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TerraTech is a pioneering company in the technology of manufacturing composite construction materials, leading the way in innovation and sustainability.

GlassFiber Reinforcement Data Sheet *

Glass Fiber Reinforced Polymers (Rebars)

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1. Identification
Of the product

Name: Terra Tech Glass fiber Rebar
Product Number: Foreign Trade (Export Only): 3815xxxxXX
Product Code: GFRPTT0....mm

2. Products Description

Glass Fiber Rebar is a Reinforcement bar, it's manufactured from E-glass Roving impregnated in an Epoxy resin Matrix.
Glass Fiber Rebar produced in various diameters from (Ø= 6 mm to Ø= 40 mm)

3. Glass Fiber Rebar Features and Advantages

No - corrosion :

High corrosion resistance fiberglass is resistant to aqueous, alkaline and acid solutions, which guarantees the durability of the structures being constructed.

High tensile strength:

Composite reinforcement is 2.5 times stronger in tensile than steel reinforcement of class AIII.

High chemical resistance:

Composite reinforcement is resistant to chlorides, acids and chemicals, it can be used in acid and alkaline environments.

Dielectric:

A non-conductive insulator that separates conductive materials in electrical components, preventing the flow of electric current

Non-magnetic:

Composite reinforcement does not conduct heat and, in comparison with steel, it does not lose its properties at very low temperatures. The coefficient of thermal expansion is similar to the coefficient of concrete, and this prevents damage caused

Product lightness:

With equal strength replacement, it is 9 times lighter, what let saving on logistics, handling operations.

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4. Technical Characteristics

Parameter	GFRP
Tensile strength	800 - 1300 MPa
Modulus of elasticity	Not less than 50,000 MPa
Density	1.9 - 2.0 g/cm^3
Ultimate shear strength	150 MPa
Ultimate compression strength	300 MPa
Elongation	2.2
`Yield strength	390 N/mm^2
Corrosion and Chemical resistance	Non-Corroding material, 1st group chmical resistance, including the alkaline enviroment of concrete

5. HAZARDS IDENTIFICATION

With regard to their composition, these products are articles and not classified as hazardous according to European Directive 548/67/EEC and 45/99/EC and ST/SG/AC. 10/30/Rev.2 and their latest amendments.

Glass Fiber products do not contain hazardous substances which can be released under normal or reasonably foreseeable conditions

Environmental Effects:
Long-term exposure to glass fiber environment may cause temporary effects.

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6. FIRST-AID MEASURES

Skin Contact:

If irritation occurs to the skin, rinse with soap and water. Make sure to refrain from rinsing with warm water since warm water will make the skin pores open to allow glass fiber to penetrate deeper. If glass fiber penetrates the skin, use a wash cloth to help pull out the glass fiber. Do not rub or scratch affected skin to any further deterioration. Please go to a doctor if irritation increases.

Eye Contact:

Immediately flush eyes with clean water for at least 15 minutes. Please go to a doctor if irritation increases.

Inhalation:

Immediately move to fresh air. Please go to a doctor if irritation increases.

Ingestion:

Normally, ingestion is less than likely. If it does occur, keep the person under observation for several days to make sure that no gastrointestinal disturbance occurs. Do not induce vomiting unless required by medical staff. Please go to a doctor if irritation increases.

Precautions :

- Appropriate gloves must be worn
- It is preferable to wear glasses
- It is preferable to wear a mask
- It is preferable to shower after the end of the shift and work with fiberglass

7. Storage of Glass Fiber Rebar

- The Glass Fiber Rebar is stored in a horizontal position on racks or specially designated areas for storage

- For long-term storage must be exposed to direct Ultraviolet rays

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8. Packing

Due to rebar properties, it can be twisted into coils without losing its strength characteristics, Glass fiber rebar can be supplied as follows:

01 In coils 50m or 100m – for up to 10mm diameter.

02 In rods 12m or 6m (for any diameter) in bundles of 10 or 25 rods.

03 It can be supplied in various lengths according to the project requirements and the client's needs.

9. Table of diameters and weights of Glass Fiber Rebar.

Diameter	Weight	Diameter	Weight
mm	1m/kg	mm	1m/kg
7 Ø	0.086 kg	10 Ø	0.617 kg
8 Ø	0.096 kg	12 Ø	0.888 kg
10 Ø	0.145 kg	14 Ø	1.210 kg
12 Ø	0.200 kg	16 Ø	1.580 kg
14 Ø	0.300 kg	18 Ø	2.000 kg
16 Ø	0.460 kg	20 Ø	2.470 kg
18 Ø	0.560 kg	22 Ø	2.980 kg
20 Ø	0.560 kg	25 Ø	3.850 kg
22 Ø	0.730 kg	28 Ø	4.830 kg
24 Ø	0.860 kg	32 Ø	6.310 kg

- Glass Fiber Rebar is used in non-bearing structures Because of the elasticity modulus of GFRP rebar, then in case of using GFRP rebar in lo-duty and ground-level structures, you do need to make additional calculations for the design and bigger steel rebar is replaced by smaller GFRP rebar (i.e. Ø = 12 mm steel is replaced by Ø 8mm GFRP) due to higher tensile strength of GFRP rebar.

- GFRP can be used in any other structures and additional calculations for design should be done.

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Fields of Applications

01 Slab on grade applications (parking slabs, sidewalks, driveways, paving, etc.).

02 Masonry reinforcement.

03 Precast and architectural concrete reinforcement.

04 Road construction etc.

05 Marine construction etc

06 In concrete frames (foam concrete, cover slabs, floor slabs, and monolithic foundations)

07 For light and heavy concrete (foam concrete, cover slabs, floor slabs, and monolithic foundations).

08 Using layered brickwork; As anchors for fastening external thermal wall insulation for buildings

09 In foundations below the grade level as meshes and bars in structures.

10 Installation of the roadbed and fencing structures

11 Strengthening the shoreline

12 Construction of maritime and port facilities

13 Installation of drainage, reclamation, and sanitation networks

14 Creating hydraulic structures, and road construction reinforced concrete products.

15 Construction of research centers and medical institutions that may require the use of equipment that is sensitive to electromagnetic oscillations.

15 Flex bracings for three-layer stone walls of civil, industrial, and agricultural buildings and strictures where such walls include a base layer, a veneered layer, and a layer of rigid insulation.

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