

# TECHNICAL DATA SHEET

## Fiber Glass Epoxy

Properties	Method	Unit	Specification	
Density	ASTM D792-08 Method A	g/cm <sup>3</sup>	1.91	
Water absorption	ISO 62:2008 Method 1	%	0.04	
Barcol hardness	GB/T 3854-2005	-	76	
Linear expansion coefficient (40 °C – 60 °C)	ISO 11359-2:1999	10 <sup>-6</sup> /K	26	
Charpy impact strength parallel to laminations (unnotched)	ISO 179-1:2010	kJ/m <sup>2</sup>	133	
Compressive strength parallel to laminations	A direction	IEC 60893-2:2003	MPa	291
	B direction			208
Flexural strength perpendicular to laminations	Lengthwise	IEC 60893-2:2003	MPa	428
	Crosswise			438
Modulus of elasticity in flexure perpendicular to laminations	Lengthwise	IEC 60893-2:2003	MPa	2.45*10 <sup>4</sup>
	Crosswise			2.49*10 <sup>4</sup>
Compressive strength perpendicular to laminations	IEC 60893-2:2003	MPa	380	
Shear strength parallel to laminations	A direction	IEC 60893-2:2003	MPa	30.4
	B direction			34.5
Adhesion strength	GB/T 1303.6-2009	N	5148	
Flammability (Vertical test)	UL 94-2010	Class	V-0	
Comparative tracking index (CTI)	IEC 60112:2009	-	CTI 325	
Insulation resistance (Taper pin electrodes)	IEC 60167:1964	ohm	6.6*10 <sup>11</sup>	
Surface resistivity (Three electrode system)	ASTM D257-07	ohm	1.8*10 <sup>13</sup>	
Volume resistivity (Three electrode system)	ASTM D257-07	ohm.m	4.6*10 <sup>11</sup>	
Max Service temperature		°C	120	
Electric strength at 23 °C ± 2 °C in 25# transformer oil perpendicular to laminations (short-time test, Ø 25mm/ Ø75mm cylindrical electrode)	ASTM D149-09	kV/mm	16.4	
Breakdown voltage at 23 °C ± 2 °C in 25# transformer oil parallel to laminations (short-time test, Ø 130mm/ Ø130mm plate electrode)	ASTM D149-09	kV	44.4	
Relative permittivity (1MHz)	Normality	GB/T 1409-2006	-	5.44
	After immersion in water for 24h			5.53
Dielectric dissipation factor (1MHz)	Normality	GB/T 1409-2006	-	2.35*10 <sup>-2</sup>
	After immersion in water for 24h			2.44*10 <sup>-2</sup>

1. The size of specimens for “Water absorption” test is (50.08~50.12) mm\*(49.98~50.08) mm\*(3.04~3.06) mm.
2. The heights of specimens for A direction and B direction are both (10.10~10.70) mm in “Compressive strength parallel to laminations” test.
3. The height of specimens for “Compressive strength perpendicular to laminations” test is 10.20 mm.
4. The thickness of specimens for “Electric strength perpendicular to laminations” test is (3.00~3.05) mm.



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5. The size of specimens for “Breakdown voltage parallel to laminations” test is 100.02 mm (length) \* 25.32 mm (width) \* 10.10mm (thickness). And the electrode spacing is 25.32 mm.

Preconditioning: 23 °C ± 2 °C/RH (50±5) %/48h						
Test environment condition: 22 °C 51%						
Test condition: height of flame 20mm±1mm, application time 10s						
No.	Specimen size (width*thickness) mm	After flame time after the first application t <sub>1</sub> , s	After flame time after the second application t <sub>2</sub> , s	Afterglow time t <sub>3</sub> , s	Did the After flame and/or the afterglow progress up to the holding clamp	Was the cotton indicator pad ignited by flaming particles or drops
1	13.08*3.02	0	0	0	No	No
2	13.10*3.00	0	0	0	No	No
3	13.30*3.02	0	0	0	No	No
4	13.22*3.00	0	0	0	No	No
5	13.08*3.00	0	0	0	No	No
Criteria					Requirement of V-0 Class in UL 94-2010	The test result
The max after flame time for individual test specimen after each application t <sub>1</sub> /t <sub>2</sub> , s					≤10	0
Total set after flame time for any conditioning					≤50	0
The max value of individual test specimen after flame time plus afterglow time after the second application (t <sub>2</sub> +t <sub>3</sub> ), s					≤30	0
Did the after flame and/or the afterglow progress up to the holding clamp?					No	No
Was the cotton indicator pad ignited by flaming particles or drops?					No	No
Conclusion		V-0 Class				

