Safety data sheet conforming to (EC) 1907/2006 and (EC) 1272/2008

1. Company identification

Trade name: SILCAFLEX 160 , SILCAPACK 160, SILCABLOCK 160, SILCASTACK 160 SILCAFIX 160, SILCABOARD/SILCAVAC 170, -175, -180

The above-mentioned product contains polycrystalline wool (PCW)
CAS number: 675106-31-7
EC number 614-074-2
Registration number: 01-2119456884-25-xxxx

Use of the product
For application as thermal insulation at temperatures up to 1600°C in industrial furnaces, ovens, kilns, boilers and other process equipment .Should not be sold directly to the general public, but to professional users only.

Manufacturer/Supplier:
SILCA Service- und Vertriebsgesellschaft für Dämmstoffe mbH
Auf dem Hüls 6
D-40822 Mettmann
Tel.: 02104/9727-0
Fax.: 02104/9727-25

Information department for technical details:
Tel.: 02104/9727-15
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E-Mail: reach@silca-online.de

Emergency information:
Tel.: 02104/9727-15
Tel.: 02104/9727-18

2. Hazards identification

Polycrystalline wools (PCW) are not classified as dangerous under EC Directive 67/548/EEC, CLP Regulation 1272/2008 or according to the self-classification guidelines. PCW have not been assessed by the EU and therefore are not specifically classified by the European Union

The International Agency for Research on Cancer (IARC) classed polycrystalline wools (polycrystalline aluminosilicate fibres) in group 2B ("possibly carcinogenic to humans") in their Monograph of 1988.

In Germany in accordance with Technical Rules for Hazardous Substances TRGS905 (2.3. para. 6) inorganic fibrous dust, unless classified elsewhere, is classified in category 3.

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

3. Composition/information on ingredients

COMPONENT	EU NUMBER	CAS NUMBER
Polycrystalline wools (PCW*) CAS Name: basic aluminium chloride reaction with silica	614-074-2	675106-31-7*

*PCW can also be identified by a combination of CAS Numbers: 1344-28-1 (fibrous forms of Aluminium Oxide), 7631-86-9 (Silica, non-crystalline), or 1302-93-8 (Mullite).

COMPOSITION
Chemical composition of SILCAFLEX 160 fibres : Al_2O_3: 70-97% SiO_2: 3-30%

DESCRIPTION
SILCAFLEX 160 products are available in a variety of forms: bulks, blankets, vacuum formed shapes, papers and modules.

4. First aid measures

SKIN
In case of skin contact 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. Get medical attention if irritation persists.

INHALATION:
Remove worker from source of exposure to clean fresh air. Drink water and blow nose.

5. Fire fighting instructions

Non combustible products.

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

6. Accidental release

Where abnormally high dust concentrations occur, provide 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 to be wind blown.
Transfer to a lidded container for disposal.
To avoid blockages do not allow product to enter drains/sewage

7. Handling and storage

HANDLING / TECHNIQUES TO REDUCE DUST EMISSIONS DURING HANDLING

HANDLING
Handling can be a source of dust emission.
Process 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 emissions during unpacking

8. Exposure controls/ Personal protection

HYGIENE STANDARDS AND CONTROL MEASURES
Hygiene standards and exposure limits may differ from country to country. Check those currently applying in your country and comply with local regulations.

Occupational Exposure Limits

Occupational Exposure Limit	TWA 8 hr f/ml	TWA 8 hr mg/m3	Notes
UK	2	5 (total dust)	Machine-made mineral fibres: Work place Exposure Limit :EH40

*For the UK, there is no occupational exposure standard specific to Polycrystalline Wools (polycrystalline aluminosilicate (mullite) fibres).

Some selected references:

Germany: OELs have been replaced by obligation of employer to evaluate hazard and risk of each activity where exposure to PCW dust may occur according to TRGS 558 and TRGS 402

Occupational Exposure Limit	TWA 8 hr f/ml	TWA 8 hr mg/m³	Notes
France		5 (respirable dust) 10 (total dust)	Code du travail R4222-10
Italy		3 (respirable dust)	Based on ACGIH recommendation – not an official limit value
Spain	1		Limites de exposición profesional 2010
Sweden	0.2		Statute Book of the Swedish Work Environment Authority ; AFS 2005 :17 OCCUPATIONAL EXPOSURE LIMIT VALUES AND MEASURES AGAINST AIR CONTAMINANTS

ENGINEERING CONTROLS
Review your application(s) and assess situations with the potential for dust release.
Where practical, enclose dust sources and provide dust extraction at source. Use operating procedures, which will limit dust production and exposure of workers.
Keep the workplace clean. Use a vacuum cleaner fitted with an HEPA filter; avoid using brooms and compressed air.

SKIN PROTECTION
Wear gloves and work clothes as necessary to prevent skin irritation. Washable or disposable clothing may be used. Soiled clothes should be cleaned to remove excess fibres before being taken off (e.g. use vacuum cleaner, not compressed air). It is good hygiene practice to ensure work clothes are washed separately by the employer.

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 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	>1800°C
Flammability	Not Flammable	Specific gravity	2.5- 3.5
Appearance	White	pH	NA
Oxidising properties	None	Odour	None
Solubility	Insoluble (<1mg/l)		

10. Stability and reactivity

CONDITIONS AND MATERIALS TO AVOID
NONE

DECOMPOSITION PRODUCTS
Stable under normal conditions of use.

11. Toxicological information

11.1 ACUTE EFFECTS

INHALATION
Fibrous dust may be mechanically irritant to the nose and throat.

SKIN CONTACT
May cause skin to itch in sensitive individuals.

EYE CONTACT
May cause mechanical irritation.

INGESTION
Low oral toxicity. Unlikely to cause harmful effects under normal conditions of handling and use.

11.2 CHRONIC EFFECTS

Lifetime rat inhalation studies of polycrystalline fiber show that at the maximum dose level tested, there was no evidence of lung cancer, lung fibrosis or any other significant adverse effect. Intraperitoneal, intratracheal and intrapleural studies in rats, together with two in vitro tests, have all shown negative results. Despite some study limitations, it is important to note the consistent lack of carcinogenic response in animal studies.

In 1988, the International Agency for Research on Cancer (IARC) considered the carcinogenicity of several groups of fibers. One grouping they considered was a poorly defined collection of disparate fiber types [polycrystalline fiber, refractory ceramic fiber (referred to as RCF) and single crystal whiskers] into a broad, single category they termed “ceramic fibers”. The IARC monograph clearly indicated that test data specific to *polycrystalline* fibers were negative, but according to the IARC classification principles, positive results with other fiber types led to the conclusion that all fibers in the group should be considered as possible human carcinogens (IARC Category 2B). In a subsequent monograph on MMVF (2002), IARC did not specifically re-evaluate polycrystalline fiber. The Annual Report on Carcinogens prepared by the National Toxicology Program (NTP), (latest edition) classified “ceramic fibers (respirable size)” as reasonably anticipated to be carcinogens.

As produced most polycrystalline fibers, including Fibermax, have fiber diameters too large to be respirable. Numerous scientific studies suggest that the potential toxicity of a respirable fiber is directly related to bio-persistence (the length of time it take for the fiber to clear the lung). Based on limited in-vitro laboratory analysis, which measure the dissolution rate of fibers in simulated lung fluid, polycrystalline fibers are known to be relatively durable.

Data from respiratory surveillance studies are not available for PCW workers. In a small cohort of workers exposed to PCW with historical co-exposures to RCF and other fibers, there was no evidence of interstitial lung disease on chest x-rays nor an accelerated rate of loss of lung function on pulmonary function testing. Symptom responses could not be attributed to or excluded from exposure to PCW as a consequence of the prior fiber exposures.

12. Ecological information

ENVIRONMENTAL FATE AND DISTRIBUTION
The product is a non-volatile solid, insoluble in water, has no potential for bioaccumulation and has no mobility in soil.

PERSISTENCE AND DEGRADATION
The product is inorganic: no biodegradability in water or soil is expected.

TOXICITY
Unlikely to be hazardous to aquatic life.

EFFECT ON EFFLUENT TREATMENT
Unlikely to have any significant effects on effluent treatment.

13. Disposal considerations

Polycrystalline aluminosilicate fibre is categorised as a stable non-reactive waste, which can generally be disposed of at 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 ensure 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. 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 ,ADN Refer Section 16 “Definitions”).

Ensure that dust is not wind blown during transportation.

15. Regulatory information

In Germany in accordance with Technical Rules for Hazardous Substances TRGS905 (2.3. para. 6) inorganic fibrous dust, unless classified elsewhere, is classified in category 3.
In 1988 IARC classified man-made mineral fibres as possible human carcinogens (2B) and, at that time PCWs were included in this broad category of materials.
Current information on carcinogenicity is given in Section 11.

RECOMMENDED LABELLING

Attention:

This product contains Polycrystalline Wool (PCW)

May cause temporary mechanical irritation to exposed eyes, skin or respiratory tract.

Minimise dust generation.

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).
- Regulation (EC) No 1907/2006 dated 18th December 2006 on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
- Regulation (EC) No 1272/2008 dated 20th January 2009 on classification, labeling and packaging of substances and mixtures (OJ L 353)
- 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).

Good Working Practices for High temperature insulation wools ; ECFIA Booklet (January 2006)
TRGS 619,TRGS 558 and TRGS 905 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
ADN European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

Precautionary measures to be taken after service and upon removal
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 contaminants. Therefore ECFIA recommends:

● control measures are taken to reduce dust emissions.

● all personnel directly involved wear an appropriate respirator to minimise exposure and comply with local regulatory limits.

These procedures should ensure compliance with local regulatory exposure standards and provide a high degree of protection.

CARE PROGRAMME
ECFIA has undertaken an extensive industrial hygiene programme to provide assistance to the users of High Temperature Insulation Wool products, including polycrystalline aluminosilicate wools.

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 Safety Data Sheet are only applicable to the European Union (EU) Countries and not to countries outside of the EU.

WEBSITES:
For more information connect to:
European Industry Association Representing HTIW (ECFIA): 3, Rue du Colonel Moll, 75017 Paris
Tel. +33 (0) 6 31 48 74 26 , ECFIA's website: (http://www.ecfia.eu

Andere Bestandteile in PCW Products

PRODUcts	**Sigifigant Ingredients (% by weight)**	**Hazard warning**	**Risk Phrase**
SILCAFLEX 160 Bulk Fibre	None	None	None
Blanket and Stripes SILCAFLEX 160 SILCAPACK 160	None	None	None
Modules out of SILCAFLEX 160 SILCASTACK 160 SILCABLOCK 160 SILCAFIX 160	None	None	None
Boards and Shapes SILCABORD/SILCAVAC 170,-175,-180	Amorphous Silica (5-40%)	None	None

Further hints
These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Department issuing MSDS:
SILCA Service- und Vertriebsgesellschaft für Dämmstoffe mbH
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D-40822 Mettmann