

MATERIALS SAFETY DATA SHEET

In Compliance with EEC Directive 91/155 dated 5/03/1991

1 - COMPANY - PRODUCT IDENTIFICATION

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PRODUCT IDENTIFICATION :

"Cem-FIL®"

2 - COMPOSITION - INFORMATION ON CONSTITUENT PARTS

Cem-FIL® reinforcement, made from alkali resistant glass fibres in the form of strands is basically marketed as :

ASSEMBLED ROVINGS
CHOPPED STRANDS

DIRECT ROVINGS RO99®
CHOPPED STRAND MATS

These are all preparations as defined by EEC Directive 67/548 dated 27/06/1967 corresponding to a mixture of AR GLASS with SIZING. In the case of mats, a BINDER is added.

Cem-FIL® alkali resistant glass reinforcement, has the following composition (expressed in oxides) within the following limits :

SiO ₂	55-75%
ZrO ₂	15-20%
Alkaline oxides (Na ₂ O, K ₂ O)	11-21%
Alkaline ferrous oxides (CaO, MgO....)	0-6%
B ₂ O ₃	0-2%
Al ₂ O ₃	0-5%
TiO ₂	0-3%

SIZING is a mixture of chemicals applied to the glass strands. The maximum quantity is 3%.

The sizing mixture is basically high molecular weight polymers not listed as chemical substances in the 1981 European Inventory of Existing Commercial Substances (EINECS) nor in subsequent additions to the European List of New Commercial Chemical Substances (ELINCS).

In some extremely rare cases, sizes are prepared from polymers with reactive sites or containing reactive monomers included in these lists. As the reactive sites are polymerised during the manufacturing process Cem-FIL® fibres are no longer dangerous substances in the Cem-FIL® product marketed.

A second type of ingredient present in almost all sizes is a member of the organo-silane family. These products account for less than 1% of the size and thus less than 0.02% of the final weight of sized glass. The manufacturer considers this risk as negligible as, although listed as dangerous products, the concentration is extremely low and they are polymerised during the production of glass fibres.

Other products can be used in sizes. Usually the content is extremely low (under 0.1% of weight in the glass) and as a general rule such products are not on the dangerous product lists.

BINDERS FOR MATS are high molecular weight polymers deposited in quantities under 10% and polymerised on chopped glass strand mats. They are not on the dangerous product lists.

If so requested by medical authorities, the Chemical Abstract Service (CAS) reference numbers for the ingredients used for a given size and which do appear on EINECS or ELINCS lists can be communicated but must remain for confidential use of medical authorities.

3 - HAZARD IDENTIFICATION

Glass fibres used for reinforcement are not dangerous.

Chemical properties are detailed in paragraph 2 above.
Pharmo-toxicological test results are shown in section 11 below.

It is important to remember that **these fibres are not “respirable fibres”** (i.e. they do not penetrate the lower lungs). This is because their diameter is over 3µm (the diameter of most strands exceeds 10µm). Even after manipulation the length of the finest dust is significantly longer than 5µm and the length/diameter ratio is greater than 3. These are the normal values used to define « respirable » fibres.

Most of the rules and studies concerning « respirable » fibres do not apply to continuous filament fibre glass for reinforcement.

For example :

- the concentration limit for fibres in the atmosphere (1.5 fibres / cm³) set by French Employment Ministry circular 95/04 dated 12/01/1995 (considered as an addition to the circular dated 19/07/1982) does not apply to glass reinforcement strands.
- The risk index for cancer KI defined in Germany by TRGS 905 does not apply to continuous non-respirable glass fibres.
- None of the epidemiological and laboratory studies carried out to date demonstrate in a scientifically significant way any risk of cancer due to reinforcement fibres. Studies carried out by injecting fibres into the peritoneum have never shown any risk of causing cancer of the lungs nor pleura but do indicate limited risks for the abdominal cavity. These tests have no obvious relationship with the way in which glass fibres are normally used.

One known threat to health concerns the **irritant nature** of continuous filament glass reinforcement strands. This irritation is purely mechanical and temporary. It disappears completely when exposure ceases. It can affect the skin and the eyes as well as the upper respiratory tract.

Some **allergy** problems have been encountered. All sizing mixtures are tested for allergic reaction in the moist state during work-up at the manufacturer's facilities and are only used if they remain below a very low allergy threshold.

4 - FIRST AID

INHALATION	:	remove from the scene of exposure
SKIN CONTACT	:	wash copiously with lukewarm soapy water. Do not rub excessively.
EYE CONTACT	:	flush in running water (for at least 10 minutes)
ALLERGY	:	remove from scene of exposure

5 - FIRE-FIGHTING

In case of fire, only the packaging (plastic film, paper, cardboard, wood) and the small percentage of SIZE or BINDER are likely to burn. Combustion gases are basically carbon dioxide and water vapour. There may be small quantities of carbon monoxide and other substances which make it necessary to use protective devices in the event of a major fire.

RECOMMENDED EXTINGUISHING MEDIA : water or powder

6 - ACCIDENTAL SPILLAGE

PERSONAL PROTECTION : See paragraph 8

ENVIRONMENTAL PROTECTION :

In leaching tests glass fibre waste did not emit any significant quantities of dangerous products and they can therefore be considered as **Inert Industrial Wastes**, or even **Common Industrial Wastes**, as defined by national and local regulations.

CLEANING :

Vacuum clean, sweep or shovel into containers normally used for glass fibre waste (selective collection).

7 - HANDLING & STORAGE

Handling (Technical measures / Precautions / Safe handling advice) :

"SENSITIVE" people should avoid prolonged skin contact.

STORAGE :

Technical measures	:	not relevant
Storage conditions	:	store away from water
Incompatible materials	:	not relevant
Packaging materials	:	the product should be stored in its original packaging.

Avoid excessive handling.

8- EXPOSURE CONTROL - PERSONAL PROTECTION

TECHNICAL MEASURES :

Because of the irritant nature of product dust, we recommend :

- the use of barrier cream, gloves, long sleeves, masks and goggles by all people with delicate skin or when usage conditions generate high quantities of dust.
- to try to reduce by every appropriate means (suction, modification of manufacturing methods to reduce fibre dust ...) the concentration of fibres likely to cause irritation

CONTROL PARAMETERS :

There are no specific limits for exposure to the product (see paragraph 2) except those concerning inert dust i.e. 5mg/m^3

PERSONAL PROTECTION EQUIPMENT :

Respiratory protection : during occasional operations releasing high quantities of dust, wear minimum FP1 or preferably FP2 EEC approved dust masks. According to American National Institute For Occupational Safety And Health (NIOSH) and Mine Safety And Health Administration (MSHA) directives, type 3M 8710 or 3M 9900 respirators can be used for example.

Protection of hands and other exposed parts of the body : gloves for the hands, long-sleeved garments and long leg-covers to prevent irritation. People with delicate skin should apply barrier cream to unclothed areas.

Eye protection : safety goggles (or masks).

9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	:	solid
FORM	:	continuous fibre glass strands for reinforcement
COLOUR	:	white or coloured
ODOUR	:	none, except for some products where a slightly sweet or acid odour is sometimes released when a pallet or carton is opened. This odour never indicates that a toxic product has been released.
pH	:	not applicable
SPECIFIC TEMPERATURE AT WHICH CHANGES IN PHYSICAL STATE OCCUR :		
Softening point (Littleton point)	:	approximately 850°C
Melting point	:	approximately 1200°C
DECOMPOSITION TEMPERATURE	:	sizes and mat binders start to decompose at 200°C
FLASH POINT	:	none
EXPLOSIVE PROPERTIES	:	none
DENSITY	:	2.6g/cm ³
SOLUBILITY	:	very low solubility in water. Sizes and binders can be partially (and even totally) dissolved in most organic solvents.

10 - STABILITY AND REACTIVITY

STABILITY :

stable in normal use and storage conditions, and in normally foreseeable usage conditions

POSSIBLE HAZARDOUS REACTIONS :

glass reinforcement strands are stable and never generate hazardous chemical reactions.

HAZARDOUS DECOMPOSITION PRODUCTS :

in continuous combustion conditions, in addition to water vapour and CO₂, small quantities of CO and NO_x may be released by the combustion of the size and/or the binder.

11 - TOXICOLOGICAL INFORMATION

ACUTE TOXICITY : not relevant

LOCALISED EFFECTS : possible temporary irritations (see paragraphs 2, 3, 7, 8)

SENSITISATION : rare possibilities of allergies

CARCINOGENIC RISKS : During a Congress in June 1987 the WHO (World Health Organisation) and the IARC (INTERNATIONAL CANCER RESEARCH CENTRE) reviewed all laboratory work on animals and epidemiological studies carried out on continuous filament glass fibres reinforcement. The conclusion was that **glass reinforcement strands do not justify classification as cancer inducing agents** and they are therefore classified in MMMF (Man Made Mineral Fibres) Group 3.

In a colloquium in 1987 the ILO (International Labor Organization) and the PISC (International Programme for Chemical Safety) reached the same conclusions.

No new study has led to a revision of the positions of these organisations on this subject.

Work currently proceeding by the European Commission to classify MMMF does not include glass reinforcement fibres as they are not respirable (diameter greater than 3µm) and because of the IARC classification of 3.

MUTAGENIC RISKS : Glass reinforcement fibres have no known mutagenic risk.

12 - ECO-TOXICOLOGICAL INFORMATION

Cem-FIL® is not biodegradable.

Sizes or binders are organic materials slowly and only partial dissolved by natural agents (water). As their concentration of the ingredients in the mixture and their solubility are low and as they have not been classified as hazardous, glass reinforcement strands are considered to have no adverse eco-toxicological effects.

glass fibres and sizing products **were not listed as products** likely to destroy the **ozone layer** by the 1987 Montreal Protocol (Class 1 or Class 2). These lists are included in EC Regulation n° 3093/94 and in section VI of amendments to the "Clean Air Act " by the American Environmental Agency (EPA)

Glass fibre sizes and binders do not contain PCB (Polychlorinated biphenyl) nor any other polyaromatic products of the same type.

There are no free-form heavy metals.

Vitrification is one of the recognised methods for inerting traces of some metals which may be included in the composition (e.g. Ti) and any leaching of metal which does occur is negligible.

13 - WASTE DISPOSAL

Depending on local regulations, Cem-FIL® waste can either be considered as **inert waste** or as **common industrial waste**. As such as it can be buried in landfills approved for these categories.

Cem-FIL® waste cannot be destroyed by incineration - and can damage incinerators by the formation of a vitrified mass.

Clean cardboard, wood, plastic (film or bags) and packaging can be eliminated in waste disposal units specific to these products (i.e. for recycling or use as fuels).

14 - TRANSPORT

INTERNATIONAL REGULATIONS :

Cem-FIL® is not considered as a hazardous good by transportation regulations and transportation does not require special procedures.

15 - REGULATORY INFORMATION

Cem-FIL® reinforcement, like continuous filament glass reinforcement strands do not require hazardous product labelling.

General hygiene and work safety regulations apply to them.

16- OTHER INFORMATION

Continuous filament glass reinforcement strands are not listed by EINECS, CAS, TSCA (Toxic Substances Control Act) or TRGS (Technische Regeln für Gefahrstoffe).
By assimilation the CAS n° for Vitriifiable Raw Materials used to make glass is sometimes quoted : 65997-17-3

Cem-FIL® reinforcement does not require special labelling, storage nor transportation.

FOOD ENVIRONMENTS :

Appendix III of European Directive 90/128/EEC and its most recent amendment 96/11/EC dated 5/03/96 defines the compatibility of glass fibres with food environments as additives to plastics.

Before using any product from the Saint-Gobain Vetrotex range with food products, consult the Saint-Gobain Vetrotex Information Service.

This data sheet is an addition to the Product Specification sheet and other technical documents issued by SAINT-GOBAIN VETROTEX, but does not replace them. The information given in this document is based on our current knowledge of these products on the date shown. It is given in good faith.

Furthermore, users attention is drawn to the possible risks run when the product is used for any purpose other than the one for which it was designed.

This file does not exempt users from knowing and applying the rules regulating their activities. Users assume full responsibility for applying the appropriate safety measures when the product is used.

For any further information, users should contact their local SAINT-GOBAIN VETROTEX agent or the SAINT-GOBAIN VETROTEX INTERNATIONAL Environment and Health Manager.