haysite
haysite reinforced plastics

# ENGINEERING DATA

## GPO-3 ETR-FR-C 1/1/2011

Haysite's high performance material that meets NEMA GPO-3 requirements and exceeds NEMA in dielectric strength, arc resistance, and track resistance. This UL recognized grade is highly flame retardant and low smoke generating. ETR-FR-C is a IEEE 130° C electrical / 160° mechanical Class B material. Applications include high voltage appliance insulators, bus bar supports, and barriers in switchgear. Available in thicknesses .032" - 2.00". Standard color - Red. Meets Gov't Spec - I-24768/6.

| **Physical** | **Test Method** | **Unit** | **Result** |
|---|---|---|---|
| Barcol Hardness | Barcol | Scale | 64 |
| Specific Gravity | D-792 | | 1.83 |
| Density, *Lbs/In*$^3$ | | Lbs/Cu. In. | 0.066 |
| Water Absorption, % | D-229 | % | 0.20 |
| UL Flammability, File# E81893 | UL94 | Class | 94V-O |
| Flame Resistance, *Seconds* | | | |
| Ignition Time | D-229 | Seconds | 100 |
| Burning Time | D-229 | Seconds | 20 |
| Radiant Panel | E-162 | Flame Spread | 1.3 |
| Smoke Density at 4.0 minutes, flaming | E-662 | Optical Density | 40 |
| Tunnel Test, 1/4" Thickness | E-84 | Flame Spread | <25 |
| Temperature Class* | -- | Degrees C | 130 |
| **Mechanical** | | | |
| Tensile Strength, *PSI* | D-638 | PSI | 9,400 |
| Flexural Strength, *PSI* | D-790 | PSI | 21,000 |
| Modulus of Elasticity in Flexure, *PSI* | D-790 | PSI | $1.59 \times 10^6$ |
| Compressive Strength, *PSI* | D-695 | PSI | 35,000 |
| Bond Strength, 1/2" Thickness, *PSI* | D-229 | PSI | 1400 |
| Shear Strength, *PSI* | D-732 | PSI | 14,000 |
| Impact Strength, Izod Edgewise | D-256 | Ft lbs/In. Notch | 8.0 |
| **Electrical** | | | |
| Dielectric Strength, ⊥, Short Time In Oil 1/16", *VPM* | D-149 | VPM | 450 |
| Dielectric Strength, Parallel, Step-By-Step In Oil, *KV* | D-149 | KV | 55.0 |
| Arc Resistance, *Seconds* | D-495 | Seconds | 185 |

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**GPO-3** **ETR-FR-C** **1/1/2011**

| | | | |
|---|---|---|---|
| Comparative Track Index | CTI | Volts | 500+ |
| Incline Plane Track Resistance | D-2303 | Minutes | 500 |
| Dielectric Constant @60HZ | D-150 | | 4.73 |
| Dielectric Constant @1MHZ | D-150 | | 4.69 |
| Dissipation Factor @ 60 Hz | D-150 | | 0.016 |
| Dissipation Factor @ 1MHz | D-150 | | 0.011 |

Unless otherwise indicated, all properties published are based on test performed on standard ASTM test samples and according to ASTM test methods. Values shown are for test samples made from production materials and they are believed to be conservative. No warranty is to be construed, however, in fabricated or molded form, parts may vary considerably from this standard test data. Where specific or unusual applications arise, test should be made on actual parts, and test procedures agreed upon between Haysite Reinforced Plastics and the customer.