



MANUFACTURING CORPORATION

- Plastics Machining
- Spring Energized Seals
- Rotary Lip Seals

### Material Data Sheet

Material: Tecapeek™

Polyetheretherketone

Tecapeek™ is a unique, semi-crystalline, high temperature engineering thermoplastic. It is an excellent material for a wide spectrum of applications where thermal, chemical, and combustion properties are critical to performance. Especially significant in this regard is Tecapeek™'s ability to retain its flexural and tensile properties at very high temperatures in excess of 482°F. This material has been used in applications such as automotive, marine, nuclear, oil well, electronics, medical and aerospace. Tecapeek™ offers exceptional chemical resistance and outstanding wear and abrasion resistance.

| Mechanical Properties                                    | ASTM Test Method | Value                  | Units                           |
|--|------------------|------------------------|---------------------------------|
| Density  | D792             | 0.0477                 | lbs/in <sup>3</sup>             |
| Specific Gravity   | D792             | 1.3                    | g/cc                            |
| Water Absorption @ 24 hours, 73°F                        | D570             | 0.5                    | %                               |
| @ Saturation, 73°F                                       | D570             | 0.5                    | %                               |
| Tensile Strength, 73°F                                   | D638             | 14,000                 | psi                             |
| Tensile Modulus  | D639             | 522,100                | psi                             |
| Elongation ( at break), 73°F                             | D638             | 50                     | %                               |
| Flexural Strength, 73°F                                  | D790             | 27,700                 | psi                             |
| Flexural Modulus, 73°F                                   | D790             | 530,000                | psi                             |
| Compressive Strength 73°F                                | D695             | 17,100                 | psi                             |
| Shear Strength, Ultimate, 73°F                           | D3846            | 7,600                  | psi                             |
| Izod Impact Strength, 73°F                               | D256             | 2                      | ft-lb/in of notch               |
| Rockwell Hardness, 73°F                                  | D785             | M - 99                 | M or R Scale                    |
| Limiting PV @ 68°F 1200 in/min                           |                  | 170,000                | (psi) (ft/min)                  |
| Coefficient of Friction, @ 68°F 1200 in/mm, 155 lbs load |                  | 0.18                   | in. <sup>3</sup> -min/ft.lbs.hr |
| <b>Thermal Properties</b>                                |                  |                        |                                 |
| Heat Deflection Temperature @ 264 psi, 1/4"              | D648             | 320                    | °F                              |
| Maximum Continuous Use Temperature                       |                  | 482                    | °F                              |
| Melting Point  |                  | 633                    | °F                              |
| Coefficient of Linear Thermal Expansion                  | D696             | 2.6 X 10 <sup>-5</sup> | in/in./°F                       |
| Thermal Conductivity                                     | C177             | 1.7                    |                                 |
| Flammability   | UL94             | V - 0                  | (mm)                            |
| <b>Electrical Properties</b>                             |                  |                        |                                 |
| Volume Resistivity                                       | D149             | 4.9 x 10 <sup>16</sup> | ohm - cm                        |
| Surface Resistivity                                      | D257             | 1 x 10 <sup>16</sup>   | ohm/square                      |
| Dielectric Strength                                      | D257             | 190                    | Volts/mil                       |

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\*The values shown in these and the following charts are typical, average properties. Actual values may differ due to variations in resin formulations and processing methods. These values are obtained from sources believed to be reliable, including the resin manufactures, converters and other published sources. However, they should not be used for specification or design purposes. The above information is provided by Ensinger Hyde.