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Ultrason® All Thermoplastic Panel

An Alternative to Honeycomb-Phenolic Prepreg Sheet Systems

BASF's Ultrason all thermoplastic panel (ATP) utilizes a 2 ply reinforced thermoplastic laminate (RTL) as the facing material that's composed of Ultrason E2010. This facing material is consolidated with Diab's Divinycell F50 foam core, also composed of E2010, to create the ATP with a smooth finish and high surface quality. This construction is the first of its kind by creating a completely recyclable composite panel. The ATP provides savings all along the value chain by eliminating the labor intensive sweep and sand process and offering weight savings in flight.

Features and Benefits

- Recyclable
- Exceeds FST and OSU requirements
- Smooth surface quality and finish
- Overall weight savings
- No sweep & sand required (no pore filler)
- No VOC's
- Labor and time savings: 50-65% time savings over traditional panel construction
- Drop in replacement for aerospace panels

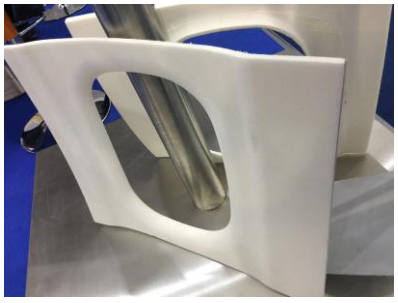
Divinycell F Foam Core

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 grade materials 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.

Aerospace Applications

Ultrason's mechanical properties and available configurations make it perfectly suitable for interior aircraft applications such as wall panels, galley panels, overhead bin doors, and cabinet panels.

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



Safety and Flammability

ATP FST Performance

TEST	METHOD	RESULT
60s Vertical Burn	BSS7230 F1	PASS
Smoke Density	BSS 7238	
Smoke Toxicity	BSS 7239	
Heat Release (OSU)*	BSS 7322	21 / 7 (0.25”) 37/4 (0.50”)

*Peak / total @ 2 min

Divinycell F50 FST Results

TEST	METHOD	RESULT
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	

*Peak / total @ 2 min

Divinycell F50 OSU Results

TEST	METHOD	RESULT
Heat Release (OSU)*	FAA Part IV	<25 / <20
	AITM 2.0006	
	BSS 7322	

*Peak / total @ 2 min

Technical Specifications

Divinycell F50 Properties

PROPERTY	METHOD	RESULT
Density (Lb/ft^3)	ASTM D 1622	3.1
Compressive Strength (psi)	ASTM D1621	87
Compressive Modulus (psi)	ASTM C365	2,610
Tensile Strength (psi)	ASTM D1623	276
Shear Strength (psi)	ASTM C273	116
Shear Modulus (psi)	ASTM C273	1,930
Shear Strain (%)	ASTM C273	80
Thermal Conductivity (Btu-in/(ft2-hr-°F)	ASTM C518	0.25
Dielectric Loss Tangent	ASTM D2520-A	0.0009
Dielectric Constant	9.375 GHz	1.06
Coefficient of Linear Expansion (°F)	ASTM D696	2x10^-5
On set Tg (°F)	ASTMD2520	401
Tg (°F)	ASTM C518	437

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