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REX ROTO
CORPORATION

MATERIAL SAFETY DATA SHEET

CNE 00030

No. H5001-001 **Rev.** 10
Revision Date 1/1/92

I. PRODUCT IDENTIFICATION

Trade Name: PYROLITE; PYROBOARD; PYROWOOL

Generic Name: Refractory Ceramic Fiber Insulation

Chemical Name: N/A (Mixture)

CAS#: None Assigned

Manufacturer: Rex Roto Corporation

Address: P.O. Box 980
Fowlerville, MI
48836

Telephone: 517/223-3787

II. 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 test with laboratory animals.

Flammability: Non-combustible

Reactivity: Stable

III. HEALTH HAZARDS A. SIGNS/SYMPTOMS OF OVEREXPOSURE

Ingestion: May cause gastrointestinal disturbances such as irritation, nausea, vomiting and diarrhea.

Eyes: Slightly to moderately irritating. Abrasive action may cause damage to the outer surface of the eye.

Skin: Slight to moderate irritation or rash. Irritation is due to mechanical reaction to sharp, broken ends of fibers.

Inhalation: May cause irritation or soreness of throat and nose. Extreme exposures may produce coughing, congestion, and even difficulty breathing. Pre-existing medical conditions may be aggravated by exposure: e.g. bronchitis, emphysema, and asthma.

III. HEALTH HAZARDS B. FIRST AID

Ingestion: Do not induce vomiting. Drink water and get medical attention if irritation persists.

Skin: Wash affected areas gently with soap and water. Using skin cream or lotion may be helpful. Get medical attention if irritation persists.

Eyes: Flush immediately with large amounts of water. Do not rub eyes. Get medical attention if irritation persists.

Inhalation: Remove affected person from source of exposure. Drink water to clear throat, and blow nose to expel mist/dust. Avoid tobacco smoke. Get medical attention if irritation persists.

III. HEALTH HAZARDS C. SUMMARY/RISKS

Based on interim findings of two ongoing human health studies, there are no apparent respiratory effects in U.S. production workers which can be attributed to ceramic fiber exposure. A European cross sectional morbidity study of production workers showed no evidence of pulmonary fibrosis or progressive lung disease. A subliminal decline in respiratory function was reported in smokers and ex-smokers and correlated with some indices of fiber exposure.

Abdominal injections of ceramic fiber have produced peritonitis in hamsters and tumors in rats and hamsters. Injection of ceramic fiber into the pleural cavity of rats produced an occasional tumor. Such experiments utilize rigorous exposure techniques which by-pass the animal's normal protective and clearance mechanisms.

Intratracheal instillation studies in rats and hamsters produced no lung tumors. Long term animal inhalation studies employing sustained high level exposure have produced contradictory results. One study reported lung fibrosis and cancers in rats. A separate program conducted in rats and hamsters using long, higher exposures reported no adverse effects with the exception of a single tumor in the lining of the lung (a mesothelioma) of one hamster. Interim results from a third program conducted at yet higher exposures have shown evidence of pulmonary and pleural changes (fibrosis) in rats and hamsters as well as the occurrence of mesothelioma in hamsters. No lung tumors have been seen in either rats or hamsters in this third program.

The International Agency for Research on Cancer (IARC) reviewed the carcinogenicity data on man-made mineral fibers (including ceramic fiber, glasswool, rockwool, and slagwool) in 1987. IARC classified ceramic fiber, fibrous glasswool and mineral wool (rockwool and slagwool) as possibly carcinogenic to humans (Group 2B). IARC's classification of ceramic fiber was based on sufficient evidence of carcinogenicity in experimental animals in the absence of data on the carcinogenicity of ceramic fibers to humans.

IV. PERSONAL PROTECTION

Eye Protection: Safety glasses with sideshields or goggles are recommended, particularly when working overhead. Do not wear contact lenses.

Skin Protection: Wear gloves, hats, or loose fitting full body clothing as required to prevent skin irritation. Wash exposed areas with soap and warm water after handling. Wash work clothes separately from other clothing. Rinse washing machine thoroughly after use.

Respiratory Protection: Use mechanical ventilation with proper dust collection equipment to keep the dust level below the exposure limits listed in the Ingredients/Health Hazard Information section. Use NIOSH or MSHA approved equipment when airborne exposure limits are exceeded. Acceptable respirators recommended for various airborne fiber concentrations are:

Concentration	Respirator Type
< 1 f/cc	Disposable dust respirator (Example 3M 9900)
≤ 5 f/cc	Half-face, tight fitting respirator with HEPA filter cartridges (Example: 3M 6340)
≤ 25 f/cc	Tight fitting, full face air purifying respirator with HEPA filter cartridges or powered air-purifying respirator (PAPR) equipped with HEPA filter cartridges (Example: 3M 7800 with 7255 filters)
> 25 f/cc	Full face, supplied air respirator operated in positive pressure mode (Example: 3M 7800 with W9435 hose and W3195 regulator)

**Note: f/cc = Fibers per cubic centimeter
HEPA = High-efficiency particulate air filter

V. PHYSICAL CHARACTERISTICS

Appearance/Odor: White, gray, or tan board or shape / No odor

Boiling Point: N/A
Specific Gravity: (H_2O-1): .2 - 1.2
Evaporation Rate (Butyl Acetate=1): N/A
Melting Point: N/A
Vapor Density (Air=1): N/A
Vapor Pressure: N/A
Solubility in Water: Negligible
Percent Volatile: N/A

VI. FIRE AND EXPLOSION DATA

Flash Point: Non-flammable
Auto-ignition Temp.: None
Flammability Limits in Air (% By Vol.)-Lower: N/A **Upper:** N/A
Usual Fire or Explosion Hazards: None
Special Fire Fighting Procedures: None. Use extinguishing method suitable for type of surrounding fire.

VII. REACTIVITY DATA

Stability/Incompatibility: Stable under normal conditions of use. Incompatible with strong acids and alkalies.

Hazardous Decomposition and Byproducts: Carbon monoxide, carbon dioxide, and a small amount of formaldehyde may accompany binder burnoff during the first heat. Use adequate ventilation or other precautions to eliminate vapors from binder burnoff. Exposure to burnoff vapors may cause respiratory tract irritation and asthmatic response.

VIII. ENVIRONMENTAL INFORMATION

Spill or Release to the Environment: Vacuum clean dust where possible. Use a dust suppressant if sweeping is necessary. Personal safety and exposure recommendations described elsewhere in this data sheet apply to exposure during clean-up of spilled material.

Waste Disposal: Wastes generated during use or demolition are not hazardous wastes as defined by 40 CFR 261. Transportation, storage, and disposal of this product must comply with Federal, State and Local regulations.

IX. SPECIAL PRECAUTIONS / SUPPLEMENTAL INFORMATION

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) and the 1988-89 ACGIH threshold limit value (TLV) for cristobalite is 0.05 mg/M3 (respirable dust). Particular care should be taken when working with "used" material to minimize generation of dust. When removing and handling product 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. Workers should use respiratory protection. Use NIOSH or MSHA approved equipment when airborne exposure limits may be exceeded, especially in confined areas with inadequate ventilation. Acceptable respirators recommended for given airborne cristobalite concentrations are:

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Concentration	Respirator Type
Up to 10 times the PEL	Half-face, tight-fitting air purifying respirator with HEPA filter cartridges.
10 to 50 times the PEL	Full-face, tight-fitting cartridge respirator with HEPA filter cartridges.
> 50 times the PEL	Full-face, tight-fitting, positive pressure supplied air or powered air-purifying (PAPR) respirator.

Insulation surfaces should be lightly sprayed with H_2O before removal to suppress airborne dust. As water evaporates during removal, additional water should be sprayed on surfaces as needed. Only enough water should be sprayed to suppress dust so that water does not run onto the fiber in the work area. To aid the wetting process, a surfactant should be added to the water.

After RCF removal is completed, dust-suppressing cleaning methods, such as wet sweeping or wet vacuuming, should be used to clean the work area. If dry vacuuming is used, the vacuum must be equipped with a HEPA filter. Air blowing or dry sweeping should never be used. Dust-suppressing components can be used to clean up light dust.

X. INGREDIENTS / HEALTH HAZARD INFORMATION

COMPONENT	CAS NO.	%	EXPOSURE LIMITS
Refractory Ceramic Fiber	65997-17-3	40-95	1 Fiber/cc Guideline-RRC* 5 mg/M3-Nuisance Respirable-OSHA* 10 mg/M3-Nuisance Total-ACGIH*
Amorphous Silica	7631-86-9	0-60	10 mg/M3 (total) TLV
Organic and Inorganic Binders**			NA
Remaining components not determined hazardous and/or hazardous components present at less than 1.0% (0.1% for carcinogens).	NA	Trace	NA

*Pending the results of long-term health effects studies, airborne exposures should be controlled at or below the recommended industry exposure guidelines listed above.

**Identity, CAS Numbers and/or percent composition are trade secrets.

PREPARED BY: Brian Hill	REPLACES SHEET DATED: 6/25/90 ECO #:

As of the date of preparation of this document, the foregoing information is believed to be accurate and is provided in good faith to comply with applicable Federal and State laws. However, no warranty or representation, expressed or implied, is made as to the accuracy or completeness of the foregoing data.