SDS Number: BXT22 **Revised/Reviewed: 07/07/2016** **Revised From: 07/30/2015**

SECTION 1 • PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME OR NUMBER: **THERMOSEAL® T22**

COMPANY: Mid-Mountain Materials, Inc.

ADDRESS: Office: PO Box 800
2731 77th Ave. SE, Ste. 100
Mercer Island, WA 98040

Plant: 18825 67th Ave. NE
Arlington, WA 98223

TELEPHONE: 206-762-7600
EMERGENCY TELEPHONE NUMBER: 800-382-2208
FAX: 206-762-7694

SECTION 2 • HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

MEDICAL CONDITIONS THAT MAY BE AGGRAVATED: Pre-existing upper respiratory and lung diseases may be aggravated by dust.

TARGET ORGANS: Skin, eyes, and lungs.

ACUTE HEALTH EFFECTS: Mechanical irritation of respiratory system, skins, and eyes.

CHRONIC HEALTH EFFECTS: Exposure to "after service" dust containing cristobalite may be aggravated by dust.

PRIMARY ROUTE(S) OF EXPOSURE: Inhalation, eye and skin contact.

SIGNS AND SYMPTOMS OF OVEREXPOSURE:

INHALATION: Overexposure to dust may cause irritation or soreness in the throat and nose.

SKIN CONTACT: Irritation or rash.

EYES: Irritation or inflammation of the eyes.

INGESTION: May cause irritation to the gastro-intestinal tract.

SECTION 3 • COMPOSITION / INFORMATION ON INGREDIENTS

COMMOMN NAME	C.A.S. NUMBER	% wt/wt
Refractories, Fiber, Aluminosilicate (RCF)	142844-00-6	20-60
Silica, Amorphous	7631-86-9	15-45
Water	7732-18-5	65-75

SECTION 4 • FIRST-AID MEASURES

EMERGENCY/FIRST-AID PROCEDURES

SKIN: If product gets on skin, wash area with mild soap and water. If any irritation occurs seek medical attention

EYES: If particles get in eyes flush with plenty of water for 15 minutes. If any irritation occurs, seek medical attention.

INHALATION: Remove to fresh air. Drink water to clear throat. Blow nose to evacuate fibers.

INGESTION: Do not induce vomiting.

SECTION 5 • FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA: N/A

SPECIAL FIRE FIGHTING INSTRUCTIONS: Use self-contained breathing apparatus (SCBA) and complete protective equipment to protect against hazardous decomposition and combustion products.

SECTION 6 • ACCIDENTAL RELEASE MEASURES

ACTION TO TAKE FOR SPILLS/LEAKS

Use HEPA-filtered vacuum cleaner or wet sweeping methods to collect loose material. Avoid generation of airborne fibrous particles during clean-up operation.

WASTE MANGEMENT:

This product is not listed as a hazardous waste nor does it exhibit any characteristics of a hazardous waste.

SECTION 7 • HANDLING AND STORAGE

HANDLING AND STORAGE PROCEDURES: Store in original containers. Avoid conditions that could generate fiber dust.

SECTION 8 • EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS/WORK PRACTICES

VENTILATION: (Local Exhaust) recommend when appropriate to control employee exposure, especially at points where fragmentation or particulate generation may occur.

PERSONAL PROTECTIVE EQUIPMENT/PROTECTIVE MEASURES

RESPIRATORY PROTECTION: use with adequate ventilation; where ventilation or other controls are in adequate use NIOSH/MDHS approved particulate respirators in compliance with OSHA Respiratory Standard 29 CFR 1910.134 and 29 CFR 1926.103 for the particular hazard or airborne concentrations to encountered in the work environment.

Less than (<) 0.5 fiber/cc, use 3M 9900 or equivalent.

< 10 fibers/cc, use MSA COMFO Half-Mask (or equivalent) with HEPA filters.

< 50 fibers/cc, use MSA ULTRA-TWIN (or equivalent) with HEPA filters.

>50 fibers/cc, use NIOSH approved full face respirator with positive-pressure supplied air.

AFTER SERVICE AT TEMPS. > 1832°F (1000°C):

<0.25 mg/m^3 , use MSA COMFO Half-Mask (or equivalent) with HEPA filters.

<1.25 mg/m^3 , use MSA ULTRA-TWIN (or equivalent) with HEPA filters.

>1.25 mg/m^3 , use NIOSH approved full face respirator with positive pressure air supply.

PROTECTIVE CLOTHING: Use barrier gloves if handling produces skin irritation.

EYE PROTECTION: Safety eyewear may be appropriate when handling.

OTHER PROTECTIVE EQUIPMENT: Barrier creams and long-sleeve garments may be used to prevent fibrous matter form contacting exposed skin. Wash hands after handling. Wash contaminated clothing separately. Disposable coveralls are recommended if excessive dusting occurs.

EXPOSURE GUIDELINES: Maintain work areas free of loose material. Use proper work practices and good personal hygiene when handling product.

SECTION 9 • PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Wet, thick, sticky fibrous paste.

COLOR AND ODOR: Pale white/Off white, no odor.

pH: N/A

MELTING POINT: 1760° C (3200° F)

BOILING POINT: N/A

EVAPORATIVE RATE (n-Butyl Acetate = 1): N/A

FLAMMABILITY LIMITS: N/A

LOWER EXPLOSIVE LIMIT: N/A

UPPER EXPLOSIVE LIMIT: N/A

VAPOR PRESSURE: (mm/Hg @ 20°C): N/A

% SOLUBILITY IN WATER: Insoluble when dried.

SPECIFIC GRAVITY (water = 1): Density 75 -85 lbs./cu.ft. Dried

AUTO IGNITION TEMPERATURE: N/A

VISCOSITY: N/A

% VOLATILE BY VOLUME: 0

POUR POINT: N/A

SECTION 10 • STABILITY AND REACTIVITY

STABILITY: Stable under normal conditions of use.

INCOMPATIBILITY: Not known.

HAZARDOUS DECOMPOSITION PRODUCTS: None known. May be some carbon dioxide, carbon monoxide, and water from fire.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11 • TOXICOLOGICAL INFORMATION

Normal conditions of use and application are not expected to release respirable particulates or airborne fibers.

Removal of used product, sanding, scraping, or otherwise destroying the integrity of the dried product may result in the release of particulates and fibers. The toxicological information below applies to the aluminosilicate fiber portion of the dried product.

Health Data Summary:

Epidemiological studies of RCF production workers have indicated neither increased incidence of respiratory disease nor other significant health effects. In animal studies, long-term, high-dose inhalation exposure resulted in the development of respiratory disease in rats and hamsters

Prolonged or repeated skin contact may cause irritation.

Direct eye contact may cause irritation.

There is a low order of acute oral and dermal toxicity. Reported Animal Effects: No animal toxicity studies have been carried out with this product.

In order to determine possible human health effects following RCF exposure, the University of Cincinnati in the United States and the Institute of Occupational Medicine (IOM) in Europe have conducted medical surveillance studies on RCF workers in U.S. and European manufacturing facilities. The University of Cincinnati study has been in progress for over 20-years, collecting data from respiratory questionnaires, lung function tests, chest X-rays, exposure monitoring, and worker mortality.

The results of this study of RCF plant workers exposed from 1953 to the present have shown (LeMasters *et al*, 2003):

- No excess mortality related to all deaths, all cancers, or lung cancer
- No statistically significant increase in interstitial findings (fibrosis), and
- No mesotheliomas or increase in lung cancer

The initial cross-sectional spirometry studies in the U.S. (LeMasters *et al.*1998) and Europe (Cowie *et al.*2001) revealed lung function decrements in the RCF-exposed cohort that were associated with heavier historical exposures. Subsequently, longitudinal studies have revealed no RCF exposure related decrements in lung function associated with current exposure levels.

Through 1996, pleural plaques seen on chest X-rays in 2.7% of the workers. Pleural plaques are considered a marker of exposure and not disease. The prevalence of pleural plaques has remained relatively constant over time, perhaps as a result of lower current exposure levels.

Thus, this long term epidemiology study has demonstrated an absence of interstitial fibrosis, no increased mortality risk and no decrement in lung function associated with current exposures.

TOXICOLOGY

Early animal studies of RCF effects by intraperitoneal and intrapleural injections, as well as by inhalation, resulted in mostly negative results. In an effort to eliminate any questions posed by the results of these early studies, a definitive *Maximum Tolerated Dose Study* (MTD) by nose only, lifetime inhalation in rats and hamsters, was designed in the 1980s. The MTD study appeared to confirm that RCF was an animal carcinogen under certain test conditions, e.g., extremely high concentrations of approximately 200 f/cc inhaled directly into the lungs.

A later review of the MTD pathology indicated that the animals' lungs were likely "overloaded" because of large quantities of non-fibrous particles, and that this overload condition was likely responsible for the disease observed. In fact, evaluation of the aerosol samples used confirmed the presence of significant quantities of particulate matter.

In a subsequent multi-dose animal inhalation study at 25 f/cc, 75 f/cc, and 115 f/cc; a *no observed effect level* (NOEL) was found at 25 f/cc. This level is 50 times the RCFC recommended REG of 0.5 f/cc for humans.

SECTION 12 • ECOLOGICAL INFORMATION

Adverse affects of this product on the environment have not been identified.

SECTION 13 • DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Incineration is ineffective because product does not burn. Waste material should be bagged or containerized, sealed and disposed of in an approved landfill in

accordance with federal, state, and local regulations. Product as shipped is not considered a hazardous waste under current RCRA regulations. It is the responsibility of the product user to determine at the time of disposal whether a material derived from the product should be classified as a hazardous waste (10CFR 261.20-24).

SECTION 14 • TRANSPORT INFORMATION

UN/NA CODE: N/A

PROPER SHIPPING NAME: N/A

HAZARD CLASS: Not regulated.

DOT INFORMATION: Not regulated.

LABELS REQUIRED: N/A

BILL OF LADING DESCRIPTION: Product Name

SECTION 15 • REGULATORY INFORMATION

UNITED STATES REGULATIONS

EPA: **Superfund Amendments and Reauthorization Act (SARA)** Title III - This product does not contain any substances reportable under Sections 302, 304, 313, (40 CFR 372). Sections 311 and 312 (40 CFR 370) apply (delayed hazard).
Toxic Substances Control Act (TSCA) - RCF has been assigned a CAS number; however, it is an "article" under TSCA and therefore exempt from listing on the TSCA inventory.
Comprehensive Environmental Response, Compensation and Liability Act (**CERCLA)** and the **Clean Air Act (CAA)** - RCF contains fibers with an average diameter greater than one micron and thus is not considered a hazardous air pollutant.

OSHA: Comply with **Hazard Communication Standards** 29 CFR 1910.1200 and 29 CFR 1926.59 and the **Respiratory Protection Standards** 29 CFR 1910.134 and 29 CFR 1926.103.

California: Ceramic fibers (airborne particles of respirable size)" is listed in **Proposition 65, The Safe Drinking Water and Toxic Enforcement Act of 1986** as a chemical known to the State of California to cause cancer.

Other States: RCF products are not known to be regulated by states other than California; however, state and local OSHA and EPA regulations may apply to these products. If in doubt, contact your local regulatory agency.

INTERNATIONAL REGULATIONS

Canada: **Canadian Workplace Hazardous Materials Information System (WHMIS)** – RCF is classified as Class D2A – Materials Causing Other Toxic Effects
Canadian Environmental Protection Act (CEPA) - All substances in this product are listed, as required, on the Domestic Substance List (DSL)

European Union: **European Directive 97/69/EC** classified RCF as a Category 2 carcinogen; that is it "should be regarded as if it is carcinogenic to man."

SECTION 16 • OTHER APPLICABLE INFORMATION

N/A

DEFINITIONS

29 CFR 1910.134 & 1926.103:
OSHA Respiratory Protection Standards
29 CFR 1910.1200 & 1926.59:
OSHA Hazard Communication

ACGIH	American Conference of Governmental Industrial Hygienists
ADR	Carriage of Dangerous Goods by Road (International Regulation)
CAA	Clean Air Act
CAS	Chemical Abstract Services
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
DOT	Department of Transportation
DSL	Domestic Substances List (Canada)
EEC	European Economic Committee
EINECS	European Inventory of Existing Commercial Chemical Substances
EPA	Environmental Protection Agency
EU	European Union
HEPA	High Efficiency Particulate Air
HMIS	Hazardous Materials Information System
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods Code
LC	Lethal Concentration
LD	Lethal Dose
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
PIN	Product Identification Number
PNOC	Particulates Not Otherwise Classified
PNOR	Particulates Not Otherwise Regulated
RCRA	Resource Conservation and Recovery Act
RID	Carriage of Dangerous Goods by Rail (International Regulation)
SARA	Superfund Amendments and Reauthorization Act
STEL	Short Term Exposure Limit
TCLP	Toxic Chemical Leachate Program
TDG	Transportation of Dangerous Goods

TITLE III EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW ACT – SECTION:

- 302 Extremely Hazardous Substances
- 303 Emergency Release
- 311 SDS/List of Chemicals
- 312 Emergency and Hazardous Inventory
- 313 Toxic Chemicals Release Reporting

TLV	Threshold Limit Value
TSCA	Toxic Substance Control Act
TWA	Time Weighted Average
WHMIS	Workplace Hazardous Materials Information System

µm	micrometer (micron)
mm	millimeter
cm	centimeter
m	meter
f/cc	fibers per cubic centimeter
ml	milliliter
in	inch
oz	ounce
lb	pound
µg	microgram
mg	milligram
g	gram
kg	kilogram
$\mu g/cm^2$	micrograms per centimeters squared
mg/m^3	milligrams per cubic meter of air

mppcf	million particles per cubic foot
ppm	parts per million
N/A	Not Applicable
ND	No Data/Not Determined
NE	Not Established
NR	Not Regulated

<<< End of SDS >>>