

MATERIAL SAFETY DATA SHEET

Isola Fabrics s.r.l.

Effective date : December 1, 2010

Superseded: July 18th, 2007

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1 PRODUCT AND COMPANY IDENTIFICATION

Product Commercial Name:

“GLASS FABRIC”

This Material Safety Data Sheet is valid for all silanized styles, that is with all **FINISH** in **Z**, **GI** and **9** series (e.g. Z6040, GI6224/1, 9640RW, 9641RW, etc)

Main product application:

Laminates manufacturing in electronic industry

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2 HAZARD IDENTIFICATION

Glass filaments are not “respirable” (i.e. can not penetrate the far lung extremities) as they are over 3µm in diameter and have been shown not to cause lung cancer.

Hazards identified are:

- Temporary irritation (itching) of a purely mechanical nature, affecting skin, eyes and upper respiratory tracts.
- Allergies in extremely rare instances
- The formation of non-fibrous dust particles (broken pieces in different size) which can be inhaled (i.e. able to be breathed in the upper respiratory tract) or fibrous particles which are not respirable, in particular processes with high risk of dust generation

Toxicological aspects are developed in paragraph 11.

3 COMPOSITION – INFORMATION CONSTITUENT PARTS

Fiber glass fabric, produced with continuous E-glass yarns and coated with an organo-silane surface finish.

E-glass (CAS 65997-17-3) is a glass with a very low alkaline content. Its composition (expressed in oxides) is within the following percentages:

SiO ₂	56-62%
Alkaline Oxides (Na ₂ O, K ₂ O)	<2%
Alkaline earth oxides (CaO, MgO)	16-30%
B ₂ O ₃	0-10%
Al ₂ O ₃	11-16%
TiO ₂	0-3%
Fe ₂ O ₃	0-1%
HF	0-2%

In C&C versions, the selvages of fabric are impregnated for a few millimeters width with a thermally bonded resin, composed of a basically non-reactive high molecular weight polymer, in a quantity far less than 1%, furthermore not listed as dangerous product.

Hazardous components:	Mass %:
Aminosilanes or alcoxysilanes	0.05-0.3%

These substances used for fabric surface finishing are in effect included as irritant and harmful (R22, R36, R41, R43) in lists of products requiring 'hazardous product' labelling in a pure state, but the manufacturer considers this risk as negligible as the concentration is extremely low and they have reacted with the glass fabric surface.

4 FIRST AID MEASURES

<u>Cause</u>	<u>Effect</u>	<u>First Aid</u>
Inhalation	Temporary irritation	Move person to fresh air
Skin Contact	Temporary irritation	Wash with mild soap and running water
Eye Contact	Temporary mechanical irritation	Flush eyes with running water
Ingestion	Observe individual for several days to insure that intestinal blockage does not occur.	Seek medical attention.

5 FIRE FIGHTING MEASURES

Product is not flammable.

Glass fibres are incombustible and don't support combustion.

Only surface finish and the selvages resin in C&C versions are combustible and account for less than 1% of the final weight of the product.

Suitable extinguishing media: Water, foam, CO₂ or dry chemical

Unsuitable extinguishing media: Unknown

Combustion gases are basically carbon dioxide and water vapour. There may be small quantities of carbon monoxide and other substances released from incomplete combustion that make it recommended to use protective devices in the event of a major fire.

6 ACCIDENTAL RELEASE MEASURES

No special measures required. See also par.13 about disposal considerations.

7 HANDLING AND STORAGE

It is preferable to avoid prolonged contact with the skin.

No special storage procedures are required for this material except to store at room temperature for the best conditions of usage.

8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

Use every appropriate means (suction, modification of manufacturing methods to reduce fibre dust and , etc...) to try to reduce the concentration of fibres and dust likely to cause irritation.

In compliance with the legal requirements, test air quality of ambient atmospheres in which glass fabric is used regularly to determine levels of non respirable and respirable filaments and dusts.

Threshold Limit Values for occupational exposure

The table below shows the limits applicable in different countries for Time-Weighted Average (TWA) exposure to respirable and non-respirable glass dusts and fibres.

Country	Dusts	TWA (Time-Weighted Average concentration) (mg/cu.m. for 8 hours work)	Fibres	TWA (Time-Weighted Average concentration) (Fibres/ml for 8 hours work)
Austria	fine	6	total	0.5
Belgium	total	10	No regulation	
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
Ireland	respirable	5	respirable	2
Italy	respirable total	3 10	total	1
Norway	respirable total	5 10	total	1
Portugal	total	4	total	1
Spain	total	10	total	1
Sweden	respirable total	5 10	total	1
Switzerland	total	6	respirable	0.5
The Netherlands	respirable total	2 10	total	1
USA	respirable total	5 (OSHA)* 15 (OSHA)*	total	1 (ACGIH)**

* OSHA = Occupational Safety and Health Administration

** ACGIH = American Conference of Governmental Industrial Hygienists

Personal protection equipment

Handle in accordance with good industrial hygiene and safety practices.

Respiratory protection and eye protection: during occasional operations releasing high quantities of dust, not containable with collective protection equipments, wear FP2 EEC approved dust masks.

Hand protection: people with delicate skin should wear gloves.

Body protection: wear long-sleeved garments and long pants to prevent irritation.

9 PHYSICAL AND CHEMICAL PROPERTIES

Physical state and form	Solid, fabric in rolls
Colour	White
Odour	None
pH	not applicable
Specific Gravity (water =1)	Depending on fabric style (glass=2,60)
Solubility	Extremely low. In C&C versions only, resin on selvages (accounting for less than 1% of the final weight of the product) can be dissolved in water.
Softening point	Approximately 850°C for E-glass
Melting point	Approximately 1200°C
Decomposition temperature:	Glass fibres are incombustible. Other components (<1%) start to decompose above 200°C
Explosive properties:	None
Flash point	None

10 CHEMICAL STABILITY AND REACTIVITY INFORMATION

Stability	Stable in normal use and storage conditions, and in normally foreseeable usage conditions.
Incompatible materials and conditions to avoid	None known
Hazardous decomposition product	small quantities of carbon monoxide or other products may be released from the incomplete combustion of surface finish or selvages resin (only in C&C versions). This is why it is recommended to use high-performance gas masks, when fighting intense fires.

11 TOXICOLOGICAL INFORMATION

Acute toxicity Possible temporary irritations of a purely mechanical nature due to fibers, that can affect the skin, eyes and upper respiratory tracts. It disappears when exposure is ended.
 See also par.8 for exposure control.

Long term toxicity There are no known health effects associated with chronic exposure to this product apart from extremely rare allergies to continuous fiber glass fabrics.

Carcinogenic risks The table below indicates whether or not each agency has listed continuous glass fibre as a carcinogen:

<u>Ingredient</u>	<u>ACGIH</u>	<u>IARC</u>	<u>NTP</u>	<u>OSHA</u>
Fiberglass Continuous Filament	No	No	No	No

Fiberglass Continuous Filament : The International Agency for Research on Cancer (IARC) in June,1987, categorized fiberglass continuous filament as not classifiable with respect to human carcinogenicity (Group 3). The evidence from human as well as animal studies was evaluated by IARC as insufficient to classify fiberglass continuous filament as a possible, probable, or confirmed cancer causing material.

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

The essential point to consider concerning glass fibres is that continuous glass filaments are not “respirable” (i.e. do not penetrate the lung alveoli) as they are over 3µm in diameter. Even after handling and processing, quantities of respirable particles measured in work atmospheres are 50 to 100 times lower than all the limits fixed for respirable fibres.

12 ECOLOGICAL INFORMATION

E-glass is not biodegradable.

As the concentration of the other ingredients in the products and ingredient solubility are low, glass fabrics are considered to have no adverse eco-toxicological effects.

13 DISPOSAL CONSIDERATIONS

Depending on local regulations, glass fabric wastes can either be considered as inert waste or as common industrial waste.

EWC - 101103

Glass fabric waste cannot be destroyed by incineration.

14 TRANSPORT INFORMATION

Glass fabrics are not considered as hazardous goods by transport regulations. They are not part of any of the hazardous classes listed in international regulations. They do not need special procedures under any regulations.

Transport at room temperature in the original containers.

15 REGULATORY INFORMATION**REACH Regulation Nr 1907/2006**

Continuous filament glass products are not classified as a “Dangerous Substance” or a “Dangerous Preparations”, is defined as Article according to REACH article 3(3)-definition. No registration requirements are applicable to Article. (article 6(1) of the regulation). Do not contain >0,1% weight percentage of at least one substance of very high concern (article 33 of the regulation).

Classification and Labeling (EEC) – This product is not required to be labeled under Council Directives 88/379EEC, 67/548/EEC, Annex I, and 97/69/EC.

CERTIFICATION STATEMENT for:

Directive 2002/95/EEC for RoHS and Directive 2002/95/EC.

Based on product analyses, fiberglass yarns fabrics are compliant with the limits of both of these Directives

16 OTHER INFORMATION

Updated information

1-Finish series of products for which this MSDS is valid

16-References to the updated information in this MSDS

15- Added classification and labelling & Certification statement

All information is based on result gained from experience and tests and is believed to be accurate but is given without acceptance of liability for loss or damage attributable to reliance thereon as conditions of use lie outside our control.

Users should always carry out sufficient tests to establish the suitability of any products for their intended applications. All goods are supplied subject to Isola Fabrics s.r.l.'s General Conditions of sale.