

## Carbon Fiber/Foam Sandwich Panels



ACP's Carbon Fiber Plain Weave Foam Sandwich Panels are manufactured by bonding carbon fiber prepreg to each side of 6 PCF density foam core. They are cured with high temperature and under pressure, resulting in fully consolidated carbon fiber skins that are completely bonded to the foam core. The resulting constructed panel offers a high strength-to-weight ratio and is ideal for applications where maximum stiffness and crush resistance are essential.

### Physical Properties

Core Material	6.0 PCF Polyurethane Foam "Structural Foam"
Skin Material	Carbon Fiber Plain Weave Style 282
Prepreg Resin Content	44%

The below technical information is for the stand alone raw materials, not the constructed panel.

### Prepreg Neat Resin Properties

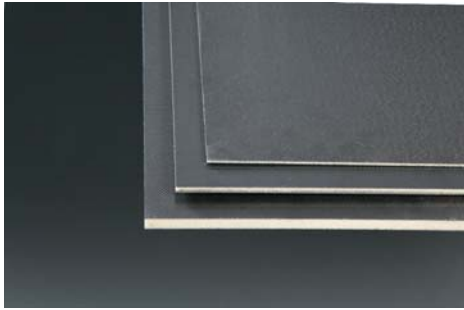
Specific Gravity	1.286
Tg dry	171°F
Moisture Absorption	7%
Linear CTE	$4.75 \times 10^{-5}$ in/in/°F
Tensile Strength	7.2 ksi
Tensile Modulus	0.42 msi
Tensile Strain	>9.5%
Fracture Toughness	4.50 ksi $\sqrt{\text{in}}$
Strain Energy Release Rate	34.5 in-lb/in <sup>2</sup>

### Polyurethane Foam "Structural Foam" Properties

Density	6.0 PCF
Compressive Strength $\parallel$ to rise	154 psi @ 75°F
Compressive Strength $\perp$ to rise	139 psi @ 75°F
Compressive Strength $\parallel$ to rise	4275 psi @ 75°F
Compressive Strength $\perp$ to rise	3437 psi @ 75°F
Compressive Strength $\parallel$ to rise	182 psi

All the information contained in these properties is believed to be reliable. It is intended for comparison purposes only as each manufactured lot will exhibit variations. The user should evaluate the suitability of each product for their application. We cannot anticipate the variations in all end use and we make no warranties and assume no liability in connection with the use of this information.

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### Polyurethane Foam "Structural Foam" Properties

Compressive Strength $\perp$ to rise	174 psi
Tensile Modulus $\parallel$ to rise	5949 psi
Tensile Modulus $\perp$ to rise	5662 psi
Shear Strength $\parallel$ to rise	116 psi
Shear Strength $\perp$ to rise	116 psi
Shear Modulus $\parallel$ to rise	4133 psi
Shear Modulus $\perp$ to rise	1457 psi
Flexural Strength $\parallel$ to rise	226 psi
Flexural Strength $\perp$ to rise	210 psi
Flexural Modulus $\parallel$ to rise	5944 psi
Flexural Modulus $\perp$ to rise	5421 psi
CTE	$\sim 3.4 \times 10^{-5} \text{ in/in/}^\circ\text{F}$
Closed Cell Content	95.6%
Hardness, Shore-D	11.1
Water Absorption	0.17 lbs/ft <sup>2</sup>
Specific Heat @ 25°C	0.353 BTU/lb-°F
Heat Combustion	11706 BTU/lb
Thermal Conductivity	0.205 BTU*in/ft <sup>2</sup> *°F*h

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