xGnP® Graphene Nanoplatelets Grade H
Safety Data Sheet
Date of issue: 11/26/2015    Revision date: 11/26/2015    Version: 1.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
Product form: Substance
Substance name: xGnP® Graphene Nanoplatelets Grade H
Product code: Not available

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/mixture: Additive

1.3. Details of the supplier of the safety data sheet
XG Sciences, Inc.
3101 Grand Oak Dr.
Lansing, MI 48911 - USA
T 517-703-1110

1.4. Emergency telephone number
Emergency number: CHEMTREC (800) 424-9300
CHEMTREC International +1 (703) 527-3887 24 hr

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
GHS-US and GHS-CA classification
Not classified

2.2. Label elements
GHS-US and GHS-CA labelling
No labelling applicable

2.3. Other hazards
No additional information available.

2.4. Unknown acute toxicity (GHS-US and GHS-CA)
Not applicable.

SECTION 3: Composition/information on ingredients

3.1. Substance

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphite</td>
<td>(CAS No) 7782-42-5</td>
<td>100</td>
</tr>
</tbody>
</table>

3.2. Mixture
Not applicable.

4.1. Description of first aid measures

First-aid measures after inhalation: If inhaled and if breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.

First-aid measures after skin contact: If irritation occurs, flush skin with plenty of water. Get medical attention if irritation persists.

First-aid measures after eye contact: In case of contact, immediately flush eyes with plenty of water. Remove contact lenses, if worn. If irritation persists, get medical attention.

First-aid measures after ingestion: Not a normal route of exposure. If swallowed, rinse mouth with water. Get medical advice/attention if you feel unwell.

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

Symptoms/injuries after inhalation: May cause respiratory irritation.
Symptoms/injuries after skin contact: May cause skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin.
Symptoms/injuries after eye contact: May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.
Symptoms/injuries after ingestion: Not a normal route of exposure. May be harmful if swallowed. May cause stomach distress, nausea or vomiting.

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

Symptoms may not appear immediately. In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).
SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media : Powder, water spray, foam, carbon dioxide, sand
Unsuitable extinguishing media : None known.

5.2. Special hazards arising from the substance or mixture
Fire hazard : Products of combustion may include, and are not limited to: oxides of carbon.

5.3. Advice for firefighters
Protection during firefighting : Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
General measures : Use personal protection recommended in Section 8. Keep unnecessary personnel away from the release.

6.2. Methods and material for containment and cleaning up
For containment : Contain spill, then place in a suitable container. Minimize dust generation. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).
Methods for cleaning up : Vacuum or sweep material and place in a disposal container. Provide ventilation. Spills of this material are a slipping hazard.

6.3. Reference to other sections
See section 8 for further information on protective clothing and equipment and section 13 for advice on waste disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for safe handling : Avoid contact with skin and eyes. Avoid generating and breathing dust. Good housekeeping is important to prevent accumulation of dust. The use of compressed air for cleaning clothing, equipment, etc, is not recommended. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke. Use only outdoors or in a well-ventilated area.
Hygiene measures : Launder contaminated clothing before reuse. Wash hands before eating, drinking, or smoking.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions : Keep out of the reach of children. Keep container tightly closed and dry. Keep only in the original container in a cool, well-ventilated place.

7.3. Specific end use(s)
Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Graphite (7782-42-5)</th>
<th>ACGIH TWA (mg/m³)</th>
<th>OSHA PEL (TWA) (mg/m³)</th>
<th>OSHA PEL (mineral dusts) (mppcf)</th>
<th>US IDLH (mg/m³)</th>
<th>NIOSH REL (TWA) (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>2 mg/m³ (all forms except graphite fibers-respirable fraction)</td>
<td>15 mg/m³ (synthetic-total dust)</td>
<td>15 mppcf (natural)</td>
<td>1250 mg/m³</td>
<td>2.5 mg/m³ (natural-respirable dust)</td>
</tr>
<tr>
<td>OSHA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OSHA PEL (TWA)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OSHA PEL (mineral dusts)</td>
<td></td>
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<tr>
<td>US IDLH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIOSH REL (TWA)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8.2. Exposure controls
Appropriate engineering controls : Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, etc.) below recommended exposure limits.
Personal protective equipment : Avoid all unnecessary exposure.
Hand protection : Wear suitable gloves.
Eye protection : Safety glasses or goggles are recommended when using product.
Skin and body protection : Wear suitable protective clothing.
Respiratory protection: In case of inadequate ventilation wear respiratory protection. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Environmental exposure controls: Maintain levels below Community environmental protection thresholds.

Other information: Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking. Handle according to established industrial hygiene and safety practices.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Powder</td>
</tr>
<tr>
<td>Colour</td>
<td>Black or grey</td>
</tr>
<tr>
<td>Odour</td>
<td>Odourless</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not flammable</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Density</td>
<td>0.03 - 0.10 g/cm³</td>
</tr>
<tr>
<td>Solubility</td>
<td>Insoluble</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

9.2. Other information

No additional information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reaction known under conditions of normal use.

10.2. Chemical stability

Stable under normal storage conditions.

10.3. Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid

Heat. Incompatible materials.

10.5. Incompatible materials


10.6. Hazardous decomposition products

May include, and are not limited to: oxides of carbon.
**SECTION 11: Toxicological information**

11.1. Information on toxicological effects

**Acute toxicity**: Not classified.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>xGnP® Graphene Nanoplatelets Grade H</td>
<td></td>
</tr>
<tr>
<td>LD50 oral rat</td>
<td>No data available</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>No data available</td>
</tr>
<tr>
<td>LC50 inhalation rat</td>
<td>No data available</td>
</tr>
</tbody>
</table>

**Skin corrosion/irritation**: Based on available data, the classification criteria are not met.

**Serious eye damage/irritation**: Based on available data, the classification criteria are not met.

**Respiratory or skin sensitisation**: Based on available data, the classification criteria are not met.

**Germ cell mutagenicity**: Based on available data, the classification criteria are not met.

**Carcinogenicity**: Based on available data, the classification criteria are not met.

**Reproductive toxicity**: Based on available data, the classification criteria are not met.

**Specific target organ toxicity (single exposure)**: Based on available data, the classification criteria are not met.

**Specific target organ toxicity (repeated exposure)**: Based on available data, the classification criteria are not met.

**Aspiration hazard**: Based on available data, the classification criteria are not met.

**Symptoms/injuries after inhalation**: May cause respiratory irritation. Symptoms may include redness, drying, defatting and cracking of the skin.

**Symptoms/injuries after skin contact**: May cause skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin.

**Symptoms/injuries after eye contact**: May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.

**Symptoms/injuries after ingestion**: Not a normal route of exposure. May be harmful if swallowed. May cause stomach distress, nausea or vomiting.

**SECTION 12: Ecological information**

12.1. Toxicity

**Ecology - general**: Natural graphite is inert and insoluble. To the best of our knowledge graphite does not present any significant environmental hazards.

12.2. Persistence and degradability

**xGnP® Graphene Nanoplatelets Grade H**: Not established.

12.3. Bioaccumulative potential

**xGnP® Graphene Nanoplatelets Grade H**: Not established.

12.4. Mobility in soil

No additional information available.

12.5. Other adverse effects

**Effect on the global warming**: No known ecological damage caused by this product.

**SECTION 13: Disposal considerations**

13.1. Waste treatment methods

**Waste disposal recommendations**: This material must be disposed of in accordance with all local, state, provincial, and federal regulations.

**SECTION 14: Transport information**

In accordance with DOT/TDG

Not regulated for transport

**Additional information**

**Other information**: No supplementary information available.

**Special transport precautions**: Do not handle until all safety precautions have been read and understood.
xGnP® Graphene Nanoplatelets Grade H

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SECTION 15: Regulatory information

15.1. Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

**Graphite (7782-42-5)**

Listed on the Canadian DSL (Domestic Substances List)

15.2. US State regulations

**xGnP® Graphene Nanoplatelets Grade H**

| State or local regulations | This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm. |

SECTION 16: Other information

Date of issue : 11/26/2015
Revision date : 11/26/2015
Other information : None.

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