

TECHNICAL DATA SHEET

3D|CORE™ PET FR FOAM

General Description

The 3D|CORE™ PET FR Foam is a closed-cell, thermoplastic and recyclable rigid foam with excellent fire retardant, self-extinguishable properties EN 45545-2 and IMO 2010 FTP Code Part 5. The honeycomb structure provides more flexibility and is easy to handle. The core is applicable with all known resin systems and processes.

Properties

- Very good FST properties (fire, smoke, toxicity)
- Excellent fatigue resistance
- Excellent long-term thermal stability up to 100°C
- Very high processing temperature up to 180°C; PET: DNV GL certified; PET FR: EN 45545-2 and IMO Part 5 certified
- Closed-cell foam (no water absorption, no re-expansion, no outgassing)
- Easy processing with all known resin systems and processes
- Very high chemical resistance
- Homogenous connection of all components
- Excellent surface adhesion (connection between the surfaces and core)
- Highly consistent material properties
- Good thermal insulation
- Integrated flow mesh

Application

- **Rail and road vehicles:** roofs, floor panels, interior, front masks, side panels
- **Ship and boat building:** hull, deck, mast, superstructures, interior, keel
- **Industrial components:** container, covers, safety doors, sleeves, sport equipment

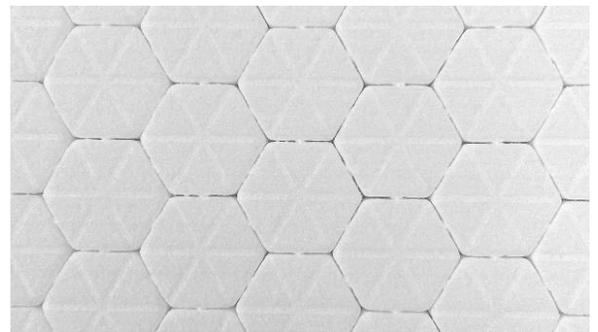
- **Architecture and Construction:** roofs, walls, panels
- **Automotive:** underbody protection, battery box, trunk plate, chassis

Processing

- Hand lay-up
- Vacuum Infusion
- Vacuum Assisted RTM (VARTM, LRTM and HP-RTM)
- Wet pressing
- Autoclave
- Prepreg
- SMC
- Bonding

Structure Pattern

HX: Hexagon



Resin uptake

Structure HX (Vacuum Infusion): 50g/m²/mm

The resin uptake depends on the process as well. Please only use this formula as an indication value.

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Foam Type				PET FR 95
Structure Pattern				HX
Density		Kg/m ³	Foam ⁽¹⁾	95 ⁽³⁾
Shear Modulus	ASTM C 273	MPa	Foam ⁽¹⁾	9
			Hybrid ⁽²⁾	58
Shear Strength	ASTM C 273	MPa	Foam ⁽¹⁾	0.5
			Hybrid ⁽²⁾	1.02
Compression Modulus	ISO 844:2014	MPa	Foam ⁽²⁾	15
			Hybrid ⁽²⁾	184
Compression Strength	ISO 844:2014	MPa	Foam ⁽¹⁾	0.4
			Hybrid ⁽²⁾	5.1
Thermal Conductivity	At 23 °C	W/mK	Foam ⁽¹⁾	0.029
Permittivity	Frequency in GHz 5-10	ε	Foam ⁽¹⁾	1.63 – 1.64
Max. Processing Temperature		°C		180
Measurements Standard Sheets	Width	mm ± 5		405
	Length	mm ± 5		1015
	Thickness	mm ± 0.3		3 – 29

Remark:

(1): The values above are the actual values of the suppliers of the precursor material. We cannot give a guarantee for the quality of the values and the related measurements. The properties of processing of the individual foam system knowing that the quality of the foam core is essential for the quality of the composite. The size of the cavities and the properties have a major influence of the final part. Please regard that every part requires its own calculation of strength and component testing.

(2): The values above are based on measurements on specimen of sandwich panels produced with an Epoxy system and Vacuum Injection technology. These values can differ depending on the manufacturing process. Please use the above values only as an indication for your analysis and please provide your own measurements. Specimen thickness of 20mm. Hybrid means foam core and structure filled with Epoxy resin.

(3): Tolerances +/-7 kg/m³

Disclaimer of Liability

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