

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Identification of the substance/preparation eGRAF® Flexible Graphite with or without Adhesive Backing

Use of the substance/preparation Thermal interface.

Version No. 01

CAS No. Mixture

Product code HITHERM™ 700 Series, HITHERM™ 1200 Series, SPREADERSHIELD™

SDS Number 0069

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000-800-100-7141, +(91)-22-33543594, +1 703-527-3887

2. HAZARDS IDENTIFICATION

Physical hazards Not classified as a physical hazard.

Health hazards Not classified as a health hazard.

Environmental hazards Not classified as an environmental hazard.

Specific hazards Prolonged exposure may cause chronic effects.

Main symptoms Direct contact with eyes may cause temporary irritation.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS No.	Percent	EC-No.	Classification
Graphite	7782-42-5	< 95	231-955-3	
Impurity: Crystalline silica (quartz)	14808-60-7	< 0,8	238-878-4	Xn;R48/20

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. FIRST-AID MEASURES

Inhalation If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. 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 Flush eyes with water as a precaution. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. If ingestion of a large amount does occur, call a poison control centre immediately.

General advice If you feel unwell, seek medical advice (show the label where possible).

Notes to physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Extinguishing media which must not be used for safety reasons	Do not use water jet as an extinguisher, as this will spread the fire.
Unusual fire & explosion hazards	None known.
Specific hazards	During fire, gases hazardous to health may be formed.
Special protective equipment for fire-fighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Use water spray to cool unopened containers.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

6. ACCIDENTAL RELEASE MEASURES

Containment procedures	Stop the flow of material, if this is without risk.
Personal precautions	Keep unnecessary personnel away. For personal protection, see section 8 of the SDS.
Environmental precautions	Prevent further leakage or spillage if safe to do so.
Methods for cleaning up	The product is immiscible with water and will spread on the water surface. Dike far ahead of spill for later disposal. Following product recovery, flush area with water. Small Dry Spills: With clean shovel place material into clean, dry container and cover loosely; move containers from spill area. For waste disposal, see section 13 of the SDS.

7. HANDLING AND STORAGE

Handling	Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places where dust is formed. Do not breathe dust. Avoid prolonged exposure.
Storage	Store in original tightly closed container. Store away from incompatible materials (see section 10 of the SDS).

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure limits

India. OELs. The Factories Act, The Second Schedule: Permissible Levels of Certain Chemical Substances in the Work Environment

Components	Type	Value	Form
Impurity: Crystalline silica (quartz) (CAS 14808-60-7)	TWA	0,291 mg/m ³	Total dust.
		0,098 mg/m ³	Respirable dust.
		96 mpm ³	Respirable dust.
		96 mpm ³	Total dust.

Recommended monitoring procedures

Additional exposure data Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled.

Engineering measures Good general ventilation (typically 10 air changes per hour) 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. General ventilation normally adequate.

Personal protective equipment

Respiratory protection Use a particulate filter respirator for particulate concentrations exceeding the Occupational Exposure Limit.

Hand protection Not normally needed.

Eye protection If contact is likely, safety glasses with side shields are recommended.

Skin and body protection Wear suitable protective clothing.

General Use personal protective equipment as required.

Environmental exposure controls Environmental manager must be informed of all major releases.

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.

Control parameters Follow standard monitoring procedures.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Graphite foil
Physical state	Solid.

Form	Solid.
Colour	Black.
Odour	Slight hydrocarbon.
pH	Not applicable.
Melting point/freezing point	> 2760 °C (> 5000 °F)
Boiling point, initial boiling point, and boiling range	Not applicable.
Flash point	Not applicable.
Auto-ignition temperature	Not applicable.
Combustion characteristics (solid, gas)	Not available.
Flammability limit - lower (%)	Not applicable.
Flammability limit - upper (%)	Not applicable.
Vapour pressure	Not applicable.
Vapour density	Not applicable.
Evaporation rate	Not applicable.
Solubility(ies)	
Solubility (water)	Insoluble
Decomposition temperature	Not available.

10. STABILITY AND REACTIVITY

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Conditions to avoid	Contact with incompatible materials.
Hazardous decomposition products	No hazardous decomposition products are known.
Stability	Material is stable under normal conditions.
Materials to avoid	Chlorine.
Hazardous polymerisation	No dangerous reaction known under conditions of normal use.

11. TOXICOLOGICAL INFORMATION

Components	Species	Test results
Graphite (CAS 7782-42-5)		
Acute		
<i>Oral</i>		
LD50	Rat	> 10000 mg/kg
Routes of exposure	Inhalation.	
Chronic toxicity	Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.	
Sensitisation	Not classified.	
Carcinogenicity	<p>In 1997, IARC (the International Agency for Research on Cancer) concluded that crystalline silica inhaled from occupational sources can cause lung cancer in humans. However in making the overall evaluation, IARC noted that "carcinogenicity was not detected in all industrial circumstances studied. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." (IARC Monographs on the evaluation of the carcinogenic risks of chemicals to humans, Silica, silicates dust and organic fibres, 1997, Vol. 68, IARC, Lyon, France.) In June 2003, SCOEL (the EU Scientific Committee on Occupational Exposure Limits) concluded that the main effect in humans of the inhalation of respirable crystalline silica dust is silicosis. "There is sufficient information to conclude that the relative risk of lung cancer is increased in persons with silicosis (and, apparently, not in employees without silicosis exposed to silica dust in quarries and in the ceramic industry). Therefore, preventing the onset of silicosis will also reduce the cancer risk..." (SCOEL SUM Doc 94-final, June 2003) According to the current state of the art, worker protection against silicosis can be consistently assured by respecting the existing regulatory occupational exposure limits. Occupational exposure to respirable dust and respirable crystalline silica should be monitored and controlled. Risk of cancer cannot be excluded with prolonged exposure.</p>	

IARC Monographs. Overall Evaluation of Carcinogenicity

Impurity: Crystalline silica (quartz) (CAS 14808-60-7) 1 Carcinogenic to humans.

Mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
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Reproductivity	Not classified.
Epidemiology	No epidemiological data is available for this product.
Symptoms and target organs	Direct contact with eyes may cause temporary irritation.

12. ECOLOGICAL INFORMATION

Ecotoxicity	Not expected to be harmful to aquatic organisms.
Environmental effects	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.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulation	No data available.
Aquatic 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.
Mobility	The product is insoluble in water.
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.

13. DISPOSAL CONSIDERATIONS

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site.
Waste from residues / unused products	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.

14. TRANSPORT INFORMATION

IATA	Not regulated as dangerous goods.
IMDG	Not regulated as dangerous goods.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable.

15. REGULATORY INFORMATION

Labelling	
Contains	Impurity: Crystalline silica (quartz)
EC number	231-955-3
R-phrases(s)	None.
S-phrases(s)	None.
Regulatory information	This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

16. OTHER INFORMATION

Wording of the R-phrases in sections 2 and 3	R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.
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International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

Recommended use	Use in accordance with supplier's recommendations.
Recommended restrictions	Workers (and your customers or users in the case of resale) should be informed of the potential presence of respirable dust and respirable crystalline silica as well as their potential hazards. Appropriate training in the proper use and handling of this material should be provided as required under applicable regulations.

Disclaimer

GRAFTECH INTERNATIONAL HOLDINGS INC. ADVISES THE USERS OF THIS PRODUCT TO STUDY THIS SAFETY DATA SHEET (SDS) AND BECOME AWARE OF PRODUCT HAZARDS AND SAFETY INFORMATION. TO PROMOTE SAFE USE OF THIS PRODUCT, USERS SHOULD NOTIFY THEIR EMPLOYEES, AGENTS AND CONTRACTORS OF THE INFORMATION ON THIS SDS AND ANY PRODUCT HAZARDS AND SAFETY INFORMATION.

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.

Issue date

01-April-2016

Revision date

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