

The high performance sandwich core

Divinycell F is a recyclable, prepreg compatible sandwich core offering excellent Fire, Smoke and Toxicity (FST) properties, good mechanicals and processing characteristics.

It meets the US and European regulatory requirements for commercial aircraft interiors.

Mechanical properties Divinycell® F - Imperial units

Property	Test Procedure	Unit		F40	F50	F90	F130
Compressive Strength	ASTM C 365	psi	Nominal	51	87	174	247
Compressive Modulus	ASTM C 365	psi	Nominal	1,305	2,610	4,930	8,700
Tensile Strength ¹	ASTM D 1623	psi	Nominal	218	276	406	479
Shear Strength	ASTM C 273	psi	Nominal	87	116	203	247
Shear Modulus ²	ASTM C 273	psi	Nominal	1,232	1,928	3,480	4,350
Shear Strain	ASTM C 273	%	Nominal	80	80	80	70
Dielectric Constant ³	ASTM D 2520-01 A	-	-	1.06	1.06	1.13	TBD
Loss Tangent	ASTM D 2520-01 A	-	-	0.0011	0.0009	0.0022	TBD
Density	ASTM D 1622	lb/ft ³	Nominal	2.5	3.1	5.6	8.1

1. Type B specimen, flatwise tension, equivalent to ASTM C 297
2. Tension mode
3. Test frequency 8.2-12.4 GHz

Other key features include 425°F processing temperature, exceptional fatigue life, good chemical resistance and excellent heat ageing at 356°F. Divinycell F is compatible with most common composite manufacturing processes. For optimal design of applications used in high operating temperatures in combination with continuous load, please contact DIAB Technical Services for detailed design instructions.

Product Characteristics

- Excellent FST properties
- Exceeds OSU Heat Release requirements
- Excellent hot/wet performance
- High temperature resistance
- Excellent heat ageing
- Low water absorption
- Hot and cold formable
- Superior damage tolerance
- Fast and easy to process
- No film adhesive required
- No need to edge fill
- Good chemical resistance

Fire, Smoke & Toxicity characteristics

	Quality	Standard	Test method	F40	F50	F90	F130 ³	Regulation
Aviation	OSU Heat Release	FAR 25.853d	-	<25/20	<25/20	<25/20	TBD	<65/65 <55/55
	Smoke Density ¹	FAR 25.853	ASTM E-662	<1/1	<1/1	2	2	<100/200
	Toxicity ¹	ABD 0031 / BSS 7239	-	Pass	Pass	Pass	Pass	-
	Vertical Burn ²	FAR 25.853	-	Pass	Pass	Pass	Pass	<6/SE/N/D
Rail	Spread of Flame	CEN TS 45545-2	ISO 5658-2:1996	TBD	TBD	CHF=48 kW/m ²	TBD	>37.8 passed HL4
	Heat Release Rate	CEN TS 45545-2	ISO 5660-1:2002	TBD	TBD	30,5 kW/m ² MAHRE	TBD	<60 passed HL4
	Optical Density	CEN TS 45545-2	EN ISO 5659-2	TBD	TBD	VOF4 = 50	TBD	<300 passed HL4
	Smoke Density	CEN TS 45545-2	EN ISO 5659-2	TBD	TBD	Ds(4) = 41	TBD	<150 passed HL4
	Toxicity	CEN TS 45545-2	EN ISO 5659-2	TBD	TBD	CIT at 8 mins = 0,59 CIT at 4 mins = 0,21	TBD	<0.75 passed HL4
	Flammability	NF F16-101	NF 92-501	TBD	M1	M1	TBD	-
	Toxicity	NF F16-101	NFX 10-702	TBD	F1	F1	TBD	-
	Smoke	NF F16-101	NFX 70-100	TBD	F1	F1	TBD	-
	Flammability	DIN 5510/2	-	TBD	TBD	S4	TBD	-
	Smoke	DIN 5510/2	-	TBD	TBD	SR2	TBD	-
	Dripping	DIN 5510/2	-	TBD	TBD	ST2	TBD	-

1. Flaming Mode
2. Test sample thickness - 12.7 mm
3. Based on initial, limited data

Technical characteristics

On Set Tg	401°F
Tg	437°F
Vacuum Bag Processing	To 392°F
Matched Tooling / Press Processing	To 428°F with stops
Coefficient of linear expansion (ASTM D-696)	2 x 10 ⁻⁵ /°F
Density Tolerance	±10%

Maximum temperature is dependent on time, pressure and process conditions. Therefore users are advised to contact DIAB Technical Services to confirm that Divinycell F is compatible with their particular processing parameters.

Disclaimer:

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