

MATERIAL SAFETY DATA SHEET



GRAFTECH INC., a GrafTech International Ltd. company
11709 Madison Avenue
Lakewood, OH 44107

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Trade Name: **GRAFOIL®** - See Section 16 for Grades

MSDS No.: **0015**
Issue Date: November, 1985
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GRAFTECH INC. REQUESTS THE USERS OF THIS PRODUCT TO STUDY THIS MATERIAL SAFETY DATA SHEET (MSDS) 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 MSDS AND ANY PRODUCT HAZARDS AND SAFETY INFORMATION.

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: GRAFOIL®
Chemical Name: Flexible Graphite (Plain)
Synonyms: Graphite

Manufacturer:
GRAFTECH INC.
11709 Madison Avenue
Lakewood, OH 44107

Emergency Telephone Numbers:
1-800-424-9300 or 24 Hours
1-703-527-3887

2. COMPOSITION / INFORMATION ON INGREDIENTS

	<u>Material</u>	<u>CAS Registry No.</u>	<u>Weight Percent</u>	<u>ACGIH (TLV)</u>	<u>OHSA (PEL)</u>
1.	Graphite	7782-42-5	>99.7	2.0 mg/m ³ Respirable	2.5 mg/m ³ Respirable
2.	Crystalline Silica (See Section 16, Item 3.)	14808-60-7	<0.3	0.05 mg/m ³ Respirable	<u>10 mg/m³</u> % SiO ₂ + 2 Respirable

3. HAZARDS IDENTIFICATION

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☆☆ **PRODUCT DOES NOT RELEASE HAZARDOUS MATERIALS IN NORMAL USE. FABRICATION** ☆☆
☆☆ **MAY RELEASE GRAPHITE AND SILICA DUSTS, WHICH MAY BE HARMFUL IF INHALED OR IF** ☆☆
☆☆ **CONTACT IS MADE WITH SKIN OR EYES. SEE BELOW AND SECTION 16, ITEM 3.** ☆☆
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Primary Route of Exposure: Inhalation of dusts generated during processing and handling, and dermal and ocular contact.

Effects of Overexposure:

- Acute:** High concentration of graphite dusts may be irritating to the eyes, skin, mucous membranes and respiratory tract.
- Chronic:** Inhalation of high concentrations of graphite dusts over prolonged periods of time may cause pneumoconiosis. Symptoms can include cough, shortness of breath and decrease in pulmonary function.

Pre-existing pulmonary disorders, such as emphysema, may possibly be aggravated by prolonged exposure to high concentrations of graphite dusts.

Inhalation of high concentrations of crystalline silica dusts over prolonged periods of time may cause silicosis, a progressively debilitating lung disease. The symptoms are similar to those cited above for pneumoconiosis. (See Section 16, Item 3.)
Inhalation of high concentrations of crystalline silica over prolonged periods of time has also been linked to an increased incidence of lung cancer. (See Section 11.)

Physical Hazards:

Graphite dusts are electrically conductive. Accumulations of dusts may cause shorting of electrical circuits. Care should be taken to seal electrical circuits and switches that may be affected. Dusts should not be emitted to the atmosphere where they may settle on and cause shorting of electrical equipment.

4. FIRST AID MEASURES

- Inhalation:** For overexposure to particulate matter, remove the exposed person to fresh air. If breathing is difficult, oxygen may be administered. Seek medical attention. If breathing has stopped, artificial respiration should be started immediately. Seek medical attention.
- Eye Contact:** If material enters the eye, flush with water for at least 15 minutes. Seek medical attention if irritation develops or persists.
- Skin Contact:** If material gets on the skin, wash thoroughly with mild soap and water. Seek medical attention if irritation develops or persists. Dermatitis should be treated symptomatically by a physician.
- Ingestion:** Ingestion is not expected to be an important route into the body.

5. FIRE FIGHTING MEASURES

- Flashpoint and Method:** Not Applicable
- Flammable Limits:** LEL: Not Applicable UEL: Not Applicable
- Autoignition Temperature:** Not Applicable
- Extinguishing Media:** Bulk material is non-combustible, but subject to thermal decomposition at high temperatures. Use water, carbon dioxide, dry chemical or foam as extinguishing media.
- Special Firefighting Procedures:** Material in or near fires should be cooled with a water spray or fog.
- Unusual Fire and Explosion Hazards:** Thermal decomposition may produce smoke, oxides of carbon and low molecular weight organic compounds whose composition has not been characterized.
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6. ACCIDENTAL RELEASE MEASURES

Spilled or released material should be picked up with a suitable implement and returned to the original container if reusable. If not reusable, the material should be placed in DOT-approved containers for disposal. Personnel involved in the cleanup should be wearing appropriate personal protective equipment. See Section 8. Unauthorized personnel should be kept clear of the area of spills or releases. Do not allow material to enter storm or sanitary sewers, groundwater or soil. Releases may be reportable to local, state or federal authorities. Consult federal, state or local regulatory requirements for more information.

7. HANDLING AND STORAGE

Store in labeled, closed containers away from heat, spark, open flames and other sources of ignition. Do not store with or near incompatible chemicals cited in Section 10. Do not let dust from material accumulate in the workplace. Promptly clean up any spills that may occur. Any dusts generated during handling or processing should be cleaned up by wet mopping or vacuuming. Dry sweeping can resuspend particulate matter in the atmosphere.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Ventilation

If dusts are generated during processing or use, local exhaust ventilation should be provided to maintain exposures below the limits cited in Section 2.

Personal Protection:

- Respiratory: If exposures exceed the limits cited in Section 2 by less than a factor of 10, use a NIOSH-approved N95 respirator.
- Eye Protection: Protective glasses with sideshields should be worn to prevent eye contact with particulate matter.
- Protective Gloves: Protective gloves are recommended to prevent cuts, abrasions and irritation during handling and processing.
- Other: Where normal work clothes may become soiled by dusts, coveralls are recommended. Wash soiled clothing before reuse.

All chemicals should be handled so as to prevent eye contact and excessive or repeated skin contact. Appropriate eye and skin protection should be employed. Inhalation of dusts and vapors should be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Black, Flexible Sheet Shapes	Bulk Density:	Not Applicable
Odor:	Slight Hydrocarbon	Boiling Point:	Not Applicable
Melt Point:	>5000°F	Vapor Density:	Not Applicable
Specific Gravity:	0.8-1.8	% Solubility (H ₂ O):	Negligible
Vapor Density (Air=1):	Not Applicable	Evaporation Rate (BUOAC=1):	Not Applicable
% Volatile by Volume:	Non-Volatile	Other:	Not Applicable

10. STABILITY AND REACTIVITY

Conditions Causing Instability:	None that are known. Material is stable. Hazardous polymerization will not occur.
Incompatibility (Materials to Avoid):	Avoid contact with strong oxidizing agents.
Hazardous Decomposition Products:	See Section 5 for possible combustion and/or thermal decomposition products. These would be expected only during emergency conditions.
Special Sensitivity:	None that are known.

11. TOXICOLOGICAL INFORMATION

Graphite Oral LD₅₀ Rat >5 g/kg

The crystalline silica component of this formulation is listed as an animal carcinogen and a known human carcinogen by the International Agency for Research on Cancer (IARC).

12. ECOLOGICAL INFORMATION

Bioaccumulation is not expected, as product is insoluble in water.

13. DISPOSAL CONSIDERATIONS

Material should be disposed of in accordance with all applicable federal, state and local regulations. Contact your local or state environmental agency for specific requirements.

14. TRANSPORT INFORMATION

D.O.T. Shipping Name:	Not Regulated
Technical Shipping Name:	Not Applicable
D.O.T. Hazard Class:	Not Applicable
U.N./N.A. Number:	Not Applicable
Product RQ. (lbs.):	Not Applicable
D.O.T. Label:	Not Applicable
D.O.T. Placard:	Not Applicable
Freight Class Bulk:	Not Applicable
Freight Class Package:	Not Applicable
Product Label:	Not Applicable

15. REGULATORY INFORMATION

All components are listed on:

U.S.: TSCA
EC: EINECS
Canada: DSL

CERCLA REPORTABLE QUANTITY:

Not Applicable

RCRA STATUS:

Not regulated as hazardous.

SARA TITLE III:

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES:

Not Applicable

SECTION 311/312 HAZARD CATEGORIES:

Not Applicable

SECTION 313 TOXIC CHEMICALS:

Not Applicable

STATE REGULATORY INFORMATION:

1. WARNING: The crystalline silica component of this formulation has been identified as a "chemical known to cause cancer" by the State of California.

<u>COMPONENT NAME</u>	<u>CAS REGISTRY NO.</u>	<u>CONCENTRATION</u>
Crystalline Silica	14808-60-7	<0.3%

16. OTHER INFORMATION

NOTICE FROM GRAFTECH INC. – The data in this Material Safety Data Sheet relate only to the specific material designated herein and do not relate to use in combination with any other material or in any process. The information contained herein is based on available scientific literature obtained by Graftech Inc. and is current as of the date of issue of this Material Data Safety Sheet. Graftech Inc. makes no representation as to the accuracy of the scientific literature on which it has relied in the preparation of this Material Data Safety Sheet. Since the use of this information and these opinions and the conditions of use of the product are not within the control of Graftech Inc., it is the user's obligation to determine the conditions of safe use of this product.

<u>Products</u>	<u>Grades</u>
Sheet, Rolls, Gaskets	GTA, GTB, GTJ, GTK, GTC, GTO
Ribbon Pack	GTZ, GTR, GTJ, GTK
Heat Shields	TG-255, TG-221
Shredded Particles/Injectables	TG-033, TG-065, TG-277, TG-278
Plain Flake	
Strand Pack	

* And various other new sales grades or trial grades not specifically listed, but manufactured with the materials noted in this MSDS.

- This product is WHMIS Controlled D2A.
- Personnel samples taken during cut-part fabrication showed non-detectable levels of crystalline silica.

Prepared By: M. H. Burns/J. D. Banzer

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