

## SAFETY DATA SHEET

Following Regulation 1910.1200

SDS Number: 214      Date of first issue: 01 May 1987      Date of last revision: 17 February 2020

### 1 - Identification of product

#### a - Product identifier used on the label

**Tradenames:** Cer-Wool Rope, Kaotex 2000 Products,

#### b - Other means of identification

REFRACTORY CERAMIC FIBER PRODUCT

#### c - Recommended use of the chemical and restrictions on use

**Primary Use:** Refractory Ceramic Fiber (RCF) materials are used primarily in industrial high temperature insulating applications. Examples include heat shields, heat containment, gaskets, expansion joints, industrial furnaces, ovens, kilns, boilers and other process equipment at applications up to 1400°C. RCF based products are not intended for direct sale to the general public. While RCFs are used in the manufacture of some consumer products, such as catalytic converter mats and wood burning stoves, the materials are contained, encapsulated, or bonded within the units

**Secondary Use:** Conversion into wet and dry mixtures and articles (refer to section 8) **Tertiary Use:** Installation, removal (industrial and professional) / Maintenance and servicelife (industrial and professional) (refer to section 8).

**Uses Advised Against:** Spraying of dry product.

#### d - Name, address, and telephone number

<b>Morgan Advanced Materials</b> P. O. Box 923; Dept. 300 Augusta, GA 30903-0923 Telephone: 706-796-4200
---

#### e - Emergency Phone Number

For Product Stewardship and Emergency Information:

Hotline - 1-800-722-5681

Fax - 706-560-4054

For additional SDSs and to confirm this is the most current SDS for the product, visit our web page [www.morganthermalceramics.com](http://www.morganthermalceramics.com) or send a request to [MT.NorthAmerica@morganplc.com](mailto:MT.NorthAmerica@morganplc.com)

### 2 - Hazard Identification

#### a - Classification of the chemical in accordance with paragraph (d) of §1910.1200

The U.S. Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (HCS) 2012 indicates that IARC Group 2B corresponds to OSHA HCS 2012 Category 2 carcinogen classification (see, e.g., §1910.1200, Appendix F, Part D).

#### b - Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with paragraph (f) of §1910.1200

Under OSHA HCS 2012, RCF is classified as GHS category 2 carcinogen.

#### Hazard Pictograms



#### Signal Words

Warning

#### Hazard Statements

Suspected of causing cancer by inhalation.

#### Precautionary Statements

Do not handle until all safety instructions have been read and understood.

Use respiratory protection as required; see section 8 of the Safety Data Sheet.

If concerned about exposure, get medical advice.

Store in a manner to minimize airborne dust.

Dispose of waste in accordance with local, state and federal regulations.

#### Supplementary Information

May cause temporary mechanical irritation to exposed eyes, skin or respiratory tract.

Minimize exposure to airborne dust.

#### Emergency Overview

#### c - Describe any hazards not otherwise classified that have been identified during the classification process

Mild mechanical irritation to skin, eyes and upper respiratory system may result from exposure.

These effects are usually temporary.

#### d - Mixture Rule

### 3 - Composition / Information On Ingredients

#### a - Composition table

COMPONENTS	CAS NUMBER	% BY WEIGHT
Refractories, Fibers, Aluminosilicate	142844-00-6	80 - 95
Acrylic Latex Binder	NONE	7 - 12
Clay	NONE	7 - 12
Natural Rubber	NONE	1 - 3
Calcium Carbonate	1317-65-3	1 - 3
Titanium Dioxide	13463-67-7	1 - 3

#### b - Common Name

(See Section 8 "Exposure Controls / Personal Protection" for exposure guidelines)

#### d - Impurities and Stabilizing Additives

Not applicable.

### 4 - First-Aid measures

#### a - Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, and ingestion

##### Eyes

If eyes become irritated, flush immediately with large amounts of lukewarm water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Do not rub eyes.

##### Skin

If skin becomes irritated, remove soiled clothing. Do not rub or scratch exposed skin. Wash area of contact thoroughly with soap and water. Using a skin cream or lotion after washing may be helpful.

##### Respiratory Tract

If respiratory tract irritation develops, move the person to a dust free location. See Section 8 for additional measures to reduce or eliminate exposure.

##### Gastrointestinal

If gastrointestinal tract irritation develops, move the person to a dust free environment.

#### c - Indication of immediate medical attention and special treatment needed, if necessary

### 5 - Fire-fighting measures

#### a - Suitable (and unsuitable) extinguishing media and

Use extinguishing media suitable for type of surrounding fire

#### c - Special Protective Equipment and Precautions for Firefighters

NFPA Codes: Flammability: 0 Health: 1 Reactivity: 0 Special: 0

#### b - Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products):

None

### 6 - Accidental Release Measures

#### a - Personal precautions, protective equipment, and emergency procedures

Minimize airborne dust. Compressed air or dry sweeping should not be used for cleaning. See Section 8 "Exposure Controls / Personal Protection" for exposure guidelines.

#### b - Methods and materials for containment and cleaning up

Pick up large pieces and dispose in a closed container. Follow precaution stated in above section for clean up.

### 7 - Handling and storage

#### a - Precautions for safe handling

Handle fiber carefully to minimize airborne dust. Limit use of power tools unless in conjunction with local exhaust ventilation. Use hand tools whenever possible.

#### b - Conditions for safe storage, including any incompatibilities

Store in a manner to minimize airborne dust.

#### c - empty containers

Product packaging may contain residue. Do not reuse.

a - OSHA permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available

EXPOSURE GUIDELINES			
MAJOR COMPONENT	OSHA PEL	ACGIH TLV	MANUFACTURER'S REG
Refractories, Fibers, Aluminosilicate	None Established*	0.2 f/cc, 8-hr. TWA	0.5 f/cc, 8-hr. TWA**
Latex***	None Established	None Established	NONE
Calcium Carbonate	15 mg/m <sup>3</sup> (total dust); 5 mg/m <sup>3</sup> (respirable dust)	None Established	NONE
Titanium Dioxide	15 mg/m <sup>3</sup>	None Established	NONE
*Except of in the state of California, there is no specific regulatory standard for RCF in the U.S. OSHA's "Particulate Not Otherwise Regulated (PNOR)" standard [29 CFR 1910.1000, Subpart Z, Air Contaminants] applies generally - Total Dust 15 mg/m <sup>3</sup> ; Respirable Fraction 5 mg/m <sup>3</sup> . The PEL for RCF in California is 0.2 f/cc, 8-hr TWA			
**HTIW Coalition has sponsored comprehensive toxicology and epidemiology studies to identify potential RCF-related health effects [see Section 11 for more details], consulted experts familiar with fiber and particle science, conducted a thorough review of the RCF-related scientific literature, and further evaluated the data in a state-of-the-art quantitative risk assessment. Based on these efforts and in the absence of an OSHA PEL, HTIW Coalition has adopted a recommended exposure guideline (REG), as measured under NIOSH Method 7400 B. The manufacturers' REG is intended to promote occupational health and safety through feasible exposure controls and reductions as determined by extensive industrial hygiene monitoring efforts undertaken voluntarily and pursuant to an agreement with the U.S. Environmental Protection Agency.			
***Trace amounts of formaldehyde may release from latex during initial heating of this product. The current OSHA PELs for formaldehyde are: 0.75 ppm (8hr.TWA) and 2 ppm (STEL).			
OTHER OCCUPATIONAL EXPOSURE LEVELS (OEL) RCF-related occupational exposure limits vary internationally. Regulatory OEL examples include: Canada – 0.2 to 1.0 f/cc; Ontario Canada – 0.5 f/cc. United Kingdom – 1.0 f/cc. Non-regulatory OEL examples include: HTIW Coalition REG – 0.5 f/cc. The objectives and criteria underlying each of these OEL decisions also vary. The evaluation of occupational exposure limits and their relative applicability to the workplace is best performed, on a case-by-case basis, by a qualified Industrial Hygienist.			

#### b - Appropriate Engineering Controls

Use engineering controls such as local exhaust ventilation, point of generation dust collection, down draft work stations, emission controlling tool designs and materials handling equipment designed to minimize airborne fiber emissions.

#### c - Individual protection measures, such as personal protective equipment

##### PPE - Skin

Wear personal protective equipment (e.g gloves), as necessary to prevent skin irritation. Washable or disposable clothing may be used. If possible, do not take unwashed clothing home. If soiled work clothing must be taken home, employees should be informed on best practices to minimize non-work dust exposure (e.g., vacuum clothes before leaving the work area, wash work clothing separately, and rinse washer before washing other household clothes).

##### PPE - Eye

As necessary, wear goggles or safety glasses with side shields.

##### PPE – Respiratory

When engineering and/or administrative controls are insufficient to maintain workplace concentrations below the 0.5 f/cc REG or a regulatory OEL, the use of appropriate respiratory protection, pursuant to the requirements of OSHA Standards 29 CFR 1910.134 and 29 CFR 1926.103, is recommended. A NIOSH certified respirator with a filter efficiency of at least 95% should be used. The 95% filter efficiency recommendation is based on NIOSH respirator selection logic sequence for exposure to manmade mineral fibers. Pursuant to NIOSH recommendations, N-95 respirators are appropriate for exposures up to 10 times the NIOSH Recommended Exposure Limit (REL). With respect to RCF, both the NIOSH REL and the industry REG have been set at 0.5 fibers per cubic centimeter of air (f/cm<sup>3</sup>). Accordingly, N-95 would provide the necessary protection for exposures up to 5 f/cm<sup>3</sup>. Further, the Respirator Selection Guide published by 3M Corporation, the primary respirator manufacturer, specifically recommends use of N-95 respirators for RCF exposures. In cases where exposures are known to be above 5.0 f/cm<sup>3</sup>, 8 hour TWA, a filter efficiency of 100% should be used. Other factors to consider are the NIOSH filter series N, R or P – (N) Not resistant to oil, (R) Resistant to oil and (P) oil Proof. These recommendations are not designed to limit informed choices, provided that respiratory protection decisions comply with 29 CFR 1910.134.

The evaluation of workplace hazards and the identification of appropriate respiratory protection is best performed, on a case by case basis, by a qualified Industrial Hygienist.

##### Other Information

Concentrations based upon an eight-hour time weighted average (TWA) as determined by air samples collected and analyzed pursuant to NIOSH method 7400 (B) for airborne fibers. The manufacturer recommends the use of a full-facepiece air purifying respirator equipped with an appropriate particulate filter cartridge during furnace tear-out events and the removal of used RCF to control exposures to airborne fiber and the potential presence of crystalline silica.

## 9 - Physical and chemical properties

<b>a - Appearance</b>	White Odourless Shiny Thread or Yarn
<b>b - Odor</b>	Not applicable
<b>c - Odor Threshold</b>	Not applicable
<b>e- pH</b>	Not applicable
<b>d - Melting Point</b>	1760°C (3200°F)
<b>f- Initial Boiling Point/Range</b>	Not applicable
<b>g- Flashpoint</b>	Not applicable
<b>h - Evaporation Rate</b>	Not applicable
<b>i - Flammability</b>	Not applicable
<b>j - Upper/Lower Flammability or Explosive Limits</b>	Not applicable
<b>k - VAPOR PRESSURE</b>	Not applicable
<b>l - VAPOR DENSITY</b>	Not applicable
<b>m - Solubility</b>	Not soluble in water
<b>n - Relative Density</b>	2.50 - 2.75
<b>o - Partition Coefficient: n-Octanol/water</b>	Not applicable
<b>p - Auto-ignition temperature</b>	Not applicable
<b>q - Decomposition Temperature</b>	Not applicable
<b>r - Viscosity</b>	Not applicable

## 10 - Stability and Reactivity

### a - Reactivity

Stable under conditions of normal use.

### b - Chemical Stability

This is a stable material.

### c - Possibility of Hazardous Reaction

Not applicable.

### d - Conditions to Avoid

Please refer to handling and storage advise in Section 7.

### e - Incompatible Materials

Not known

### f - Hazardous decomposition products

Decomposition of the latex binder will occur at temperatures above 200°C releasing smoke, water, carbon monoxide, carbon dioxide and hydrocarbons. The duration and the amount of release will depend upon the applied temperature, the thickness and area of the material and binder content. During the first heating cycles increased ventilation or the use of suitable respirator protection may be required.

## 11 - Toxicological information

### a - TOXICOKINETICS, METABOLISM AND DISTRIBUTION

Exposure is predominantly by inhalation or ingestion. Man-made vitreous fibers of a similar size to RCF have not been shown to migrate from the lung and/or gut and do not become located in other organs of the body.

### b - Acute Toxicity

### c - Epidemiology

In order to determine possible human health effects following RCF exposure, the University of Cincinnati has been conducting medical surveillance studies on RCF workers in the U.S.A.; this epidemiological study has been ongoing for 25 years and medical surveillance of RCF workers continues. The Institute of Occupational Medicine (IOM) has conducted medical surveillance studies on RCF workers in European manufacturing facilities.

Pulmonary morbidity studies among production workers in the U.S.A. and Europe have demonstrated an absence of interstitial fibrosis. In the European study a reduction of lung capacity among smokers has been identified, however, based on the latest results from a longitudinal study of workers in the U.S.A. with over 17-year follow-up, there has been no accelerated rate of loss of lung function (McKay et al. 2011).

A statistically significant correlation between pleural plaques and cumulative RCF exposure was evidenced in the U.S.A. longitudinal study.

The U.S.A. mortality study showed no excess mortality related to all deaths, all cancer, or malignancies or diseases of the respiratory system including mesothelioma (LeMasters et al. 2003).

### d - Toxicology

#### RCF:

A number of toxicological studies designed to identify any potential health effects from RCF exposure have been completed. In one study, conducted by the Research and Consulting Company, (Geneva, Switzerland), rats and hamsters were exposed to 30 mg/m<sup>3</sup> (about 200 fibers/cc) of specially-prepared RCF for 6 hours/day, 5 days/week, for up to 24 months. In rats, a statistically significant increase in lung tumors was observed; two mesotheliomas (cancer of the pleural lining between the chest wall and lung) were also identified. Hamsters did not develop lung tumors; however, interstitial fibrosis and mesothelioma was found. Some, in the scientific community, have concluded that the "maximum tolerated dose" was exceeded and that significant particle contamination was a confounding issue; therefore, these study findings may not represent an accurate assessment of the potential for RCF to produce adverse health effects.

In a related multi-dose study with a similar protocol, other rats were exposed to doses of 16 mg/m<sup>3</sup>, 9 mg/m<sup>3</sup>, 3 mg/m<sup>3</sup> which corresponds to about 115, 75, and 25 fibers per cubic centimeter respectively. This study found no statistically significant increase in lung cancer. Some cases of pleural and parenchymal fibrosis were seen in the 16 mg/m<sup>3</sup> dose group. Some cases of mild fibrosis and one mesothelioma were observed in the 9 mg/m<sup>3</sup> group. No acute respiratory effects were seen in the rats in the 3 mg/m<sup>3</sup> exposure group, which suggests that there may be a dose/response threshold, below which irreversible respiratory impacts do not occur.

Other toxicological studies have been conducted which utilized non-physiological exposure methods such as intrapleural, intraperitoneal and intratracheal implantation or injection. Some of these studies have found that RCF is a potential carcinogen. Some experts, however, suggest that these tests have limited relevance because they bypass many of the biological mechanisms that prevent fiber deposition or facilitate fiber clearance.

#### Titanium Dioxide:

Titanium dioxide was reclassified by the IARC in 2006 as a "possibly carcinogenic to humans (Group 2B)".

The classification was based on sufficient evidence in experimental animals but inadequate evidence in humans for the carcinogenicity of titanium dioxide. IARC indicated in the monograph that "the studies do not suggest an association between occupational exposure to titanium dioxide as it occurred in recent decades in Western Europe and North America and risk for cancer." [IARC Monograph (Vol. 93)]

The US National Institute for Occupational Safety and Health (NIOSH) is currently reviewing the available toxicity data on titanium dioxide. On the draft Current Intelligence Bulletin (March, 2006), NIOSH recommends exposure limits of 1.5 mg/m<sup>3</sup> for fine TiO<sub>2</sub> (particle greater than 0.1 um in diameter) and 0.1 ug/m<sup>3</sup> for ultrafine particles. The draft document states that the difference in the recommended limits reflect findings from studies, which suggest that ultrafine TiO<sub>2</sub> particles may be more potent than fine TiO<sub>2</sub> particles at the same mass. It also indicated this may due to the fact, that the ultrafine particles have a greater surface area than the fine particles at the same mass.

#### International Agency for Research on Cancer and National Toxicology Program

IARC, in 1988, Monograph v.43 (and later reaffirmed in 2002, v.81), classified RCF as possibly carcinogenic to humans (group 2B). IARC evaluated the possible health effects of RCF as follows:

There is inadequate evidence in humans for the carcinogenicity of RCF. There is sufficient evidence in experimental animals for the carcinogenicity of RCF. The Annual Report on Carcinogens (latest edition), prepared by NTP, classified respirable RCF as "reasonably anticipated" to be a carcinogen). Not classified by OSHA.

Titanium dioxide was reclassified by the IARC in 2006 as a "possibly carcinogenic to humans (Group 2B)".

The classification was based on sufficient evidence in experimental animals but inadequate evidence in humans for the carcinogenicity of titanium dioxide. The IARC conclusions on Titanium Dioxide are based on very specific evidence. This evidence showed that high concentrations of pigment-grade (powdered) and ultrafine titanium dioxide dust caused respiratory tract cancer in rats exposed by inhalation and intratracheal instillation.

## 12 - Ecological information

### a - Ecotoxicity (aquatic and terrestrial, where available)

These products are not reported to have any ecotoxicity effects.

### c - Bioaccumulative potential

No bioaccumulative potential.

### d - Mobility in soil

No mobility in soil.

### e - Other adverse effects (such as hazardous to the ozone layer)

No adverse effects of this material on the environment are anticipated.

## 13 - Disposal Considerations

### Waste Management and Disposal

To prevent waste materials from becoming airborne during waste storage, transportation and disposal, a covered container or plastic bagging is recommended.

### Additional information

This product, as manufactured, is not classified as a listed or characteristic hazardous waste according to U. S. Federal regulations (40 CFR 261). Any processing, use, alteration or chemical additions to the product, as purchased, may alter the disposal requirements. Under U. S. Federal regulations, it is the waste generator's responsibility to properly characterize a waste material, to determine if it is a "hazardous" waste. Check local, regional, state or provincial regulations to identify all applicable disposal requirements.

#### 14 - Transport information

##### a - UN number.

Hazard Class: Not Regulated United Nations (UN) Number: Not Applicable  
Labels: Not Applicable North America (NA) Number: Not Applicable  
Placards: Not Applicable Bill of Lading: Product Name

##### b - UN proper shipping name

Not applicable.

##### c - Transport hazard class(es)

Not applicable.

##### d - Packing group, if applicable

Not applicable.

##### e - Environmental hazards (e.g., Marine pollutant (Yes/No))

No.

##### f - Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)

Not regulated.

##### g - Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises

Not applicable.

##### International

INTERNATIONAL

Canadian TDG Hazard Class & PIN: Not regulated

Not classified as dangerous goods under ADR (road), RID (train), IATA (air) or IMDG (ship).

#### 15 - Regulatory information

##### 15.1 - United States Regulations

###### 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, as "article" by definition, it is not required to be listed 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:** According to our raw material supplier, latex used in this product contains small amounts of the following chemicals listed in Proposition 65, Safety Drinking Water and Toxic Enforcement Act of 1986 as chemical(s) known to the state of California to cause cancer:

-Formaldehyde CAS No. 50-00-0  
-Acrylamide CAS No. 79-06-1 (also developmental toxicity, male only)  
-Ethyl Acrylate CAS No. 140-88-5

Also, ceramic fibers (airborne particles of respirable size) are listed in the State of California as a chemical known 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.

##### 15.2 - International Regulations

###### 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 Substances 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."

###### REACH Regulation:

RCF is classified under the CLP (classification, labelling and packaging of substances and mixtures) regulation as a category 1B carcinogen. On January 13, 2010 the European Chemicals Agency (ECHA) updated the candidate list for authorization (Annex XV of the REACH regulation) and added 14 new substances in this list including aluminosilicate refractory ceramic fibers.

As a consequence, EU (European Union) or EEA (European Economic Area) suppliers of articles which contain aluminosilicate refractory ceramic fibers in a concentration above 0.1% (w/w) have to provide sufficient information, available to them, to their customers or upon requests to a consumer within 45 days of the receipt of the request. This information must ensure safe use of the article, and as minimum contains the name of the substance.

**initial statement**

Trace amounts of formaldehyde, acrylonitrile may be released from latex polymer during initial heating. Under normal conditions of handling, processing and use it is reasonable to expect the amount of acrylonitrile released to be below 1.0 ppm. Consult OSHA Standards on acrylonitrile and formaldehyde (29 CFR 1910.1045 and 29 CFR 1910.1048 respectively) for specific requirements if the exposure level is beyond the threshold levels.

**Devitrification**

As produced, all RCF fibers are vitreous (glassy) materials which do not contain crystalline silica. Continued exposure to elevated temperatures over time may cause these fibers to devitrify (become crystalline). The first crystalline formation (mullite) begins to occur at approximately 985° C (1805° F). Crystalline phase silica may begin to form at approximately 1100° C (2012° F). When the glass RCF fibers devitrify, they form a mixed mineral crystalline silica containing dust. The crystalline silica is trapped in grain boundaries within a matrix predominately consisting of mullite. The occurrence and extent of crystalline phase formation is dependent on the duration and temperature of exposure, fiber chemistry and/or the presence of fluxing agents or furnace contaminants. The presence of crystalline phases can be confirmed only through laboratory analysis of the "hot face" fiber.

IARC's evaluation of crystalline silica states "Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1)" and additionally notes "carcinogenicity in humans was not detected in all industrial circumstances studied." IARC also studied mixed mineral crystalline silica containing dusts such as coal dusts (containing 5–15 % crystalline silica) and diatomaceous earth without seeing any evidence of disease. (IARC Monograph Vol. 68, 1997). NTP lists all polymorphs of crystalline silica as substances which may "reasonably be anticipated to be carcinogens".

IARC and NTP did not evaluate after-service RCF, which may contain various crystalline phases. However, an analysis of after-service RCF samples obtained pursuant to an exposure monitoring agreement with the EPA, found that in the furnace conditions sampled, most did not contain detectable levels of crystalline silica. Other relevant RCF studies found that (1) simulated after-service RCF showed little, or no, activity where exposure was by inhalation or by intraperitoneal injection; and (2) after-service RCF was not cytotoxic to macrophage-like cells at concentrations up to 320 micrograms/cm<sup>2</sup> - by comparison, pure quartz or cristobalite were significantly active at much lower levels (circa 20 micrograms/cm<sup>2</sup>).

**Product Stewardship Program**

Morgan Thermal Ceramics has established a program to provide customers with up-to-date information regarding the proper use and handling of High Temperature Insulation Wool, including Refractory Ceramic Fiber (RCF). In addition, Thermal Ceramics has established a program to monitor airborne fiber concentrations at customer facilities. If you would like more information about this program, please call your local supplier or the Product Stewardship Information Hotline listed at the front of this SDS.

Morgan Thermal Ceramics is a member of the HTIWC (High Temperature Insulation Wool Coalition).

In 2002, OSHA endorsed a five year voluntary product stewardship program called PSP 2002. On May 23, 2007, HTIW Coalition's predecessor, RCFC, and its member companies renewed this voluntary product stewardship agreement with OSHA. On April 16, 2012, HTIW Coalition renewed this agreement for a second time.

This new five year program, called PSP 2012, continues and builds upon the earlier programs. PSP 2012 is a highly acclaimed, multifaceted strategic risk management initiative designed specifically to reduce workplace exposures to Refractory Ceramic Fiber (RCF). For more information regarding PSP 2012, please visit <http://www.htiwcoalition.org>

**HMIS HAZARD RATING**

HMIS Health	1* (* denotes potential for chronic effects)
HMIS Flammable	0
HMIS Reactivity	0
HMIS Personal Protective Equipment	X (To be determined by user)

**TECHNICAL DATA SHEETS**

514-945

**Revision Summary**

Revision date updated.

**MSDS prepared by**

SDS Prepared By: MORGAN THERMAL CERAMICS ENVIRONMENTAL, HEALTH & SAFETY DEPARTMENT

**Disclaimer**

The information presented herein is presented in good faith and believed to be accurate as of the effective date of this Safety Data Sheet. Employers may use this SDS to supplement other information gathered by them in their efforts to assure the health and safety of their employees and the proper use of the product. This summary of the relevant data reflects professional judgment; employers should note that information perceived to be less relevant has not been included in this SDS. Therefore, given the summary nature of this document, Morgan Thermal Ceramics does not extend any warranty (expressed or implied), assume any responsibility, or make any representation regarding the completeness of this information or its suitability for the purposes envisioned by the user.