SAFETY DATA SHEET

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

1.1. Product identifier

Name of the substance  GG 225-270N
Identification number  235-819-4 (EC number)
Registration number  -
Synonyms  GrafGuard
SDS number  0120
Issue date  14-October-2022
Version number  01
Revision date  -
Supersedes date  -

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

Identified uses  GrafGuard® expandable graphite flake is a non-halogenated fire-retardant additive for materials that require improved fire-protection characteristics. It can be found in building materials and automotive applications to meet increasingly stringent fire safety codes. GrafGuard materials also improve the performance of fire-retardant additives such as phosphates, magnesium hydroxide and nitrogen compounds.

Uses advised against  Workers (and your customers or users in the case of resale) should be informed of the potential presence of respirable dust as well as its potential hazards. Appropriate training in the proper use and handling of this material should be provided as required under applicable regulations.

1.3. Details of the supplier of the safety data sheet

Company name  NeoGraf Solutions, LLC
Address  11709 Madison Avenue
          Lakewood, OH 44107
          United States of America
Telephone  +1 216-529-3777
Contact person  Product Responsibility Manager +1 216-529-3724
E-mail  info@neograf.com

1.4. Emergency telephone number

For Chemical Emergency ONLY, call 3E at:
+44-20-35147487, +1-760-476-3961
Access Code: 333366

General emergency  112 or 999 SDS/Product information may not be available for the Emergency Service.
Non-emergency medical helpline  111 SDS/Product information may not be available for the Emergency Service.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The substance has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Regulation (EC) No 1272/2008 as amended  This substance does not meet the criteria for classification according to Regulation (EC) 1272/2008 as amended.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Hazard pictograms  None.
Signal word  None.
Hazard statements  The substance does not meet the criteria for classification.

Precautionary statements

Prevention  Observe good industrial hygiene practices.
Response  Wash hands after handling.
Storage  Store away from incompatible materials.
Disposal
Dispose of waste and residues in accordance with local authority requirements.

Supplemental information on the label
None.

2.3. Other hazards
This substance does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII.

SECTION 3: Composition/information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>General information</th>
<th>%</th>
<th>CAS-No. / EC No.</th>
<th>REACH Registration No.</th>
<th>Index No.</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulphuric acid, compound with graphite</td>
<td>80 - 90</td>
<td>12777-87-6/235-819-4</td>
<td>01-2119514421-54-0004</td>
<td>-</td>
<td>#</td>
</tr>
<tr>
<td>Classification:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Impurities*</td>
<td>10 - 20</td>
<td>Not available</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Classification:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crystalline silica</td>
<td>2.1</td>
<td>14808-60-7/238-878-4</td>
<td>-</td>
<td>-</td>
<td>#</td>
</tr>
<tr>
<td>Classification:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>STOT RE 1;H372</td>
</tr>
</tbody>
</table>

List of abbreviations and symbols that may be used above
# : This substance has workplace exposure limit(s).

Composition comments
*Third-party analysis found that any naturally occurring Respirable Crystalline Silica (RCS) that may exist as an impurity in this substance is inextricably bound, environmentally unavailable and at de minimis concentration. Thus, in its current and anticipated future physical state, the substance is incapable of causing toxicologically relevant RCS exposure under either normal conditions of use or in case of extreme upset.

All concentrations are in percent by weight.

SECTION 4: First aid measures

General information
Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

4.1. Description of first aid measures

<table>
<thead>
<tr>
<th>Inhalation</th>
<th>Skin contact</th>
<th>Eye contact</th>
<th>Ingestion</th>
</tr>
</thead>
<tbody>
<tr>
<td>In case of inhalation of dust: Move to fresh air. Call a physician if symptoms develop or persist.</td>
<td>Wash off with soap and water. Get medical attention if irritation develops and persists.</td>
<td>Do not rub eyes. Rinse with water. Get medical attention if irritation develops and persists.</td>
<td>Rinse mouth. Get medical attention if symptoms occur.</td>
</tr>
</tbody>
</table>

4.2. Most important symptoms and effects, both acute and delayed
Dusts may irritate the respiratory tract, skin and eyes.

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

SECTION 5: Firefighting measures

General fire hazards
No unusual fire or explosion hazards noted.

5.1. Extinguishing media

<table>
<thead>
<tr>
<th>Suitable extinguishing media</th>
<th>Unsuitable extinguishing media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foam. Dry chemical powder. Carbon dioxide (CO2).</td>
<td>Do not use water jet as an extinguisher, as this will spread the fire.</td>
</tr>
</tbody>
</table>

5.2. Special hazards arising from the substance or mixture
During fire, hazardous combustion products are released that may include: Carbon oxides. Sulphur oxides. Sulfuric acid. Silicon oxide fumes.

5.3. Advice for firefighters

<table>
<thead>
<tr>
<th>Special protective equipment for firefighters</th>
<th>Special fire fighting procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-contained breathing apparatus and full protective clothing must be worn in case of fire.</td>
<td>In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.</td>
</tr>
</tbody>
</table>

Specific methods
Use standard firefighting procedures and consider the hazards of other involved materials.
SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Wear appropriate protective equipment and clothing during clean-up.

For emergency responders

Keep unnecessary personnel away. In case of insufficient ventilation, wear suitable respiratory equipment. Wear appropriate protective equipment and clothing during clean-up.

6.2. Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Avoid the generation of dusts during clean-up. Collect dust using a vacuum cleaner equipped with HEPA filter. The product is immiscible with water and will spread on the water surface. Stop the flow of material, if this is without risk.

Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. Clean surface thoroughly to remove residual contamination.

6.4. Reference to other sections

For personal protection, see section 8 of the SDS. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Minimise dust generation and accumulation. Provide appropriate exhaust ventilation at places where dust is formed. Avoid contact with water and moisture. Avoid prolonged exposure. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities

Store in tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see section 10 of the SDS).

7.3. Specific end use(s)

For detailed information, see section 1. Observe industrial sector guidance on best practices.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>UK. EH40 Workplace Exposure Limits (WELs)</th>
<th>Components</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crystalline silica (CAS 14808-60-7)</td>
<td>TWA</td>
<td>0.1 mg/m3</td>
<td>Respirable.</td>
</tr>
<tr>
<td>United Kingdom Components</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sulphuric acid, compound with graphite (CAS 12777-87-6)</td>
<td>TWA</td>
<td>4 mg/m3</td>
<td>Respirable dust.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10 mg/m3</td>
</tr>
</tbody>
</table>

Biological limit values

No biological exposure limits noted for the ingredient(s).

Recommended monitoring procedures

Follow standard monitoring procedures.

Derived no effect levels (DNELs)

Not available.

Predicted no effect concentrations (PNECs)

Not available.

8.2. Exposure controls

Appropriate engineering controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

General information

Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye/face protection

Wear safety glasses with side shields (or goggles). Eye protection should meet standard EN 166.

Skin protection

Wear suitable gloves tested to EN374. Glove material: Nitrile. Use gloves with breakthrough time of 15 - 120 minutes. Minimum glove thickness 0.1 - 0.3 mm. Other suitable gloves can be recommended by the glove supplier.
Wear suitable protective clothing.

Respiratory protection

In case of insufficient ventilation, wear suitable respiratory equipment. Wear respirator with dust filter. Use filter type P2 according to EN 143. Appropriate respirator selection should be made by a qualified professional.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

Hygiene measures

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. Fume scrubbers, filters or engineering modifications to the process equipment may be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state Solid.
Form Flakes.
Colour Grey.

Odour

Slight hydrocarbon.

Odour threshold

Property has not been measured.

pH

Not applicable (material is insoluble in water).

Melting point/freezing point

> 2760 °C (> 5000 °F)

Initial boiling point and boiling range

Property has not been measured.

Flash point

Not applicable, material is a solid.

Evaporation rate

Not applicable, material is a solid.

Flammability (solid, gas)

Non flammable.

Upper/lower flammability or explosive limits

Explosive limit - lower (%)

Not applicable, material is a solid.

Explosive limit – upper (%)

Not applicable, material is a solid.

Vapour pressure

Not applicable, material is a solid.

Vapour density

Not applicable, material is a solid.

Relative density

Property has not been measured.

Solubility(ies)

Solubility (water)

Insoluble in water.

Partition coefficient (n-octanol/water)

Property has not been measured.

Auto-ignition temperature

Property has not been measured.

Decomposition temperature

Property has not been measured.

Viscosity

Not applicable, material is a solid.

Explosive properties

Not explosive.

Oxidising properties

Not oxidising.

9.2. Other information

Density

Property has not been measured.

Kinematic viscosity

Not applicable, material is a solid.

Particle size

Property has not been measured.

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is stable and non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Material is stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid

Avoid contact with water and moisture. Contact with incompatible materials.

10.5. Incompatible materials


10.6. Hazardous decomposition products

Decomposition is not expected under normal conditions of storage. In the event of fire: See Section 5.
SECTION 11: Toxicological information

General information
Occupational exposure to the substance or mixture may cause adverse effects.

Information on likely routes of exposure

- **Inhalation**: Dust may irritate respiratory system. Prolonged inhalation may be harmful.
- **Skin contact**: Dust or powder may irritate the skin.
- **Eye contact**: Dust may irritate the eyes.
- **Ingestion**: May cause discomfort if swallowed.

Symptoms
Dusts may irritate the respiratory tract, skin and eyes.

11.1. Information on toxicological effects

**Acute toxicity**
Not expected to be acutely toxic.

<table>
<thead>
<tr>
<th>Components</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crystalline silica (CAS 14808-60-7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Chronic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOEC</td>
<td>Human</td>
<td>0.0563 mg/m³</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Based on available data, the classification criteria are not met.</td>
<td></td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Based on available data, the classification criteria are not met.</td>
<td></td>
</tr>
<tr>
<td>Respiratory sensitisation</td>
<td>Based on available data, the classification criteria are not met.</td>
<td></td>
</tr>
<tr>
<td>Skin sensitisation</td>
<td>Based on available data, the classification criteria are not met.</td>
<td></td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Based on available data, the classification criteria are not met.</td>
<td></td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Based on available data, the classification criteria are not met.</td>
<td></td>
</tr>
</tbody>
</table>

**IARC Monographs. Overall Evaluation of Carcinogenicity**
Crystalline silica (CAS 14808-60-7) 1 Carcinogenic to humans.

**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**
Not relevant, due to the form of the product.

**Mixture versus substance information**
No information available.

**Other information**
No other specific acute or chronic health impact noted.

SECTION 12: Ecological information

12.1. **Toxicity**
The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

12.2. **Persistence and degradability**
No data is available on the degradability of this substance.

12.3. **Bioaccumulative potential**
No data available on bioaccumulation.

**Partition coefficient n-octanol/water (log Kow)**
Property has not been measured.

**Bioconcentration factor (BCF)**
Not available.

12.4. **Mobility in soil**
The product is insoluble in water. Not expected to be mobile in soil.

12.5. **Results of PBT and vPvB assessment**
This substance does not meet vPvB / PBT criteria of Regulation (EC) No 1907/2006, Annex XIII.

12.6. **Other adverse effects**
No data available for this product.

SECTION 13: Disposal considerations

13.1. **Waste treatment methods**
Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.

**Contaminated packaging**
Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.
EU waste code
The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Disposal methods/information
Collect and reclaim or dispose in sealed containers at licensed waste disposal site.

Special precautions
Dispose in accordance with all applicable regulations.

SECTION 14: Transport information

ADR
14.1. - 14.6.: Not regulated as dangerous goods.

RID
14.1. - 14.6.: Not regulated as dangerous goods.

ADN
14.1. - 14.6.: Not regulated as dangerous goods.

IATA
14.1. - 14.6.: Not regulated as dangerous goods.

IMDG
14.1. - 14.6.: Not regulated as dangerous goods.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
Retained direct EU regulations
- Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended
  Not listed.
- Regulation (EU) 2019/1021 On persistent organic pollutants (recast), as amended
  Not listed.
- Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended
  Not listed.
- Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended
  Not listed.
- Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended
  Not listed.
- Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended
  Not listed.
  Not listed.
- Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA
  Not listed.

Authorisations
- Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended
  Not listed.

Restrictions on use
- Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended
  Not listed.

Other EU regulations
- Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended
  Not listed.

Other regulations
- This product is classified and labelled in accordance with the retained CLP Regulation (EC) No 1272/2008, as amended for Great Britain. This Safety Data Sheet is compiled in accordance with REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758.
- Follow the requirements of the Control of Substances Hazardous to Health Regulations 2002 [SI 2002/2677], as amended, when using this material.

15.2. Chemical safety assessment
No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations
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 Abstract Service.
CEN: European Committee for Standardization.
IATA: International Air Transport Association.
IMDG: International Maritime Dangerous Goods.
PBT: Persistent, bioaccumulative and toxic.
RID: Regulations concerning the International Carriage of Dangerous Goods by Rail.
TWA: Time Weighted Average.
vPvB: Very persistent and very bioaccumulative.

References
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices
ECHA registered substances database
EPA: AQUIRE database
HSDB® - Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
NLM: Hazardous Substances Data Base

Not applicable. The product is a substance.

Information on evaluation method leading to the classification of mixture
H372 Causes damage to organs through prolonged or repeated exposure by inhalation.

Full text of any statements, which are not written out in full under sections 2 to 15
Follow training instructions when handling this material.

Training information
NeoGraf Solutions cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user’s responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

Disclaimer