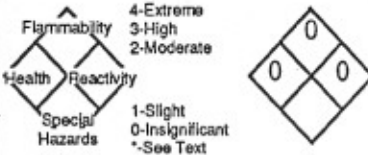


MATERIAL SAFETY DATA SHEET

R+D

24-HOUR EMERGENCY ASSISTANCE	GENERAL ASSISTANCE	NFPA FIRE HAZARD SYMBOL*
BP America (In Ohio): 800-362-8059 (Outside Ohio): 800-321-8642 CHEMTREC Assist: 800-424-9300	716-278-2000	
MSDS Number > 251		

MANUFACTURER: The Carborundum Company - Fibers Division
ADDRESS: P.O. Box 808, Niagara Falls, New York 14302

PRODUCT IDENTIFICATION

TRADE NAME:

FIBERFRAX® BULK FIBER

CAS NUMBER: NA
SYNONYM(S): MMVF; REFRACTORY FIBER; CERAMIC FIBER
CHEMICAL FAMILY: VITREOUS ALUMINOSILICATE FIBERS
MOLECULAR FORMULA: NA
MOLECULAR WEIGHT: NA
PRODUCT CODE: NA **HIERARCHY:** NA

PRODUCT HAZARD SUMMARY

HEALTH **WARNING!**
 MAY BE HARMFUL IF INHALED
 MAY BE IRRITATING TO THE SKIN, EYES AND RESPIRATORY TRACT
 POSSIBLE CANCER HAZARD BASED ON TESTS WITH LABORATORY ANIMALS

FLAMMABILITY NON-COMBUSTIBLE

REACTIVITY STABLE

PRODUCT HEALTH HAZARD INFORMATION

EFFECTS OF OVEREXPOSURE

INGESTION:

May cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting and diarrhea.

SKIN:

SLIGHTLY TO MODERATELY IRRITATING. May cause irritation and inflammation due to

...action to sharp, broken ends of fibers.

EYE:

SLIGHTLY TO MODERATELY IRRITATING. Abrasive action may cause damage to the outer surface of the eye.

INHALATION:

May cause respiratory tract irritation. Pre-existing medical conditions may be aggravated by exposure; specifically, bronchial hyper-reactivity and chronic bronchial or lung disease.

SPECIAL TOXIC EFFECTS:

Currently, there are no known chronic health effects in humans from long-term exposure to ceramic fibers.

In animal studies, refractory ceramic fibers injected into the peritoneal (abdominal) cavity have caused acute abdominal hemorrhage in hamsters but not in rats. Such injections into the abdominal or pleural cavities have also produced tumors in life-time rat and hamster studies. In fact, similar results have been observed with numerous other fibrous and non-fibrous materials. In such experiments, this abnormally sensitive injection technique is a non-physiological method of exposure, bypassing both normal pulmonary protective and clearance mechanisms.

Recently published inhalation studies have provided contradictory results. One study, which used rats as the experimental animal, reported lung damage consisting of alveolar proteinosis and interstitial fibrosis, whereas, other studies using rats and hamsters, showed no similar effects.

Similarly, the pulmonary tumor-causing potential of refractory ceramic fibers in animals is unclear. Two inhalation studies suggest a low-order potential in inducing pulmonary tumors in animals, while other inhalation and intratracheal injection studies conclude that ceramic fibers are not tumorigenic in animals. The International Agency of Research on Cancer (IARC) has recently reviewed the animal, human and other relevant experimental data on man made mineral fibers in order to critically evaluate and classify the cancer causing potential of these materials. Based on its review, IARC classified fibrous glass wool, mineral wool (both rock wool and slag wool) and ceramic fiber as group 2B carcinogens. By definition, a group 2B agent is possibly carcinogenic to humans. For refractory ceramic fibers, IARC's 2B classification was based on sufficient evidence of carcinogenicity in experimental animals in the absence of human epidemiologic data.

Further animal and human health studies are planned. Pending the results of these studies, strict adherence to recommended safe work practices described elsewhere in this data sheet is advised.

FIRST AID

INGESTION:

Do not induce vomiting. Get medical attention if irritation persists.

SKIN CONTACT:

Wash area of contact thoroughly with soap and water. Do not rub or scratch exposed skin. Using a skin cream or lotion after washing may be helpful. Get medical attention if irritation persists.

EYE CONTACT:

Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Do not rub eyes. Get medical attention if irritation persists.

INHALATION:

Remove affected person from source of exposure. Get medical attention.

PERSONAL PROTECTION INFORMATION

The following personal protective guidelines should be followed, especially where engineering controls (e.g. mechanical dust collection and other means of exhaust ventilation) are not technically feasible or do not reduce airborne fiber concentrations to below 2 fibers/cc.

EYE PROTECTION:

Wear safety glasses or chemical goggles to prevent eye contact. Do not wear contact lenses when working with this substance. Have eye washing facilities readily available where eye contact can occur.

SKIN PROTECTION:

Wear gloves, hats or full body clothing to prevent skin contact as necessary. Use separate lockers for work clothes to prevent fiber transfer to street clothes. Avoid taking unwashed work clothes home or provide disposable work clothing. Wash work clothes separately from other clothing. Rinse washing machine thoroughly after use. If clothing is to be laundered by someone else, inform launderer of proper procedures.

RESPIRATORY PROTECTION:

Use NIOSH or MSHA approved equipment when airborne exposure limits are exceeded. NIOSH/MSHA approved breathing equipment may be required for non-routine and emergency use. Ventilation may be used to control or reduce airborne concentrations. Acceptable respirators recommended for given airborne ceramic fiber concentrations are:

Concentration -----	Respirator Type -----
Up to 20 f/cc	Half-face air purifying respirator such as (1) a cartridge respirator with appropriate dust cartridges or (2) a disposable dust respirator (3M 8710 or equivalent).
> 20 f/cc to 200 f/cc	Full-face respirator with high-efficiency filters.
> 200 f/cc	Full-face, positive-pressure supplied air respirator.

OSHA approved air source required. Pending the results of long-term health effects studies, airborne exposures should be controlled at or below the BP America recommended exposure guidelines listed in the Ingredients/Health Information Section.

PHYSICAL PROPERTIES

BOILING POINT: NA
 SPECIFIC GRAVITY: ND
 MELTING POINT: ND
 % VOLATILE: NA
 VAPOR PRESSURE: NA
 EVAPORATION RATE (WATER=1): NA

VAPOR DENSITY (AIR=1): NA
VISCOSITY: NA
% SOLUBILITY IN WATER: NA
POUR POINT: NA
pH: NA
APPEARANCE/ODOR: ND

FIRE AND EXPLOSION DATA

FLASH POINT: NONE
AUTOIGNITION TEMPERATURE: NONE
FLAMMABILITY LIMITS IN AIR (% BY VOL.) LOWER: ND UPPER: ND

BASIC FIREFIGHTING PROCEDURES:

Use extinguishing agent suitable for type of surrounding fire.

UNUSUAL FIRE AND EXPLOSION HAZARDS:

NA

REACTIVITY DATA

STABILITY/INCOMPATIBILITY:

Stable under normal conditions of use. Incompatible with hydrofluoric acid and concentrated alkali.

HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS:

NA

ENVIRONMENTAL INFORMATION

SPILL OR RELEASE TO THE ENVIRONMENT:

Where possible, use vacuum suction to clean up spilled material. Use dust suppressant where sweeping is necessary. Avoid clean up procedures that may result in water pollution. Personal safety and exposure recommendations described elsewhere in this data sheet apply to exposure during clean up of spilled material.

WASTE DISPOSAL:

This substance, when discarded or disposed of, is not specifically listed as a hazardous waste in Federal regulations; however it could be hazardous if it is considered toxic, corrosive, ignitable, or reactive according to Federal definitions (40 CFR 261). Additionally, it could be designated as hazardous according to state regulations. This substance could also become a hazardous waste if it is mixed with or comes in contact with a hazardous waste. If such contact or mixing may have occurred, check 40 CFR 261 to determine whether it is a hazardous waste. If it is a hazardous waste, regulations at 40 CFR 262, 263, and 264 apply.

The transportation, storage, treatment, and disposal of this waste material must be conducted in compliance with all applicable Federal, state, and local regulations.

SARA TITLE III INFORMATION:

Listed below are the hazard categories for the Superfund Amendments and Reauthorization Act (SARA) Section 311/312 (40 CFR 370):

Immediate Hazard: - Delayed Hazard: X Fire Hazard: - Pressure Hazard: - Reactivity Hazard: -

ADDITIONAL ENVIRONMENTAL REGULATORY INFORMATION:

There may be specific regulations at the local, regional or state level that pertain to this material.

SPECIAL PRECAUTIONS/SUPPLEMENTAL INFORMATION

HANDLING/STORAGE:

Product which has been in service at elevated temperatures (greater than 1800 F) may undergo partial conversion to cristobalite, a form of crystalline silica which can cause severe respiratory disease--"Pneumoconiosis". The amount of cristobalite present will depend on the temperature and length in service.

IARC has recently reviewed the animal, human and other relevant experimental data on silica in order to critically evaluate and classify the cancer causing potential. Based on its review, IARC classified crystalline silica as a group 2A carcinogen. By definition a group 2A carcinogen is probably carcinogenic to humans. For crystalline silica, IARC's 2A classification was based on limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals.

The OSHA permissible exposure limit (PEL) for cristobalite is 0.05 mg/M3 (resp.). The ACGIH threshold limit value (TLV) for cristobalite is 0.05 mg/M3 (resp.) (ACGIH 1988-89). Particular care should be taken when working with "used" material to minimize generation of dust. When removing and handling ceramic fiber used in high temperature applications, special caution should be taken to avoid unnecessary cutting and tearing of the used material to minimize generation of airborne dust. Use NIOSH or MSHA approved equipment when airborne exposure limits may be exceeded, especially in confined areas with inadequate ventilation or other areas. Acceptable respirators recommended for given airborne cristobalite concentrations are:

Concentration	Respirator Type
-----	-----
Up to 10 times the PEL	Half-face cartridge respirator with high-efficiency filters.
10 to 100 times the PEL	Full-face cartridge respirator with high-efficiency filters.
> 100 times the PEL	Full-face, positive-pressure supplied-air respirator.

TRANSPORTATION REQUIREMENTS

D.O.T. HAZARD CLASS (49 CFR 172.101): NA
 D.O.T. PROPER SHIPPING NAME (49 CFR 172.101): NA
 D.O.T. LABELS REQUIRED (49 CFR 172.101): NA
 D.O.T. PLACARDS REQUIRED: NA
 BILL OF LADING DESCRIPTION: ND
 UN/NA CODE: NA

INGREDIENTS/HEALTH HAZARD INFORMATION

COMPONENT	CAS NO.	%	EXPOSURE LIMITS - REFERENCE
Aluminosilicate (vitreous)	NA	99.9-100	2 fibers/cc TWA (BP America);* 10 fibers/cc CL (BP America)*
Remaining components not determined hazardous and/or hazardous components present at less than 1.0% (0.1% for carcinogens).	NA	Trace	NA

*No OSHA or ACGIH exposure limits have been established for these materials. Pending the results of long-term health effects studies, airborne exposures should be controlled at or below the BP America Recommended exposure guidelines listed above.

REVISION DATE: 12-may-1989

COMPLETED BY: RIGNEY

REPLACES SHEET DATED: 23-sep-1988

NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Material Safety Data Sheet. However, no warranty or representation, express or implied, is made as to the accuracy or completeness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. In addition, no responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product.