SAFETY DATA SHEET

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

1.1. Product identifier
Trade name or designation of the mixture
GrafGuard® Expandable Graphite
Registration number
- Synonyms
None.
SDS number
0067
Product number
Issue date
25-June-2020
Version number
04
Revision date
25-June-2020
Supersedes date
-

1.2. Relevant identified uses of the substance or mixture and uses advised against
Identified uses
Fire retardant material.
Uses advised against
None known.

1.3. Details of the supplier of the safety data sheet
Manufacturer/Supplier
NeoGraf Solutions, LLC
11709 Madison Ave.
Lakewood, OH 44107
+1 216-529-3777
Product Responsibility Manager +1 216-529-3724
Contact person
info@neograf.com
E-mail
Emergency telephone number
For Chemical Emergency ONLY, call 3E at:
+44-20-35147487, +1-760-476-3961
Access Code: 333366

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
The mixture 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 mixture does not meet the criteria for classification according to Regulation (EC) 1272/2008 as amended.

Hazard summary
Not classified for health hazards. However, occupational exposure to the mixture or substance(s) may cause adverse health effects.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended
Contains: Sulphuric acid, compound with graphite
Hazard pictograms
None.
Signal word
None.
Hazard statements
The mixture 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 label information
None.

2.3. Other hazards
Expandable graphite may contain impurities of crystalline silica (quartz CAS 14808-60-7) which is listed by IARC as Group 1 carcinogen and by ACGIH as A2 (suspected human carcinogen).
Not a PBT or vPvB substance or mixture.
SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

<table>
<thead>
<tr>
<th>Chemical name</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>&gt; 93</td>
<td>12777-87-6</td>
<td>01-2119514421-54-0004</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>235-819-4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Impurities*</td>
<td>&lt; 5</td>
<td>Not available</td>
<td></td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

List of abbreviations and symbols that may be used above

#: This substance has been assigned Union workplace exposure limit(s).
M: M-factor
PBT: persistent, bioaccumulative and toxic substance.
vPvB: very persistent and very bioaccumulative substance.

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 unless ingredient is a gas. Gas concentrations are in percent by volume.

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

Inhalation: Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact: Wash off with soap and water. Get medical attention if irritation develops and persists.
Eye contact: Rinse with water. Get medical attention if irritation develops and persists.
Ingestion: Rinse mouth. Get medical attention if symptoms occur.

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

Exposure may cause temporary irritation, redness, or discomfort.

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


Unsuitable extinguishing media: Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

During fire, gases hazardous to health may be formed.

5.3. Advice for firefighters

Special protective equipment for firefighters: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Special fire fighting procedures: Move containers from fire area if you can do so without risk.

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: Keep unnecessary personnel away.
For emergency responders: Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions

Avoid discharge into drains, water courses or onto the ground.
6.3. Methods and material for containment and cleaning up
The product is immiscible with water and will spread on the water surface. Stop the flow of material, if this is without risk.

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
Avoid prolonged exposure. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities
Store in tightly closed container. Store away from incompatible materials (see section 10 of the SDS).

7.3. Specific end use(s)
Fire retardant material.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
Occupational exposure limits

<table>
<thead>
<tr>
<th>United Kingdom Components</th>
<th>Type</th>
<th>Value</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<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>10 mg/m³</td>
<td>Inhalable dust.</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).

Skin protection
- Hand protection
Wear appropriate chemical resistant gloves.

- Other
Wear suitable protective clothing.

Respiratory protection
In case of insufficient ventilation, wear suitable respiratory equipment.

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
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.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance
Black solid.

Physical state
Solid.

Form
Solid (flake).

Colour
Black.

Odour
Slight acidic.

Odour threshold
Not available.

pH
Not applicable.
Melting point/freezing point: > 2760 °C (> 5000 °F) / Not applicable.
Initial boiling point and boiling range: Not applicable.
Flash point: Not applicable.
Evaporation rate: Not applicable.
Flammability (solid, gas): Not available.

Upper/lower flammability or explosive limits:
- Flammability limit - lower (%): Not applicable.
- Flammability limit - upper (%): Not applicable.

Vapour pressure: Not applicable.
Vapour density: Not applicable.
Relative density: No data available.
Solubility(ies): Insoluble in water.
Partition coefficient (n-octanol/water): Not available.
Auto-ignition temperature: Not applicable.
Decomposition temperature: Not applicable.
Viscosity: Not available.
Explosive properties: Not explosive.
Oxidising properties: Not oxidising.

9.2. Other information:
- Bulk density: 0.6 - 1 g/cc

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: Contact with incompatible materials.
10.5. Incompatible materials: Strong oxidising agents.
10.6. Hazardous decomposition products: No hazardous decomposition products are known.

SECTION 11: Toxicological information

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

Information on likely routes of exposure:
- Inhalation: Prolonged inhalation may be harmful.
- Skin contact: No adverse effects due to skin contact are expected.
- Eye contact: Direct contact with eyes may cause temporary irritation.
- Ingestion: Expected to be a low ingestion hazard.

Symptoms: Exposure may cause temporary irritation, redness, or discomfort.

11.1. Information on toxicological effects:
- Acute toxicity: No data available.
- Skin corrosion/irritation: Based on available data, the classification criteria are not met.
- Serious eye damage/eye irritation: Based on available data, the classification criteria are not met.
- Respiratory sensitisation: Based on available data, the classification criteria are not met.
- 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
Due to partial or complete lack of data the classification is not possible.

Mixture versus substance information
No information available.

Other information
Not available.

SECTION 12: Ecological information

12.1. Toxicity
Due to partial or complete lack of data the classification for hazardous to the aquatic environment, is not possible.

12.2. Persistence and degradability
No data is available on the degradability of any ingredients in the mixture.

12.3. Bioaccumulative potential
No data available.

Partition coefficient n-octanol/water (log Kow)
Not available.

Bioconcentration factor (BCF)
Not available.

12.4. Mobility in soil
The product is insoluble in water.

12.5. Results of PBT and vPvB assessment
Not a PBT or vPvB substance or mixture.

12.6. Other adverse effects
No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Residual waste
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 (see: Disposal instructions).

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

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended
Not listed.

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 authorisation, 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.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.
Not listed.

Other EU regulations

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

Other regulations

The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

National regulations

Follow national regulation for work with chemical agents in accordance with Directive 98/24/EC, as amended.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations

TWA: Time Weighted Average.

References

Not available.

Information on evaluation method leading to the classification of mixture

The classification for health and environmental hazards is derived by a combination of calculation methods and test data, if available.

Full text of any H-statements not written out in full under Sections 2 to 15

None.

Training information

Follow training instructions when handling this material.

Disclaimer

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.

This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.