

## Technical Data Sheet

# Glastic® UTR

GFK-UP

### Typical characteristics

- Polyester (UP) resin matrix reinforced by fiberglass
- 1,000 Minutes Track Resistance, Electrically Insulating, Highly Flame Resistant, Low Smoke & Smoke Toxicity, UL® Recognized, and Halogen-Free

### Typical industries

- Generator and Motor
- Dry transformers
- Electrical Industry
- Electrical Insulating Components
- Switchgear
- Electronics

	Test method	Unit	Guideline value
<b>General properties</b>			
Part Number			1491, 1493, 1494, 1495, 1497
NEMA Grade LI 1-1989	NEMA LI-1		GPO-3
UL Temperature Index - Electrical	UL 746B	°C	130
UL Temperature Index - Mechanical	UL 746B	°C	160
UL Recognition File Number			E81928
<b>Mechanical properties</b>			
Flexural Strength	ASTM D 790	psi	22,100
Flexural Strength @130°C	ASTM D 790	psi	13,100
Compressive Strength	ASTM D 695	psi	33,100
Tensile Strength	ASTM D 638	psi	8,000
Tensile Modulus	ASTM D 638	psi X 10 <sup>6</sup>	1.7
IZOD Impact Strength (notched)	ASTM D 256	ft. lb./in.	8.9
Shear Strength	ASTM D 732	psi	11,600
<b>Thermal properties</b>			
Coefficient of Thermal Expansion	ASTM D 696	(in./in.°C) x 10 <sup>-5</sup>	2
Thermal Conductivity	ASTM C 177		1.9
<b>Flame resistance properties</b>			

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	Test method	Unit	Guideline value
Radiant Panel Flame Spread	ASTM E 162		11
Tunnel Test - Flame Spread	ASTM E 84 / UL 723		25
Tunnel Test - Smoke Density	ASTM E 84 / UL 723		115
Flame Resistance - Ignition Time	ASTM D 229-II	sec.	85
Flame Resistance - Burn Time	ASTM D 229-II	sec.	49
Cone Calorimeter - Time to Ignition	ASTM E 1354	sec.	109
Cone Calorimeter - Peak Rate of Heat Release	ASTM E 1354	kW/m <sup>2</sup>	168.6
Cone Calorimeter - Heat Release Rate @ 300 sec.	ASTM E 1354	kW/m <sup>2</sup>	77.2
Cone Calorimeter - Caloric Content	ASTM E 1354	MJ / kg	7.13
Cone Calorimeter - Average Smoke Extinction Area	ASTM E1354	m <sup>2</sup> / kg	336.1
Specific Optical Density of Smoke - Ds @ 4.0 min. Non-Flaming (Avg.)	ASTM E 662		0.3
Specific Optical Density of Smoke - Ds @ 4.0 min. Flaming (Avg.)	ASTM E 662		10.7
Specific Optical Density of Smoke - Dm(corr) Non-Flaming (Avg.)	ASTM E 662		3.1
UL Subject 94 (≥ 3/32")	UL 94		V0
Oxygen Index	ASTM D 2863	%O <sub>2</sub>	35
Specific Optical Density of Smoke - Dm(corr) Flaming (Avg.)	ASTM E 662		128.4
<b>Composition of smoke</b>			
Aldehydes		ppm	4
Carbon Monoxide		ppm	220
Carbon Dioxide		ppm	3,275
Oxides of Nitrogen		ppm	10
<b>Physical properties</b>			
Water Absorption	ASTM D 570	% by wt.	0.4
Specific Gravity	ASTM D 792		1.81
<b>Dielectrical properties</b>			
Electrical Strength - Perpendicular S/T in Air	ASTM D 149	Vpm	450
Electrical Strength - Perpendicular S/T in Oil	ASTM D 149	Vpm	584
Electrical Strength - Parallel S/S in Oil	ASTM D 149	kV	47
Arc Resistance	ASTM D 495	sec.	180
Inclined Plane Track Resistance- 1/4" thick @2.5 kV	ASTM D 2303	min.	1,000
IEC Track Resistance (CTI)	UL 746A	V	600+
Permittivity, 60 Hz	ASTM D 150		4.1
Dissipation Factor, 60 Hz	ASTM D 150		0.013

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	Test method	Unit	Guideline value
Dissipation Factor, MHz	ASTM D 150		0.010
Permittivity, MHz	ASTM D 150		4.1
Insulation Resistance	ASTM D 257	$\Omega \times 10^{12}$	3.1

\* Procedure reported in U.S. Testing Co. Report #83413 of the Bureau of Ships; and referenced in Mil-M-14G  
 Typical average values are for 0.063" thick laminate. Properties vary with material thickness and form. Additional information and samples can be obtained through Röchling Glastic Composites customer service or your local authorized distributor. All of the information, suggestions, and recommendations pertaining to the properties and uses of the Röchling Glastic Composites products described herein are based upon tests and data believed to be accurate; however, the final determination regarding the suitability of any material described herein for the use contemplated, the manner of such use, and whether the use infringes any patents is the sole responsibility of the user. THERE IS NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Under no circumstances shall we be liable for incidental or consequential loss or damage.



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