

Cross-Linked Polyethylene Rod and Sheet Stock

CROSS-LINKED POLYETHYLENE STOCK



Eccostock CPE is a cross-linked polyethylene rod and sheet stock. The material is thermosetting. It will not flow even when subjected to excessive and prolonged heat. The surface may darken with no effect on the bulk properties of the material. Physical properties of Eccostock CPE are similar to those of polyethylene at room temperature. It can be used as a direct substitute for polytetrafluoroethylene with a consequent weight and cost savings.

FEATURES AND BENEFITS

- Low dielectric loss
- Excellent machinability
- Good mechanical properties

MARKETS

- Commercial Telecom
- Security and Defense

SPECIFICATIONS

| TYPICAL PROPERTIES | ECCOSTOCK CPE |
|--|---|
| Service Temperature °C (°F) | <204 (<400) |
| Density, g/cc | 0.98 |
| Dielectric Constant, 100 Hz to 10 GHz | 2.4 |
| Dissipation Factor, 100 Hz to 10GHz | <0.0007 |
| Insulation Resistance, ohm-cm | >10 ¹⁴ |
| Coefficient of Linear Expansion (cm/cm/°C) | 90 x 10 ⁻⁶ |
| Thermal Expansion, per °C (°F) | 10 x 10 ⁻⁵ (5.6 x 10 ⁻⁵) |
| Tensile Strength, psi (kg/cm ²) | 2,600 (182) |
| Tensile Modulus, psi (kg/cm ²) | 40,000 (2,800) |
| Flexural Yield, psi (kg/cm ²) | 5,400 (378) |
| Flexural Modulus, psi (kg/cm ²) | 500,000 (35,000) |
| Water absorption, % gain in 24 hours at 25°C | <0.01 |
| Outgassing (%TML) (%CVCM)* | 1.89/0.111 |

Data for design engineer guidance only. Observed performance varies in application. Engineers are reminded to test the material in application.

* Outgassing data per ASTM E595-07; criteria for acceptability is 1.00% TML and 0.10% CVCM.

APPLICATIONS

- Eccostock CPE is used for insulators, cavity tuning probes, patch antennas, and dielectric support pieces.
- Excellent machinability makes it a good choice for custom microwave transmission line components.
- Ideal for structural applications due to good mechanical properties.

AVAILABILITY

- Eccostock CPE is available in the following standard sizes:
- Sheets 30.5cm x 30.5cm (12" x 12") in thicknesses of 0.32, 0.64, 0.95, 1.27, 1.91, 2.54, 3.81, 5.08, 6.35 & 7.62 cm (1/8, 1/4, 3/8, 1/2, 3/4, 1.0, 1.5, 2.0, 2.5 & 3.0").
- Rods 30.5cm long (12") in diameters of 0.32, 0.64, 0.95, 1.27, 1.59, 1.91, 2.54, 3.81, 5.08, 6.35 & 7.62 cm (1/8, 1/4, 3/8, 1/2, 5/8, 3/4, 1.0, 1.5, 2.0, 2.5 & 3.0").
- Other sizes, shapes, thicknesses, and configurations are available on special order.
- Upon special requests, custom shapes may be available with a Pressure Sensitive Adhesive (PSA).

INSTRUCTIONS FOR USE

- Eccostock CPE is easy to machine and a smooth low friction surface is readily obtainable. It will not gum on machining which can be done with standard cutting and grinding tools.