

Safety Data Sheet (SDS)

1. Product and Company Identification

Product name	: AES BLANKET
Common name	: ALKALINE EARTH SILICATE WOOL (AES)
Company name	: FURUKAWA TECHNO MATERIAL CO.,LTD.
Address	: 5-1-8, HIGASHI-YAWATA, HIRATSUKA-CITY, KANAGAWA-PREF, 254-0016, JAPAN
Contact Office	: Quality Assurance Department, Fire Prevention Division
Telephone number	: +81-463-24-9341
Fax number	: +81-463-24-9346
Emergency contact	: +81-463-24-9341
Use applications	: Product is to be used mainly for composed material for "Firestop Block".

2. Hazards Identification

GHS Classification

Physicochemical hazards

Flammable solid	: Not classified
Pyrophoric solid	: Not classified
Self-heating substance	: Not classified
Substance which, in contact with water, emits flammable gases	: Not classified
Oxidizing solid	: Not classified
Corrosive to metal	: Not classified

Health hazards

Acute toxicity (oral)	: Classification not possible
Acute toxicity (dermal)	: Classification not possible
Acute toxicity (inhalation: dust/mist)	: Classification not possible
Skin corrosion / Irritation	: Not classified
Serious eye damage/eye irritation	: Classification not possible
Respiratory sensitization	: Classification not possible
Skin sensitization	: Classification not possible
Germ cell mutagenicity	: Classification not possible
Carcinogenicity	: Not classified
Reproductive toxicity	: Classification not possible
Specific target organ toxicity (single exposure)	: Classification not possible
Specific target organ toxicity (repeated exposure)	: Classification not possible

Environmental hazards

Hazard to the aquatic environmental (acute) : Classification not possible

Hazard to the aquatic environmental (chronic) : Classification not possible

Hazard to the ozone layer : Classification not possible

GHS Label elements

Symbols/Pictograms : Not applicable

Signal Word : Not applicable

Hazard Statement:

May cause skin and eye irritation. Prolonged or repeated excessive inhalation of fiber may cause respiratory disease.

3. Composition /Information on Ingredients

Single substance and mixtures: Single substance.

Composition	Content (%)	reference number in gazetted list in Japan	CAS No	UN class	UN No
Calcium-Magnesium-Silicate Mixture	100	Industrial Safety and Health Act(JAPAN), Notifiable substance No. 314	436083-99-7	Not restricted	Not restricted

4. First Aid Measures

Inhalation : Remove affected person to clean fresh air.

Skin contact : Flush with water or slightly warm water and wash with soap. Get medical attention if pain and inflammation persist.

Eye contact : Flush eyes with water so as to remove fiber. Do not rub eyes. Get medical attention if pain or any of the symptoms persist.

Swallowing : If swallowed, drink sufficient water and get medical attention.

5. Fire-Fighting Measures

Extinguishing media : Not specified

Unsuitable extinguishing media : Not specified

Specific hazards with regard to extinguishing : Not specified

Specific fire extinguishing method : Not specified

Protection for fire extinguishers : Not specified

Extinguishers should be done from the windward side, with suitable protective respirator and clothing, if necessary.

6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures:

Wear proper protective equipment.

Environmental procedures : Not applicable

Methods for collect : Use vacuum cleaner with HEPA filters to clean up spilled material suppressing generations of airborne dust. If it isn't available, use wet sweeping to clean up spilled material.

7. Handling and Storage

Handling : Wear proper protective equipment (mask, gloves, goggles and clothing) on necessity.
Gargle and hand-wash without fail after handling.

Storage : Store in the original package in a dry room with keeping it closed when not in use.

8. Exposure Control and Personal Protection

Control parameters

Administrative exposure level:

Mass concentration (Inhalable dust) 3.0 mg/m³ (0% of free silicate content is applied.)

Fiber number concentration isn't defined.

Occupational exposure limit value (OEL):

TLV (ACGIH) : 3mg/m³ (respirable dust), 10mg/m³ (inhalable dust)

PEL (OSHA) : 5mg/m³ (respirable dust), 15mg/m³ (total dust)

Recommendation of Exposure limit by Japan Society for Occupational Health (2006):

1 mg/m³ (inhalable dust), 4mg/m³ (total dust)

Exposure control

Countermeasure equipment:

Close up dust sources of this product, install local ventilation, dust collector. When it is difficult to install the above, use the following personal protective equipment.

Protective equipment: Wear proper protective equipment (mask, gloves, goggles and clothing) on necessity.

9. Physical and Chemical Properties

Physical state : Fiber

Appearance(Color) : White

Odor : No odor

Melting point	: >1200°C
Boiling point or initial boiling point	: Not applicable
pH	: Not applicable
Solubility	: Slight (in water)
Vapor pressure	: Not applicable
Relative density	: 2.5 ~ 3.0
Relative gas density	: Not applicable
Average fiber diameter	: 3.0 ~ 4.0µm

10. Stability and Reactivity

Reactivity	: Not reactive under normal conditions
Chemical stability	: Stable under normal conditions
Conditions to avoid	: No useful information
Incompatible materials	: No useful information
Hazardous decomposition product	: No useful information

11. Toxicological Information

Acute Inhalation Effects:

Eye contact may cause irritation and skin contact may cause irritation or erythema, which are considered to be transient disease, not chronic one.

Chronic Effects:

Prolonged and excessive inhalation of fiber may cause respiratory disease because generated dust contains inhalable fiber. At this time there are no known published reports demonstrating negative health outcomes of workers exposed to this product.

Carcinogenicity:

CMS wools have been tested for their biopersistence using methods devised by the European Union.

The results from these studies exonerate CMS wools from carcinogen classification under criteria listed in Nota Q of European Commission Directive 97/69/EU.

In a lifetime carcinogenicity test, rats were exposed by inhalation for two years (5 days a week; 6 hours a day) to CMS fibers at 200WHO fibers/ml. There was neither fibrosis nor carcinogenic response; only reversible cellular changes were seen. Further, subchronic inhalation studies on rats with CMS fibers at concentrations of 150 fibers (>20 micron long) per ml for 90 days with follow up to 1 year showed neither inflammation nor cell proliferation. All parameters studied returned rapidly to baseline levels on cessation of exposure.

After-service, CMS wools may contain crystalline phases including some forms of silica. (See Section 16)

However, CMS fibers heated to 1000 degrees C for 2 weeks were not cytotoxic to macrophage-like cells at

concentrations up to 320 microgram/cm². In the same test, samples of pure crystalline quartz were significantly active at 20 microgram/cm².

Mutagenicity: None

12. Ecological Information

Hazard to the aquatic environmental (acute)	: No useful information
Hazard to the aquatic environmental (chronic)	: No useful information
Hazard to the ozone layer	: No useful information
Persistence and degradability	: No useful information
Bioaccumulation potential	: No useful information
Mobility in soil	: No useful information

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

13. Disposal Information

Disposal should be in accordance with applicable regional, national and local laws and regulations. Disposal of this waste material must be by plastic bag with minimum 0.05 mm thickness to prevent generations of airborne dust.

14. Transportation Information

UN No	: Not restricted
UN CLASS	: Not restricted
International Air Transportation (ICAO-TI/IATA-DGR)	: Not restricted
International Marine Transportation (IMDG Code)	: Not restricted

Avoid generations of airborne dust by breakage of package during transportation.

Repair broken part of package by adhesive tape and also arrange new package in case of breakage.

Follow all regulations in your country.

15. Regulatory Information

JAPAN

This product corresponds to "Minerals" in "Ordinance on Prevention of Hazards Due to Dust", which is applied to RCF when the following work is done. "Ordinance on Prevention of Hazards Due to Specified Chemical Substances" and other laws aren't applied to this product. It is desirable to apply "Guidelines on

Occupational Health of Glass Wool and Rock Wool” for handling it by Labor Ministry.

- Work at an operations site involving cutting, chiseling or finishing of minerals (this product).
- Work at an operations site involving cutting, crushing or screening of minerals (this product) by motive power.
- Work of building or repairing of kilns, furnaces, etc., with refractory materials, or of dismantling or destroying kilns, furnaces etc. built with refractory materials. “Delivery of Document specified in Article 57-2 of Industrial Safety and Health Law” is applied to this product, but “Law concerning Reporting etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management” isn't applied to this product.

UNITED STATES

- SARA Title III : This product does not contain any substances reportable under Sections 302, 304, 313, (40 CFR 372). Sections 311 and 312 apply.
- OSHA : Comply with Hazard Communication Standards 29 CFR 1910.1200 and 29 CFR 1926.59 and Respiratory Protection Standards 29 CFR 1910.134 and 29 CFR 1926.103.
- TSCA : CMS wools has been assigned two CAS numbers, however, they are not required to be listed on the TSCA inventory.
- CERCLA : CMS wool contains fibers with an average diameter greater than one micron and thus is not considered a CERCLA hazardous substance.
- CAA : CMS wool contains fiber s with an average diameter greater than one micron and thus is not considered a hazardous air pollutant.
- States : CMS wools are not known to be regulated by any State. If in doubt, contact your local regulatory agency.

EUROPEAN UNION

This product is exonerated from any carcinogenic classification in the countries of the European Union under the provisions of Nota Q of the European Commission Directive 97/69/EC.

16. Other Information

This products are vitreous (glassy) AES Wools that do not contain crystalline silica. Continued exposure to evated temperatures (>900 degrees C) may cause these materials to form crystalline phases, including crystalline silica. The occurrence and extent of crystalline silica formation is dependent on the duration and temperature of exposure, CMS Wool chemistry and /or the presence of fluxing agents. The presence of crystalline silica can be confirmed only through laboratory analysis of the “hot face” fiber. If crystalline silica is present, follow appropriate hygiene standards and national regulations.

Devitrified, after-service this products, containing crystalline silica, has shown no adverse reactions in toxicity assays (See Section 11). These findings are consistent with IARC’s evaluation, which 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.

Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs.” (IARC Monograph Vol. 68, 1997)

Respirable dust from devitrified this products can be controlled with ventilation, dust collectors or personal protective equipment as detailed in Section 8 (above).

Contact office : Quality Assurance Department, Fire Prevention Division

Telephone number : +81-463-24-9341

Warning

This Safety Data Sheet has been prepared based on the latest materials and data available and its information is not guaranteed. It may be subject to revision depending on future findings. The cautions described herein are targeted at usual treatment, and in case the users of this product implement special treatments, they are advised to take safety measures suitable for their purpose and usage.