

**BOARD 607 WB - BOARD 607 HT WB**  
**BOARD 607 HT SB**MSDS NUMBER 414-2-EURO  
DATE OF FIRST ISSUE 05/2004 DATE OF LAST REVISION : 10/2008**1. IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY****IDENTIFICATION OF THE PRODUCT**

The above-mentioned product contains Alkaline-earth silicate wools (AES wools).

**USE OF THE PRODUCT**

Main application as thermal insulation in domestic boilers. (Please refer to specific technical data sheet for more information).

**IDENTIFICATION OF THE COMPANY**

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**2. COMPOSITION / INFORMATION ON INGREDIENTS****DESCRIPTION**

This product is a board made of AES wool bound with organic and inorganic materials.

**COMPOSITION**

COMPONENT	%	CAS Number
Alkaline-earth silicate wool*	50-70	436083-99-7*
Inorganic material	30-50	N.A.
Organic material	2-5	N.A.
Quartz (respirable fraction)	< 3	(EINECS N° 238-878-4)

**\* CAS composition:**

Alkaline earth silicate (AES) consisting of silica (50-82 wt%), calcia and magnesia (18-43 wt%), alumina, titania and zirconia (less than 6 wt%), and trace oxides.

*None of the components are radioactive under the terms of European Directive Euratom 96/29.*

**3. HAZARDS IDENTIFICATION****IRRITANT EFFECTS**

Mild mechanical irritation to skin, eyes and upper respiratory system may result from exposure. These effects are usually temporary.

Pre-existing skin and respiratory conditions including dermatitis, asthma and chronic lung disease might be aggravated by exposure.

#### **CHRONIC RESPIRATORY HEALTH EFFECTS**

These products may sometimes contain minimal amounts of crystalline silica. Prolonged/repeated inhalation of respirable crystalline silica dust may cause delayed lung injury (silicosis).

IARC (International Agency for Research on Cancer) states that there is "sufficient evidence in humans for the carcinogenicity of inhaled crystalline silica in the form of quartz or cristobalite from occupational sources to classify crystalline silica as carcinogenic to humans (Group 1)" (Monograph 68). In making the overall evaluation the Working Group noted however that carcinogenicity in humans was not detected in all industrial circumstances studied.

#### **4. FIRST-AID MEASURES**

##### **SKIN:**

In case of skin irritation 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.

#### **5. FIRE-FIGHTING MEASURES**

Non combustible products. However, virgin product binder may burn and produce gases and/or fumes.

Packaging and surrounding materials may be combustible. Use extinguishing agent suitable for surrounding combustible materials.

#### **6. ACCIDENTAL RELEASE MEASURES**

Where abnormally high dust concentrations occur, provide the workers with appropriate protective equipment as detailed in section 8.

Restore the situation to normal as quickly as possible.

Prevent further dust dispersion for example by damping the materials.

Pick up large pieces and use a vacuum cleaner fitted with high efficiency filter (HEPA).

If brushing is used, ensure that the area is wetted down first.

Do not use compressed air for clean up.

Do not allow being wind blown. Do not flush spillage to drain and prevent from entering natural watercourses.

*For wastes disposal refer to section 13.*

#### **7. HANDLING AND STORAGE**

##### **HANDLING/TECHNIQUES TO REDUCE DUST EMISSIONS DURING HANDLING**

Handling can be a source of dust emission. The process or processes should be designed to limit the amount of handling. Wherever possible handling should be carried out under ventilation with filtered exhaust.

Regular good housekeeping will minimise secondary dust dispersal.

##### **STORAGE**

Store in original packaging in a dry area. Always use sealed and clearly labelled containers. Avoid damaging containers. Reduce dust emission during unpacking. Emptied containers, which may contain debris, should be cleaned before disposal or recycling.

##### **SPECIFIC USE**

Please refer to your local Thermal Ceramics' supplier.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### HYGIENE STANDARDS AND EXPOSURE LIMITS

Industrial hygiene standards and occupational exposure limits vary between countries and local jurisdictions. Check which exposure levels apply to your facility, and comply with local regulations. If no regulatory dust or other standards apply, a qualified industrial hygienist can assist with a specific workplace evaluation including recommendations for respiratory protection. Examples of exposure limits applying (in January 2003) to mineral wools in different countries are given below:

COUNTRY	EXPOSURE LIMIT*					SOURCE
	MINERAL WOOL (1)	RESPIRABLE DUST (2)	CRYSTALLINE SILICA (2)	QUARTZ (2)	CRISTOBALITE (2)	
Germany		3 mg/m <sup>3</sup>				TRGS 900, Bundesarbeitsblatt Circulaire DRT No 95-4 du 12.01.95 HSE - EH40
France	1.0 f/ml	5 mg/m <sup>3</sup>		0.10 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>	
U.K.	2.0 f/ml and 5 mg/m <sup>3</sup>	4 mg/m <sup>3</sup>	0.30 mg/m <sup>3</sup>			

(1) Time weighted average concentrations of airborne respirable fibres measured over 8 hours by the conventional membrane filter method or the total inhalable dust using standard gravimetric techniques.

(2) Gravimetric concentrations of respirable dust

### ENGINEERING CONTROLS

Review your applications in order to identify potential sources of dust exposure.

Local exhaust ventilation, which collects dust at source, can be used. For example down draft tables, emission controlling tools and materials handling equipment.

Keep the workplace clean. Use a vacuum cleaner fitted with a HEPA filter; avoid brushing and compressed air.

### PERSONAL PROTECTIVE EQUIPMENT

#### Skin protection:

Wear gloves and work clothes, which are loose fitting at the neck and wrists. Soiled clothes should be cleaned to remove excess fibres before being taken off (e.g. use vacuum cleaning, not compressed air).

#### Eye protection:

As necessary wear goggles or safety glasses with side shields.

#### Respiratory protection:

For dust concentrations below the exposure limit value, RPE is not required but FFP2 respirators may be used on a voluntary basis.

For short-term operations where excursions are less than ten times the limit value use FFP2 respirators.

In case of higher concentrations or where the concentration is not known, please seek advice from your company and/or local Thermal Ceramics' supplier.

### INFORMATION AND TRAINING OF WORKERS

Workers should be trained on good working practices and informed on applicable local regulations.

### ENVIRONMENTAL EXPOSURE CONTROLS

Refer to local, national or European applicable environmental permitted standards for air, water and soil. *For waste, refer to Section 13.*

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>APPEARANCE</b>	White/tan board	<b>PARTITION COEFFICIENT</b>	N.A.
<b>BOILING POINT</b>	N.A.	<b>ODOUR</b>	None
<b>FLASH POINT</b>	N.A.	<b>FIBRE MELTING POINT</b>	> 1400° C
<b>AUTOFLAMMABILITY</b>	N.A.	<b>FLAMMABILITY</b>	N.A.
<b>OXIDISING PROPERTIES</b>	N.A.	<b>EXPLOSIVE PROPERTIES</b>	N.A.
<b>BULK DENSITY</b>	360 kg/m <sup>3</sup>	<b>VAPOUR PRESSURE</b>	N.A.
<b>SOLUBILITY</b>	Slight	<b>pH</b>	N.A.
<b>LENGTH WEIGHTED GEOMETRIC MEAN DIAMETER</b>		> 1.5 µm	

## 10. STABILITY AND REACTIVITY

### CONDITIONS OR MATERIALS TO AVOID

None

### DECOMPOSITION PRODUCTS

Upon heating above 900°C for sustained periods, this amorphous material begins to transform to mixtures of crystalline phases. For further information please refer to Section 16.

### FUMES

During first heating, oxidation products from the organic binder might be emitted in a temperature range from 180°C to 600°C. It is recommended to ventilate the room until gases and fumes have disappeared. Avoid exposure to high concentrations of gas or fumes.

## 11. TOXICOLOGICAL INFORMATION

### IRRITANT PROPERTIES

When tested using approved methods (Directive 67/548/EEC, Annex 5, Method B4), fibres contained in this material give negative results. All man-made mineral fibres, like some natural fibres, can produce a mild irritation resulting in itching or rarely, in some sensitive individuals, in a slight reddening. Unlike other irritant reactions this is not the result of allergy or chemical skin damage but is caused by mechanical effects.

### OTHER ANIMAL STUDIES

Fibres contained in the products listed in the title have been designed to be rapidly cleared from lung tissue. This low biopersistence has been confirmed in many studies on AES using EU protocol ECB/TM/27 (rev 7). When inhaled, even at very high doses, they do not accumulate to any level capable of producing a serious adverse biological effect. In lifetime chronic studies there was no exposure-related effect more than would be seen with any "inert" dust. Subchronic studies at the highest doses achievable produced at worst a transient mild inflammatory response. Fibres with the same ability to persist in tissue do not produce tumours when injected into the peritoneal cavity of rats.

### TOXICOLOGICAL INFORMATION ON CRISTALLINE SILICA

#### CHRONIC TOXICITY

As manufactured, these products may contain a minimal amount of crystalline silica.

#### Experimental study

Animals exposed to very high concentrations of crystalline silica, artificially or by inhalation, have reported fibrosis and tumours (IARC Monographs 42 and 68).

Inhalation and intratracheal installation of crystalline silica in rats caused lung cancer. However, studies in other species such as mice and hamsters caused no lung cancer. Crystalline silica also caused fibrosis in rats and hamsters in several inhalation and intratracheal installation studies.

## Epidemiology

Prolonged/repeated inhalation of respirable crystalline silica dust may cause delayed lung injury (silicosis). In evaluating crystalline silica as a cancer risk, the International Agency for Research on Cancer (IARC) reviewed several studies from different industries and concluded that crystalline silica from occupational sources inhaled in the form of quartz or cristobalite is carcinogenic to humans (Group 1) [IARC Monograph; vol.68; June 1997]. However, in reaching its conclusion, IARC stated that the carcinogenicity in humans could not be found in all industries reviewed and that carcinogenicity might be dependent on inherent characteristics of crystalline silica or on external factors affecting biological activity (e.g., cigarette smoking) or distribution of its polymorphs.

## 12. ECOLOGICAL INFORMATION

These products are inert materials, which remain stable over the time.  
No adverse effects of this material on the environment are anticipated.

## 13. DISPOSAL CONSIDERATIONS

Waste from these materials may be generally disposed of at a landfill, which has been licensed for this purpose. Please refer to the European list (Decision N° 2000/532/CE as modified) to identify your appropriate waste number, and ensure national and/or regional regulations are complied with.

Taking into account any possible contamination during use, expert guidance should be sought.

Unless wetted, such a waste is normally dusty and so should be properly sealed in containers for disposal. At some authorised disposal sites, dusty waste may be treated differently in order to ensure they are dealt with promptly to avoid them being wind blown. Check for any national and/or regional regulations, which may apply.

## 14. TRANSPORT INFORMATION

Not classified as dangerous goods under relevant international transport regulations (ADR, RID, IATA, IMDG).

Ensure that dust is not wind blown during transportation.

## 15. REGULATORY INFORMATION

### FIBRE TYPE DEFINITION ACCORDING TO DIRECTIVE 67/548/EEC

Regulatory status comes from European Directive 67/548/EEC on the classification, labelling and packaging of dangerous substances and preparations as modified by Directive 97/69/EC and its implementations by the Member States. According to Directive 67/548/EEC, the fibre contained in this product is a mineral wool belonging to the group of "man-made vitreous (silicate) fibres with random orientation with alkaline oxide and alkali earth oxide ( $\text{Na}_2\text{O}+\text{K}_2\text{O}+\text{CaO}+\text{MgO}+\text{BaO}$ ) content greater than 18% by weight".

Under Directive 67/548/EEC all types of man-made vitreous (silicate) fibres are classified as "irritant" despite the fact that testing by the appropriate EU method (B4 in annexe 5 of Directive 67/548/EEC) results in no action and this would not result in irritant classification.

Under criteria listed in nota Q of Directive 67/548/EEC, **fibres contained in this (these) product(s) have been tested and are exonerated from the carcinogen classification** because of low pulmonary biopersistence measured by the methods specified in European Union (EU protocol ECB/TM/27(rev 7)).

**A certificate of exoneration is available on request.**

### PROTECTION OF WORKERS

Shall be in accordance with several European Directives as amended and their implementations by the Member States:

- Council Directive 89/391/EEC dated 12 June 1989 "on the introduction of measures to encourage improvements in the safety and health of workers at work" (OJEC (Official Journal of the European Community) L 183 of 29 June 1989, p.1).
- Council Directive 98/24/EC dated 7 April 1998 "on the protection of workers from the risks related to chemical agents at work" (OJEC L 131 of 5 May 1998, p.11).

Fibres included in this(these) product (s) have a half-life of less than 65 days (WHO fibres) by intratracheal instillation and do not fall under the German ban regulation (GefStoff V appendix IV N° 22).

TRGS 905: 2.3 (4) These products may release fibrous dust during handling and use and need therefore to follow in Germany rules given in TRGS 521 Section 1 (Inorganic fibrous dust) paragraphs 4 and 5.

#### **OTHER POSSIBLE REGULATIONS**

Member States are in charge of implementing European Directives into their own national regulation within a period of time normally given in the Directive. Member States may impose more stringent requirements.

Please always refer to any national regulation.

### **16. OTHER INFORMATION**

Continuous use of these products at temperatures above 900°C may, as with many other refractories, lead to the formation of cristobalite (a type of crystalline silica).

Please refer to sections 3, 11 and to national regulation on crystalline silica.

#### **USEFUL REFERENCES** (the directives which are cited must be considered in their amended version)

- Council Directive 89/391/EEC dated 12 June 1989 "on the introduction of measures to encourage improvements in the safety and health of workers at work" (OJEC L 183 of 29 June 1989, p.1).
- Council Directive 67/548/EEC on the "approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances as modified and adapted to the technical progress" (OJEC L 196 of 16 August 1967, p.1 and modifications and adaptations to technical progress).
- Commission Directive 97/69/EC of 5 December 1997 adapting to technical progress for the 23rd time Council Directive 67/548/EEC (OJEC of 13 December 1997, L 343).
- Council Directive 98/24/EC of 7 April 1998 "on the protection of the health and safety of workers from the risks related to chemical agents at work" (OJEC L 131 of 5 May 1998, p11).
- TRGS 521: Faserstäube, February 1999.

#### **Further informations:**

##### **Germany**

Gefahrstoffverordnung; Arbeitsmedizinische Vorsorge.

Berufsgenossenschaftliche Grundsätze: G 1.1 Gesundheitsgefährlicher mineralischer Staub, Teil 1: Silikogener Staub.

##### **France**

Décret n° 97-331, du 10 avril 1997 relatif à la protection de certains travailleurs exposés à l'inhalation de poussières siliceuses sur leurs lieux de travail.

Arrêté 10 avril 1997 relatif au contrôle de l'exposition des travailleurs exposés aux poussières de silice cristalline.

##### **United Kingdom**

COSHH Regulation.

HSE EH 44: Dust: general principles of protection.

HSE EH 59: Crystalline silica guidance note.

MDHS 14/3: Health and Safety Executive (2000): "General methods for the sampling and gravimetric analysis of respirable and total inhalable dust". Methods for the Determination of Hazardous Substances No. 14/3. HMSO, London.

MDHS 51/2: Health and Safety Executive (1988): "Quartz in respirable airborne dusts". Laboratory method using X-ray diffraction (direct method). Methods for the Determination of Hazardous Substances No. 51/2, London.

MDHS 76: Health and Safety Executive (1994): "Cristobalite in respirable airborne dusts". Laboratory method using X-ray diffraction (direct method). Methods for the Determination of Hazardous Substances No.76, London.

MS (A) 15 - Silica dust and you.

HS (G) 72 - Control of respirable silica dust in heavy clay and refractory processes.

## **PRECAUTIONARY MEASURES TO BE TAKEN AFTER SERVICE AND UPON REMOVAL**

As produced, all AES fibres are vitreous (glassy) materials, which, upon continued exposure to elevated temperatures (above 900°C) may devitrify. The occurrence and extent of crystalline phase formation is dependent on the duration and temperature of exposure, fibre chemistry and/or the presence of fluxing agents. The presence of crystalline phases can be confirmed only through laboratory analysis of the "hot-face" fibre.

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 "in making the overall evaluation, the Working Group noted that carcinogenicity in humans was not detected in all industrial circumstances studied..."

In most jurisdictions there are specific occupational exposure limits for crystalline silica (quartz, cristobalite) which may vary between countries and local jurisdictions. Check which exposure levels apply to your facility and comply with local regulation.

Simulated after use (up to 8 weeks at 1000°C) AES fibres were not toxic to macrophage like cells.

High concentrations of fibres and other dusts may be generated when after-service products are mechanically disturbed during operations such as wrecking. These dusts may contain crystalline silica. ECFIA recommends:

- a) control measures are taken to reduce dust emissions ; and
- b) all personnel directly involved wear an adapted respirator to minimise exposure and comply with local regulatory limits.

These procedures will ensure compliance with local regulatory exposure standards for free crystalline silica. And because devitrified fibres containing silica mixed with amorphous and other crystalline phases are far less biologically active than free crystalline silica dusts, these measures will provide a high degree of protection.

## **CARE PROGRAMME ("Controlled and Reduced Exposure")**

The trade association representing the European high temperature insulation wool industry (ECFIA) has undertaken an extensive hygiene programme for High Temperature Insulation Wool (HTIW). The objectives are twofold: (i) to monitor workplace dust concentrations at both manufacturers' and customers' premises, and (ii) to document manufacturing and use of HTIW products from an industrial hygiene perspective in order to establish appropriate recommendations to reduce exposures. The initial results of the programme have been published. If you wish to participate in the CARE programme, contact ECFIA or your Thermal Ceramics' supplier .

## **WEBSITES:**

For more information connect to:

The Thermal Ceramics' website: (<http://www.thermalceramics.com/>)

Or the ECFIA's website: (<http://www.ecfia.org/>)

Or Deutsche KeramikFaser-Gesellschaft e.V' website: (<http://www.dkfg.de/>)

## **TECHNICAL DATA SHEETS**

For more information on individual products please see the relevant technical data sheet listed below:

Product	Datasheet Code
Board 607 WB	11-4-11
Board 607 HT WB	11-4-12
Board 607 HT SB	11-4-13

**WEBSITES:**

For more information connect to:

The Thermal Ceramics' website: (<http://www.thermalceramics.com/>)

Or the ECFIA's website: (<http://www.ecfia.org/>)

Or Deutsche KeramikFaser-Gesellschaft e.V' website: (<http://www.dkfg.de/>)

**NOTICE:**

The information presented herein is based on data considered to be accurate as of the date of preparation of this Material Safety Data Sheet. However safe as provided by law, no warranty or representation, express or implied, is made as to the accuracy or completeness of the foregoing data and safety information, nor is any authorisation given or implied to practice any patented invention without a licence. In addition, no responsibility can be assumed by the vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product (however, this shall not act to restrict the vendor's potential liability for negligence or under statute).