

# Glastic UTR

## Grade 1494 Arc/Track & Flame Resistant Laminate

- 1,000 Minutes Track Resistance
- Electrically Insulating
- Highly Flame Resistant
- Low Smoke & Smoke Toxicity
- UL® Recognized
- NEMA Grade GPO-3

Glastic® Grade 1494 is a fiberglass reinforced thermoset polyester material. It is available in sheet form as well as a wide selection of channel, angle, and tube sizes. These materials are the industry standard for flame and arc/track resistant electrical insulation. In addition, the excellent combination of high strength, flame resistance, and low smoke generation has given it application in many other areas such as transit and marine where safe, yet economical materials are required. Additional information and samples can be obtained through Glastic Customer Service or your local Glastic authorized distributor.

| GENERAL INFORMATION                          | UNIT                   | PROCEDURE   | TYPICAL VALUE <sup>1</sup> |
|--|------------------------|-------------|----------------------------|
| Part Number                                  |                        |             | 1494                       |
| Standard Color                               |                        |             | Red                        |
| NEMA Grade                                   |                        | NEMA LI-1   | GPO-3                      |
| MECHANICAL PROPERTIES                        |                        |             |                            |
| Tensile Strength                             | Psi                    | ASTM D 638  | 7,800                      |
| Tensile Modulus                              | Psi x 10 <sup>6</sup>  | ASTM D 638  | 1.7                        |
| Flexural Strength                            | Psi                    | ASTM D 790  | 22,100                     |
| Flexural Strength at 130° C                  | Psi                    | ASTM D 790  | 13,100                     |
| Compressive Strength                         | Psi                    | ASTM D 695  | 33,100                     |
| Shear Strength                               | Psi                    | ASTM D 732  | 11,600                     |
| IZOD Impact Strength (notched)               | Ft. lb./in.            | ASTM D 256  | 8.9                        |
| Water Absorption                             | % by wt.               | ASTM D 570  | 0.4                        |
| Specific Gravity                             |                        | ASTM D 792  | 1.81                       |
| ELECTRICAL PROPERTIES                        |                        |             |                            |
| Electric Strength – Perpendicular S/T in Air | Vpm                    | ASTM D 149  | 450                        |
| Electric Strength – Perpendicular S/T in Oil | Vpm                    | ASTM D 149  | 584                        |
| Electric Strength – Parallel S/S in Oil      | kV                     | ASTM D 149  | 47                         |
| Arc Resistance                               | Sec.                   | ASTM D 495  | 180                        |
| Inclined Plane Track Resistance – 1/8" thick | Min.                   | ASTM D 2303 | 1,000                      |
| IEC Track Resistance (CTI)                   | V                      | UL 746A     | > 500                      |
| UL High Voltage Track Rate                   | In./Min.               | UL 746A     | 0                          |
| Permittivity, 60 Hz                          |                        | ASTM D 150  | 4.1                        |
| Permittivity, 1 Hz                           |                        | ASTM D 150  | 4.1                        |
| Dissipation Factor, 60 Hz                    |                        | ASTM D 150  | 0.013                      |
| Dissipation Factor, 1 MHz                    |                        | ASTM D 150  | 0.010                      |
| Insulation Resistance                        | Ohm x 10 <sup>12</sup> | ASTM D 257  | 3.1                        |



Low-Profile Switchgear Cabinet

Interphase and end barriers are fabricated from Glastic Grade UTR Laminate.

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## Grade 1494 Arc/Track & Flame Resistant Laminate

| FLAME & SMOKE CHARACTERISTICS  |                                       |                  |        |
|--|---------------------------------------|------------------|--------|
| UL Subject 94  | .094" and thicker                     | UL 94            | V-0    |
|  | less than .093"                       |                  | HB     |
| Oxygen Index   | Percent Oxygen                        | ASTM D 2863      | 35.0   |
| Flame Resistance   |                                       | ASTM D 229-II    |        |
| Ignition Time  | Sec.                                  |                  | 85     |
| Burn Time  | Sec.                                  |                  | 49     |
| Tunnel Test  |                                       | ASTM E 84/UL 723 |        |
| Flame Spread   |                                       |                  | 25     |
| Smoke Density  |                                       |                  | 115    |
| Fuel Contributed   |                                       |                  | 0      |
| Cone Calorimeter   |                                       | ASTM E 1354      |        |
| Time to Ignition   | Sec.                                  |                  | 109    |
| Peak Rate of Heat Release  | kW / m <sup>2</sup>                   |                  | 168.6  |
| Heat Release Rate @ 300 sec.   | kW / m <sup>2</sup>                   |                  | 77.2   |
| Caloric Content  | MJ / kg                               |                  | 7.13   |
| Average Smoke Extinction Area  | m <sup>2</sup> / kg                   |                  | 336.1  |
| Radiant Panel Flame Spread   |                                       | ASTM E 162       | 11     |
| COMPOSITION OF SMOKE   |                                       |                  |        |
| Procedure reported in U.S. Testing Co. report #83413 of the Bureau of Ships, and referenced in MIL-M-14G | Material                              |                  |        |
|  | Hydrogen Chloride                     | ppm              | 0      |
|  | Aldehydes as HCHO                     | ppm              | 4      |
|  | Ammonia                               | ppm              | 0      |
|  | Carbon Monoxide                       | ppm              | 220    |
|  | Carbon Dioxide                        | ppm              | 3275   |
|  | Oxides of Nitrogen as NO <sub>2</sub> | ppm              | 10     |
| Cyanides of HCN  | ppm                                   | 0                |        |
| THERMAL PROPERTIES   |                                       |                  |        |
| Coefficient of Thermal Expansion   | In/In/°C x 10 <sup>-5</sup>           | ASTM D 696       | 2.0    |
| Thermal Conductivity   | BTU/Hr/Ft <sup>2</sup> /IN/°F         | ASTM C 177       | 1.9    |
| UL Temperature Index   |                                       |                  |        |
| Electrical   | °C                                    | UL 746B          | 130    |
| Mechanical   | °C                                    | UL 746B          | 160    |
| UL Recognition File Number   |                                       |                  | E81928 |

<sup>1</sup> Typical average values for 0.063 inch thick laminate. Properties vary with material thickness and form.

## Jaco Products : Laminate Die Cutting, Stamping & Machining

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