

Ultrason[®] All Thermoplastic Panel

Preliminary Product Datasheet



Product Information

BASF's Ultrason all thermoplastic panel (ATP) is composed of Ultrason reinforced thermoplastic laminate (RTL) facings with a Divinycell[®] F foamed Ultrason core. The ATP is a recyclable alternative to honeycomb cored panels with savings along the value chain.

ATP Benefits

- Recyclable
- Exceeds FST and OSU requirements
- Drop-in replacement for aerospace panels
- Smooth surface quality and finish
- Overall weight savings

Manufacturing Benefits

- No sweep & sand required (no pore filler)
- No VOCs
- Labor and time savings: 50 – 65% time savings over traditional panel construction

Overview

BASF's Ultrason all thermoplastic panel (ATP) utilizes a 2-ply reinforced thermoplastic laminate (RTL) as the facing material that's composed of Ultrason E 2010. This facing material is consolidated with Diab's Divinycell[®] F50 foam core, also composed of E 2010, to create the ATP. This construction is the first-of-its-kind by creating a completely recyclable composite panel. The ATP has a smooth finish and high surface quality that eliminates the labor intensive sweep and sand process. Along with manufacturing savings, the ATP exceeds FST and OSU requirements making it a drop-in replacement for aerospace industry standard panels.



Figure 1: RTL Facing - Luggage Bin Door

Table 1. ATP FST performance

Test Title	Test Method	Result
60s Vertical Burn	BSS7230 F1	PASS
Smoke Density	BSS 7238	PASS
Smoke Toxicity	BSS 7239	PASS
Heat Release (OSU)*	BSS 7322	21 / 7 (0.25") 37/4 (0.50")

*Peak / total @ 2 minutes

ATP Interior Applications

- Wall panels
- Galley panels
- Overhead bin doors
- Cabinet panels

ATP Configuration Details

- 2 Ply Ultrason RTL facing
- ¼" and ½" thickness
- Diab Divinycell[®] F50 foam core
- Bostik Sharnet[®] web adhesive

Ultrason® Reinforced Thermoplastic Laminate

BASF's proprietary Ultratect® technology allows the production of a polyethersulfone-based (PESU), recyclable foamed core material, made from BASF's Ultrason E thermoplastic resin. It combines light weight characteristics with excellent mechanical properties. Typical of Ultrason, it also features low water absorption, resistance to high temperature and chemicals, excellent heat ageing behavior as well as inherent flame retardance. Divinycell® F core materials were specifically developed for aircraft interior requirements. It is commercially available from the Diab Group.

Table 2. Divinycell F50 properties

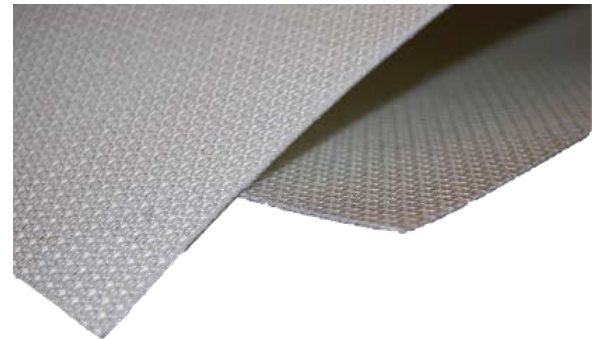
Property	Test Standard	Unit	F50
Density	ASTM D 1622	Kg/m ³	50
		Lb/ft ³	3.1
Compressive Strength	ASTM D1621	MPA	0.6
		psi	87
Compressive Modulus	ASTM C365	MPA	18
		psi	2,610
Tensile Strength	ASTM D1623	MPA	1.9
		psi	276
Shear Strength	ASTM C273	MPA	0.8
		psi	116
Shear Modulus	ASTM C273	MPA	13.5
		psi	1,930
Shear Strain	ASTM C273	%	80
Thermal Conductivity	ASTM C518	W/m-K	0.036
		Btu-in/(ft ² -hr-°F)	0.25
Dielectric Loss Tangent	ASTM D2520-A	N/A	0.0009
Dielectric Constant	9.375 GHz	N/A	1.06
Coefficient of Linear Expansion	ASTM D696	1/°C	10 ⁻⁶
		1/°F	2x10 ⁻⁵
On set Tg	ASTMD2520	°C	205
		°F	401
Tg	ASTM C518	°C	225
		°F	437

Table 3. Divinycell F50 results

Test Title	Test Method	Results
60s Vertical Burn	FAA Part I (a) (1) (i)	PASS
Smoke Density*	FAA Part V	<1
	AITM 2.0007	
	BSS 7238	
Smoke Toxicity*	AITM 3.0005	PASS
	BSS 7239	PASS

Table 4. Divinycell F50 OSU results

Test Title	Test Method	Results
Heat Release (OSU)*	FAA Part IV	<25 / <20
	AITM 2.0006	
	BSS 7322	



Reinforced Thermoplastic Laminate Facings

Reinforced thermoplastic laminates based on Ultrason E or P typically comprise one or more layers of glass or carbon-based fabrics. These thermoplastic prepregs are alternatives to the classical thermoset prepregs such as those based on phenolic or epoxy resin. Thermoplastic prepregs offer advantages in handling and logistics (no refrigeration required), manufacturability (significantly less surface finishing, e.g., sanding), and sustainability (recyclability), offering potential to reduce cost or providing ecological benefits.

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Sharnet is a registered trademark of Bostik USA.

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