

Technical Information

VETRESIT^â 305

TYPE A laminate consisting of heat-resisting modified epoxy resin reinforced with a glass mat.

GENERAL PROPERTIES High mechanical strength under stress from any direction (MR/QR), even at high temperatures.

Good electrical properties at high temperatures and moisture. Resists chemicals. Low density.

Service temperature up to 180 °C

APPLICATION

- For insulating material operating at high mechanical stresses at temperatures up to 180°C.
- For mechanical and electrical application operating at high temperatures.
- For construction components with multiple mechanical stresses in all directions.
- For special structural components, such as fastening- and spring elements e.g. spring cup washers.
- For electrical machines and equipment operating in the highest voltage and output ranges.
- For supraconductor applications (cryogenic temperatures).
- For equipment components in the chemical industry.

SUPPLY

Machined Parts

Fabricated and styled according to customer's drawings. Optional varnished (standard: clear).

Sheets and strips

VETRESIT 305 sheet and strip material is usually supplied „as pressed“, with a smooth surface.

Sheets	Standard Sizes	Thickness h (mm)	Other sizes supplied on request
	Width x Length (mm)		
	1225 x 1250	2 - 55	
1250 x 2450	2 - 55		



MACHINABILITY

VETRESIT 305 can be sawn, milled, turned or drilled. Since glass fibre materials subject machining tools to considerable wear, very sharp hard-metal or preferably diamond-tools should be used. The material can be machined dry using a dust and chip vacuum-extractor, or wet with a suitable cooling liquid.

MICAFIL runs a well-equipped machine shop with facilities for producing a very wide range of components. Expert joining of VETRESIT parts or to other material is a speciality of MICAFIL.

STANDARDS

VETRESIT 305 is not covered by any national or international standard specifications at the present time.

VETRESIT[®] 305

Properties	Standards	Units	Values
Composition			
Resin: Epoxy resin (EP), modified			
Support: Glass mat (GM)	ISO 1172	mass %	≥ 65
Density	ISO 1183	g/cm ³	1,8 - 2,1
Electrical properties			
Electric strength, ⊥ 50 Hz, 1 min., h = 3 mm	23 °C 90 °C	IEC 243-1	kV/mm 13,5 - 20 13,5 - 20
Electric strength, ∥ 50 Hz, 1 min., h = 25 mm	23 °C 90 °C	IEC 243-1	kV/mm 2,5 - 4,0 2,5 - 4,0
Volume resistivity		IEC 93	MΩ • cm 10 ⁶ - 10 ¹⁰
Surface resistivity		IEC 93	MΩ 10 ⁶ - 10 ¹⁰
Insulation resistance, wet		IEC 167	MΩ 10 ⁵ - 10 ⁶
Dissipation factor tan δ 50 Hz	23 °C 90 °C	IEC 250	0,02 - 0,05 0,03 - 0,10
Relative permittivity ε _r 50 Hz	23 °C 90 °C	IEC 250	4,0 - 5,5 4,5 - 6,0
Comparative tracking index (Solution A)		IEC 112	CTI CTI 150
Mechanical properties			
Tensile strength		ISO 527	N/mm ² ≥ 220
Flexural strength - at RT		ISO 178	N/mm ² ≥ 350
- at 150°C			% ≥ 60
- After ageing 30 d / 180°C measured at RT			N/mm ² ≥ 250
Compressive strength - at RT	⊥ ∥	ISO 604	N/mm ² ≥ 450 ≥ 300
- at 150°C	⊥	ISO 604	% ≥ 75
- At 180°C	⊥	ISO 604	% ≥ 65
Flexural modulus of elasticity (3 point method)		ISO 178	N/mm ² 15 - 18 · 10 ³
Impact strength	⊥ ∥	ISO 179	N/mm ² ≥ 150 ≥ 100
Impact strength, notched specimen (Charpy)	⊥ ∥	ISO 179	kJ/m ² ≥ 120 ≥ 60
Splitting load	∥	DIN 53436	N ≥ 2500

VETRESIT® 305	Properties	Standards	Units	Values	
Thermal properties	Linear thermal expansion (20 - 100°C)	 ⊥	DIN 52328	K ⁻¹	10 - 14 · 10 ⁻⁶ 35 - 50 · 10 ⁻⁶
	Thermal conductivity (20 - 100°C)	⊥	VDE 0304 T1	W / m · K	0,30 - 0,40
	Flammability		ASTM D-635		Self-extinguishing
Physical and chemical properties	Water absorption h = 4 mm, Test A		ISO 62	mg Masse %	≤ 23 ≤ 0,10
	Oil absorption h = 4 mm			Masse %	≤ 0,01
	Resistance against: - solvents (except phenols and ketones) - mineral oil - acids diluted, bases		ASTM D-543		good good good

⊥ perpendicular to layers
 || parallel to layers
 MR machine direction along support
 QR cross direction to support

These properties have been determined by the above shown methods. The data given are valid for standard test specimen only.

Unless otherwise specified, all data were measured at ambient temperature. The contents of this publication are based on our present experience. They are an indication for application of our products without any liability for us. Notice of legal requirements and existing patent rights has to be taken.

Due to the many application and manufacturing process possibilities, we cannot give any warranty for the technical results in individual cases.



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