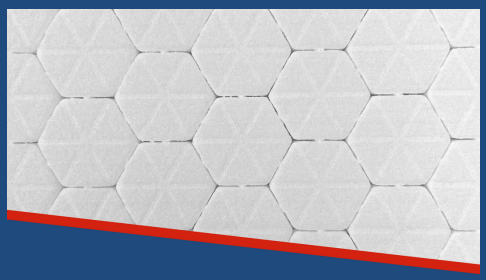
3DICORE™ PET FR

PROPERTIES AND TECHNICAL DATA

Status: 01.02.2021



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

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TECHNICAL DATA

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			FOAM TYPE	PET FR 95
			STRUCTURE	HX
DENSITY		kg/m³	3D|CORE™ FOAM(1)	95(3)
SHEAR MODULUS	ASTM C 273	MPa	3D|CORE™ FOAM(1)	9
			3D|CORE™ HYBRID2	58
SHEAR STRENGTH	ASTM C 273	MPa	3D|CORE™ FOAM(1)	0,5
			3D|CORE™ HYBRID2	1,02
COMPRESSION MODULUS	ISO 844:2014	MPa	3D|CORE™ FOAM(1)	15
			3D|CORE™ HYBRID2	184
COMPRESSION STRENGTH	ISO 844:2014	MPa	3D|CORE™ FOAM(1)	0,4
			3D|CORE™ HYBRID2	5,1
THERMAL CONDUCTIVITY	at 23°C	W/mK	3D|CORE™ FOAM(1)	0,029
PERMITTIVITY	Frequency in GHz 5-10	ε	3D|CORE™ 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

(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. 3D|CORE primarily evaluates 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 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. (NH_17.10.2017)

(2): The values above are based on measurements on specimen of sandwich panels made by 3D|CORE. These panels were 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. (NH_22.01.2021)

Hybrid means foam core and structure filled with Epoxy resin.

(3): Tolerances +/-7 kg/m³

STRUCTURE

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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