>Australia. Workplace Exposure Standards for Airborne Contaminants</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Containing no asbestos and &lt;1% crystalline silica</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Exposure controls

Appropriate engineering controls
General industrial hygiene practice

Personal protective equipment

Respiratory protection: Protect against inhalation by using type N95 (US) or type P1 (EN 143) dust masks. A respiratory protection program that meets applicable OHSA requirements should be maintained in the workplace.

Eye protection: Protect against contact with eyes by wearing suitable safety eyeglasses or chemical protective goggles or other face protection.

Skin protection: Protect against skin contact by wearing protective gloves. Protect against skin contact by wearing suitable clothing.
9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state and appearance: Solid.
Odor: Odorless.
Taste: Tasteless.
Molecular Weight: 12.01 g/mole
Color: Black
pH (1% soln/water): Not applicable.
Boiling Point: Not available.
Melting Point: 3650°C (6602°F)
Critical Temperature: 681°C (1257.8°F)
Specific Gravity: Not available.
Vapor Pressure: Not applicable.
Vapor Density: Not available.
Volutility: Not available.
Odor Threshold: Not available.
Water/Oil Dist. Coeff.: Not available.
Ionicity (in Water): Not available.
Dispersion Properties: Not available.
Solubility: Insoluble in cold water.

Other safety information
No data available

10. STABILITY AND REACTIVITY

Stability: The product is stable.
Instability Temperature: Not available.
Conditions of Instability: Excess heat, incompatible materials.
Incompatibility with various substances: Highly reactive with oxidizing agents.
Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Reacts vigorously with liquid potassium, and potassium peroxide. If graphene contacts liquid potassium, rubidium or caesium at 300 C, intercalation compounds may be formed.
Special Remarks on Corrosivity: Not available. Polymerization: Will not occur.
Safety Data Sheet
Version 1.0 Rev date 25.10.2017

Chemical stability: Stable under normal conditions of use.
Conditions to avoid: Avoid contact with foodstuffs. Avoid exposure to heat, sources of ignition, and open flame.
Incompatible materials: Incompatible with oxidising agents.

**Hazardous decomposition products:**
Hazardous decomposition products formed under fire conditions – Carbon oxides
Other decompositions products – No data available

**11. TOXICOLOGICAL INFORMATION**
Routes of Entry: Inhalation. Ingestion.

**Toxicity to Animals:**
LD50 (oral, rat): >2000mg/kg (OECD Test Guideline 423)
LC50 (inhalation, rat): 4h – 2,000mg/m3 (OECD Test Guideline 403)

**Serious eye damage/eye irritation**
Eyes – Rabbit
Result: No eye irritation (OECD Test Guideline 405)

**Skin corrosion/irritation**
Skin – Rabbit
Result: No skin irritation (OECD Test Guideline 404)

**Respiratory or skin sensitisation**
- Mouse; Did not cause sensitisation on laboratory animals (OECD Test 429)

**Germ cell mutagenicity**
In vitro assay
S. typhimurium
Results: negative

**Carcinogenicity**
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC

**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

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

12. ECOLOGICAL INFORMATION

Toxicity
Toxicity to fish: Semi-static test LC50 – Danio rerio (Zebra fish) - > 100 mg/l – 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other invertebrates: Static test EC50 - Daphnia magna (Water flea) - > 100 mg/l – 48 h (OECD Test Guideline 202)
Toxicity to algae: Static test EC50 – Pseudokirchneriella subcapitata - > 100 mg/l – 72 h (OECD Test Guideline 201)

BOD5 and COD: Not available.

Persistence and degradability: Not available

Mobility in soil: No data available

Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Product
Offer surplus and non-recyclable solutions to a licensed disposal company

Contaminated packaging
Dispose of as unused product

14. TRANSPORT INFORMATION

UN number

ADR/RID: - IMDG: - IATA-DGR: -

UN proper shipping name

ADR/RID: Not dangerous goods
IMDG: Not dangerous goods
IATA-DGR: Not dangerous goods

Transport hazard class
Safety Data Sheet
Version 1.0 Rev date 25.10.2017

ADR/RID: -  IMDG: -  IATA-DGR: -

Packaging group
ADR/RID: -  IMDG: -  IATA-DGR: -

Environmental hazards
ADR/RID: no  IMDG Marine pollutant: no  IATA-DGR: no

Special precautions for user
No data available

15. REGULATORY INFORMATION
Safety, Health and environmental regulations/legislation specific for the substance or mixture
Standard for the Uniform Scheduling of medicines and poisons
No data available
Carcinogen classification under the WHS REGulation 2011, Schedule 10
Not listed

16. OTHER INFORMATION
Safety Data Sheet – Graphene Manufacturing Australia Pty Ltd (GMA); 25/10/2017
This material safety data sheet has been prepared by GMA.
This SDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since GMA cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.
If clarification or further information is needed, the user should contact their GMA representative at the contact details on page 1.
GMA responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.