

EVOLITE™ F1050

Evolite™ F1050 is a high performance thermoplastic composite material specially designed for the O&G industry. Evolite™ F1050 is a unidirectional tape combining the recognized excellent chemical and temperature resistance of Solef® PVDF with the inherent high strength performance of carbon fiber.

Features and Benefits

- Semi crystalline PVDF thermoplastic matrix
- Compatibility within PVDF Solef® 60512 and other Solef® grades
- Fully impregnated unidirectional tape
- Maximum Service Temperature of 130°C
- Customised Fibre/Matrix translation for maximum performance
- Ideal processing, mechanical and chemical resistance for applications in Oil & Gas
- Recyclable
- 5 year storage at ambient conditions

PERFORMANCE

Resin Characteristics

Table 1: Polymer physical and thermal properties

Property	Result	Test Method
Density (g/cm ³)	1.75 to 1.80	ASTM D792
Water Absorption (%)	<0.040	ASTM D570 (24hr, 23°C)
Melting Temperature (°C)	>162	ASTM D3418
Glass Transition Temperature (°C)	-40	ASTM D4065

Prepreg Characteristics

Table 2: Product form and nominal physical properties

Property	Result
Form	UD tape
Fibre	Standard Modulus carbon fibre
Resin Content (%)	50
Tape thickness (mm)	0.25

Tape Characteristics

Table 3: Tape mechanical properties (average values)

Property	Result	Test Method
0° Tensile modulus (GPa)	100	ASTM D3039M ¹
0° Tensile strength (MPa)	1850	ASTM D3039M ¹
90° Tensile strength (MPa)	27	EN 2597:1998 ²

1 Internal test method based on modified ASTM D3039, 150mm gauge, 25mm width coupon

2 Internal test method based on modified EN 2597:1998, Type A 10mm gauge, 10mm width coupon

Consolidated Characteristics

Table 4: Average laminate mechanical properties (autoclave consolidation – 210°C, 50psi)

Property	Result	Test Method
0° Tensile strength ³ (MPa)	1876	ASTM D3039
0° Tensile modulus ³ (GPa)	112	ASTM D3039
0° Compression Strength ⁴ (MPa) – 21°C	776	ASTM D6641
0° ILSS (MPa)	49	ASTM D2344
±45° IPSS @ 5% (MPa)	33	ASTM D3518
±45° IPSS Modulus (GPa)	1.47	ASTM D3518

3 SACMA SRM 9-94, "SACMA Recommended Test Method for Tensile Properties of Oriented Cross-Plied Fiber-Resin Composites," Suppliers of Advanced Composite Materials Assn. (Arlington, Va.), April 1994 (first issued as SRM 9-92 in 1992)

4 SACMA SRM 6-94, "SACMA Recommended Test Method for Compressive Properties of Oriented Cross-Plied Fiber-Resin Composites," Suppliers of Advanced Composite Materials Assn. (Arlington, Va.), April 1994 (first issued as SRM 6-92 in 1992)

Other physical and mechanical properties are available upon request. Please contact Solvay Composite Materials.

HEALTH & SAFETY

Please refer to the product MSDS for safe handling, personal protective equipment recommendations and disposal considerations.

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PDS 1301 28 March 2018

