

MATERIAL SAFETY DATA SHEET

(Following 91/155/EEC)

**SUPERWOOL 607 fibre, SUPERWOOL 607 blanket,
SUPERWOOL PLUS blanket, SUPERWOOL 607 blanket AC2,
SUPERPAK 607,
SUPERWOOL 607 bulk, SUPERWOOL 607 PLUS bulk,
PYRO-BLOC 607, PYRO-LOG 607,
Z-BLOK 607, THERMO-BLOC MODULE 607
and corresponding strip and die-cut**

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1. IDENTIFICATION OF THE PRODUCT AND OF THE COMPANY**IDENTIFICATION OF THE PRODUCT**

The above-mentioned products contain Alkaline-earth silicate wools (AES wools).

USE OF THE PRODUCT

Application as thermal insulation, heat shields, heat containment, gaskets and expansion joints in industrial furnaces, ovens, kilns, boilers and other process equipment and in the aerospace, automotive and appliance industries, and as passive fire protection systems and firestops. (Please refer to specific technical data sheet for more information).

IDENTIFICATION OF THE COMPANY

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

These products in the form of bulk, blanket (pre-sized or not), strip, die-cut and modules, bloc, log (encapsulated or not), are made of AES wool.

COMPOSITION

COMPONENT	%	CAS Number
Alkaline-earth silicate wools	100	436083-99-7*

Composition:

* CAS definition: 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.

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.

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.

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
Germany	3 mg/m ³	TRGS 900
France	1.0 f/ml	Circulaire DRT No 95-4 du 12.01.95
U.K.	2.0 f/ml and 5 mg/m ³	HSE - EH40 – Maximum Exposure Limit

**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.*

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

APPEARANCE	White fibre	PARTITION COEFFICIENT	N.A.
BOILING POINT	N.A.	ODOUR	None
FLASH POINT	N.A.	FIBRE MELTING POINT	> 1200°C
AUTOFLAMMABILITY	N.A.	FLAMMABILITY	N.A.
OXIDISING PROPERTIES	N.A.	EXPLOSIVE PROPERTIES	N.A.
BULK DENSITY	50-240 kg/m ³	VAPOUR PRESSURE	N.A.
SOLUBILITY	Slight	pH	N.A.
LENGTH WEIGHTED GEOMETRIC MEAN DIAMETER	> 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.

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) and the German method specified in TRGS 905 (1999). 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.

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 off 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) fibre 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 reaction and this would not result in irritant classification.

Under criteria listed in nota Q of Directive 67/548/EEC, fibres contained in the products listed in the title are exonerated from carcinogen classification because of low pulmonary biopersistence measured by the methods specified in European Union and German regulations (EU protocol ECB/TM/27(rev 7) and German method as specified in TRGS 905 (1999)).

PROTECTION OF WORKERS

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

- a) 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).
- b) 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).

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

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, p.11).
- TRGS 521: Faserstäube, February 1999.

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 appropriate 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 as listed below.

Superwool 607 Bulk	11-1-04
Superwool 607 Blanket	11-1-01
Superwool 607 Blanket AC2	11-2-11
Pyro-Bloc 607	11-1-07
Pyro-Log 607	11-2-06
Z-Block 607	11-2-03
Thermo-Bloc Module 607	5-6-17
Superwool Plus Blanket	11-5-01
Superwool Plus Bulk	11-5-04

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).