SDS FC INJECTITE 3000 CAULKING & TROWELING MIX

Effective August 9, 2018

1. IDENTIFICATION

A. Product Identifier used on label: FC Injectite 3000 PCW [Polycrystalline Wool] Caulking & Troweling Mix.

(b) Other means of identification: High Temperature Polycrystalline Wool Insulating Material in Tubes; Polycrystalline Wool Fibre Caulking; High Temperature Insulating Fibrous Caulking Material; Blend of Polycrystalline Wool and Binders; Synthetic Vitreous Fibre Caulking Material; Man-Made Vitreous Fibre Caulking Material.

B. Recommended use of the product: Used for high temperature thermal insulation for applications up to 1600 deg

C or 2912 deg F; rated as non-carcinogen (EC Directive 67/548/EEC), requires no special product labelling; is total thermal shock resistant. Typical uses: 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, securing gaskets and expansion joints that could reach temperatures up to 1600°C in industrial furnaces, ovens, kilns, and other process equipment. PCW based products are not intended for direct sale to the general public. While PCWs are used in the manufacture of some consumer products, the materials are contained, encapsulated, or bonded within the units. Note! PCW is a stable material that does not change molecularly with a fibre diameter averaging 5 microns.

C. Uses Advised Against: Dismantling product for reuse on other applications.

D. Manufacturer Name: FibreCast Incorporated, 3264 Mainway, Burlington, Ontario, Canada, L7M 1A7; Phone 905-319-1080; Fax 905-319-7611; email: sales@fibrecast.com

Emergency Phone #:CHEMTREC will provide assistance for chemical emergencies at 1-800-424-9300

2. HAZARDS IDENTIFICATION

A. Classification of the chemical: Classification of the product is based in Canada on the 5th revised edition of the Globally Harmonized System of Classification and Labelling of Chemicals from the United Nations Economic Commission i.e. (d) of 1910.1200. Polycrystalline wools are not classified. Read the entire safety data sheet. The assessment of all available toxicological data during the classification process resulted in a "no classification" conclusion.

B. Signal word: Signal word hazard statement(s), symbol(s) and precautionary statement(s) in accordance with the 5th revised edition of the Globally Harmonized System of Classification and Labelling of Chemicals. Not applicable.

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. Minimize exposure to airborne dust.

D. Mixture rule not applicable

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	% BY WEIGHT
Polycrystalline Wool Fibre	675106-31-7	40 to 70
Colloidal silica	7631-86-8	15 to 40
Polymer	mixture	0.5 to 1.5
Water	7732-18-5	10 to 30

***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

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

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): Non-combustible products, class of reaction to fire is zero.

*Packaging and surrounding materials may be combustible.

C. Special protective equipment & precautions for fire-fighters: NFPA Codes: Flammability: 0 Health: 1 Reactivity: 0 Special: 0

6. ACCIDENTAL RELEASE MEASURES

A. Personal precautions, PPE, and Emergency Procedures: Product is in a wet moldable of pumpable state when shipped, hence not dusty. After use, 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: Frequently clean the work area with vacuum or wet sweeping to minimize the accumulation of debris. Do not use compressed air for clean-up.

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

7. HANDLING AND STORAGE

A. Precautions for safe handling: Handle fibre 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 chance of freezing. After use, handle carefully to minimize generation of dust.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

A. Occupational Exposure Limits for Polycrystalline Wool: Ontario OEL for synthetic vitreous fibres not otherwise classified is 1 f/cc. There is no specific regulatory standard for polycrystalline wool fibre in the U.S. It uses the OSHA “Particulate Not otherwise Regulated (PNOR)” standard (29CFR 1910.1000 Subpart Z, Air Contaminants) that considers it as part of a Total Dust TWAEV of 15 mg/m 3 with a Respirable Fraction of 5 mg/m 3.

Exposure Guidelines – Other Ingredients: The occupational exposure limits vary widely and are under constant review. Refer to those that apply currently to the location where the product is in use or being removed from service. The engineering controls or personal protective equipment employed to reduce exposure to ceramic fibre will also control worker exposure to the following ingredients. The manufacturer recommends the following time weighted average occupational action levels for the other ingredients and they are based on current good industrial hygiene practices:

Name	Ontario TWAEV
Colloidal silica	10 mg/m3 (as inhalable particles) 2 mg/m3 (as respirable particles); in USA no regulated limit

B. Appropriate engineering controls: When handling dried product, 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 fibre emissions.

C. 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 clothes).

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 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 fibres. Pursuant to NIOSH recommendations, N-95 respirators are appropriate for exposures up to 10 times the NIOSH Recommended Exposure Limit (REL). 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 fibres. 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 fibre and the potential presence of crystalline silica.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

APPEARANCE Light brown, fibrous pumpable product	**PARTITION COEFFICIENT** Not applicable
BOILING POINT Not applicable	**OXIDISING PROPERTIES** Not applicable
ODOUR Odourless	**EXPLOSIVE PROPERTIES** Not applicable
FLASH POINT Not applicable	**ODOUR TRESHOLD** Not applicable
MELTING POINT 1760° C (3200° F)	**VAPOUR PRESSURE** Not applicable
AUTOFLAMMABILITY Not applicable	**SOLUBILITY** Insoluble (f)
FLAMMABILITY Not applicable	**pH** Not applicable
EVAPORATION RATE Not applicable	**UPPER/LOWER FLAMMABILITY EXPLOSIVE LIMITS** : Not applicable
DENSITY [#/sq ft] 80#/cf	**AUTO-IGNITION TEMPERATURE** Not applicable

10. STABILITY AND REACTIVITY

A. Reactivity	RCF is stable and non-reactive.
B. Chemical stability	As supplied RCF is 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	None

11. TOXICOLOGICAL INFORMATION

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

Toxicological Data/Epidemiology Data

Lifetime rat inhalation studies of polycrystalline fibre show that at the maximum dose level tested, there was no evidence of lung cancer, lung fibrosis or any other significant adverse effect. Intraperitoneal, intratracheal and intrapleural studies in rats, together with two in vitro tests, have all shown negative results. Despite some study limitations, it is important to note the consistent lack of carcinogenic response in animal studies. As produced most polycrystalline fibres have fibre diameters too large to be respirable. Numerous scientific studies suggest that the potential toxicity of a respirable fibre is directly related to bio-persistence (the length of time it take for the fibre to clear the lung). Based on limited in-vitro laboratory analysis, which measure the dissolution rate of fibres in simulated lung fluid, polycrystalline fibres are known to be relatively durable. Data from respiratory surveillance studies are not available for PCW workers. In a small cohort of workers exposed to PCW with historical co-exposures to RCF and other fibres, there was no evidence of interstitial lung disease on chest x-rays nor an accelerated rate of loss of lung function on pulmonary function testing. Symptom responses could not be attributed to or excluded from exposure to PCW as a consequence of the prior fibre exposures.

International Agency for Research on Cancer and National Toxicology Program

In 1988, the International Agency for Research on Cancer (IARC) considered the carcinogenicity of several groups of fibres. One grouping they considered was a poorly defined collection of disparate fibre types [polycrystalline fibre, refractory ceramic fibre (referred to as RCF) and single crystal whiskers] into a broad, single category they termed “ceramic fibres”. The IARC monograph clearly indicated that test data specific to polycrystalline fibres were negative, but according to the IARC classification principles, positive results with other fibre types led to the conclusion that all fibres in the group should be considered as possible human carcinogens (IARC Category 2B). In a subsequent monograph on MMVF (2002), IARC did not specifically re-evaluate polycrystalline fibre. The Annual Report on Carcinogens prepared by the National Toxicology Program (NTP), (latest edition) classified “ceramic fibres (respirable size)” as reasonably anticipated to be carcinogens.

12. STABILITY AND REACTIVITY

A. Ecotoxicity	No known aquatic toxicity.
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

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 USA 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 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) – Not Classified, hence no special label.

Canadian Environmental Protection Act (CEPA) - All substances in this product are listed, as required, on the Domestic Substance List (DSL)

UNITED STATES REGULATIONS
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.

16. OTHER INFORMATION

16.1 Hazardous Materials Identification System (HMIS) Hazard Rating for rating RCF products [is now opposite of GHS rating system]. The old ratings are: HMIS Health 1: HMIS Flammability 0;HMIS Reactivity 0; HMIS Personal Protective Equipment X (To be determined by user) levels.

16.2 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

16.2 Definitions Continued…

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/m³	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
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)

16.3 Revision Summary: Updated SDS to align with the new WHMIS 2015 Regulation introduced, Feb 11th, 2015, SDS Revision Date: April 2nd, 2020; SDS Prepared By: G.E. Menzies P. Eng. ROH 16.2

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.