

# Air-Cell

POLYESTER FOAM CORE

# information

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Air-Cell is a hybrid, closed cell cross-linked polyester foam core that is an economical alternative to other cores used in the production of sandwich composite structures. In addition to its excellent strength to weight ratio, it offers good dimensional stability at elevated temperatures.

Aircell T grade is available in a wide range of densities in order that designers, engineers and fabricators can select the most appropriate density for the prevailing application. It is suitable for a wide range of marine, road/rail transportation, aerospace and industrial applications.

Poly-U-Mac offers a comprehensive kitting service for the Air-Cell product line with the capability to work directly from customers' CAD files. Used 'straight out of the box', Poly-U-Mac Air-Cell kits speed the manufacturing process, save labor costs and virtually eliminate material waste.

## Key Features

- *High strength to weight ratio*
- *Good dimensional stability*
- *Can be processed at up to 200°F*
- *High 'in service' temperature performance*
- *Does not absorb water*
- *Compatible with most resins (polyester, epoxy and vinylester systems)*

## Typical Applications

- *Leisure & Commercial Marine*
  - hulls, decks, stringers & bulkheads
- *Wind Energy*
  - blades, cabins & spinners
- *Road*
  - cabs, sleeper floors & RV bodies
- *Rail*
  - train fronts, floors, cabs, exterior & interior panelling
- *Aerospace*
  - flooring, toilet modules & overhead lockers



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ADVANCED CORE MATERIALS

Air-Cell is a hybrid crosslinked aromatic polyester foam core that is an economical alternative to other cores used in the production of sandwich composite structures. In addition to its excellent strength to weight ratio, it offers good dimensional stability. Aircell T grade is available in a wide range of densities in order that designers, engineers and fabricators can select the most appropriate density for the prevailing application. It is suitable for a wide range of marine, road/rail transportation, aerospace and industrial applications.

## Air-Cell T Grade - Mechanical Properties

Test Standards	Units	T-50	T-60	T-80	T-100	T-150	T-180	T-200	T-240	T-300
Density ASTM D1622	lb/ft <sup>3</sup>	5	6	8	10	15	18	20	24	29
Compressive Strength ASTM D1621	psi	118	173	257	369	690	914	1,241	1,755	2,018
Compressive Modulus ASTM D1621-B	psi	3,266	5,349	6,942	9,427	17,349	23,101	28,674	36,577	49,112
Tensile Strength ASTM D1623	psi	191	287	329	421	654	801	989	1,149	1,489
Shear Strength ASTM C273	psi	90	127	179	268	498	678	771	1,029	1,353
Shear Modulus ASTM C273	psi	1,386	2,380	3,754	4,588	6,241	8,880	10,843	13,123	20,741
Flexural Strength ASTM D790	psi	172	259	369	478	839	1,013	1,304	1,501	2,105
Water Absorption ASTM D2842	lb/ft <sup>2</sup>	0.063	0.063	0.058	0.053	0.040	0.029	0.027	0.017	0.007

Continuous operating temperature range: -320°F to 165°F

Maximum processing temperature: 200°F

Coefficient of linear expansion: 3.5 x 10<sup>-5</sup> in/in/°F

Poisson ratio:~0.3

Density tolerance: +10% to -15%

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