

**MATERIAL SAFETY DATA SHEET**

Based on U.S. Department of Labor Occupational Safety and Health Administration Form OMB NO. 1218-0072  
Be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910.1200.  
This Standard must be consulted for specific requirements.

Date: March 05, 2008  
NUMBER: RJS003302MSDSUS

**SECTION I - PRODUCT IDENTIFICATION**

**IDENTITY (As Used on Label and List)**  
Product Name: Glass Fiber

**Type:**

1. ROVING: pulltrusion roving T911 / roving for geotextiles T931 / winding roving T910/T940/T980 / roving for weaving T921 / spray-up roving T132 series / SMC roving T949 series / panel roving T982 / roving for mat T984 / roving for pipeline T982A / roving for thermoplastics T635B/T635C / long filament for thermoplastics T638
  2. MAT: chopped strand mat EMC series/EMCL series / continuous filament (needle) mat NM series / tissue mat TS-FS series / FRP surface mat AEMS series / knitted mat EMK series / multi-axial fabric ECW series
  3. woven roving EWR series
  4. chopped strand: chopped strand for PA T435D/T435W / chopped strand for PP T538 / chopped strand for PBT T536/T436 / chopped strand for BMC T437D/T437E
  5. YARN: G75/G150/G37/E225
- Trade Mark: CTG

**Manufacturer's Name:**

Taishan Fiberglass Inc.  
Address (Number, Street, City, State, and ZIP Code):  
Economic Development Zone, Taian, Shandong, 271000, China

Emergency Telephone Number: +86-538-6615938

Fax Number: +86-538-6615939

Contact Person: Mr. Guo Zhang

**SECTION II - HAZARD INGREDIENTS IDENTIFY INFORMATION**

Chemical Name	Cas No.	Percent
Non Alkali Fiber Glass	65897-17-3	>91%
Organic Matter	N/A	<9%

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**SECTION III: PHYSICAL/CHEMICAL CHARACTERISTICS**

**Appearance/Physical State:** Solid  
**Color:** Yellow-white / white  
**Odor:** Odorless  
**Solubility in Water:** Insoluble in water  
**pH:** Not applicable

**SECTION IV: FIRE AND EXPLOSION HAZARD DATA**

**Flammable Properties:**  
**Flash point:** Not applicable  
**Method used:** Not applicable

**Flammability Limits:**  
**LFL:** Not applicable  
**UFL:** Not applicable

**Hazardous Combustion Products:**  
Silica, carbon oxides and traces of incompletely burned carbon compounds.

**Other Flammability Information:**  
Dense black smoke emitted when burned without sufficient oxygen. Mechanical handling can cause formation of dusts. To reduce the potential for dust explosion, do not permit dust to accumulate.

**Extinguishing Media:**  
Carbon dioxide, foam, chemical powder or fine water spray.

**Fire Fighting Instructions:**  
Keep unnecessary people away, isolate hazard area and deny unnecessary entry. Dense smoke emitted when burned without sufficient oxygen. Highly toxic fumes may release in fire situations.

**Protective Equipment for Fire Fighters:**  
Wear positive-pressure self-contained breathing apparatus and full protective equipment.

**SECTION V: REACTIVITY DATA**

**Chemical Stability:**  
Stable in normal use and storage conditions, and in normally foreseeable usage conditions.

**Hazardous Reactions:**  
Glass reinforcement strands are stable and never generate hazardous chemical reaction.



**Hazardous Decomposition Products:**

In continuous combustion conditions, in addition to water vapour and CO<sub>2</sub>, small quantities of CO and NO<sub>x</sub> may be released by the combustion of the size and/or the binder.

**Polymerization:**

Polymerization will not occur.

**SECTION VI - HEALTH HAZARD DATA**

**Emergency Overview:**

It's important to remember that the fiber are not "resorbable fiber" (i.e. they do not penetrate the lowers lungs)

**Eye:** Solid or dust may cause irritation or corneal injury due to mechanical action.

**Skin:** Essentially nonirritating to skin. Mechanical injury only. Molten material may burn skin. Skin absorption is unlikely due to physical properties.

**Ingestion:** Single dose oral LD<sub>50</sub> has not been determined. Single dose oral toxicity is believed to be very low. Be careful not to swallow this product.

**Inhalation:** Dust may cause irritation to upper respiratory tract. At room temperature, exposures to vapors are unlikely due to physical properties; normal processing temperatures may generate vapors which may cause irritation if ventilation is inadequate.

**Carcinogenicity:**

This product is not identified as a carcinogen or probable carcinogen by IARC, NTP or OSHA.

**Reproductive Effects:**

No information available for the product.

**Teratogenicity:**

No information available for the product.

**Neurotoxicity:**

No information available for the product.

**Mutagenicity:**

No information available for the product.

**Sensitization:**

Rare possibilities of allergies.

**Emergency and First Aid Procedures:**

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

**Skin Contact:** Flush skin with water after contact. Wash contaminated clothing before reuse. Do not rub excessively.

**Eye Contact:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

**Ingestion:** Get medical attention!

**Allergy:** Remove from scene of exposure.



## SECTION VI - PRECAUTIONS FOR SAFE HANDLING AND USE

### Steps to be Taken in Case Material is Released or Spilled:

**Personal Protection:** See the section VII.

### Protect the Environment:

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

### Cleanup:

Spills should be minimized and they should be cleaned up when they happen.

### Waste Disposal Method:

Recycling or reclamation should be encouraged where possible. Information in this MSDS is provided only as a guide. Landfill or incinerate in compliance with federal, state and local regulations.

## SECTION VIII - CONTROL MEASURES

### Respiratory Protection (Specify Type): N/A

Ventilation:

Local Exhaust: Yes

Special Other: No

Mechanical (General): No

**Hygiene Measures:** Exercise good industrial hygiene practice. Wash after handling, especially before eating, drinking or smoking.

We recommend the use of barrier cream, gloves, long sleeves, masks and goggles by all people with delicate skin.

## SECTION IX - TRANSPORT INFORMATION

### US Department of Transportation Classification:

The product is not a DOT controlled material (United States).

### International Air Transportation Association Classification:

This product is not classified as a hazardous material for transport under IATA regulations.

### International Maritime Organization - IMDG:

This product is not classified as a hazardous material for transport under IMDG regulations.

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**UN, IMO, ADR/RID, ICAO Code:**

This product is not classified as a hazardous material for conveyance under these codes.

**Special shipping information:** NONE

**SECTION X: OTHER INFORMATION**

This data is offered in good faith as typical values and not as a product specification. The information in this data sheet was compiled from information supplied by the vendors of the components of this compound. No warranty, either expressed or implied is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

**NOTE**

This Material Safety Data Sheet (MSDS) is for guidance and is based upon information and tests believed to be reliable. RJS Standard Testing & Certification Center makes no guarantee of the accuracy or completeness of the data and shall not be liable for any damages relating thereto. The data is offered solely for your consideration, investigation, and verification. RJS Standard Testing & Certification Center assumes no legal responsibility for use or reliance upon this data.

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# TAISHAN FIBERGLASS INC.

Economic Development Zone, Taian, Shandong, P.R. China

## CERTIFICATE OF ANALYSIS

Product Name	: Gun Roving	Test By	: Taishan Fiberglass Inc
Manufacture Number	: ERS240-T132BS	Sampling From	: Roving Forming Dept.
Product Code	: G1-240-P1A	Product Grade	: "A" Grade
Production Date	: April.25 <sup>th</sup> -28 <sup>th</sup> , 2008	Lot Capacity	: 18240kgs/40220lbs
Lot Number	:	TTL QTY	: 960Rolls
Customer's PO#	: 5433	Ref#	:

### General Data:

Glass Type	: E - Glass	Filament Diameter	: 13 $\mu$ m
Density	: 2.5 - 2.6 g/cm <sup>3</sup>	Sizing	: Silane
Softening Point	: 840° C	Color	: White

### Properties For Control Report:

	Accepted Standards		Test Results	
	Standard No.	Standard Value	Average Value	Result
Moisture content (%)	ISO3344-1997	$\leq 0.20$	0.06	PASS
Loss on ignition (%)	ISO1887-1995	1.25 $\pm$ 0.20	1.31	PASS
Linear density (Tex)	ISO1889-1997	2400 $\pm$ 192	2411	PASS
Tex Standard Deviation (%)	ISO1889-1997	$\leq 6$	2.11	PASS
Stiffness (mm)	ISO3375-1987	80-200	141	PASS

### Test Conditions:

Room Temperature : 23° C  
Humidity : 60 %

### Test Conclusions:

- Passed

Inspect By: Xu Taishi

Approval By: Cao Jubin

Date: April 29<sup>th</sup>, 2008



## E Glass Spray up Roving

### Introduction

E-glass spray up roving is a multi-end product and uses a special sizing. These products are suitable for FRP spray up forming process. The typical products are boats, marine accessories, automotive accessories, bathtubs, bathroom appliances, storage tanks, etc. The roll should be pulled from the "inside" in most cases, but can be pulled from the "outside" when a hard core is used.

### Product Characteristics

1. Tex is stable with uniform strand splitting.
2. Medium stiffness, good choppability and good chopped strand dispersion.
3. Low Fuzz.
4. Good anti-static properties.
5. Quick resin wet out and easy air release

### Technical Specifications

R <sub>2</sub> O Content	< 0.8%
Coupling Agent	Silane
Compatible Resin	Polyester
Filament Diameter	13 μm
Moisture Content	≤ 0.2%
LOI	1.3%±0.25%

### Implementation Standards

This product meets the requirements of Q/TTG003-1998 codes. The product have obtained the quality certification of Norway Boat code.

### Product Specifications

Product Code	Tex	Roll Weight (kg)
ERS240-T132	2400	19
ERS310-T132	3100	19

- Special products are available according to customer's requirements.

### Packaging

Roll diameter is 26 cm. Each roll weight is 19kg. Rolls are wrapped in plastic bags, then packed in individual cardboard boxes or bulk packed. Each

pallet of 110 cm by 110 cm can contain either 48 or 64 rolls. The weight of the 48-roll pallet is 912 kg, and the 64 pallet is 1216 kg.





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11-30511  
0277880-002  
11-22-94

**Section 1. Product and Company Information**

**Product Name(s):** Milled Fiber, Chopped Strand, Roving, Optical Fiber Yam, S2 Glass® Fibers, Waste Glass, Wet Chop, and Mat Products; plus: Wax Bonded Strand, Carpet Backing, Cable Reinforcement, Landglas® Roving, Type-30® Roving, Cardable Fiber, Hollex™ Fibers, RoadGlas® Mat, Bi-Ply® Mat, Flakeglas® Milled Fiber, Lot Glass, Cordags, Rubber Reinforcing Cords, Yam.

**Manufacturer:** Owens-Corning Fiberglas Corporation, World Headquarters, Fiberglas Tower - T/11, Attn. Product Stewardship, Toledo, OH, 43659, Telephone: 1-419-248-8234 (8am-5pm ET weekdays).

**Emergency Contacts:**

Emergencies ONLY (after 5pm ET and weekends): 1-419-248-5330,  
CHEMTREC (24 hours everyday): 1-800-424-9300.

SEP 27 1996

**Health and Technical Contacts:**

Health Issues Information (8am-5pm ET): 1-419-248-8234,  
Technical Product Information (8am-5pm ET): 1-419-248-8335.

**Section 2. Composition and Ingredient Information**

<u>Common Name</u>	<u>Chemical Name</u>	<u>CAS No.</u>	<u>Wt. %</u>
<b>Non-Hazardous Ingredients</b>			
Fiberglass Continuous Filament (non respirable)	Fibrous Glass	65997-17-3	98-100
Size	Size	none	0-2

**Note:** See Section 8 of MSDS for exposure limit data for these ingredients.



**Section 3: Hazards Identification**

Appearance and Odor: White/off-white colored solid with no odor.

\*\*\*\*\*  
**Emergency Overview**

No unusual conditions are expected from this product.

\*\*\*\*\*  
Primary Route(s) of Exposure: Inhalation, skin, eye

Potential Health Effects:

**ACUTE (short term):** Fiber glass continuous filament is a mechanical irritant. Inhalation of dusts and fibers may cause temporary irritation of the mouth, nose and throat. Skin contact with dust and fibers may produce itching and temporary irritation. Eye contact with dust and fibers may produce temporary mechanical irritation. Ingestion may produce temporary mechanical irritation of the digestive tract. See Section 8 for exposure controls.

**CHRONIC (long term):** There are no known health effects associated with chronic exposure to this product. See Section 11 of MSDS for an explanation of the toxicological data.

Medical Conditions Aggravated by Exposure: Chronic respiratory or skin conditions that are aggravated by mechanical irritants may be at increased risk for worsening from exposure to this product.



**Section 4: First Aid Measures**

**Inhalation:** Move person to fresh air. Seek medical attention if irritation persists.

**Eye Contact:** Flush eyes with running water for at least 15 minutes. Seek medical attention if irritation persists.

**Skin Contact:** Wash with mild soap and running water. Use a washcloth to help remove fibers. To avoid further irritation, do not rub or scratch irritated areas. Rubbing or scratching may force fibers into skin. Seek medical attention if irritation persists.

**Ingestion:** Ingestion of this material is unlikely. If it does occur, observe individual for several days to insure that intestinal blockage does not occur.

**Section 5: Fire Fighting Measures**

**Flash Point and Method:** None

**Flammability Limits (%):** None.

**Auto Ignition Temperature:** Not Applicable.

**Extinguishing Media:** Water, foam, CO<sub>2</sub> or dry chemical.

**Unusual Fire and Explosion Hazards:** None known.

**Fire Fighting Instructions:** Use self contained breathing apparatus (SCBA) in a sustained fire.

**Hazardous Combustion Products:** Primary combustion products are carbon monoxide, carbon dioxide, and water. Other undetermined compounds could be released in small quantities.





**Section 6: Accidental Release Measures**

**Land Spill:** Scoop up material and put into suitable container for disposal as a non-hazardous waste.

**Water Spill:** This material will sink and disperse along the bottom of waterways and ponds. It can not easily be removed after it is waterborne; however, the material is non-hazardous in water.

**Air Release:** This material will settle out of the air. If concentrated on land it can then be scooped up for disposal as a non-hazardous waste.

**Section 7: Handling and Storage**

**Storage Temperature:** Not applicable.

**Storage Pressure:** Not applicable.

**General:** No special storage or handling procedures are required for this material.

**Section 8: Exposure Controls and Personal Protection**

<u>Ingredient</u>	<u>OSHA PEL</u> 8-hr TWA	<u>ACGIH TLV</u> 8-hr TWA
Fiberglass Continuous Filament	5 mg/m <sup>3</sup> (respirable dust) 15 mg/m <sup>3</sup> (total dust)	10 mg/m <sup>3</sup>
Size	none	none



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**Ventilation:** General dilution ventilation and/or local exhaust ventilation should be provided as necessary to maintain exposures below regulatory limits.

### **Personal Protection:**

**Respiratory Protection:** A properly fitted NIOSH/MSHA approved disposable dust respirator such as the 3M model 8710 or model 9900 (in high humidity environments) or equivalent should be used when: high dust levels are encountered; the level of glass fibers in the air exceeds the OSHA permissible limits; or if irritation occurs. Use respiratory protection in accordance with your company's respiratory protection program, local regulations and OSHA regulations under 29 CFR 1910.134.

**Skin Protection:** Loose fitting long sleeved shirt that covers to the base of the neck, long pants and gloves. Skin irritation is known to occur chiefly at pressure points such as around neck, wrist, waist and between fingers.

**Eye Protection:** Safety glasses, goggles or face shield.

**Work/Hygienic Practices:** Handle in accordance with good industrial hygiene and safety practices. These practices include: avoiding unnecessary exposures to dusts and fibers by using good local exhaust ventilation; removal of the material from the skin and eyes after exposure; removal of the material from clothing (Use vacuum equipment to remove fibers and dusts from clothing. Compressed air should never be used. Always wash contaminated work clothes separately from other laundry and wipe out washer/sink to prevent loose glass fibers from getting on other articles); keep the work area clean of dusts and fibers generated during fabrication (Use vacuum equipment to clean up dusts and fibers. Avoid sweeping or using compressed air as these techniques re-suspend dusts and fibers into the air.) and; have access to safety showers and eye wash stations.



**Section 9: Physical and Chemical Properties**

Vapor Pressure (mm Hg @ 20°C): Not Applicable

Vapor Density (Air = 1): Not Applicable

Specific Gravity (water = 1): 2.60

Boiling Point: Not Applicable

Solubility in Water: Insoluble

Viscosity: Not Applicable

pH: Not Applicable

Physical State: Solid

Appearance: Solid

Freezing Point: Not Applicable

Odor Type: None

Evaporation Rate (n-Butyl Acetate = 1): Not Applicable

**Section 10: Stability and Reactivity**

General: Stable

Incompatible Materials and Conditions to Avoid: None

Hazardous Decomposition Products: Sizings or binders may decompose in a fire.  
See Section 5 of MSDS for combustion products statement.

Hazardous Polymerization: Will not occur.





**Section 11. Toxicological Information**

**CARCINOGENICITY:** The table below indicates whether or not each agency has listed each ingredients 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
Size	No	No	No	No
	<u>LD<sub>50</sub> Oral</u> (g/kg)	<u>LD<sub>50</sub> Dermal</u> (g/kg)	<u>LC<sub>50</sub> Inhalation</u> (ppm, 8 hrs.)	
Fiberglass Continuous Filament	Not Available	Not Available	Not Available	
Size	Not Available	Not Available	Not Available	

**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.

**Section 12. Ecological Information**

This material is not expected to cause harm to animals, plants or fish.



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**Section 13 Disposal Considerations**

RCRA Hazard Class: Non-hazardous.

**Section 14 Transport Information**

DOT Shipping Names: Not regulated.

Hazard Class or Division: None

Secondary: None

Identification No.: None

Packing Group: None

Label(s) required (if not excepted): None

Special Provisions: None

Packaging Exceptions: None

Non-bulk Packaging: None

Bulk packaging: None

EPA Hazardous Substances: None

RQ: None

Quantity Limitations: Passenger Aircraft: None  
Cargo Aircraft: None

Marine Pollutants: None

Freight Description: None

Hazardous Material Shipping Description: None



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**Transportation of Dangerous Goods - Canada**

Proper Shipping Name: Not Regulated

TGD Hazard Classification: (Primary): None (Secondary): None

IMO Classification: None

ICAO/IATA Classification: None

Product Identification Number: None

Packing Group: None

Control Temperature: None

Emergency Temperature: None

Schedule XII Quantity Restriction: None

Reportable Quantity for US Shipments: None

IATA Packing Instructions: Passenger/Cargo: None  
Cargo Only: None  
Limited Quantity: None

Maximum Net Quantity per Package: Passenger/Cargo: None  
Cargo Only: None  
Limited Quantity: None

Special Provisions: None



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**Section 15. Regulatory Information**

**TSCA Status:** Each ingredient is on the Inventory.

**SARA Title III:**      **Hazard Categories:**  
Acute Health:      Yes  
Chronic Health:    No  
Fire Hazard:        No  
Pressure Hazard:   No  
Reactivity Hazard: No

**Reportable Ingredients:**  
Sec. 302/304:      None  
Sec. 313:            None

**California Proposition 65:** No ingredient is listed.

**WHMIS (Canada): Status:** Not Controlled  
**WHMIS Classification(s):** None

**Section 16. Other Information**

**HMIS and NFPA Hazard Rating:**

<u>Category</u>	<u>HMIS</u>	<u>NFPA</u>
Acute Health	1	1
Flammability	0	0
Reactivity	0	0

**NFPA Unusual Hazards:** None.

**HMIS Personal Protection:** To be supplied by user depending upon use.

**Revision Summary:** This MSDS replaces the May 10, 1991 MSDS. This is a new ANSI format with new information in many sections. Read this information carefully.