TECAPEEK® TECAPEEK®

Polyetheretherketone

Ensinger Inc.

Message:

TECAPEEK® stock shapes are made exclusively with Victrex PEEK polymer. 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 250°C (482°F). The addition of glass fiber or carbon fiber reinforcements enhances the mechanical and thermal properties of the basic TECAPEEK® material

TECAPEEK™s exceptional property profile enables it to be utilized in many of the most critical areas in general industry, as well as in the automotive, marine, nuclear, oil well, electronics, medical and aerospace fields.

| General Information | | | | | | | | | | |
|------------------------------------|---|------------------|-------------|--|--|--------------------------|-----------------------|--|--|--|
| Features | Semicrystallization Low smoke Anti-gamma radiation Impact resistance, high | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | Good wear resistance | | | | |
| | | | | | | Good chemical resistance | | | | |
| | Good wear resistance Heat resistance, high | | | | | | | | | |
| | | | | | | | Hydrolysis resistance | | | |
| | | | | | | | | | | |
| | Uses | Ship application | | | | | | | | |
| Electrical/Electronic Applications | | | | | | | | | | |
| | Industrial application | | | | | | | | | |
| | Aerospace applications | | | | | | | | | |
| | Nuclear energy applications | | | | | | | | | |
| | Application in Automobile Field | | | | | | | | | |
| | Oil/Gas Supplies | | | | | | | | | |
| | Medical/nursing supplies | | | | | | | | | |
| | | | | | | | | | | |
| Forms | Shapes | | | | | | | | | |
| Physical | Nominal Value | Unit | Test Method | | | | | | | |
| Specific Gravity | 1.30 | g/cm³ | ASTM D792 | | | | | | | |
| Water Absorption | | | ASTM D570 | | | | | | | |
| 23°C, 24 hr | 0.50 | % | ASTM D570 | | | | | | | |
| Saturated, 23°C | 0.50 | % | ASTM D570 | | | | | | | |
| Hardness | Nominal Value | Unit | Test Method | | | | | | | |
| Rockwell Hardness (M-Scale) | 99 | | ASTM D785 | | | | | | | |
| Mechanical | Nominal Value | Unit | Test Method | | | | | | | |
| Tensile Modulus - 1% Secant (23°C) | 4480 | MPa | ASTM D638 | | | | | | | |

| Tensile Elongation Yield, 23°C 4.9 4.9 % ASTM D Fracture, 23°C 40 MPa ASTM D Flexural Modulus (23°C) 4140 MPa ASTM D Flexural Strength (23°C) 179 MPa ASTM D Compressive Strength (23°C) 118 MPa ASTM D Shear Strength (23°C) 52.4 MPa MPa ASTM D Coefficient of Friction 1 0.18 Impact Nominal Value Unit Test Me Notched Izod Impact (23°C) 51 Mra Nominal Value Unit Test Me MPa ASTM D Coefficient of Friction 1 Test Me Nominal Value Unit Test Me Coefficient of Emperature 260 C C CLTE - Flow 4.7E-5 CM/cm/°C ASTM D CLTE - Flow 4.7E-5 CM/cm/°C ASTM D Surface Resistivity 1.0E+16 Nominal Value Unit Test Me Surface Resistivity 1.0E+16 Nominal Value Unit Test Me Surface Resistivity 1.0E+16 Nominal Value Unit Test Me Surface Resistivity Nominal Value Unit Test Me Volume Resistivity (23°C) 4.9E+16 Nominal Value Unit Test Me Volume Resistivity (23°C) ASTM D ASTM D ASTM D ASTM D ACITE - Flow Nominal Value Unit Test Me Unit Tes | | | | |
|--|--------------------------------------|---------------|----------|-------------|
| Yield, 23°C | Tensile Strength (Yield, 23°C) | 110 | МРа | ASTM D638 |
| Fracture, 23°C | Tensile Elongation | | | ASTM D638 |
| Flexural Modulus (23°C) 4140 MPa ASTM E Flexural Strength (23°C) 179 MPa ASTM E Compressive Strength (23°C) 118 MPa ASTM E Shear Strength (23°C) 52.4 MPa ASTM E Coefficient of Friction 1 0.18 Impact Nominal Value Unit Test Me Notched Izod Impact (23°C) 51 J/m ASTM E Deflection Temperature Under Load (1.8 MPa, Unannealed, 6.35 mm) 160 °C ASTM E Continuous Use Temperature 260 °C Melting Temperature 334 °C CLTE - Flow 4.7E-5 cm/cm/°C ASTM E CLTE - Flow 4.7E-5 cm/cm/°C ASTM E Surface Resistivity 0.25 W/m/K ASTM C Deflectrical Nominal Value Unit Test Me Surface Resistivity (23°C) 4.9E+16 ohms ASTM E Deflectric Strength 7.5 kV/mm ASTM E Flammability Nominal Value Unit Test Me Additional Information Nominal Value Unit Limiting Pressure Velocity - 1200 in/min (20°C) 170000 psi-fpm | Yield, 23°C | 4.9 | % | ASTM D638 |
| Flexural Strength (23°C) 179 MPa ASTM D Compressive Strength (23°C) 118 MPa ASTM D Shear Strength (23°C) 52.4 MPa ASTM D Coefficient of Friction 1 0.18 Impact Nominal Value Unit Test Me Notched Izod Impact (23°C) 51 J/m ASTM D Deflection Temperature Under Load (1.8 MPa, Unannealed, 6.35 mm) 160 °C ASTM D Continuous Use Temperature 260 °C Melting Temperature 334 °C CLTE - Flow 4.7E-5 cm/cm/°C ASTM D Thermal Conductivity 0.25 W/m/K ASTM D Electrical Nominal Value Unit Test Me Surface Resistivity (23°C) 4.9E+16 ohms ASTM D Dielectric Strength 7.5 kV/mm ASTM D Flammability Nominal Value Unit Test Me Additional Information Nominal Value Unit Test Me Unit Test Me Unit Test Me Deflex Melting Temperature Unit Test Me Deflex Melting Temperature Unit Test Me Surface Resistivity (23°C) 4.9E+16 ohms ASTM D Dielectric Strength 7.5 kV/mm ASTM D Flammability Nominal Value Unit Test Me Flame Rating V-0 Unit Test Me Flame Rating V-0 Unit Test Me Limiting Pressure Velocity - 1200 in/min (20°C) 170000 psi fpm | Fracture, 23°C | 40 | % | ASTM D638 |
| Compressive Strength (23°C) 118 MPa ASTM E Shear Strength (23°C) 52.4 MPa ASTM E Coefficient of Friction 1 0.18 Impact Nominal Value Unit Test Me Notched Izod Impact (23°C) 51 J/m ASTM E Thermal Nominal Value Unit Test Me Deflection Temperature Under Load (1.8 MPa, Unannealed, 6.35 mm) 160 °C ASTM E Continuous Use Temperature 260 °C Melting Temperature 334 °C CLTE - Flow 4.7E-5 cm/cm/°C ASTM E Thermal Conductivity 0.25 W/m/K ASTM C Surface Resistivity 1.0E+16 ohms ASTM E Surface Resistivity (23°C) 4.9E+16 ohms ASTM E Flammability Nominal Value Unit Test Me Surface Resistivity (23°C) 4.9E+16 ohms Company ASTM E Flammability Nominal Value Unit Test Me Sard C ASTM E Flammability Nominal Value Unit Test Me Sard C ASTM E Flammability Nominal Value Unit Test Me Sard C ASTM E Sard C ASTM E C Com/cm/°C ASTM E C C CLTE - Flow Unit Test Me C C C CLTE - Flow Unit Test Me C C C CLTE - Flow Unit Test Me C C C CLTE - Flow Unit Test Me C C C CLTE - Flow Unit Test Me C C C C C C C C C C C C C C C C C C C | Flexural Modulus (23°C) | 4140 | MPa | ASTM D790 |
| Shear Strength (23°C) 52.4 MPa ASTM C Coefficient of Friction 1 0.18 Impact Nominal Value Unit Test Me Notched Izod Impact (23°C) 51 J/m ASTM C Thermal Nominal Value Unit Test Me Deflection Temperature Under Load (1.8 MPa, Unannealed, 6.35 mm) 160 °C ASTM C Continuous Use Temperature 260 °C Melting Temperature 334 °C CLTE - Flow 4.7E-5 cm/cm/°C ASTM C Thermal Conductivity 0.25 W/m/K ASTM C Electrical Nominal Value Unit Test Me Surface Resistivity 1.0E+16 ohms ASTM C Dielectric Strength 7.5 kV/mm ASTM C Flammability Nominal Value Unit Test Me Selame Rating V-0 Unit Mean ASTM C Limiting Pressure Velocity - 1200 in/min (20°C) 170000 psi·fpm | Flexural Strength (23°C) | 179 | MPa | ASTM D790 |
| Impact Nominal Value Unit Test Methodology (23°C) 51 J/m ASTM ED Thermal Nominal Value Unit Test Methodology (23°C) 51 J/m ASTM ED Thermal Nominal Value Unit Test Methodology (20°C) 51 J/m ASTM ED Thermal Nominal Value Unit Test Methodology (20°C) 51 J/m ASTM ED Thermal Nominal Value Unit Test Methodology (20°C) 51 J/m ASTM ED Thermal Conductive Unit Test Methodology (20°C) 51 J/m ASTM ED Thermal Conductivity 0.25 Com/cm/°C ASTM ED Thermal Conductivity 0.25 W/m/K ASTM ED Thermal Co | Compressive Strength (23°C) | 118 | MPa | ASTM D695 |
| Impact Nominal Value Unit Test Met Notched Izod Impact (23°C) 51 J/m ASTM Deflection Temperature Under Load (1.8 MPa, Unannealed, 6.35 mm) 160 °C ASTM Deflection Temperature Under Load (1.8 MPa, Unannealed, 6.35 mm) 160 °C ASTM Deflection Temperature 260 °C ASTM Deflection Temperature 334 °C ASTM Deflectical Nominal Value Unit Test Methods Surface Resistivity 0.25 W/m/K ASTM Deflectrical Nominal Value Unit Test Methods Surface Resistivity (23°C) 4.9E+16 Ohms ASTM Deflectric Strength 7.5 kV/mm ASTM Deflectric Strength 7.5 kV/mm ASTM Deflectric Strength 7.5 kV/mm ASTM Deflectric Strength Nominal Value Unit Test Methods Deflectric Strength Nominal Value | Shear Strength (23°C) | 52.4 | MPa | ASTM D3846 |
| Notched Izod Impact (23°C) 51 J/m ASTM D Thermal Nominal Value Unit Test Me Deflection Temperature Under Load (1.8 MPa, Unannealed, 6.35 mm) 160 °C ASTM D Continuous Use Temperature 260 °C Melting Temperature 334 °C CLTE - Flow 4.7E-5 cm/cm/°C ASTM D Thermal Conductivity 0.25 W/m/K ASTM C Electrical Nominal Value Unit Test Me Surface Resistivity (23°C) 4.9E+16 ohms ASTM D Delectric Strength 7.5 kV/mm ASTM D Flammability Nominal Value Unit Test Me Flame Rating V-0 UL 94 Additional Information Nominal Value Unit Limiting Pressure Velocity - 1200 in/min (20°C) 170000 psi·fpm | Coefficient of Friction ¹ | 0.18 | | |
| Thermal Nominal Value Unit Test Me Deflection Temperature Under Load (1.8 MPa, Unannealed, 6.35 mm) 160 °C ASTM D Continuous Use Temperature 260 °C Melting Temperature 334 °C CLTE - Flow 4.7E-5 cm/cm/°C ASTM D Thermal Conductivity 0.25 W/m/K ASTM D Electrical Nominal Value Unit Test Me Surface Resistivity 1.0E+16 ohms ASTM D Dielectric Strength 7.5 kV/mm ASTM D Dielectric Strength 7.5 kV/mm ASTM D Flammability Nominal Value Unit Test Me Flame Rating V-0 UL 94 Additional Information Nominal Value Unit Limiting Pressure Velocity - 1200 in/min (20°C) 170000 psi-fpm | Impact | Nominal Value | Unit | Test Method |
| Deflection Temperature Under Load (1.8 MPa, Unannealed, 6.35 mm) 160 °C ASTM Deflection Temperature 260 Continuous Use Temperature 334 °C CLTE - Flow 4.7E-5 cm/cm/°C ASTM Deflectrical Nominal Value Unit Test Messurface Resistivity 1.0E+16 ohms ASTM Deflectric Strength 7.5 kV/mm ASTM Deflectric Strength Nominal Value Unit Test Messurface Resistivity ASTM Deflectric Strength 7.5 kV/mm ASTM Deflectric Strength Nominal Value Unit Test Messurface Resistivity ASTM Deflectric Strength Nominal Value Unit Test Messurface Resistivity ASTM Deflectric Strength Nominal Value Unit Test Messurface Resistivity ASTM Deflectric Strength Nominal Value Unit Test Messurface Resistivity Additional Information Nominal Value Unit | Notched Izod Impact (23°C) | 51 | J/m | ASTM D256 |
| MPa, Unannealed, 6.35 mm) 160 °C ASTM D Continuous Use Temperature 260 Melting Temperature 334 °C CLTE - Flow 4.7E-5 Cm/cm/°C ASTM D Thermal Conductivity 0.25 W/m/K ASTM D Electrical Nominal Value Unit Test Me Surface Resistivity 1.0E+16 ohms ASTM D Dielectric Strength 7.5 kV/mm ASTM D Flammability Nominal Value Unit Test Me ASTM D ASTM D ASTM D Limiting Pressure Velocity - 1200 in/min (20°C) 170000 °C ASTM D C C LIMITIAN ASTM D C ASTM D C ASTM D C LIMITIAN Pair ASTM D C ASTM D AST | Thermal | Nominal Value | Unit | Test Method |
| Melting Temperature 334 °C CLTE - Flow 4.7E-5 cm/cm/°C ASTM C Thermal Conductivity 0.25 W/m/K ASTM C Electrical Nominal Value Unit Test Me Surface Resistivity 1.0E+16 ohms ASTM C Volume Resistivity (23°C) 4.9E+16 ohms·cm ASTM C Dielectric Strength 7.5 kV/mm ASTM C Flammability Nominal Value Unit Test Me Flame Rating V-0 Unit Test Me Additional Information Nominal Value Unit Limiting Pressure Velocity - 1200 in/min (20°C) 170000 psi·fpm | • | | °C | ASTM D648 |
| CLTE - Flow 4.7E-5 cm/cm/°C ASTM C Thermal Conductivity 0.25 W/m/K ASTM C Electrical Nominal Value Unit Test Me Surface Resistivity 1.0E+16 ohms ASTM C Volume Resistivity (23°C) 4.9E+16 ohms·cm ASTM C Dielectric Strength 7.5 kV/mm ASTM C Flammability Nominal Value Unit Test Me Flame Rating V-0 UL 94 Additional Information Nominal Value Unit | Continuous Use Temperature | 260 | °C | |
| Thermal Conductivity 0.25 W/m/K ASTM Conductivity Nominal Value Unit Test Me Surface Resistivity 1.0E+16 ohms ASTM Conductivity Volume Resistivity (23°C) 4.9E+16 ohms·cm ASTM Conductivity Nominal Value Unit Test Me Surface Resistivity (23°C) UL 94 Additional Information Nominal Value Unit Unit Test Me Surface Resistivity (23°C) UL 94 Additional Information Nominal Value Unit | Melting Temperature | 334 | °C | |
| Electrical Nominal Value Unit Test Met Surface Resistivity 1.0E+16 ohms ASTM Description ohms ohms ASTM Description ohms ohms ohms ohms ohms ohms ohms ohms | CLTE - Flow | 4.7E-5 | cm/cm/°C | ASTM D696 |
| Surface Resistivity 1.0E+16 ohms ASTM D Volume Resistivity (23°C) 4.9E+16 ohms·cm ASTM D Dielectric Strength 7.5 kV/mm ASTM D Flammability Nominal Value Unit Test Me Flame Rating V-0 UL 94 Additional Information Nominal Value Unit Limiting Pressure Velocity - 1200 in/min (20°C) psi·fpm | Thermal Conductivity | 0.25 | W/m/K | ASTM C177 |
| Volume Resistivity (23°C) 4.9E+16 ohms·cm ASTM D Dielectric Strength 7.5 kV/mm ASTM D Flammability Nominal Value Unit Test Me Additional Information Nominal Value Unit Unit V-0 UL 94 Additional Information Nominal Value Unit | Electrical | Nominal Value | Unit | Test Method |
| Dielectric Strength 7.5 kV/mm ASTM Dielectric Strength 7.5 kV/mm ASTM Dielectric Strength 7.5 kV/mm ASTM Dielectric Strength V-0 Unit Test Median Rating V-0 UL 94 Additional Information Nominal Value Unit Limiting Pressure Velocity - 1200 in/min (20°C) 170000 psi·fpm | Surface Resistivity | 1.0E+16 | ohms | ASTM D257 |
| Flammability Nominal Value Unit Test Me Flame Rating V-0 UL 94 Additional Information Nominal Value Unit Limiting Pressure Velocity - 1200 in/min (20°C) 170000 psi·fpm | Volume Resistivity (23°C) | 4.9E+16 | ohms·cm | ASTM D257 |
| Flame Rating V-0 UL 94 Additional Information Nominal Value Unit Limiting Pressure Velocity - 1200 in/min (20°C) 170000 psi·fpm | Dielectric Strength | 7.5 | kV/mm | ASTM D149 |
| Additional Information Nominal Value Unit Limiting Pressure Velocity - 1200 in/min (20°C) 170000 psi·fpm | Flammability | Nominal Value | Unit | Test Method |
| Limiting Pressure Velocity - 1200 in/min (20°C) 170000 psi·fpm | Flame Rating | V-0 | | UL 94 |
| (20°C) 170000 psi·fpm | Additional Information | Nominal Value | Unit | |
| Data obtained from extruded change material | j , | | psi∙fpm | |
| Data Obtained from extraded snapes material | Data obtained from extruded shapes n | naterial | | |
| | | | | |

1. @ 68°F, 1200 in/min, 155 lbs Load

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