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Composites for Today's Challenges

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Lamitex® G11-CR Tube

Lamitex® G11-CR epoxy convolute wrapped tubes are reinforced with a fine weave woven glass fabric. It is primarily used for mechanical, electrical and electronic applications where high mechanical strengths are required at high and cryogenic temperatures. Lamitex G11-CR meets or exceeds NEMA G11 specifications, has excellent resistance to chemicals, retains its dimensional and electrical properties in high humidity environments and is a preferred material for neck tube and straw tube cryogenic applications.

<u>Mechanical Properties</u>		<u>Standard</u>	<u>Test Specimen</u>	<u>Conditioning</u> <u>IEC 212</u>	<u>Values</u>
Flexural Strength		ISO 178	id> 100 mm	1	350 Mpa
Flexural Strength @ 150°C		ISO 178	id> 100 mm	1	230 Mpa
Modulus of elasticity		ISO 178	id> 100 mm	1	19,000 Mpa
Compressive Strength, Axial		ISO 604		1	250 Mpa
Cohesion between layers		EN 61212-2	id< 100 mm	1	480 Mpa
Tensile Strength, Axial		ISO 527		1	280 Mpa
Compressive Strength, perpendicular to lamination		ISO 604		1	350 Mpa
<u>Electrical Properties</u>					
Electric Strength in oil @ 90°C:					
	Perpendicular to Laminations	IEC 243-1		2	11.0 kV/mm
	Parallel to Laminations	IEC 243-1	> 3 mm wall thk, ID > 8 mm & or OD > 10 mm	2	60 kV/25 mm
Insulation resistance after immersion in water		IEC 167		4	10,000 M ohm
Permittivity:	50Hz	IEC 250		3	4.5
	1 MHz	IEC 250		3	4.5
Dissipation Factor:	50Hz	IEC 250		3	0.01
	1 MHz	IEC 250		3	0.01
Comparative tracking index, CTI		IEC 112			200 V
<u>Physical and Thermal Properties</u>					
Thermal Conductivity					7.0×10^{-4} calories/second/cm ² /(°C/cm)
Thermal endurance index @ 20,000 hrs		IEC 216		-	180° C.
Thermal expansion - axial		TMA 30 - 180° C			18×10^{-6} /K
Heat conductivity (of laminated sheet)		ISO 22007-2 (2008)			0.38 W/mK
Density		IEC 1183-A	All	1	1.8 g/cm ³
Water Absorption (maximum)		ASTM D229		4	0.15%

Conditioning: 1: 24h @ 23°C & 50%RH
2: 24h @ 23°C & 50%RH + 1hr in oil at 90°C
3: 96h @ 105°C + 1hr @ 23°C & 20%RH
4: 24h @ 50°C + 24hr in water at 23°C

All values are average test results from extensive testing of typical production material. No warranty is implied or guaranteed and testing is recommended for each application.

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