

Fiberforge process of Carbon/PEEK Blank

CF/PEEK is a semi-crystalline polyetheretherketone thermoplastic composite unidirectional tape. It offers high service temperature, excellent toughness, and excellent resistance to chemicals and solvents.

Representative Material Data

Material	Fiber	AS-4 Carbon
	Matrix	Polyetheretherketone (PEEK)
	Laminate Orientation	Varies according to test specification

Physical			
Property	Test Standard	Units	Result
Fiber Content by Weight	ASTM D 3171	%	67±3
Resin Content by Weight		%	33±3
Resin Content by Volume		%	41±3
Fiber Areal Weight		g/m ²	146
Void Content (with Fiberforge Process), RTA	ASTM D 2734	%	0.21
Ply thickness, RTA	SACMA RM10	mm	0.14
Density, RTA	ASTM D 792	g/cm ³	1.6
Moisture Content (ETW)	ASTM D 5529	%	0.16

Mechanical				
Property	Test Standard	Units	Condition Results	
			RTA	ETW
0° Tensile Strength	ASTM D 3039	GPa	2.37	2.34
0° Tensile Modulus	ASTM D 3039	GPa	141	138
0° Tensile - Poisson's	ASTM D 3039		.33	
90° Tensile Strength	ASTM D 3039	MPa	66	73
90° Tensile Modulus	ASTM D 3039	GPa	9.0	9.0
0° Compressive Strength	ASTM D 6641	GPa	1.1	1.0
0° Compressive Modulus	ASTM D 6641	GPa	72	72
In-plane Shear Strength	ASTM D 5379	MPa	87	67
In-plane Shear Modulus	ASTM D 5379	GPa	8.3	9.0
Interlaminar Shear Strength	ASTM D 5379	MPa	127	96
Short Beam Shear Strength	ASTM D 2344	MPa	91	-
Open Hole Compression	ASTM D 6484	MPa	337	310
Open Hole Tension	ASTM D 5766	MPa	400	-
Single Bearing Shear Strength	ASTM D 5961	GPa	1.1	1.0

ETW is tested at 180°F/82°C after 14 day soaks in 160°F/71°C water.

This data sheet lists common material, mechanical, and thermal characteristics of only one possible anisotropic tailored blank. Blanks can be made:

- thicker by adding plies
- to a desired shape, including cut-outs, to reduce scrap on final forming
- with different and/or additional ply-angles to change the anisotropic nature of the material
- with variable thickness/number of lamina.

Materials available off-the shelf or by special order.

Fiber:	Matrix:
Carbon	PA
Glass	PBT
Aramid	PEKK
	PE
	PPS
	PEEK
	PET
	TPU
	PP
	PEI
	Others

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