

SEPTEMBER 2004

KAPEX[®] C51

INDUSTRIAL PROCESSING FOAM

Description

KAPEX[®] C51 is a resilient, closed-cell foam core material for light, damage tolerant sandwich structures. In a continuous manufacturing process a ductile core material of modified polyurethane is produced with a high dynamic fatigue strength. The foam is cold formable to simple 3-dimensional contours and can be thermoformed to more extreme 3-dimensional shapes. Its high temperature resistance allows short processing cycles with fast curing resin systems, prepregs or thermoplastic fibre reinforced skins (GMT) making it very suitable for large volume sandwich part production.

Applications

- **Road:**
interior and exterior parts for automotive industry, car bodies, load floors, deflectors, spoilers, superstructures
- **Rail:**
interior and exterior parts, skirts, covers
- **Wind energy:**
wind turbine generator housings
- **Industry:**
containers, shelters, covers

Characteristics

- high short period temperature resistance
- easily shapable to 3-dimensional contours
- high impact resistance (non-brittle failure mode)
- easily workable
- processing up to 140 °C
- good fatigue resistance

Processing

- GMT (glass mat reinforced thermoplastic) compression moulding
- thermoforming
- fibre spraying
- resin injection
- adhesive bonding
- prepreg processing

Typical properties for KAPEX® C51 foam core			
Apparent nominal density	ISO 845	kg/m ³ pcf	60 3.7
Compressive strength perpendicular to the sheet	ISO 844	N/mm ² psi	0.45 65
Compressive modulus perpendicular to the sheet	DIN 53421	N/mm ² psi	25 3'650
Tensile strength in the plane	DIN 53455	N/mm ² psi	0.55 80
Tensile modulus in the plane	DIN 53457	N/mm ² psi	10 1'450
Shear strength	ISO 1922	N/mm ² psi	0.45 65
Shear modulus	ASTM C393	N/mm ² psi	5.0 730
Shearing at break	ISO 1922	%	30
Impact strength	DIN 53453	kJ/m ² lb.ft/in ²	1.0 0.5
Thermal conductivity at room temperature	ISO 8301	W/m K BTU.in/ft ² .hr.°F	0.036 0.25

The data provided gives approximate values for the nominal densities. Due to density variations these values can be lower than indicated above. Minimum values to calculate sandwich constructions can be provided upon request.

Dimensions			
Standard sheets	width	mm, ± 10	1200
	length	mm, ± 10	2500
	thickness	mm, ± 1	5 to 25
Colour			off white

Other dimensions upon request

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® = Registered trade mark
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