

## SAFETY DATA SHEET

**1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND COMPANY / UNDERTAKING**

<b>Product Name</b>	<b>SAFFIL</b>
<b>Manufacturer</b>	Saffil Limited Pilkington-Sullivan Site Sullivan Road Widnes Cheshire WA8 0US UK +44 (0) 151 422 6700 E-Mail: info@Saffil.com
<b>Emergency Phone No.</b>	IN AN EMERGENCY DIAL 999 For specialist advice in an emergency telephone +44(0) 151 422 6700
<b>Use</b>	Subject to member state regulations, applicable uses are: high temperature insulation (See also Section 16)
<b>REACH Reference Number</b>	01-2119456884-25-0000 Polycrystalline Wools (PCW), 614-074-2

**2. HAZARDS IDENTIFICATION**

Not classified as dangerous under EC Directive 67/548/EEC, CLP Regulation EC No. 1272/2008 or according to self-classification guidelines.

Low toxicity.  
May cause mechanical irritation of the skin, nose and/or throat. These effects are usually temporary.

**3. COMPOSITION / INFORMATION ON INGREDIENTS**

<b>Product Description</b>	100% Polycrystalline Wool (PCW, alumina fibre or mullite fibre)
<b>CAS No.</b>	675106-31-7
<b>CAS Name</b>	Basic Aluminium Chloride Reaction Products with Silica
<b>EC No.</b>	614-074-2

**4. FIRST AID MEASURES**

<b>Inhalation</b>	Remove worker from source of exposure to clean fresh air.
<b>Skin Contact</b>	Remove contaminated clothing. Wash skin with water. Do not rub or scratch exposed skin. If symptoms (irritation) persist obtain medical attention. Contaminated clothing should be laundered before reissue to remove this substance.
<b>Eye Contact</b>	Do not rub eyes. Irrigate with eyewash solution or clean water, holding the eyelids apart, for at least 10 minutes. Obtain medical attention.
<b>Ingestion</b>	Do not induce vomiting. Wash out mouth with water and give 200-300 ml (half a pint) of water to drink. Obtain medical attention if ill effects occur.
<b>Further Medical Treatment</b>	Unlikely to be required but if necessary treat symptomatically.

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**5. FIRE-FIGHTING MEASURES**

<b>General</b>	Non-combustible.
<b>Extinguishing media</b>	As appropriate for surrounding fire.

**6. ACCIDENTAL RELEASE MEASURES**

<b>Personal Protection</b>	During removal of spillages, use personal protection (including gloves and a suitable dust mask).
<b>General</b>	Protect against dust generation. Collect dust and loose material using a high efficiency vacuum cleaner. If vacuum cleaner is unavailable: moisten spillages with water. Clear up spillages. Transfer to a lidded container for disposal. To avoid blockages do not allow product to enter drains/sewage.

**7. HANDLING AND STORAGE**

<b>Handling</b>	Dust generation should be minimized. Good housekeeping and hygiene practices should be followed during handling. When using PCWs companies must comply with national, regional and local regulations.
<b>Storage</b>	Packaging should be kept closed and intact to reduce the possibility of releasing dust. Re-use of packaging is not recommended in case residual fibrous dust and product debris are present .

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

<b>General</b>	Wear suitable protective clothing, e.g., gloves and eye/face protection. Loose fitting longed sleeved clothing is recommended. Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded. A suitable dust mask is recommended if dust generation is considered possible and should be worn if workplace exposure levels exceed the occupational exposure limit. The selection of a suitable mask will depend upon the likely atmospheric concentration and the performance data of the mask. Check with protective equipment manufacturer's data.  Contaminated work clothing should be laundered separately.
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**Occupational Exposure Limits**

It is recommended to comply with the UK occupational exposure limit values as a minimum. Please check local occupational exposure limit values that may differ from those in the UK.

Occupational Exposure Limits	CAS No.	LTEL (8 hr TWA ppm)	LTEL 8 hr TWA mg/m <sup>3</sup>	STEL (ppm)	STEL mg/m <sup>3</sup>	Note:
Man-Made Mineral Fibre (MMMF)	-	-	5	-	-	WEL. In addition MMMF is also subject to a WEL of 2 fibres/cm <sup>3</sup> .

**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 900; TRGS 402

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Occupational Exposure Limits	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
Japan		3 (respirable dust) 4 (total dust)	Japan Society for Occupational Health *
USA		5 (respirable dust)	OSHA**

\* (Japan):

- i) There is no fibre number based regulation and the gravimetric limit is based on a fixed point sampling not a personal TWA.  
 ii) The legal limit on respirable dust is 3.0mg/m3. The Japan Society for Occupational Health (JSOH) 2004 recommendation is 1.0mg/m3 respirable dust and 4.0mg/m3 total dust.

\*\* (USA):

OSHA hazard communication standards 29 CFR 1910.1200 and 29 CFR 1926.59 and respiratory protection standards 29 CFR 1910.134 and 29 CFR 1926.103.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Form</b>	Fibrous solid
<b>Colour</b>	White
<b>Odour</b>	Odourless
<b>Solubility (Water)</b>	Insoluble
<b>Solubility (Other)</b>	Insoluble
<b>Melting Point (° C)</b>	>1800 (congruent melting not possible)
<b>Flammability</b>	Not flammable
<b>Explosive Properties</b>	Not explosive.

## 10. STABILITY AND REACTIVITY

<b>Hazardous Reactions</b>	None known
<b>Hazardous Decomposition Product(s)</b>	None

## 11. TOXICOLOGICAL INFORMATION

<b>Inhalation</b>	Fibrous dust may be mechanically irritant to the nose and throat.
<b>Skin Contact</b>	May cause skin to itch in sensitive individuals.
<b>Eye Contact</b>	May cause mechanical irritation.
<b>Ingestion</b>	Low oral toxicity. Unlikely to cause harmful effects under normal conditions of handling and use.

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**Long Term Exposure**

Lifetime inhalation studies in the rat on PCW fibres at the maximum levels achievable have shown no evidence of lung cancer, lung fibrosis or any other adverse effect, apart from a minimal pulmonary response typical of that of a 'low toxicity dust'.

Also, a lifetime feeding study in rats has produced no evidence of any adverse effects at levels up to 2.5 % in the diet.

Intraperitoneal, intratracheal and intrapleural studies in rats, together with two in vitro tests, all showed negative results whereas asbestos and crystalline silica which were used as positive controls (where relevant) produced positive responses.

The results of these extensive testing programmes indicate that PCW materials lack one or more of the fundamental characteristics necessary for mesothelioma induction, as well as not possessing fibrogenic potential.

**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****Recommended**

Dispose of in a sealed container to avoid dust and send to landfill where permitted.

**Regulatory Information**

Disposal should be in accordance with local, state or national legislation. EU waste code 17-06-02 may apply to virgin product (refer to Commission decision 2000/532/EC).

**14. TRANSPORT INFORMATION**

Not classified as dangerous for transport.

**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.

When using PCWs companies must comply with national, regional and local regulations.

**Product Packaging Labelling**

Caution: working with this product may cause temporary mechanical irritation of the skin, nose, eyes and/or throat.

Handling advice: Use good housekeeping and industrial hygiene procedures to minimize dust generation. Avoid breathing dust: dust mask is recommended where dust generation is possible. Wear loose-fitting long sleeved clothing, gloves and eye protection.

For professional use only.

**SAFETY DATA SHEET****16. OTHER INFORMATION**

Further health and safety advice can be found at [www.ECFIA.eu](http://www.ECFIA.eu)

This safety data sheet was prepared in accordance with Regulation (EC) No. 1907/2006 and REACH Annex 11, although these regulations do not mandate safety data sheet production for non-classified substances.

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WEL: Workplace Exposure Limit (UK HSE EH40)

**Annex 1. Safe Handling Advice**

Although the substance is not classified as hazardous under Dangerous Substances Directive or CLP Regulation criteria, the following safe handling procedures (relevant to uses of the substance and products/articles made from it) are recommended in view of its potential to cause mechanical irritation and to minimise fibre dust generation.

General precautions:

- Avoid contact with eyes and skin
- Avoid breathing dust
- Avoid release of dust to atmosphere

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Supported Use	Operational Tasks	Advice on Safe Handling	Products, Uses, Notes
Mixing to produce slurries	<p>Slitting of bags &amp; manual loosening and pushing of wool into tank</p> <p>Opening of boxes of rolled mat and removal for unrolling into tank for slurry preparation</p> <p>Compression of empty bag into waste container.</p> <p>Spillage of fibrous dust and waste around tank</p>	<p>Feed directly in to tank delivery chute at PCW raw material (wool/mat) introduction point.</p> <p>For dry, loose bulk wool and mat feedstock use a water spray directed at or near to the feed point to suppress dust levels</p> <p>Use Local Exhaust Ventillation (LEV) at all dry handling points. (May be fixed or flexible ducting and extraction system)</p> <p>Wet used bags or use a HEPA filter for cleaning the bags prior to disposal</p> <p>Use vacuum with HEPA filter to clean up dry spillage</p> <p>Wear suitable Personal Protective Equipment/Respiratory Protection Equipment (PPE/RPE)</p>	<p>For all operations listed, once materials are wet and the organic binder has been added dust levels are negligible</p>
Impregnation	<p>Opening of boxes of rolled Mat/Blanket, removal for unrolling into tank for slurry preparation</p> <p>Addition of binder or other coating by dipping the PCW or by spaying onto the PCW</p> <p>Rolls, slabs and thin layers of mat and blanket are impregnated with precious metal catalyst and then dried</p>	<p>Unrolling mechanism constructed to minimize manual handling.</p> <p>LEV at all dry handling points.</p> <p>PPE/RPE for spray coating operatives in the vicinity</p> <p>Handling precautions as for Mat/Blanket above</p> <p>Wear suitable Personal Protective Equipment/Respiratory Protection Equipment (PPE/RPE)</p>	<p>Products made in this way include organically bonded rolls and sheets of paper and felt for a variety of industrial applications.</p> <p>Cutting of parts often follows in the next processing stage.</p> <p>Use: Catalytic heaters/driers used in industrial and domestic fuel burning applications.</p>
Wet Forming from slurries	<p>Forming of various product forms, often net-shape, from an aqueous and non-aqueous slurry</p>	<p>Negligible dust levels expected due to mainly wet process. If concentrations are elevated, likely causes are other dusty process in the vicinity or dried out material being disturbed.</p> <p>For all wet operations involving PCW slurries: wear suitable goggles to protect eyes. If eyes are contacted then rinse immediately with plenty of water and seek medical advice</p>	<p>Product examples are boards, felts, paper.</p> <p>Also, net shape preformed parts for use in metal reinforcement and shapes for use in a variety of High Temperature Insulation (HTI), automotive, aerospace and power generation (eg fuel cell) applications.</p>

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<p>Dry Forming</p>	<p>Various industrial applications with generic handling operations involving: unwrapping, unrolling of mat or blanket for hand cutting, folding, stacking &amp; compressing stacks of blanket to make modules.</p> <p>Metal fixtures may also be added for module installation.</p> <p>Needling or stitching with organic/inorganic materials.</p> <p>Operations related to each of the above uses include packing, conducting QC testing and bagging of waste.</p>	<p>Segregate the assembly area if effective and possible. Restrict access only to operators involved in the process.</p> <p>Minimize manual handling by re-organizing the work; reduce distances between operations; use extraction booth with downdraft table (with integrated waste bin) for unwrapping, unrolling, cutting and stacking of parts.</p> <p>The table should be large enough to allow all dust producing operations to be carried out on its surface, within the dust capture zones provided by the exhaust system.</p> <p>For modules -If possible use pre-cut sheets to minimize manual cutting and handling.</p> <p>For each of the operations above aim to provide min.0.5 m/s of capture velocity at dust generation point.</p> <p>If technically feasible use a fine water mist on product prior to and during operation.</p> <p>Bag waste material immediately, label and store in segregated area.</p>	<p>Furnace module manufacture and installation for use in high temperature insulation applications (HTI)</p> <p>Use: textile products for aerospace and industrial HTI applications.</p>
<p>Machine Cutting/ Finishing</p>	<p>Removal of packaging from PCW product</p> <p>Handling of PCW product prior to machining</p> <p>Application of concentrated mechanical energy to abrade, cut or machine PCW product</p> <p>Handling, packing and stacking machined PCW product into boxes or onto pallets</p>	<p>Segregate the machining area when possible; restrict access only to operators involved in the process.</p> <p>Ensure adequate LEV around sources of emissions, at points where machining head or tool is in contact with the PCW product. LEV close to source of cutting if die stamping used. Water jet recommended.</p> <p>Organic binders present usually minimize dust level emissions during handling and use.</p>	<p>Examples are the cutting of automotive support mat parts from rolls or sheets of blanket or bonded products for use in catalytic converters and diesel particulate filters (DPFs) and the cutting of gasket parts from rolls of paper for various HTI applications.</p>
<p>Hand Finishing and Packaging</p>	<p>Dried/fired shapes for HTI applications can be friable unless organic binder present. Handling of the shapes during removal from drying/firing operation, inspection and packaging.</p> <p>Hand removal of surplus edges.</p>	<p>If a hand-held tool (eg rotary powered) is used then select one with integral extraction fitted</p> <p>In each case use LEV or appropriate PPE/RPE depending on dust emission level.</p>	<p>Note that re-use of packing boxes is not recommended unless pre cleaned using a vacuum to remove any accumulated dust and debris.</p>
<p>Installation of insulation</p>	<p>Handling of products that do not have organic binder present</p> <p>Handling of products with organic binder present</p>	<p>Clean work area regularly during shift using HEPA vacuums.</p> <p>Prohibit use of dry brushing and or compressed air cleaning.</p> <p>Use disposable clothing impervious to dust.</p> <p>Use industrial gloves and RPE appropriate to the expected concentrations (typically FFP2) if there is a risk of dust release.</p>	<p>Example of uses: modules, veneers or other insulation used in high temperature furnaces.</p> <p>Examples are automotive catalyst and DPF support mats and bonded products including paper gaskets, boards, felts, shapes used in HTI applications.</p>

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Incorporation into metal products	Infiltration of preformed shapes made from PCW (wool/mat/blanket etc) to give reinforced structures.	Use precautions relevant to hot metal transfer procedures.	
Removal (after-service) and Maintenance	<p>If there is a significant dust release potential.</p> <p>General handling of after-use materials for all uses with potential for generating dust.</p>	<p>Segregate the assembly area. Restrict access only to operators involved in the process.</p> <p>Minimize manual handling by reorganizing the work; reduce distances between operations; use extraction booth with downdraft table (preferably with integrated waste bin) for unwrapping, unrolling, cutting and stacking of parts. The table should be large enough to allow all dust producing operations to be carried out on its surface, within the dust capture zones provided by the exhaust system.</p> <p>Provide min.0.5 m/s of capture velocity at dust generation point.If technically feasible use a fine water mist on product prior to and during operation.Bag waste material immediately, label and store in segregated area</p> <p>Clean work area regularly during shift using HEPA vacuumsProhibit use of dry brushing and or compressed air cleaning.Use disposable clothing impervious to fibrous dusts</p> <p>Use industrial gloves and RPE appropriate to the expected concentrations (typically FFP2)</p>	<p>Examples:</p> <p>Breaking of after-use materials used in large scale furnaces</p> <p>Handling of furnace lining after-use materials including modules, veneers, boards etc</p> <p>Scraping residual from furnace surfaces prior to renewal of lining</p> <p>Example: Removal of relatively low mass parts such as automotive catalyst and DPF support mats</p>
Disposal:	Cleanup of waste	Bag all waste as soon as possible and dispose into covered container /skip.	

## Uses

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- High temperature insulation (HTI):
  - o Industrial (eg iron & steel, petrochemical, glass, ceramics)
  - o Aerospace
  - o Power generation
- Reinforcement of various matrices for a variety of specialty and industrial applications:
  - o Metals (eg. light alloys in industrial and automotive components)
  - o Ceramics and glasses
  - o Plastics
- Thermal insulation and mechanical support in emission control systems used in plant and vehicles in various industries, for example:
  - o Automotive
  - o Off-road
  - o Agricultural
  - o Power generation
  - o Marine
- Acoustic insulation
- Filtration
  - o High temperature gas filtration devices used for industrial and automotive emission control
  - o Water purification systems
- Support material for precious metal catalysts in industrial and domestic flameless heaters and driers