



**42C Sillimanite, 45E Sillimanite, 53E/P Sillimanite, 55E Sillimanite, 60C Alumina, 60FC, 60P Sillimanite, 62S Sillimanite, 62V Sillimanite, 63E Sillimanite, 63J Sillimanite, 63C Sillimanite, 63P Sillimanite, 63 V Sillimanite, 64C Sillimanite, 66C Sillimanite, 66P Sillimanite, 66V Sillimanite, 69P Sillimanite, Isoprest Sillimanite, Sillimanite VP, Impervious Aluminous Porcelain, Impervious Mullite, 70CF Mullite, 70P Alumina, 73P Alumina, ISO 90 Alumina, ISO S90 Alumina, 90C Alumina, 90E High Alumina, 90P High Alumina, 90V High Alumina, 92 HA Porous Plug, 95C High Alumina, 98E Pure Alumina, 99V Pure Alumina, Purox**

MSDS NUMBER 2500-1-EURO  
DATE OF FIRST ISSUE 12/2002

Replaces EURO-S-FS1/FS2/FS3  
DATE OF LAST REVISION : 06/2005

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

#### IDENTIFICATION OF THE PRODUCT

The above-mentioned products are fired refractory shapes.

#### USE OF THE PRODUCT

These products are fired refractory shapes used in lining industrial furnaces, high temperature processing, kilns and metal melting applications.

#### IDENTIFICATION OF THE COMPANY

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### 2. COMPOSITION / INFORMATION ON INGREDIENTS

#### DESCRIPTION

These products are fired alumina/alumino-silicate refractory shapes.

#### COMPOSITION

| COMPONENT                | %     | EINECS NUMBER | SYMBOL | R PHRASES |
|--------------------------|-------|---------------|--------|-----------|
| Alumina                  | 0-100 | 215-691-6     | N.A.   | N.A.      |
| Alumino silicate         | 0-95  | N.A.          | N.A.   | N.A.      |
| Other inorganic material | 0-10  | N.A.          | N.A.   | N.A.      |
| Calcium aluminate        | 0-5   | N.A.          | N.A.   | N.A.      |

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

### 3. HAZARDS IDENTIFICATION

In the form supplied, the product is not dusty. However, if the product is cut, broken or ground resulting in dust formation then temporary irritation of eyes, skin and respiratory system may occur.

A long-term exposure to dust may be harmful to respiratory system.

#### CHRONIC RESPIRATORY HEALTH EFFECTS

These products may 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 V 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

In the event of dust exposure:

#### 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

There are no known risks associated with fired refractory shapes even if they are exposed to soil and water.

### 7. HANDLING AND STORAGE

#### HANDLING

Some fired refractory shapes may be very heavy and care should be therefore taken to avoid personal injury.

#### STORAGE

Store in dry and cool conditions. Store away from heat that may damage packaging materials.

#### SPECIFIC USE

Please refer to your local Thermal Ceramics' supplier or ECFIA's website.

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

These materials are stable and non-hazardous as received and during use. Dust may be generated on wrecking or if machining is carried out.

### 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 of respirable dust (in January 2003) are given below:

| COUNTRY | EXPOSURE LIMIT*     |                        |                        |                        | SOURCE                         |
|---------|---------------------|------------------------|------------------------|------------------------|--------------------------------|
|         | Respirable Dust     | Crystalline silica     | Quartz                 | Cristobalite           |                                |
| Germany | 3 mg/m <sup>3</sup> |                        |                        |                        | TRGS 900                       |
| France  | 5 mg/m <sup>3</sup> |                        | 0.10 mg/m <sup>3</sup> | 0.05 mg/m <sup>3</sup> | Décret 97-331 du 10 avril 1997 |
| U.K.    | 4 mg/m <sup>3</sup> | 0.30 mg/m <sup>3</sup> |                        |                        | HSE – EH40                     |

\* Gravimetric concentrations of respirable dust – 8-hour time weighted average.

### ENGINEERING CONTROLS

Review your applications in order to identify potential sources of dust exposure. If necessary, conduct personal air monitoring. Use technical and/or organisational means to comply with regulations.

### PERSONAL PROTECTIVE EQUIPMENT

#### Skin protection:

Use of gloves and work clothes is recommended.

Soiled clothes should be cleaned 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 or beige shape | <b>PARTITION COEFFICIENT</b> | N.A.      |
| <b>BOILING POINT</b>                           | N.A.                 | <b>ODOUR</b>                 | None      |
| <b>FLASH POINT</b>                             | N.A.                 | <b>MELTING POINT</b>         | > 1700° C |
| <b>AUTOFLAMMABILITY</b>                        | N.A.                 | <b>FLAMMABILITY</b>          | N.A.      |
| <b>OXIDISING PROPERTIES</b>                    | N.A.                 | <b>EXPLOSIVE PROPERTIES</b>  | N.A.      |
| <b>RELATIVE DENSITY</b>                        | -                    | <b>VAPOUR PRESSURE</b>       | N.A.      |
| <b>SOLUBILITY</b>                              | N.A.                 | <b>pH</b>                    | N.A.      |
| <b>LENGTH WEIGHTED GEOMETRIC MEAN DIAMETER</b> |                      | <b>N.A.</b>                  |           |

## 10. STABILITY AND REACTIVITY

### CONDITIONS OR MATERIALS TO AVOID

None

### DECOMPOSITION PRODUCTS

None

## 11. TOXICOLOGICAL INFORMATION

Available toxicological information is as follows:

### ACUTE TOXICITY

Lethal dose 50% (LD50) / lethal concentration 50% (LC50): N.A.

### 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 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 disposed of in sealed plastic bags or containers. 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 and/or regional regulations, which may apply.

### 14. TRANSPORT INFORMATION

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

### 15. REGULATORY INFORMATION

#### CLASSIFICATION AND LABELLING ACCORDING TO DIRECTIVE 67/548/EEC

This product is not classified according to Directive 67/548/EEC.

#### 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

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.

Crystalline silica may be present in concentration overpassing 1% due to fluctuation of raw materials composition.

#### USEFUL REFERENCES

##### 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.

**WEBSITE**

For more information connect to:

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

**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).**