



MATERIAL SAFETY DATA SHEET

MSDS No.2011RCF-4

Date of Issue: Feb, 2012

Ceramic Fiber Products Series

Loose Bulk Wool, Blanket, Board, Module, Vacuum Formed

Part 1. IDENTIFICATION OF PRODUCT

Product Name:

FIBERTHERM® Ceramic Fiber Products (RCF) / Alumina Silicate Wool (ASW)

Raw Materials: Kaolin, Mullite Mineral, Alumina Silicate, Chemicals

Applications:

High temperature insulation, furnace lining, heat shields, sealing and gaskets

Primary Use: Manufacture of fibre

Secondary Use: Conversion into wet and dry mixtures and articles

Tertiary Use: Installation, removal (industrial and professional) / Maintenance and service life (industrial and professional)

CAS number: 142844-00-6

CAS Name: Refractories, Fibres, Alumina Silicate

Part 2. IDENTIFICATION OF MANUFACTURER

Thermstrong Corporation
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Part 3. COMPOSITON ON INGREDIENTS

Chemical composition of Refractory Ceramic Fibres (RCF/ASW): SiO₂ 45-60% - Al₂O₃ 28-55%, ZrO₂ < 18%, None of the components are radioactive under the terms of European Directive Euratom 96/29

COMPONENT	CAS NUMBER	Index number in CLP Annex VI	% by weight
Refractory ceramic fibres (Alumino-silicate wools)	142844-00-6	650-017-00-8	100

Part 4. HAZARDS IDENTIFICATION

Classification according to Regulation (EC) No 1272/2008

Under the CLP-Regulation (classification, labelling and packaging of substances and mixtures) RCF/ASW has been classified as a 1B carcinogen ("presumed to have carcinogenic potential for humans, classification is largely based on animal evidence").

Classification according to directive 67/548/EEC

RCF/ASW have been classified as a category 2 carcinogen ("substances which should be regarded as if they are carcinogenic to man")

Additional information:

The International Agency for Research on Cancer (IARC) reaffirmed that group 2B ("possibly carcinogenic to humans") remains the appropriate classification for RCF/ASW.

In accordance with 31st Adaptation to Technical Progress (ATP) of Directive 67/548/ECC as published 15th January 2009 the classification as "irritant" has been removed for all types of man made vitreous fibres (MMVFs).

The 1st Adaptation to Technical Progress (ATP) to Regulation (EC) No 1272/2008 entered into force on 25 September 2009. It transfers the 30th and 31st ATPs of Directive 67/548/EEC to the Regulation (EC) No 1272/2008.

Part 5. FIRST AID MEASURES

EYE CONTACT

If eyes become irritated, wash 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. Get medical attention if irritation persists.

SKIN CONTACT:

If skin becomes irritated, 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. Change into clean clothing.

INGESTION:

Relocate affected individual to an environment of clean and fresh air. Drink plenty of water and seek medical help if symptoms persist.

INHALATION:

Remove affected individual to a dust free place, seek medical help if irritation persists.
Notes to physicians: Skin and respiratory effects are the result of mechanical irritation, fiber exposure does not result in allergic manifestations.

Part 6. FIRE FIGHTING MEASURES

Non-combustible (does not burn) product

Auto-ignition temperature: none

NFPA Unusual Hazards: none

Unusual fire and explosion hazards: none

Extinguishing Media: use proper extinguishing media for the surrounding fire

Fire-fighting protective equipment: wear full bunker gear including positive pressure self-contained breathing apparatus.

Part 7. ACCIDENTAL RELEASE MEASURES

Avoid creating airborne dust. Maintain routine housecleaning procedures. Vacuum only with HEPA filtered equipment, if sweeping is necessary, use a dust suppressant and keep material in closed containers. Do not use compressed air for clean-up. Workers should wear gloves, goggles and approved respirator. Avoid clean-up procedures that could cause water pollution.

Part 8. HANDLING AND STORAGE

CLEAN-UP

Clean up dust carefully. Use wet sweeping or high efficiency vacuum to remove dust. Do not use compressed air.

During after-service removal activities, wet exposed material frequently to minimize airborne dust. A surfactant may be added to the water to improve the wetting process. Use only enough water to wet the insulation. Do not allow water to accumulate on floors.

EMPTY CONTAINERS

Product packaging may contain residue. Do not reuse.

Part 9. EXPOSURE CONTROL & PERSONAL PROTECTION

Components OSHA Supplier

Alumina--silicate fiber None established

ACGIH TLV:

Alumina-silicate fiber—none established

Components Particle size OSHA

PNOR total dust 15mg/m³

Repairable dust 5mg/m³

ACGIH particulates not otherwise classified (PNOC)—INHALABLE

PARTICULATE: 10mg/m³. RESPIRABLE PARTICULATE: 3mg/m³

Other Occupational Exposure Levels (OEL)

RCF-related occupational exposure limits vary from country to country. Listed here are a few regulatory OEL examples:

Australia--0.5f/cc;

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Canada—0.5 to 1 f/cc;

Denmark—1 f/cc

France—0.6 f/cc;

Germany—0.5 f/cc;

Netherlands—1 f/cc;

United Kingdom—2 f/cc

Example is: RCFC REG 0.5 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 performed on a case-by-case, by a qualified industrial hygienist.

ENGINEERING CONTROLS

Use engineering controls such as ventilation and dust collection devices to limit airborne fiber concentrations to the minimum attainable level, contact the technical support specialist of Thermstrong Corporation for assistance

Part 10. PHYSICAL AND CHEMICAL PROPERTIES

Oxidizing properties: None

Odor: None

Chemical family: Alumina-silicate fibers

PH: not applicable

Chemical Indexes: Refer to chemical composition

Boiling Point: not applicable

Melting point: 1760 Celsius Degree

Vapor density: not applicable

Water solubility: not applicable

Part 11. STABILITY AND REACTIVITY

Chemical stability: Stable under conditions of normal use

Incompatibility: Hydrofluoric acid, and concentrated alkali

Part 12. TOXICOLOGICAL INFORMATION

Epidemiological studies conducted by institution of human environment protection in China has provided no evidence that there is a direct cause-and effect relationship between cumulative exposure to alumina-silicate fibers and lung cancers or particular pulmonary diseases.

However recent toxicological experiments using physiological exposure method (inhalation) have produced findings of respiratory disease in rodents, Alumina-silicate refractory fiber has found to be a rodent carcinogen under the conditions that the rodents are exposed to high levels of the material (75—115fibers/cc)on a basis of lifetime duration.

Part 13. ECOLOGICAL INFORMATION

No data is available on adverse effects of the material on the environment.

Part 14. DISPOSAL CONSIDERATIONS

As produced, this material is usually accepted for disposal at most sites licensed for the disposal of industrial waste. Check applicable regulations and waste site policies prior to disposal. Waste should be placed in sealed containers for disposal.

In case of contamination, by other materials classified as hazardous waste, expert guidance should be sought.

Part 15. TRANSPORTATION INFORMATION

Product should remain in sealed containers during transportation.

Part 16. REGULATION INFORMATION

CERCLA:

The alumina-silicate fibers of this product have an average diameter of 2-4 um and are not considered CERCLA hazardous substance (CERCLA 40 CFR302)

Clean Air Act (CAA):

Thermal insulation fibers are composed of (RCF) with an average diameter greater than 1 micron, and therefore are not considered hazardous air pollutants. Toxic Substances Control Act (TSCA):All substances in this product are listed, as required, on the TSCA chemical inventory.

International Regulations:

Canadian Workplace Hazardous Materials Information System (WHMIS):

No Canadian Workplace Hazardous Materials Information System categories apply to this product.

Canadian Environmental Protection Act (CEPA):

All substances in this product are listed, as required, on the Domestic Substances

List (DSL). Chemicals which are listed on the Non-Domestic Substances list:

Part 17. OTHER INFORMATION

Removal after service:

Under sustained and steady high temperature over 1000°C, this material will possibly transform to crystalline silica in exposed portions. Prolonged or repeated exposure to respirable crystalline silica dust may lead to lung diseases. IARC has listed crystalline silica in Category 2A a probable carcinogen ("crystalline silica inhaled in the form of quartz or cristobalite from occupational source is carcinogenic to humans" IARC monograph 68, June 1997 p 210—211). The permissible exposure limit(PEL) set by OSHA for respirable cristobalite is 0.05mg/m3.whenever possible follow section 8 procedures for exposure controls and personal protection.

Abbreviations:

CERCLA: Comprehensive environmental response compensation and liability act of 1980

CAS: Chemical abstracts service

F/cc: Fibers per cubic centimeter

HMIS: Hazardous Material information system

Mg/m3: Milligrams per cubic meter of air

NIOSH: National institute for Occupational Safety and Health

OSHA: Occupational Safety & Health Administration

PEL: Permissible exposure limit

SARA: Super amendments and reauthorization act

TSCA: Toxic Substances Controls Act

DISCLAIMER:

The information presented herein is presented in good faith and believed to be accurate as of the effective date of this Material Safety Data Sheet. Employers may use this MSDS 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 MSDS. Therefore, given the summary nature of this document, Thermstrong Corporation does not extend any warranty, assume any responsibility, or make any representation regarding the completeness of this information or its suitability for the purposes envisioned by the user.