In compliance with REGULATIONS (EC) No 1907/2006, (EC) No 1272/2008, (EU) No 453/2010.
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1– COMPANY – PRODUCTS IDENTIFICATION

MANUFACTURER:

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PRODUCT IDENTIFICATION

"E- GLASS FOR TEXTILE"

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2- HAZARD IDENTIFICATION

CLP rule is not applicable for the xxxxxx products.

The E-Glass Fibres **significantly hazardous**

Details regarding chemical hazard are given in chapter 3. Toxicological aspects are described in detail in chapter 11. It should be highlighted that the diameter of continuous glass filament fibres are higher than 3 µm and therefore above the respirable range of 3 µm or less, thus minimising the potential for any chronic pulmonary effects associated with exposure to these fibres. The irritation caused by thes fibres a simple mechanical one, wich can be controlled by good industrial hygine practice.

Hazards identified are :

- mechanical irritation (itching)
- the formation of respirable filaments
- extremely rare possibilities of allergy

3- COMPOSITION – INFORMATION CONSTITUANT PARTS

Glass yarns for textiles are basically sold as :

TEXTILE YARNS (textured E-glass yarn)
GLASS FABRICS (thermally treated, finisched)
GLASS FIBRE FELTS (MATS)

The following material safety data sheet in valid for all mentioned products.

Glass fibres can be considered as ARTICLES, since fibres are articles in the manual of decisions for implementation of the sixth and the seventh emendments to Directives 79/831/EEC on dangerous substance (EU Directive 79/831 EEC and 92/32/EEC) or in the USA by American TSCA (Toxic Substance Control Act) or EPA 40 CFR 710,2 and also some other natural regulations (DSL in Canada for instance).

These articles are E-GLASS in the form of continuous strands and SIZE.
The CAS number of glass fibre in 65997-17-3 (corresponding to the oxides used for production).
These articles are E-GLASS in the form of continuous strands and SIZE.

3.1- E-GLASS is glass with a very low alkaline content. It is a member of the family Alum-Borosilicate glasses. The chemical composition is given in a table below :

SiO2	Al2O3	CaO + MgO	B2O3	Na2O + K2O	TiO2	Fe2O3
52 - 53	13,5 – 14,5	23,5- 25	6,5 – 7,5	<0,9	<0,5	<0,4

E-glass fiber diameter is bigger of 6 micorn.

3.2 SIZE is a mixture of chemicals applied to the glass strands in a maximum quantity of 2% - more generally between 1% an 1,6% by weight.

Most of this mixture is made up basically non-reactive high molecular weight polyners, often xxxx ingredients (starches) with no reactive sites, which are not listed a substance in the 1981 European Inventory of Existings Commercial Substance (EINECS) nor in the ELINCS appendices (European List of Notified Chemical Substances) and are generally exempt from registration on the American NCA Lists.

In some cases, sizes are prepared form polymers with reactive sites or containing reactive monomers included in these lists. Most of the reactive sites are polymerised during the manufacturing of E-glass yarns. However a very small reactivity may remain which justifies the precautionary measures listed in chapter 8 below.

A second type of ingredient (sometime present in almost all sizes) is a member of the organo silane family. These products account for less than 0,05% of the final weight of sized E-glass. These products are included in lists of products required hazardous product labelling in a pure state (for example in Europe R23/25 toxic if inhaled, R21 harmful in contact with the skin, R36 irritant for the eyes).

The manufacturer considers this risk as negligible as, although listed as dangerous products , the concetration is extremely low anc they polyrised during the production of Eglass fibres.

Other products can be used in sizes often acting as lubrificant . Usually the content is extremely low (under 0,1% of tota weight) and as a general ruels about products are not on the dangerous product list or, as they have reacted, any possible risk has been reduced.

If so requested by medical authorities, the Chemical Abstract Service (CAS) reference numbers for the ingredients used for a given size can be communicated but must remain for the confidential use of medical autorities.

3.3 Thermally treated and impregnated glass fibre fabrics

Glass fibre fabrics may be thermally treated or impregnated with polymer dispersions (finish).

Thermally treated fabrics are defined caramelized fabrics .During thermal treatment part of the starch size is removed. The final caramelized product contains approximately 0,15 – 0,25 % non volatile hydrocarbons.

Substance used for impremation of E-glass fibre fabric are shortly described in a table below:

Chemical name	CAS Number	Weight -%
Textile Glass Fiber (continuos glass fiber filament)	65997- 17- 3	≥95,0
Sizing agent	n.a.	≤2,0
Finish		
A (on the basis of polyvinil acetate)	No labeling required according to EU 1999/45/EG	2-7
A5, A7 (on the basis of vinyl-polymer exposure of a flame retardant)		2-7
Black colored (on the basis of any acrylate copolymer)		2,5 – 4,5

4 – FIRST AID

INHALATION : remove from the scene of exposure to fresch air.

SKIN CONTACT : wash copiously with lukewarm soapy water without rubbing excessively.

EYE CONTACT : flush in running water (for at least 10 minutes) and consult a doctor if necessary.

5 – FIRE FIGHTING

In case of fire , E-glass fibres are not flammable , are incombusting and do not support combustion. Only the packaging (plastic film, paper, cardboard, wood) are likely to burn. Combustion gases are basically carbon dioxide and water vapour. There may be small quantities of carbon monoxide and other unidentified substances, whic make it necessary to use protective devices in the evnt of a major fire.

RECOMMENDED EXTINGUISHING : water or chemical powder.

6- ACCIDENTAL SPILLAGE

PERSONAL PROTECTION : see chapter 8.

ENVIRONMENTAL PROTECTION :
In leaching tests glass fibre did non emit any significant quantities of dangerous products and they can therefore be consedered as **Invert industrial Wastes,** or even **Common Industrial Wastes,** as defined by national and local regulations. All waste and scrap materials should be disposed of in accordance with applicable national, federal, state and local regulations (see chapter 13).

7- HANDLING STORAGE

HANDLING (Technical measures / Precautions / safe handling advice):

It is preferable to avoid prolunged contact with the skin : wear gloves, garments with sleeves, goggles and dust masks.
Glass filament and dust must be removed from works garments with a vaccum cleanes and not blown off with compressed air jets. Wash work garments separately from other clothes.

STORAGE:

Technical measures: respect the stacking procedure recommended for each type of production.

Storage conditions: sotre away from excessive humidity to prevent damage to the product andto the packing materials, whic could lead to storage safety problems.

Incompatible material: not relevant

8- EXPOSURE CONTROL – PERSONALE PROTECTION

TECHNICAL MEASURES

Use every appropiate means (suctions, modification of manufacture methods ti reduce fibre dust) to try to reduce the concetration of fibres likely the causes of irritation.

TEST PARAMETERS

Test ambient atmospheres in which glass fibre used regularly to determinate levels of

- "non respirable" and "respirable" filaments
- "non respirable" and "respirable" dust

Legal requirements for respirable and non-respirable dusts and fibres vary from country to country (or do not even exist). The table below (prepared using the knowledge we currently posses) shows the limits applicable in different countries for Time-Weighted Average (TWA) exposure.

It is recommended to identify the chemicalnature of fibres found in working atmospheres correctly, in particulr insulation wools and mineral fibres like asbestos, whic are somentimes present and can be confused with continuous glass strands.

Country	Dusts	TWA (Time Weighted Average Concentration) (mg/m3 for 8 hours work)	Fibres	TWA (Time Weighted Average Concentration) (Fibres/ml for 8 hours work)
Austra	Fine	6	Total	0,5
Belgium	Total	10	Total	1
Denmark	Respirable total	5 10	total	1
Finland	Total	10	Total	1
France	Total	10	Respirable	1
Germany	Respirable	3	Respirable	0,25
Great Britain	Respirable Total	5 10	Respirable	2
Netherlands	Respirable Total	2 10	Total	1
Ireland	Respirable	5	Respirable	2
Italy	Respirable Total	5 10	Total	1
Norway	Respirable Total	5 10	Total	1
Portugal	Total	4	Total	1

Spain	Total	10	Total	1
Swden	Respirable total	5 10	Total	1
Switzerland	Total	6	Respirable	0,5
USA	Respirable Total	5 (OSHA*) 15 (OSHA*)	Total	1 (ACGH**)

*OSHA = Occupational Safety and Healt administration
** ACGIH = American Conference of Governetment Induistrial Hygienist

PERSONAL PROTECTION EQUIPMENT

Respiratory protection:
During occasional operations releasing high quantities of dust, wear FP! Or preferably FP1 or preferably FP2 EEC approved dust masks. Type 3M 8712 or 3M 9900 respirators approved according to American National Institute for Occupational Safety and Health (NIOSH) directives to be used, for example.

Protection of hands and other exposed part of the body:
Gloves for the hands, long sleeved garments and long pants to prevent irritation. People with delicate skin should apply barrier cream to exposed skin areas.

Eye protection: safety goggles (or mask) or safety glasses.

9- PHYSICAL AND CHEMICAL PROPERTIES

PHISICAL STATE : none

FORM : continuos or chopped or mats of fibre made up or continuos, parallel filaments glued together.

COLOUR: white or yellowish white

ODOUR : none

Ph : non applicable

SPECIFIC TEMPERATURE AT WHICH CHANGES IN PHYSICAL STATE OCCUR:

Softening point: littleton point (defined as the temperature for which viscosity of glass is 7.0 cdpas) : approximately 806C°

Decay temperature: (defined as the temperature for which the viscosity of glass is 2,5 dPas) : 1200C°

DECOMPOSITION TEMPERATURE : only sike products start to decompose at 200°c

FLASH POINT : none

EXPLOSIVE PROPERTIES : none

DENSITY (MOLTENS MASS) : 2.6 g/cm3

SOLUBILITY : very low solubility in water. Sizes can be partially (and even totally) dissolved in most organic solvents.

10 STABILITY AND REACTIVITY

STABILITY
Stable in normal use and storage consitions, and in normally foreseeable usage conditions.
HAZARDOUS REACTIONS
no chemical hazardous reaction is foreseeable.

HAZARDOUS DECOMPOSITION PRODUCTS
In continuos combustion conditions, in addition to water vapour and CO2, small quantities of Co and Nox ,ay be released from combustion of the size. Other products may be released in limited quantities, depending combustion conditions. This is why is recommended to use high-temperature gas when fighting intense fires (see chapter 5)

11- TOXICOLOGICAL INFORMATION

ACUTE TOXICITY : non relevant

LOCALISED EFFECTS : **possible temporary irritations**
This irritation is a purely mechanical and temporary nature. It disappears whn exposure is ended. It can affect the skin, the eyes and the upper respiratory treacts. In Europe, mechanical irritation is not considered a healt hazard within the terms of European directives 67/548/EEC for hazardous products. This is confirmed by fact tha EC Directive 97/69EEC for mineral fibres does not stipulate the need to use an Xi (irritant) label nor a classification for continuous strand fibres (which in this Directive only apply to Glass Fiber n some circumstances)

SENSITISATION:
some allegies to continuous strand glass fibres have been recognise . All sizing stiffener are tested for their wet sensitising properties when developed by JSC "Valmiera Glass Fibre" and are only adopted if they have no level of awareness. In case of the allergy is confirmed, remove the person front the scene of the exposure.

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LONG TERM TOXICITY : CARCINOGENIC RISKS

Continuos strad glass fibres are not respirable (i.e. do not penetrate the lung alveoli). This because fibres are over 3um in diameter. Even after handling, the lengt of the filament dust is also well over 5um and the lenght / diameter ratio is greater than 3. These are the values determined by the World Helath Organisation (who) for the definition of respirable fibres.

Legislation situation:

None of the following official organisations have attributed any risks of cancer during the production and use of continuous filament glass fibres:

During its congress in june 1987, World Healt Organisation (WHO) through the IARC (International Agency of Research on Cancer) examined all laboratory studies using animals and epidemiological studies carried out on glass yarns for textiles.

The conclusion was that **glass filaments are not classified as their carcinogenicity.** They belong to the Group 3 of IARC. This classification has been confirmed by the IARC Working Group during his meeting of October 2001 and in the latest issue of the IARC monographs on the evaluation of carcinogenic rules to humans, volume 81 on "man-made vitreous fibres", published in 2002.

The International Labour Office (ILO) and the CSIP (Chemical Safety International Program) came to the same conclusions on a congress held in 1987.

European Commission Directive 9769/EC dated 5/12/97 , the 23rd amendament to directive 67/548/EEC ehic concerns classification, packing and labelling the hazardous substance did not think it necessary to include glass fibres as having carcinogenic risks.

Most European Union member nations have trasposed this Directive into their national law and adopted the same conclusion:

COUNTRY	**REFERENCE OF TRANSPOSITION DOCUMENTS OF DIRECTIVE 97/68/EC**
Austria	Chemikalienverordnung 1999
Denmark	French implementation by. "xxxxxx Belsluit" of 15/1/99 published on 24/2/99
Finland	Landskapforordning xxxx and 24/02/98 and list of hazardous chemicals 16/12/98
France	Arrete ministerial du 28/08/98 , DRT 99/10 du 13/08/99
Germany	4th adaptation of the German Gefalstoffverordnung 1999
Great Britain	The chemical (hazard information and packaging for supply) (amendament) Regulations 1998 6/1/99
Greece	Not avaible
Netherlands	Wijzigingsbeslunt (Stb. 2172001)
Ireland	Statuation Instruments S.I. n 513 of 1998 European Communities
Italy	Decreto Ministeriale del 01/09/1998 , Gazzetta Ufficiale serie generale del 19/11/1998 1271 pag. 16 , decreto del 2/2/2000, circolare n4 del 15/03/1999
Luxembourg	Reglemen Grand Ducal du 31/10/1998

Portugal	Not available
Spain	Buletin Oficial del Estada 11/09/1998
Sweden	KIFS 1998:7

OSHA (Occupational Safety and Healt Administration) and NPT (U.S. National Toxicology Program) , official american organisations, have not listed glass yarns for textile as hazardous substance and the ACGIH (American Conference of Convenmental Industrial Hygienists) has classified them as A4 (not classified as carcinogenic for Man). They are not concerned by the Canadian Controlled Products regulations (CPR)

No new studies have led the organisations to revise their position on this subject .

Most laws and studies concerning respirable fibres do not apply to continous filaments glass yarns for textiles.

For example,

- The concentration of respirable fibres on the atmosphere (1,5 fibre cm3) fixed by French circular 95/04 dated 12/01/1995 (in addition to the dated 19/07/1982) from the French ministry for Work does not apply to glass fiber.
- Cancer risk index KI defined in German TRGS 905 does not apply to non-respirable continousfilament glass fibres.

Epidomiological and laboratory studies

No epidemiological and laboratory studies carried out duo untill today in a scientifically significant way any risk of cancer related to reinforcement fibres.

Several recent epidemiological studies (Chiare 1997 and Boffet 1997) confirmed the absence of excessive mortality due the concein people working in glass fibre manufacturing facilities vs. Control populations.

A recent study published in 2000 by Institute of occupational Medicine in Edinburgh addressed the inhalation of E-Glass microfibres by animals at concentration al least 1000 times higher than encountered when using glass fibres demonstrated carcinogenic risk. These microfibres are not part of the product range produced and sold by JSC "Valmiera Glass Fibre" and these findings are not likely to charge current opinions for the glass yarns described in this MSDS.

Handling glass fibres

When glass fibres are chopped, milled or danded they are cut perpendicular to strand lenght and no smaller E-Glass filament are generated. Conversely, significant quantities of dust can be removed whic is why it is recommended to use personal protection.
In dusts, also present in several products (chopped, strands, milled fibres), some studies have show very low quantities of particles with fibrous aspects (l/d>3), short (but nevertheless longer that 5 um) and with apparent diameter of under 3 um.
Quantities measured in work atmospheres are 50 to 100 times lower than all the limits fixed for respirable fibres, but when there is a high risk of dust generation it is strongly recommended to

wear a mask.

MUTAGENIC RISKS, TERATOGENIC RISKS, RISKS FOR REPRODUCTION: no know risks.

12- ECOTOXICOLOGICAL INFORMATION

E-glass is not biodegradable.
Sizes or binder are organic materials which are slowly and only partially dissolved by natural agents like water. As the concentration of the ingredients in the mixture and ingredient solubility are low and as they have not been classified as hazardous, glass yarns 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 amendament the "Clean Air Act" by the American Environmental Protection Agency (EPA).

Glass fibre size do **not contain PCB (Polychlorinated biphenyal)** or/and other polyaromatic products of the same type.

13- WASTE DISPOSAL

Depending on local regulations, glass fibre wastes can aither be considered as **inert waste** or as **common industrial waste** . As such they can be bury in landfills approved for these categories. Glass fibres waste cannot be destroyed by incinertion and can damag incinerators by formation of a vitrified mass.

Clean cardboard, wood, plastic (film or bags) and packaging can be eliminated in units specific to thes products.

14- TRANSPORT

International regulations :
Glass yarns are not considered hazardous goods by transport regulations. They are part of one of of the hazardous classes listed in international regulations.

They do not need special regulations For international transport in Europe by land (new restructured version odf ADR applicable as from july 1 2001, RIS, ADNR), sea (OMS) or air (OAC/IASA), or to the USA (DOT) or Canada (TDG) they are not shown as risk category nor qualified by a UNO number or a packing group.

15- REGULATORY INFORMATION

Continuos filaments glass yarns do not require hazardous product labelling
General Hygiene work safety regulations apply (see chapter 8)
Continuos filament glass yarns are articles and for this reason they have not to be listed in musr of the countries, for instance in the list EINECS in Europem ELINCS, TSCa in USA, DSL and NDSL in Canada.

16-OTHER INFORMATION

FOOL ENVIROMENTS: Appendix III of European Directive 90/128/EEC dated 07/11/2002 define the compatibility of pure glass fibres with food enviroment as additives to plastic. However the fact that sizing products should be shown on the current list of European Commission approved products, the BGVV LII list in Germany of the food and Drugs Administration lists (FDA) in the USA means that a case by case study must be made if a JSC "Valmiera Glass Fibre" range product is used to reinforce a plastic material in contact with food.
Consult the JSC " Valmeira Glass Fibre" service for further information.

CONTACT WITH POTABLE WATER: as it may differ form countries to countries, every question must be examinated individually with the relevant JSC " Valmiera Glass Fiber" service.

This material Safety data sheet is an addition on the Products specification file and other technical document issued by JSC "Valmiera Glass Fibre" but not replace them.

Information provided in the followig document is based on current available information. It is given in good faith. Furthermore, description of possible hazards and risks is provided for customer's attention when the product is used for any purpose other than the one for whic it was designed.

This MSDS does not exempt users from knowing and applyng the rules regulating their activities. Users assume full responsability for applying the appropiate safety measures when the product is used.

For all additional informatipon, users should contact their local JSC "Valmiera Glass Fibre" agent or the maine supplier office at JSC "Valmiera Glass Fibre" .