泰山玻璃纤维股份有限公司

TAISHAN FIBERGLASS INC.

SAFETY DATA SHEET

Section 1.1: Identification of Substance

EDR120/240/480	Filament winding or Pultrusion roving or Epoxy roving
ERS 240/310	Spray up roving /Panel roving /SMC(4400/4800 tex)– wound onto a cylindrical forming package
EMCL225/300/ 450/600/900	Chopped strand mat emulsion bond-chopped and formed to mat
EMC300/450/600	Chopped strand mat powder bond– chopped and formed to mat
EWR300/400/500/570/800	Woven roving – woven to heavy fabric
EC10/11/12/13/14 /15	Chopped strands for PA ,BMC,PBT,PP ,ABS,PC etc.
EMK	Complex mat, Combo mat,

Chemical Name and Synonyms:	Continuous filament fiberglass (fibrous glass; glass fiber; Synthetic vitreous fibers)
Chemical Formula:	E-glass
Color:	Yellow-white to white
Odor:	No odor

Note: These products are not glass wool products as used for home insulation materials

Section 1.2: Company Address

Taishan Fiberglass Inc.
Economic Development Zone,
Taian, Shandon, PR China 271000

Section 2: Composition and Ingredients

Ingredients	**% - Weight**	**Exposure Control Limit**
Fibrous Glass [E-type, continuous filament] Composition principally of Oxides of silicon, Aluminum and calcium, fused in an amorphous Vitreous state.	84.5 min.	5 mg/m3 ACGLH-TLV Synthetic vitreous fiber inhalable dust
		15 mg/m3 OSHA-PEL
total		nuisance dust

Section 2: Composition and Ingredients (continued)

Product name	% Fibrous Glass	Surface Sizing	Surface Binder	Water
EWR300/400/500/570/800 Woven roving	99% min	1% max		
EMC-300/450/600 Chopped strand mat	93% min	1% max	6% max (polyester)	

Section 3: Hazards Identification

Emergency Overview: Stable and non-flammable under normal industrial conditions

Primary Route(s) of Entry: Inhalation

Symptoms of Overexposure: Rash, itching, conjunctivitis, coughing, sneezing

Immediate (Acute) Health Hazards: Mechanical skin, eye, nose and throat irritant. Typically, skin irritation experienced by most persons newly exposed to fiberglass.

Long Term (Chronic) Health Hazards: None currently known.

Section 4: First Aid Measure

Medical Conditions Aggravated by Exposure: None known

Eye Contact: Flush eyes with water for at least 15 minutes – seek medical attention

Skin Contact: Rinse contact areas with room temperature to cool water, then wash gently with Mild soap. If glass fiber becomes embedded, seek medical attention:

Inhalation: If irritation persists, seek medical attention. **IF SWALLOWED**: Seek medical attention.

Section 5: Fire-fighting Measures

Flash Point, Flammable Limits, Extinguishing Media:

Water is the preferred extinguishing media. Non-burning, Exposure to ignition source will burn-off surface binder leaving a bare glass residual similar to the initial product.

Unusual Fire and Explosion Hazards: Not applicable

Fire Fighting Procedures:

In any sustained fire, wear self-contained breathing apparatus (SCBA). Every company should have written, MFPA & OSHA compliant, fire/evacuation policies including training for all facility employees.

Special Exposure Hazards from Fire:

Hazardous decomposition products of combustion from sizing and binders may be released in a sustained fire. The larger part of the product is non-flammable E-glass. In a sustained fire, sizing and binders may decompose, releasing combustion products including carbon dioxide, carbon monoxide and water. Additionally, there are many chemicals that can evolve during any partial decomposition of chemical products. The amounts or identities cannot be predicted and can differ in each situation.

Section 6: Accidental Release Measure

Steps to be taken upon Release of Spill:

Use vacuuming or wet sweeping methods instead of dry sweeping.

Waste Disposal Method:

Dispose in accordance with governmental regulations. Keep debris minimal by locating waste disposal equipment near work areas.

Section 7: Handling and Storage

Precautions:

Keep airborne dust concentrations below regulated levels. For optimum performance, store at 25 degree Celsius or less and relative humidity less than 65%. Not an electrical conductor. Can accumulate static charge.

Section 8: Exposure Controls Personal Protection

Respiratory Protection:

Some application of these products may not required respiratory protection for fiberglass. However, if airborne fibrous glass concentrations exceed regulatory limits, respiratory protection approved for nuisance dusts is recommended.

Ventilation:

Local exhaust ventilation (if needed) to minimize airborne dust levels.

Skin/Eye Protection:

Good personal hygiene and the use of barrier creams, caps, protective gloves, cotton coveralls, or long sleeved loose fitting clothing will maximize comfort. Vacuum equipment may be used to remove fibers from clothes. Work clothing should be laundered separately from other clothing. Wear appropriate eye protection, which may

be safety glasses/side shields if there is a chance of airborne glass fibers contacting eyes.

Exposure Limits:

The American Conference of Governmental Hygienist [ACGIH] has adopted a Threshold Limit Value [TLV] of 5mg/m3 for 8 hour time weighted average [TWA] exposure for fibrous glass dust, inhalable fraction. The Occupational Safety and Health Administration [OSHA] does not prescribe Permissible Exposure Limit [PEL] for fibrous glass but relies on the PEL-TWA's for nuisance dust of 15 mg/m3 (total) and 5 mg/m3 (respirable). Available air sampling/analytical methods: Gravimetric total dusts NIOSH Sampling & Analytical Method 0500; the Gravimetric respirable dusts NIOSH Method 0600 and the NIOSH 7400, B Fiber Counting Rules. The later two methods may be performed as redundant verification that there are no respirable glass fibers.

Section 9: Stability and Reactivity

Stability: Stable.

Conditions to Avoid: None known.

Incompatibility (Materials to avoid): None known.

Hazardous Polymerization: Will not occur.

Section 10: Physical and Chemical Properties

Appearance/Odor: See Section 1.1

Electrical Conductivity: E-glass is an electrical insulator

Specific Gravity (bare glass): 2.6 – 2.7 (Water = 1)

Vapor Pressure/Density/Oxidation Risk: Not applicable

Flash Point/Flammability/Explosion Limits: See Section 5.0

Percent Volatile (volume): None

Boil/Freezing Points: Not applicable

Melting Points (softening): minimum 800 degree Celsius

Octanol/Water Partition Coefficient: Not applicable

Solubility: Insoluble in water. For some applications (e.g. paper reinforcement) fibers are wetted and made water dispersible through their special sizing. Most other types disperse to some extent in organic solvents depending upon the application.

Section 11: Toxicological Information

Factors in the fiber toxicity include: fiber **dimensions and degree of exposure**

Fiber Dimensions: Fibers are either non-respirable or respirable. Respirable fibers can penetrate to the "deep" lung area. According to the **World Health Organization [WHO]**, man made-mineral fibers with diameters equal to or greater then 3.0 microns 9um) are nonrespirable. According to the National Institute for Occupational Safety and Health [NIOSH], fibers with diameters equal to or greater than 3.5 micron (um) are nonrespirable. The narrow, bending passages of the human respiratory system, do not permit the relatively larger, nonrespirable fibers to enter the "deep" lung area. Instead, they stride the surfaces of the upper respiratory tract, nose or pharynx, and stop. Nasal hairs or other natural mechanisms may then filter them. Due to the manufacturing process used, the fiber glass products have diameters greater than 3.5 micron and are considered to be nonrespirable. The fibers do not become respirable fibers upon the sanding/machine processing activities typical of our customers. Upon breakage, the fibers may bread horizontally into smaller lengths but not longitudinally into smaller diameters. As with any sanding/grinding activity, respirable dust may be generated.

Degree of Exposure: According to Johnson ET. Al., in a 1969 US study of four fibrous glass production plants, "the results in terms of airborne concentrations of glass fibers and total dust would indicate that the workmen's exposure to these materials is negligible".

Carcinogenicity: The International Agency for Research of Cancer [IARC] is part of the World Health Organization [WHO]. LARC concludes that continuous fiberglass filaments are not classifiable as to their Carcinogenicity in human (Group 3) because there is inadequate evidence on the Carcinogenicity of these materials in humans or experimental animals. In a 1987 European study (over 20 years latency), there was no excess of respiratory cancer found. In both studies, there was no increasing trend with an estimated time-weighted measure of exposure. In a study administering large diameter glass filament (> 3 um) intraperitionally to rats, no statistically significant tumor response was found. The

American Conference of Governmental Hygienist [ACGIH] gives continuous filament fiber glass an A4 designation meaning there is adequate data to classify it as carcinogen. Continuous filament fiberglass is not listed in the National Toxicology Program [NTP] 7th Annual Report on Carcinogens, nor is it regulated by OSHA as a carcinogen.

Section 12: Ecological Information

Fiberglass is generally considered to be an inert solid waste, and no special precautions should be taken in case it is released or spilled. These products do not contain, nor are manufactured with; Class I or Class II Ozone-Depleting Chemicals [CFCs] identified in the Clean Air Act Amendment, 1990 List of Ozone Depleting Chemicals.

Section 13 and 14: Disposal and Transportation Consideration

Fiberglass is considered non-hazardous per EPA, RCRA, 40CFR, PART 361, 1990, considered an inert soled waste. Local, state and national regulations should be consulted to ensure proper disposal procedures. Fiberglass products, which are part of a reinforced plastic or uncured resin system, must be disposed of in accordance with applicable requirements for those plastics or resin when they exist. Not regulated by the Department of Transportation [DOT].

Section 15: Additional Regulatory Information

CANADA:
Exempt from Canadian Environmental Protection Act [CEPA] reporting on the Domestic Substance Lists as these products are considered “articles”. Exempt from Workplace Hazardous Materials Information System [WHMIS] labeling & MSDS requirement. However, fibrous glass is on the Ingredient Disclosure List. It must be listed as an ingredient on MSDS for “controlled products” with fiberglass concentration greater than 1.0%.

European Economic Committee (EEC) Labeling Classification: Fiberglass does not meet the classification for a “dangerous substance” according to 67/548/EEC. The E-glass composition has been incorporated in the EINECS under NR-65997-17-3 as a generic substance.

Japan: Chemical Substances Control Law: Fiberglass is exempt from this law.

United States: EPA Toxic Substances Control Act [TSCA]: Fiberglass carries no Chemical Abstracts Index name, CAS registry number or EPA code designation number. Fiberglass is an "article" as defined in Section 710.2[f]. It is exempt from Section 5 and 8[b] reporting requirements. These products are exempted from EPA SARA Title III reporting as they do not meet its health or physical hazards definitions nor contain any SARA 313 chemical ingredients in excess of EPA's de minimous concentrations.

OSHA Hazard Communication Standard: Subject to the applicable requirements of this regulation. Per this MSDS revision date, these fiber glass products are not known to contain chemical ingredients listed by the Pennsylvania, New Jersey or Massachusetts Right to Know Law or California's Proposition 65 Law in excess of the amounts requiring reporting on such substance's MSDS or labels.

HEALTH AND SAFETY WORDING ON THE PRODUCT PACKAGING:

NOTICE: Contact with fibrous glass may cause temporary skin irritation. Wear long-sleeved, loose fitting clothing when handling the material. Gloves and eye protection may be appropriate in certain operations. Wash with soap and warm water after handling. Use of a disposable mask in accordance with Occupational Safety and Health Administration 1910.134 respiratory protection requirements designed for nuisance dust is advisable where high dust levels may be encountered. The International Agency for Research on Cancer [IARC] has designated continuous filament fiberglass as a group 3 "not classifiable as to human carcinogenicity", meaning that evidence is not sufficient to link that fiber to cancer.