SAFETY DATA SHEET
CERAMIC FIBER BOARDS HIGH DENSITY

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Product Name: Ceramic Fiber Board High Density
Ceramic Fiber Board Single HD Board Packs

Other Names: Ceramic Fiber Board High Density 2300°F
Ceramic Fiber Board HD 2300°F
Ceramic Fiber Board Single High Density Board Pack

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. 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 service life (industrial and professional) (refer to section 8).

Uses Advised Against:
Spraying of dry product.

Distributor/Manufacturer:
CeraMaterials
525 Silver Lake Rd
Dingmans Ferry, PA 18328
Emergency Contact: Jeff Optiz
Product Stewardship: 518.701.6722

24hr Emergency Contact Info:

CHEMTREC US Transportation:	800.424.9300
CHEMTREC International Transportation:	703.741.5500

SECTION 2 - HAZARDS IDENTIFICATION

Classification of the chemical:

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). WHMIS 2015 Carcinogenicity Category 2.

Signal word, symbols, hazard and precautionary statements:

Hazard Pictogram

Signal Word

Warning

Hazard Statements

Dust 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.

Hazards not 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.

Mixture rule

Not applicable.

SECTION 3 - COMPOSITION

Chemical & Common Name	CAS#	% By Weight
Refractories, Fibers, Aluminosilicate	142844-00-6	60-65
Calcined kaolin clay	1332-58-7	15-20
Silica (amorphous)	7631-86-9	10-15
Starch	9005-25-8	5-10

*Synonyms:
RCF, ceramic fiber, Alumino Silicate Wool (ASW), synthetic vitreous fiber (SVF), man-made vitreous fiber (MMVF), man-made mineral fiber (MMMF), high temperature insulation wool (HTIW)

SECTION 4 - FIRST AID MEASURES

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

Skin:
Handling of this material may generate mild mechanical temporary skin irritation. If this occurs, rinse affected areas with water and wash gently. Do not rub or scratch exposed skin.

Eyes:
In case of eye contact flush abundantly with water; have eye bath available. Do not rub eyes.

Nose & Throat:
If these become irritated move to a dust free area, drink water and blow nose. If symptoms persist, seek medical advise.

Most important symptoms/effects, acute and delayed.
Mild mechanical irritation to skin, eyes and upper respiratory system may result from exposure. These effects are usually temporary.

Indication of immediate medical attention and special treatment needed, if necessary.

Notes to Physicians:
Skin and respiratory effects are the result of temporary, mild mechanical irritation; fiber exposure does not result in allergic manifestations.

SECTION 5 - FIRE FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media.

Use extinguishing agent suitable for surrounding combustible materials.

Specific hazards arising from the chemical

(e.g., nature of any hazardous combustion products).

Non-combustible products, class of reaction to fire is zero. Packaging and surrounding materials may be combustible. Thermal decomposition of binder from fires or from first heat of product may release smoke, carbon monoxide, and carbon dioxide. Use adequate ventilation or other precautions to eliminate exposure to vapors resulting from thermal decomposition of binder. Exposure to thermal decomposition fumes may cause respiratory tract irritation, bronchial hyper-reactivity or an asthmatic-type response.

Special protective equipment and precautions for fire-fighters.

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

SECTION 6 - ACCIDENTAL RELEASE MEASURES

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.

Methods and materials for containment and cleaning up.

Frequently clean the work area with appropriately filtered vacuum or wet sweeping to minimize the accumulation of debris. Do not use compressed air for clean-up.

Empty containers.

Product packaging may contain residue. Do not reuse.

SECTION 7 - HANDLING AND STORAGE

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.

Conditions for safe storage, including any incompatibilities.

Store in a manner to minimize airborne dust.

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

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.

COMPONENTS	OSHA PEL	NIOSH REL	ACGIH TLV	MFG REG
Refractory Ceramic Fiber (RCF)	None established*	0.5 f/cc, 8-hr. TWA	0.2 f/cc TLV, 8-hr. TWA	0.5 f/cc, 8-hr. TWA**
Calcined kaolin clay	5 mg/m^3 PEL (resp. dust) 15 mg/m^3 PEL (total dust)		2 mg/m3	None established
Silica (amorphous)	20 mppcf or 80 mg/m^3 / % SiO2		10 mg/m3	None established
Starch	5 mg/m3 PEL (resp. dust) 15 mg/m^3 PEL (total dust)		10 mg/m3	None established

*Except for the state of California, where the PEL for RCF is 0.2 f/cc 8-hr TWA, 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^3; Respirable Fraction 5 mg/m^3.

**In the absence of an OSHA PEL, HTIW Coalition has adopted a recommended exposure guideline (REG), as measured under NIOSH Method 7400 B. For further information on the history and development of the REG see "Rationale for the Recommended Exposure Guideline" at page 34 of the HTIW Coalition Product Stewardship Program http://www.htiwcoalition.org/documents/PSP_2012.pdf.

Other occupational exposure levels (OEL).

RCF-related occupational exposure limits vary internationally. Regulatory OEL examples include: California, 0.2 f/cc; Canadian provincial OELs ranging from 0.2 to 1.0 f/cc. The objectives and criteria underlying each of these OEL decisions also vary. The evaluation of occupational exposure limits and determining their relative applicability to the workplace is best performed, on a case-by-case basis, by a qualified Industrial Hygienist.

Appropriate engineering controls.

Use engineering controls such as local exhaust ventilation, point of generation dust collection, down draft work stations, emission controlling, emission controlling tool

designs, and materials handling equipment designed to minimize airborne fiber emissions.

Individual protection measures, such as personal protective equipment.

Skin Protection:

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 cloths).

Eye Protection:

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

Respiratory Protection:

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 NIOSH REL and the industry REG have been set at 0.5 fibers per cubic centimeter of air (f/cm^3). Accordingly, N-95 would provide the necessary protection for exposures up to 5 f/cm^3. 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^3, 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 note 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 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-face piece 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.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	White, fibrous wool	**pH:**	Not applicable
Odor:	Odorless	**Vapor pressure:**	Not applicable
Odor thresold:	Not applicable	**Vapor density:**	Not applicable
Melting point:	3200°F | 1760°C	**Relative density:**	2.50 - 2.75
Initial boiling point / range:	Not applicable	**Solubility:**	Insoluble
Flash point:	Not applicable	**Auto-ignition temperature:**	Not applicable
Evaporation rate:	Not applicable	**Decomposition temperature:**	Not applicable
Flammability:	Not applicable	**Viscosity:**	Not applicable
Upper/lower flammability or explosive limits:	Not applicable	**Partition coefficient (n-octanol/water):**	Not applicable

SECTION 10 - STABILITY AND REACTIVITY

Reactivity:	RCF is non-reactive
Chemical stability:	As supplied RCF is stable and inert
Possibility of hazardous reactions:	None
Conditions to avoid:	Please refer to handling and storage in Section 7
Incompatible materials:	None
Hazardous decomposition products:	Thermal decomposition of binder from fires or from first heat of product may release smoke, carbon monoxide, and carbon dioxide. Use adequate ventilation or other precautions to eliminate exposure to vapors resulting from thermal decomposition of binder. Exposure to thermal decomposition fumes may cause respiratory tract irritation, bronchial hyper-reactivity or an asthmatic-type response.

SECTION 11 - TOXICOLOGICAL INFORMATION

For more details on scientific publications referenced in the SDS see:
http://www.htiwcoalition.org/publications.html

TOXICOKINETICS, METABOLISM AND DISTRIBUTION

Basic Toxicokinetics

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.

Human Toxicological Data/Epidemiology Data

In order to determine possible human health effects following RCF exposure, the University of Cincinnati has begun 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 final report of the USA mortality study (LeMasters et al., 2017) concluded that "after 30 years of follow-up, no excess of lung cancers in the mortality study and no significant association with radiographic findings of interstitial fibrosis were found in this group of workers." The study also found a small incidence of other effects that appear unrelated to RCF exposure. The final mortality report did not change the current hazard classification for RCF.

Information on Toxicological Effects

- *Acute toxicity: short term inhalation*
  No data available: Short term tests have been undertaken to determine fiber (bio) solubility rather than toxicity; repeat does inhalation tests have been undertaken to determine chronic toxicity and carcinogenicity.
- *Acute toxicity: oral*
  No data available: Repeated does studies have been carried out using gavage. No effect was found.

- *Skin corrosion/irritation*
  Not a chemical irritant according to test method OECD no. 404.
- Serious eye damage/irritation
  Not possible to obtain acute toxicity information due to the morphology and chemical inertness of the substance.
- *Respiratory or skin sensitization*
  No evidence from human epidemiological studies of any respiratory or skin sensitization potential.
- *Germ cell mutagenicity / genotoxicity*
  Method: In vitro micronucleus test
  Species: Hamster (CHO)
  Dose: 1-35 mg/ml
  Routes of administration: In suspension
  Results: Negative
- *Carcinogenicity*
  Method: Inhalation, multi-dose
  Species: Rat
  Dose: 3 mg/m³, 9 mg/m³ and 16 mg/m³
  Routes of administration: Nose only inhalation
  Results: Fibrosis just reached significant levels at 16 and 9 mg/m³ but not at 3 mg/m³. None of the parenchymal tumor incidences were higher than the historical control values for this strain of animal.

  Method: Inhalation, single dose
  Species: Rat
  Dose: 30 mg/m³
  Routes of administration: Nose only inhalation
  Results: Rats were exposed to a single concentration of 200 WHO fibers/ml specially prepared RCF for 24 months. High incidence of exposure-related pulmonary neoplasms (bronchoalveolar adenomas and carcinomas) was observed. A small number of mesotheliomas were observed in each of the fiber exposure groups (Mast el al 1995a).

  Method: Inhalation, single dose
  Species: Hamster
  Dose: 30 mg/m³
  Routes of administration: Nose only inhalation
  Results: Hamsters were exposed to a single concentration of 260 WHO fiber/ml specially prepared RCF fibers for 18 months and developed lung fibrosis, a significant number of pleural mesotheliomas (42/102) but no primary lung tumors (McConnell et al 1995)

  Method: Inhalation, single dose

Species: Rat
Dose: RCF1: 130 F/ml and 50 mg/m³ (25% of non fibrous particles)
RCF1a: 125 F/ml and 26 mg/m³ (2% of non fibrous particles)
Routes of administration: Nose only inhalation
Results: Rats were exposed to RCF1 and RCF1a for 3 weeks. The objective of the study was to compare lung retention and biological effects of the original RCF1 compared to RCF1a. The main difference of these 2 samples was the non-fibrous particle content of respectively 25% versus 2%. The post treatment observation was 12 months. Alveolar clearance was barely retarded after RCF1A exposure. After RCF1 exposure, however, a severe retardation of clearance was observed. (Bellmann et al 2001).

After intraperitoneal injection of ceramic fibers into rats in three experiments (Smith et al 1987, Pott et al 1987, Davis et al 1984), mesotheliomas were found in the abdominal cavity in two studies, while the third report (Pott et al 1987) had incomplete histopathology. Only a few mesotheliomas were found in the abdominal cavity of hamsters after intraperitoneal injection in one experiment (Smith et al 1987). However, the ceramic fibers tested were of relatively large diameter. When rats and hamsters were exposed via intraperitoneal injection, tumor incidence was related to fiber length and dose (Smith et al 1987, Pott et al 1987, Miller et al 1999, Pott et al 1989). (From SCOEL publication (EU Scientific Committee on Occupational Exposure Limits) SCOEL/SUM/165, September 2011).

- Reproductive toxicity
  Method: Gavage
  Species: Rat
  Dose: 250 mg/kg/day
  Routes of administration: Oral
  Results: No effects were seen in an OECD 421 screening study. There are no reports of any reproductive toxic effects of mineral fibers. Exposure to these fibers is via inhalation and effects seen are in the lung. Clearance of fibers is via the gut and the feces, so exposure of the reproductive organs is extremely unlikely.
- STOT-Single exposure
  Not applicable
- STOT-Repeated exposure
  Not applicable
- Aspiration hazard
  Not applicable

<u>See the following review publications for a summary and discussion:</u>
Interpretation of these animal experiments is complex and there is not complete agreement amongst scientists internationally. A summary of the evidence relating to RCF

carcinogenicity in vivo can be found in SCOEL/SUM/165 and in Utell and Maxim 2010.

Other information:
Numerous studies indicate the relevance of biopersistence as a determinant of toxic effects of fiber exposure. (Maxim et al 2006).

Irritant Properties
Negative results have been obtained in animal studies (EU method B 4) for skin irritation. Inhalation exposures using the nose only route produce simultaneous heavy exposure to the eyes, but no reports of excess eye irritation exist. Animals exposed by inhalation similarly show no evidence of respiratory tract irritation.
Human data confirm that only mechanical irritation, resulting in itching, occurs in humans. Screening at manufacturers' plants in the UK has failed to show any human cases of skin conditions related to fiber exposure.

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.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity (aquatic & terrestrial, where available):	No known aquatic toxicity.
Persistence and degradability:	These products are insoluble materials that remain stable over time and are chemically identical to inorganic compounds found in the soil and sediment; they remain inert in the natural environment.
Bioaccumulative potential:	No bioaccumulative potential.
Mobility in soil:	No mobility in soil.
Other adverse effects (such as hazardous to the ozone layer)	No adverse effects of this material on the environment are anticipated.

SECTION 13 - DISPOSAL CONSIDERATIONS

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

Disposal
This product, as manufactured, is not classified as a hazardous waste according to Federal regulations (40 CFR 261). Any processing, use, alteration or chemical additions to the product, as purchased, may alter the disposal requirements. Under 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 disposable requirements.

SECTION 14 - TRANSPORT INFORMATION

UN Number:	Not applicable
UN proper shipping name:	Not applicable
Transport hazard class(es):	Not applicable
Packing group, if applicable:	Not applicable
Environmental hazards (e.g., Marine pollutant (Yes/No))	Not a marine pollutant
Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)	Not applicable
Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance wither within or outside their premises	Not applicable

Canadian TDG Hazard Class & PIN: Not regulated
Not classified as dangerous goods under ADR (road), RID (train) or IMDG (ship).

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).
Hazard Categories: Immediate Hazard - No Delayed Hazard - Yes Fire Hazard - No
Pressure Hazard - No Reactivity Hazard - No
Toxic Substances Control Act (TSCA) - RCF is not regulated to be listed on the TSCA inventory.
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the **Clean Air Act (CAA)** - this product 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 Environmental Protection Act (CEPA)** - all substances in this product are listed, as required, on the Domestic Substance List (DSL)

Europe: **Integration of RCF into ANNEX XV of the REACH Regulation**

RCF is classified under the CLP (classification, labeling 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 requrests 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.

SECTION 16 - OTHER INFORMATION

Hazardous Materials Identification System (HMIS) Hazard Rating:

Health	**1***
Flammability	**0**
Reactivity	**0**
Physical Hazard	**0**
Personal Protective Equipment	**X****

***Indicates possible chronic health effects from continuing exposures**

****To be determined by the user**

Additional Information on After Service Material

As produced, all RCF fibers are vitreous (glassy) materials which do not contain crystalline silica. Continued exposure to elevated temperatures 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 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 amongst 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 USEPA, 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^2 - by comparison, pure quartz or cristobalite were significantly active at much lower levels (circa 20 micrograms/cm^2).

Effective Date:	January 1, 2018
Revision Summary:	Product names updated
Revision Date:	September 19, 2019
SDS Prepared By:	CeraMaterials

Disclaimer

The information presented herein is presented in good faith and believed to be accurate as 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 judgement; 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, CeraMaterials 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.