

RT271

TECHNICAL DATA BULLETIN

DESCRIPTION: RT271 is a convolute wound tube using a glass fabric substrate and an epoxy resin. Designed to have excellent strength at elevated temperatures and has been formulated to facilitate the production of thick-walled tubes for use in downhole applications.

APPLICATION DATA: Burst and collapse testing were performed to simulate downhole conditions. Burst test: pressure applied to the ID of the tube; the tubing OD is isolated. Collapse test: pressure applied to the OD of the tube; the tubing ID is isolated. Maximum pressure was limited to 23,000 psi. Tubes conditioned for one hour at temperature before being pressurized.

Test	Units	Typical Values 1.00" x 3.25"	Typical Values 1.50" x 3.25"
Burst @ 300°F	psi	15,000	16,000
Collapse @ 300°F	psi	23,000+	20,000

TUBE TESTED: ID = 1.00", OD = 3.25" and ID = 1.50", OD = 3.25"

TYPICAL PROPERTIES

PROPERTY	Test Method	Conditioning**	Unit	Typical Value 1.00" x 3.25"	Typical Value 1.50" x 3.25"
Density	ASTM D792	A	g/cm ³	1.8	1.8
Axial Tensile Strength	ASTM D3039	A	psi	33,600	30,700
		E-1/300 T300	psi	25,200	25,700
Axial Tensile Modulus	ASTM D3039	A	Msi	3.2	3.1
		E-1/300 T300	Msi	3.0	2.9
Axial Compressive Strength	ASTM D695	A	psi	64,700	60,300
		E-1/300 T300	psi	45,500	39,000
Axial Compressive Modulus	ASTM D695	A	Msi	1.3	1.1
		E-1/300 T300	Msi	0.8	0.9

PROPERTY	Test Method	Conditioning**	Unit	Typical Value 1.00" x 3.25"	Typical Value 1.50" x 3.25"
Radial Compressive Strength	ASTM D695	A	psi	80,600	77,900
		E-1/300 T300	psi	58,100	53,800
Radial Compressive Modulus	ASTM D695	A	Msi	0.7	0.7
		E-1/300 T300	Msi	0.6	0.6
Flexural Strength	ASTM D790	A	psi	52,900	53,500
		E-1/300 T300	psi	48,400	42,300
Flexural Modulus	ASTM D790	A	Msi	3.1	2.9
		E-1/300 T300	Msi	2.9	2.6
Short Beam Shear Strength	ASTM D2344	A	psi	6,700	7,000
		E-1/300 T300	psi	4,800	5,500
Combined Loading Compression (CLC)	ASTM D6641	A	psi	58,500	53,900
		E-1/300 T300	psi	50,000	47,100
Glass Transition Temperature (T _g) via DMA onset***	ASTM E1640	A	°F	350	350
Glass Decomposition Temperature (T _d) via TGA ****	ASTM E1131-08	2% weight loss	°F	677	
Glass Decomposition Temperature (T _d) via TGA ****	ASTM E1131-08	5% weight loss	°F	727	

** Coupons related to elevated temperature testing were conditioned in an oven for one hour at 300°F temperature, (e.g. E-1/300) followed by testing at the same temperature, 300°F, (e.g. T300).

*** Glass transition temperature (T_g): The temperature at which the material begins to exhibit viscoelastic behavior. Below the T_g, the material will generally exhibit elastic behavior. T_g is not a maximum use temperature, as the maximum use temperature will depend on many application specific factors as well as the T_g. Consult with an applications engineer for assistance.

**** Decomposition Temperature (T_d): The temperature at which the polymer resin matrix begins to breakdown and is irreversibly degraded. T_d values reported here are based on a limited number of samples via TGA at the 5% weight loss point. Operation for extended periods of time at or above the T_d is not recommended. Consult with an applications engineer for assistance.

This data, while believed to be accurate and based on reliable analytical methods, is for informational purposes only. The terms and conditions of the agreement under which it is sold will govern any sales of this product. Data supplied above are "typical values"; not to be considered "specification values".

To assure the material's performance is adequate for a specific application; customers should verify, independent of Norplex-Micarta, performance characteristics of interest.

It is the responsibility of the users of this information to make sure that they have the latest version of this TDB, and are urged to check with Customer Service or, preferably our web site, www.norplex-micarta.com, to determine if information is most current available.

Specification writers: Contact Norplex-Micarta for speciation values before submission.