



**MATERIAL SAFETY DATA SHEET**  
(EUROPEAN)

<b>MSDS No. M0600E</b> (600E Revision 18 According to 2001/58/EC)	<b>Effective Date: 01/06/2009</b>
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**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**Trade Names:** **ISOFRAX ®**  
**Denomination:** **Alkaline Earth Silicate fibre (AES)**  
Alkaline–earth silicate wools (AES wools)  
**Manufacturer/Supplier:** **GERMANY**  
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**2. HAZARDS IDENTIFICATION**

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.

**3. COMPOSITION / INFORMATION ON INGREDIENTS**

COMPONENT	CAS NUMBER	SYMBOL	R PHRASES
Alkaline earth silicate fibres	436 083 99 7	None	None

## **COMPOSITION**

**Isofrax** is an alkaline earth silicate (AES) consisting of silica (70-80wt%), magnesia (18- 27wt%).

## **DESCRIPTION**

**Isofrax** products are available in a variety of forms: bulks, blankets, papers, felts, boards, shapes, modules, cements, coatings, mixes and mastics.

### **Use of the product**

Application as thermal insulation, heat shields, heat containment, gaskets and expansion joints at temperature up to 1250°C, 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.

## **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.

### **METHODS FOR CLEANING UP**

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 to be wind blown.

Do not flush spillage to drain and prevent from entering natural watercourses.

Check for local regulations, which may apply.

*For wastes disposal refer to section 13*

## **7. HANDLING AND STORAGE**

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

#### **HANDLING**

Handling can be a source of dust emission.

The Process or processes should be designed to limit the amount of handling. Whenever possible, handling should be carried out under controlled conditions (i.e., use dust exhaust system).

Regular good housekeeping will minimise secondary dust dispersal.

#### **STORAGE**

Store in original packaging in dry area whilst awaiting use

Always use sealed and visibly labelled containers.  
Avoid damaging containers.  
Reduce dust emission during unpacking.  
Emptied containers, which may contain debris, should be cleaned before disposal or recycling.

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

### **HYGIENE STANDARDS AND CONTROL MEASURES**

Hygiene standards and occupational exposure limits may vary between countries and local jurisdictions. Check which exposures apply to your facility. 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 to mineral wool in different countries are given below:

#### **Examples of exposure limits in January 2008 are given below:**

France	1.0 f/ml	Circulaire DRT no 95-4 du 12/01/95
United Kingdom	2.0 f/ml	HSE EH40 Workplace Exposure Limit

*\*8-hr time weighted average concentrations of airborne respirable fibres measured using the conventional membrane filter method*

### **ENGINEERING CONTROLS**

Review your application(s) 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 material handling equipment.

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

### **PERSONAL PROTECTIVE EQUIPMENTS**

#### **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 cleaner, not compressed air)..

#### **EYE PROTECTION**

As necessary wear goggles or safety glass 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 your 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 release to air, water and soil.

*For waste, refer to section13*

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

Physical State	Solid	Melting point	1500-1550°C
Flammability	None	Length weighted geometric mean diameter	NA

Appearance	White	Explosive properties	None
Oxidising properties	None	Odour	None

## 10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID	N.A.	MATERIALS TO AVOID	N.A.
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### DECOMPOSITION PRODUCTS

For further information please refer to Section 16.

## 11. TOXICOLOGICAL INFORMATION

### Irritant Properties

When tested using approved methods (Directive 67/548/EC, Annex V, 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 slight reddening. Unlike other irritant reactions this is not the result of allergy or chemical skin damage but is caused by a temporary mechanical effect.

### Other Animal Studies

These materials have been designed to allow rapid clearance from tissue. And this low biopersistence has been confirmed in many studies 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 overtime.  
No adverse effects of this material on the environment are anticipated.

## 13. DISPOSAL CONSIDERATIONS

Waste from these products may generally be disposed of at a non hazardous landfill, which has been licensed for this purpose. Please refer to the European list (Decision no 2000/532/CE as modified) to identify your appropriate waste number, and insure national and or regional regulation 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 clearly labelled 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 national &/or regional regulations, which may apply

## 14. TRANSPORT INFORMATION

Not classified as dangerous goods under relevant international transport regulations (ADR, RID, IATA, IMDG Refer Section 16 "Definitions").

Ensure that dust is not wind blown during transportation.

## 15. REGULATORY INFORMATION

### Fibre type definition according to Directive 67/548/EEC

Regulatory status in the EU, comes from European Directive 67/548/EEC, on the classification, labelling and packaging of dangerous substances and preparations as modified by Directive 97/69/EEC and its implementations by the Member States.

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[http://www.unifrax.com/web/unifraxwebeu.nsf/By+Trade+Name/648FE97CEBA946D980256FF60057411E/\\$File/Isofrax%20rev%2018e.pdf](http://www.unifrax.com/web/unifraxwebeu.nsf/By+Trade+Name/648FE97CEBA946D980256FF60057411E/$File/Isofrax%20rev%2018e.pdf)

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 ( Na<sub>2</sub>O +K<sub>2</sub>O+CaO+MgO+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 annex 5 of Directive 67/548/EEC) is providing no response and would not result in irritant classification.

Under criteria listed in nota Q of Directive 67/548/EEC, AES wools 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)).

**This applies for sales in the European Union**

**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 1997 " on the protection of workers from the risks related to chemical agents at work" (OJEC L 131 of 5 May 1998,p.11).

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 national regulations.

**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 provision 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 its 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 L 343 Official Journal of the European Communities, 13/12/97 , p.19*).

Council Directive 98/24/EC of 7th April 1998 "on the protection of the health and safety of workers from risks related to chemical agents at work" (OJEC L131 of 5th May 1998, P.11)

*TRGS 521 : Faserstaube 5/2002 - Germany*

**DEFINITIONS**

**ADR** – Transport by road, council directive 94/55/EC

**IMDG** – Regulations relating to transport by sea

**RID** – Transport by rail, Council Directive 96/49/EC

**ICAO/IATA** - Regulations relating to transport by air

**After-Service ISOFRAX® Thermal Insulation: Removal**

As produced, Isofrax fibers are vitreous (glassy) materials, which upon continued exposure to elevated temperatures might devitrify, initially forming magnesia-bearing phases (enstatite). At higher temperatures, crystalline phase silicas may occur. The occurrence and extent of crystalline phase formation is dependent on the

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duration and temperature of exposure, fiber chemistry and/or the presence of fluxing agents. The presence of crystalline phases can be confirmed only through laboratory analysis of the “hot-face” fiber.

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 “carcinogenicity in humans was not detected in all industrial circumstances studied” (IARC Monograph Vol. 68, 1997).

During removal operations, the use of a full face respirator is recommended to reduce inhalation exposure along with eye & respiratory tract irritation. A specific evaluation of workplace hazards and the identification of appropriate respiratory protection is best performed, on a case by case basis, by a qualified industrial hygiene professional.

**CARE PROGRAMME**

ECFIA, Representing the High Temperature Insulation wools Industry, has undertaken an extensive industrial hygiene programme for High Temperature Insulation Wool (HTIW).

The objectives are twofold:

- to monitor workplace dust concentrations at both manufacturers’ and customers’ premises,
- to document manufacturing and use of HTIW products from an industrial hygiene perspective in order to establish appropriate recommendations to reduce exposures.

If you wish to participate in the CARE programme, contact ECFIA or your supplier.

**NOTE**

The directives and subsequent regulations detailed in this Material Safety Data Sheet are only applicable to the European Union (EU) Countries and not to countries outside of the EU.

**Websites**

Representing the High Temperatures Insulation Wools Industry (ECFIA): 3, Rue du Colonel Moll, 75017 Paris Tel. +33 (0)1 44 05 54 84 - Fax +33 (0)1 44 05 54 94- [www.ecfia.org](http://www.ecfia.org)  
Or to Deutsche Keramikfaser-Gesellschaft e.V. web site: [www.dkfg.de](http://www.dkfg.de)

<b>PRODUCTS</b>	<b>Significant Ingredients (% by weight)</b>	<b>Hazard warning</b>	<b>Risk Phrase</b>
<b>Non-lubricated bulk</b>	None	None	None
<b>Lubricated bulk</b>	Organic lubricant (<1%)	None assigned	None assigned
<b>High Index Fibres</b>	None	None	None
<b>Blankets</b>	None	None	None
<b>Papers and Felts</b>	Acrylic latex (< 12%)	None assigned	None assigned
<b>Boards and Shapes</b> Isofrax Board 120LD, Boiler parts 110CM	Amorphous Silica (5-40%)	None	None
<b>Boards and Shapes</b> Millboard 120KB	Amorphous Silica (5-40%) Clay (<75%) Cellulose (<10%)	None None None	None None None
<b>Boards and Shapes</b> Isofrax Board 120ZK	Amorphous Silica (5-40%) Clay (<10%) Cellulose (<5%)	None None None	None None None
<b>Boards and Shapes</b> Boiler Parts 120BA	Amorphous Silica (5-40%) Clay (<10%)	None None	None None
<b>Prismo - Block</b>	None	None	None
<b>Bonded Modules</b>	None	None	None

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<b>PRODUCTS</b>	<b>Significant Ingredients (% by weight)</b>	<b>Hazard warning</b>	<b>Risk Phrase</b>
<b>Textiles</b>	None	None	None
<b>Specialty products</b> Moist pak HD	Amorphous silica 5-20% Alumina 5-20%	None  None	None  None
<b>Mixes / Mastics</b> KUB	Calcium Aluminate (<40%)	<b>Xi</b>	R36/38
<b>Mixes / Mastics</b> K1210	Calcium Aluminate (<20%)	<b>Xi</b>	R36/38

\* May cause irritation when in contact with skin and eyes

**Revision Summary:** Updated Revision 18. According to 2001/58/EC  
**MSDS Prepared By:** UNIFRAX RISK MANAGEMENT DEPARTMENT

**DISCLAIMER**

The information presented here in is based on data considered to be accurate as of the date of preparation of this Material Safety Data Sheet. However, 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.



**More Unifrax High Temperature Insulation Information On The Web:**

<b>Official Unifrax High Temperature Insulation Products &amp; Applications Website</b>	<a href="http://www.unifrax.com">http://www.unifrax.com</a>
<b>Unifrax High Temperature Insulation Information</b>	<a href="http://www.high-temperature-insulation.com">http://www.high-temperature-insulation.com</a>
<b>Unifrax Refractory Ceramic Fiber Information</b>	<a href="http://www.refractory-ceramic-fiber.com">http://www.refractory-ceramic-fiber.com</a>
<b>Official Fiberfrax Refractory Ceramic Fiber High Temperature Insulation Information</b>	<a href="http://www.fiberfrax.com">http://www.fiberfrax.com</a>
<b>Official Foamfrax Advanced High Temperature Insulation Products Information</b>	<a href="http://www.foamfrax.com">http://www.foamfrax.com</a>
<b>Official Insulfrax Soluble Fiber High Temperature Insulation Products Information</b>	<a href="http://www.insulfrax.com">http://www.insulfrax.com</a>
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