



## Grade FHT

### Flexible, High-Temperature Laminate

- Highly Flexible
- Excellent Dielectric Strength
- High Heat Resistance
- Ideal For Dry-Type Transformers
- Easily Fabricated
- Asbestos-Free

Grade FHT (Flexible High Temperature) Laminate provides numerous high-performance features and benefits, such as high flexibility and excellent dielectric strength at elevated temperatures. It also exhibits the highest UL® temperature index in the industry for a flexible glass-reinforced polyester in 1/32 inch and 1/16 inch thicknesses:

- 1/32" – 190° C Electrical
- 1/16" – 200° C Electrical
- 1/32" – 190° C Mechanical
- 1/16" – 200° C Mechanical

With its high resistance to heat, FHT Laminate offers a cost-effective alternative to aramid paper in 220°C insulation systems. Typical applications include layer and core insulation for dry-type transformers.

## Grade SG-200

### High-Strength & High-Temperature Laminate

- Extremely Strong
- Excellent Retention Of Properties At Elevated Temperatures
- Ideal For High Temperature Applications
- Easily Fabricated
- Asbestos-Free

Grade SG-200 High-Strength & High-Temperature Laminate offers the same high-performance features and benefits as FHT Laminate. In addition, SG-200 offers much higher mechanical strengths than FHT with temperature ratings of up to 210° C.

Because of its capabilities, SG-200 is ideal for a wide variety of product applications requiring high-temperature NEMA GPO-1 products. Grade SG-200 is also a superior replacement material for epoxy-bonded mica in layer insulation applications. SG-200 has a UL Temperature Index of 210° C Electrical and 210° C Mechanical.

Grade SG-200 is available in thicknesses of 1/32" to 1 1/4". Special sheet sizes of 64" x 64" are available for large lifting magnets.



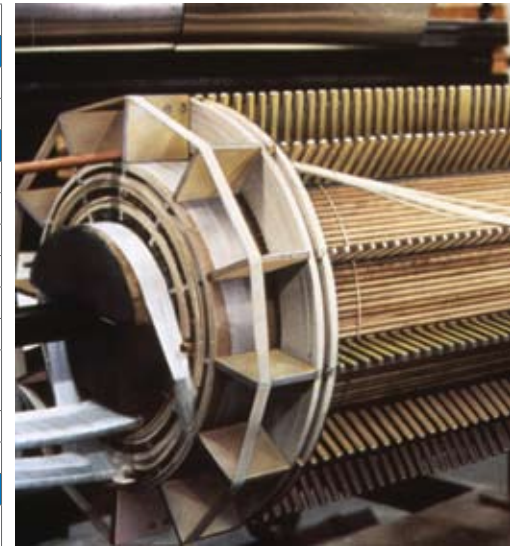
Ventilated Dry-Type Transformer Coil. Both SG-200 and FHT Laminates are used in a wide variety of dry-type transformer applications.





## Grades FHT & SG-200

	UNIT	ASTM/UL Number	Grade FHT	Grade SG-200
<b>General Information</b>				
Part Number			1800	1906
Standard Color			Natural/Cream	Natural/Tan
<b>Mechanical Properties</b>				
NEMA Grade Li 1-1989			–	GPO-1
Tensile Strength	Psi	D638	10,500	12,500
Tensile Modulus	Psi X 10 <sup>6</sup>	D638	–	1.7
Flexural Strength	Psi	D790	–	29,000
Compressive Strength	Psi	D695	14,000	36,000
Shear Strength	Psi	D732	–	11,100
IZOD Impact Strength (notched)	ft. lb./in.	D256	10	12
Water Absorption	% by wt.	D570	1.1	0.3
Specific Gravity	–	D792	1.6	1.7
<b>Electrical Properties</b>				
Electrical Strength – Perpendicular S/T in Air	V <sub>pm</sub>	D149	450	500
Electrical Strength – Perpendicular S/T in Oil	V <sub>pm</sub>	D149	570	625
Electrical Strength – Parallel S/S in Oil	kV	D149	60	50
Arc Resistance	Sec.	D495	139	120/180*
IEC Track Resistance (CTI)	V.	UL746A	>600	>600
UL High Voltage Track Rate	In./Min.	UL746A	0	0
Permittivity, 60 Hz	–	D150	6.4	4.6
Dissipation Factor, 60 Hz	–	D150	0.07	0.37
Permittivity, MHz	–	D150	4.2	3.7
Dissipation Factor, MHz	–	D150	0.03	0.013
Insulation Resistance	Ohm x 10 <sup>12</sup>	D257	–	145
<b>Flame Resistance Properties</b>				
UL Subject 94	–	UL94	HB	HB
UL Hot Wire Ignition	Sec.	UL746A	0.028 in./49 0.058 in./102	0.028 in./35 0.058 in./39
UL High Amp Ignition	# Exposure	UL746A	200+	200+
Oxygen Index	%O <sub>2</sub>	D2863	21.8	21.8
<b>Thermal Properties</b>				
Coefficient of Thermal Expansion	In/In/°C x 10 <sup>-5</sup>	D696	–	2
Thermal Conductivity	BTU/HR/Ft <sup>2</sup> /In/°F	C177	–	1.7
UL Temperature Index				
– Electrical	°C	UL 746B	0.028 in./190 0.058 in./200	210
– Mechanical	°C	UL 746B	0.028 in./190 0.058 in./200	210
UL Recognition File Number	–	–	E81928	E81928



Röchling Glastic Composites  
 4321 Glenridge Road  
 Cleveland, OH 44121 USA  
 Tel: 216-486-0100  
 Fax: 216-486-1091  
[www.glastic.com](http://www.glastic.com)

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Typical average values for testing 0.063" thick material. Values will vary somewhat from thickness to thickness within a material grade.

\* Post-cured