



## FC 3000 PCW

Effective Date: January 17<sup>th</sup> 2020

### 1. IDENTIFICATION

- A. Product Identifier used on label:** FC 3000 Fiber; FC 3000 HD Boards and Shapes
- B. Other means of identification:** High Temperature Insulating Fibrous Vacuum-Formed Boards and Shapes; Synthetic Vitreous Fibre; Man-Made Vitreous Fibre. High Temperature Insulating Ceramic Vacuum-Formed Boards and Shapes; Ceramic Wool, Polycrystalline Wool (PCW), Man-Made Vitreous Fibre (MMVF), Aluminosilicate Refractory Fibre, Polycrystalline Aluminosilicate Fibres, Polycrystalline Boards and Shapes.
- C. Recommended use of the product:** Used for high temperature thermal insulation for applications up to 1648 degC or 3000 deg F. Typical uses: Suited for applications experiencing vibration mechanical stress, and strong erosive forces; to improve service life for furnace roofs and linings, ladle and tundish covers, batten strips, burner walls, preheat covers, trough covers, soaking pit covers, expansion joints, heat shields, heat containment, combustion chambers, bac up insulation for brick and monolithic refractories, gaskets and expansion joints that could reach temperatures up to 1648°C or 3000 OF in industrial furnaces, ovens, kilns, and other process equipment. Can be used as a barrier against flame and heat, Aluminosilicate based products are not intended for direct sale to the general public. While Aluminosilicate is used in the manufacture of some consumer products, the materials are contained, encapsulated, orbonded within the units. Melting point is 3400 deg F or 1871 deg C.
- D. Uses Advised Against:** Dismantling product for reuse on other applications.
- E. Manufacturer's Name:** FibreCast Incorporated, 3264 Mainway, Burlington, Ontario, Canada, L7M 1A7 Phone 905-319-1080; Fax 905-319-7611; email: [sales@fibrecast.com](mailto:sales@fibrecast.com)
- F. Emergency Phone #:** CHEMTREC will provide assistance for chemical emergencies at 1-800-424-9300

### 2. HAZARDS IDENTIFICATION

- A. Classification of the chemicalis based** is Canada on the 5th revised edition of the Globally Harmonized System of Classification and Labelling of Chemicals from the United Nations Economic Commission for Europe and in the USA, it is based on the US Occupational Safety and Health Administration Hazard Communication Standards of 2012. These standards indicate that that the product is considered as IARC Group 2B which corresponds to OSHA HCS 2012 Category 2 carcinogen classification.
- B. Signal word:** hazard statement(s), symbol(s) and precautionary statement(s) in accordance with paragraph (f) of §1910.1200
- Under OSHA HCS 2012, ceramic fiber is classified as a category 2 carcinogen.



- C. Describe any hazards not otherwise classified during classification process:** Mild mechanical irritation to skin, eyes and upper respiratory system may result from exposure. These effects are usually temporary.
- D. Mixture rule not applicable**

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	% BY WEIGHT
Refractories, Fibers, Aluminosilicate	142844-00-6	40 to 70
Colloidal silica	7631-86-8	15 to 40
Cationic Starch	56780-58-6	5 to 10

**Impurities and Stabilizing Additives: Not applicable**



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## 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

**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 AND THROAT:** If these become irritated move to a dust free area, drink water and blow nose. If symptoms persist, seek medical advice.

**B. 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.

### C. 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; fibre exposure does not result in allergic manifestations.

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## 5. FIRE FIGHTING MEASURES

### A. Suitable (and unsuitable) extinguishing media:

Use extinguishing agent suitable for surrounding combustible materials.

**B. Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products):** Product is considered a non-combustible product, class of reaction to fire is zero. However, the packaging and surrounding materials may be combustible. Also, there a thermal decomposition of the binder from the initial heat of product at approximately 4500 F or 2320 C. This may release a small amount of organic binder as a vapour. Once this material has burned off, there is no further off-gassing. Use adequate ventilation or other precautions to eliminate exposure to vapors resulting from this thermal decomposition of the binder. Exposure to thermal decomposition fumes may cause respiratory tract irritation, bronchial hyper-reactivity or an asthmatic-type response

### C. Special protective equipment & precautions for fire-fighters:

NFPA Codes: Flammability: 0 Health: 1 Reactivity: 0 Special: 0 [see Section 16]

**D. Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products):** None

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## 6. ACCIDENTAL RELEASE MEASURES

**A. Personal precautions, PPE, and Emergency Procedures:** Avoid causing dust. Use PPE recommended in Section Damp down dust with water spray.

**B. Methods and materials for containment and Cleaning Up:** Dispose of contaminated material as waste according to Section 13. Ensure adequate ventilation. Contain the source of the spill or leak if it is safe to do so. Spills should be handled by vacuuming or wet mopping. Avoid brush sweeping and generation of airborne dust. Dispose of in suitable containers.

**C. EMPTY CONTAINERS:** Product packaging may contain residue. Do not reuse.

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## 7. HANDLING AND STORAGE

**A. Precautions for safe handling:** Prevent formation of dust. Do not dry clean dust covered objects and floors. Wash thoroughly with plenty of water. Use appropriate industrial vacuums for dust removal. Any deposit of dust which cannot be avoided must be removed regularly.

**B. Conditions for safe storage:** Store under normal warehouse conditions. Store away from food.

**Empty Containers:** Empty containers should be cleaned before disposal or recycling.



## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**A. Ontario Occupational exposure limits [OEL]** are listed in ON Reg 833 “Control of Exposure to Biological or Chemical Agents” and are generally based on the OSHA permissible exposure limit (PEL) of the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), as well as from any other exposure limit used or recommended by the manufacturer, importer, or the employer preparing the safety data sheet.

COMPONENTS	CAS NUMBER	Recommended OEL Ontario
Refractories, Fibers, Aluminosilicate	142844-00-6	0.5 fibres/cc
Amorphous silica	7631-86-9	no regulated limit; guideline 6 mg/m <sup>3</sup>
Starch	56780-58-6	no regulated limit; guideline 5 mg/m <sup>3</sup> respirable dust

As with most industrial materials, it is prudent to minimize unnecessary exposure to respirable dusts. Note that Industrial hygiene standards and occupational exposure limits differ between countries and local jurisdictions. Check with your employer to identify any "respirable dust", "total dust" or "fibre" exposure standards to follow in your province or state. If no regulatory dust or fiber control standard apply, a qualified industrial hygiene professional can assist with a specific evaluation of workplace conditions and the identification of appropriate respiratory protection practices. In the absence of other guidance, the supplier has found that it is generally feasible to control occupational fiber exposure to 0.5 f/cc or less.

**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

**Skin Protection:** Wear gloves, head coverings and full body clothing 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, employers should ensure employees are thoroughly trained on the best practices to minimize non-work dust exposure (e.g., vacuum clothes before leaving the work area, wash work clothing separately, rinse washer before washing other household clothes, etc.).

**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 applicable level, the use of appropriate respiratory protection, pursuant to the requirements of ON MOL Reg 833 and USA 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 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 exposure (TWAEV) 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 ceramic fiber to control exposures to airborne fiber.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

<b>APPEARANCE</b> White board or form	<b>PARTITION COEFFICIENT</b> Not applicable
<b>BOILING POINT</b> Not applicable	<b>OXIDISING PROPERTIES</b> Not applicable
<b>ODOUR</b> Slight	<b>EXPLOSIVE PROPERTIES</b> Not applicable
<b>FLASH POINT</b> Not applicable	<b>BULK DENSITY</b> 10 to 12 #/ft <sup>3</sup>
<b>MELTING POINT</b> 1871° C/ 3400 F	<b>VAPOUR PRESSURE</b> Not applicable
<b>AUTOFLAMMABILITY</b> Not applicable	<b>SOLUBILITY</b> Less than 1 mg/l
<b>FLAMMABILITY</b> Not applicable	<b>pH</b> Not applicable



**LENGTH WEIGHTED GEOMETRIC MEAN DIAMETER OF FIBRES CONTAINED IN THE PRODUCT:** 5 mm

**9.2 Other safety Information:** These fibres are far denser than air or water and will settle rapidly under normal environmental conditions.

## 10. STABILITY AND REACTIVITY

A. Reactivity	RCF is stable and non-reactive.
B. Chemical stability	RCF is inorganic, stable and inert.
C. Possibility of hazardous reactions	None
D. Conditions to avoid	Please refer to handling and storage advice in Section 7
E. Incompatible materials	None
F. Hazardous decomposition products	During first heating, oxidation products from the organic binder might be emitted in a temperature range from 180 deg C to 600 deg C. Ventilate the area until all the gases and fumes have dissipated. Avoid exposure to high concentrations of gas or fumes.

## 11. TOXICOLOGICAL INFORMATION

### TOXICOKINETICS, METABOLISM AND DISTRIBUTION

- A. Basic Toxicokinetics:** Exposure is predominantly by inhalation or ingestion. Man-made vitreous fibers of a similar size to ceramic fiber have not been shown to migrate from the lung and/or gut and do not become located in other organs of the body.
- B. Human Toxicological Data/Epidemiology Data:** 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 > 30 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.
- C. 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 exposures 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.
- D. 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.

## 12. STABILITY AND REACTIVITY

A. Ecotoxicity	Unlikely to be hazardous to aquatic life.
B. 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.
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

- A. WASTE MANAGEMENT:** To prevent waste materials from becoming airborne during waste storage, transportation and disposal, a covered container or plastic bagging is recommended.



- B. DISPOSAL:** This product, as manufactured, is not classified as a hazardous waste according to Federal regulations. 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 disposal requirements.

## 14. TRANSPORT INFORMATION (Non-mandatory)

A. UN number	Not Applicable
B. UN proper shipping name	Not Regulated.
C. Transport hazard class	Not Applicable
D. Packing group, if applicable	Not Applicable
E. Environmental hazards (e.g., Marine pollutant -Yes/No)	Not a marine pollutant
F. Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)	Not Applicable
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

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

## 15. REGULATORY INFORMATION

### CANADIAN REGULATIONS

Canada Canadian Workplace Hazardous Materials Information System (WHMIS 2015) – 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) RCF is classified under the CLP [classification, labelling, and packaging of substances and mixtures] regulation as a category 1B carcinogen. On January 13th, 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 fibres [RCF].

## 16. OTHER INFORMATION

**16.1 Hazardous Materials Identification System (HMIS) Hazard Rating [rating system dates back to early 1960's]:** HMIS Health 1\* (\* denotes potential for chronic effects); HMIS Flammability 0; HMIS Reactivity 0; HMIS Personal Protective Equipment X (To be determined by user)

### 16.2 Additional Information on After Service Material

As produced all ceramic fibers are vitreous (glassy) materials which do not contain crystalline silica. However, 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 ceramic 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. Note! The occurrence and extent of crystalline phase formation is dependent on the duration and temperature of exposure fiber chemistry 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 [the International Agency for Research on Cancer] evaluation of crystalline silica states "Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans and is rated as a Group1 carcinogen\*\*". IARC 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 some 5–15% crystalline silica) and diatomaceous earth, without seeing any evidence of disease. In the USA, the National Toxicology Program [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 ceramic fiber which may contain various crystalline phases. However, an analysis of after-service ceramic fiber samples obtained pursuant to an exposure monitoring agreement with the United States Environmental Protection Agency found that in the furnace conditions sampled most did not contain detectable levels of crystalline silica. Other relevant ceramic fiber studies it was found that (1) simulated after-service ceramic fiber showed little or no activity where exposure was by inhalation or by intraperitoneal injection and (2) after-service ceramic fiber 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>)



## 16.3 Definitions

ACGIH	American Conference of Governmental Industrial Hygienists
ADR	Carriage of Dangerous Goods by Road (International Regulation)
AES	Alkaline Earth Silicate Wools
ASW	Alumino-Silicate Wools
CAA	Clean Air Act
CAS	Chemical Abstracts Service
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
DSL	Domestic Substances List
EPA	Environmental Protection Agency
EU	European Union
f/cc	Fibers per cubic centimeter
HEPA	High Efficiency Particulate Air
HMIS	Hazardous Materials Identification System
HTIW	North American high temperature insulation wool industry
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods Code
mg/m <sup>3</sup>	Milligrams per cubic meter of air
mmpcf	Million particles per cubic meter
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
29 CFR 1910.1200 & 1926.59	OSHA Respiratory Protection Standards
29 CFR 1910.1200 & 1926.59:	OSHA Hazard Communication Standards
PCW	Polycrystalline Wools
PEL	Permissible Exposure Limit (OSHA)
PIN	Product Identification Number
PNOC	Particulates Not Otherwise Classified
PNOR	Particulates Not Otherwise Regulated
PSP	Product Stewardship Program
RCFA	Refractory Ceramic Fiber Association
RCRA	Resource Conservation and Recovery Act
REL	Recommended Exposure Limit (NIOSH)
RID	Carriage of Dangerous Goods by Rail (International Regulations)
SARA	Superfund Amendments and Reauthorization Act
SARA Title III	Emergency Planning and Community Right to Know Act
SARA Section 302	Extremely Hazardous Substances
SARA Section 304	Emergency Release
SARA Section 311	MSDS/List of Chemicals and Hazardous Inventory
SARA Section 312	Emergency and Hazardous Inventory
SARA Section 313	Toxic Chemicals and Release Reporting

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## 16.3 Definitions to be continued..

STEL	Short Term Exposure Limit
SVF	Synthetic Vitreous Fiber
TDG	Transportation of Dangerous Goods
TLV	Threshold Limit Value (ACGIH)
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
WHMIS	Workplace Hazardous Materials Information System (Canada)

**16.4 Revision Summary:** Updated SDS to align with the new WHMIS 2015 Regulation introduced, Feb 11th, 2015. SDS Revision Date: January 17th, 2020 SDS Prepared By: G.E. Menzies P. Eng. ROH.

### 16.4 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, FibreCast Inc. 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.