Technical Data TCR Combo Mat

Product Introduction

M4-AB Combo Mats are a commonly used form of composite reinforcement composed of TCR woven roving and TCR chopped roving stitch-bonded into one fabric. The input TCR rovings are boron-free and fluoride-free glass fiber. They provide higher mechanical properties (modulus of elasticity) than E glass, superior chemical corrosion resistance, especially very similar acid resistance with traditional ECR glass. Without any content of B_2O_3 and F_2, TCR glass is environmental-friendly throughout all its production process.

This construction takes advantage of the bi-directional (0°/90°) reinforcement of woven roving plus the isotropic (360°) reinforcement of chopped glass fiber to provide excellent wet-out and conformability. Their many excellent characteristics have been used to provide superior performance in a broad range of end-use markets such as marine, transportation, recreation, construction, consumer and anti-corrosion.

Product Description

M4-AB Combo Mats are designed to be compatible in unsaturated polyester resin systems. They offer excellent stiffness and impact resistance for cost-sensitive structural laminates. By combining woven roving and chopped fiber, lay-up reduced, leading to savings in labor and time, wet-through, and resin usage are material costs. Stitch-bonding a binderless mat allows the fabric to maintain physical integrity when saturated with resin, yet still retaining the conformability required for fast laminate build-up. To help ensure the quality of customers' products, the quality management programs of manufacturing M4-AB Combo mats are controlled under the requirements of ISO 9001.

Packaging

M4-AB Combo Mat is wound into a roll on a cardboard inner tube with an inside diameter of 7.2cm (2.8"). All densities are 24cm (10") in diameter. Each roll is wrapped with a plastic bag and placed in a cardboard box. 12 or 16

boxes are placed horizontally on a pallet, which is stretch wrapped.

Storage

Unless otherwise specified, it is recommended to store glass fiber products in a cool, dry area. Temperature should not exceed 35°C (95°F) and the relative humidity should be kept below 75%. Fiberglass products must remain in packaging material until just prior to its use. If these conditions are respected, the glass fiber product should not undergo significant changes when stored for extended periods of time.

Stacking

To ensure safety and avoid damage to the product, skids should not be stacked.

Features	Customer Benefits
Economical, multi-use fabric, fast wet-out	Lower finished parts cost
Multi-directional reinforcement	Enhanced fatigue and off-axis properties
Retains conformability even when resin saturated	Improved handling and durability
Combination of woven roving and chopped strand mat in one fabric	Available in a variety of widths and weights

Comparison of TCR Combo Mat (M4-AB) Input with E-glass & Advantex Roving

Glass Type	M4-AB	E	Advantex
Density (g/cm^3)	2.55-2.60	2.54-2.60	2.53-2.60
Tensile Strength (MPa) ASTM D 2343	2250-2350	2150-2250	2250-2350
Tensile Modulus (GPa) ASTM D 2343	80-82	73-75	80-82
Glass Softening Point (^oC)	905-920	835-850	890-905
Acid Resistance, 10% H2SO4, 96^oC, 48hr, Weight Retention	97.0%	61.8%	95.18%
Acid Resistance, 10% H2SO4, 96^oC, 96hr, Weight Retention	95.48%	/	94.47%

Product data

ID Number	Chopped Strand Fiber Diameter	Woven Roving Fiber Diameter	Sizing Type	Compatible Resin	% Moisture Content
M4-18C-AB	13µm	17µm	Silane	Polyester	≤ 0.2
M4-24D-AB	13µm	17µm	Silane	Polyester	≤ 0.2

ID Number	Total Weight (OZ/yd^2)	Woven Roving 0^o	Woven Roving 90^o	Construction (ends/inch)	Mat (OZ/ft^2, OZ/yd^2)	Standard Width (inch)
M4-18C-AB	27.0	9.0	9.0	6.4x6.4	1.0 / 9.0	38, 50, 60
M4-24D-AB	37.3	13.3	11.0	4.6x4.0	1.5 / 13.3	38, 50, 60

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