

VICTREX® PEEK 450CA30

➤ Product Description:

High performance thermoplastic material, 30% carbon fibre reinforced PolyEtherEtherKetone (PEEK), semi crystalline, granules for injection moulding and extrusion, standard flow, FDA food contact compliant, colour black.

➤ Typical Application Areas:

Applications for higher strength and stiffness in a static or dynamic system. Excellent wear resistance, low coefficient of friction, low coefficient of thermal expansion. Chemically resistant to aggressive environments.

➤ Material Properties

| | CONDITIONS | TEST METHOD | UNITS | TYPICAL VALUE |
|----------------------------------|-----------------------|-------------|--------------------------------------|---------------|
| Mechanical Data | | | | |
| Tensile Strength | Break, 23°C | ISO 527 | MPa | 260 |
| | Break, 125°C | | | 160 |
| | Break, 175°C | | | 85 |
| | Break, 275°C | | | 50 |
| Tensile Elongation | Break, 23°C | ISO 527 | % | 1.7 |
| Tensile Modulus | 23°C | ISO 527 | GPa | 25 |
| Flexural Strength | 23°C | ISO 178 | MPa | 380 |
| | 125°C | | | 250 |
| | 175°C | | | 120 |
| | 275°C | | | 60 |
| Flexural Modulus | 23°C | ISO 178 | GPa | 23 |
| Compressive Strength | 23°C | ISO 604 | MPa | 300 |
| | 120°C | | | 200 |
| | 200°C | | | 70 |
| Charpy Impact Strength | Notched, 23°C | ISO 179/1eA | kJ m ⁻² | 7.0 |
| | Unnotched, 23°C | ISO 179/1U | | 45 |
| Izod Impact Strength | Notched, 23°C | ISO 180/A | kJ m ⁻² | 9.5 |
| | Unnotched, 23°C | ISO 180/U | | 45 |
| Thermal Data | | | | |
| Melting Point | | ISO 11357 | °C | 343 |
| Glass Transition (Tg) | Onset | ISO 11357 | °C | 143 |
| Specific Heat Capacity | 23°C | DSC | kJ kg ⁻¹ °C ⁻¹ | 1.8 |
| Coefficient of Thermal Expansion | Along flow below Tg | ISO 11359 | ppm K ⁻¹ | 5 |
| | Average below Tg | | | 40 |
| | Along flow above Tg | | | 6 |
| | Average above Tg | | | 100 |
| Heat Deflection Temperature | 1.8 MPa | ISO 75-f | °C | 336 |
| Thermal Conductivity | 23°C | ISO 22007-4 | W m ⁻¹ K ⁻¹ | 0.95 |
| Relative Thermal Index | Mechanical w/o impact | UL 746B | °C | 240 |
| | Mechanical w/impact | | | 200 |
| Flow | | | | |
| Melt Viscosity | 400°C | ISO 11443 | Pa.s | 675 |

| Miscellaneous | | | | |
|--|-------------------|----------|--------------------|------|
| Density | Crystalline | ISO 1183 | g cm^{-3} | 1.40 |
| Shore D hardness | 23°C | ISO 868 | | 87.5 |
| Water Absorption (3.2mm thick Tensile bar) | 24h, 23°C | ISO 62-1 | % | 0.04 |
| (by immersion) | Equilibrium, 23°C | | | 0.3 |

| Electrical Properties | | | | |
|-----------------------|----------|------------|---------------------|--------|
| Volume Resistivity | 23°C, 1V | ASTM D4496 | $\Omega \text{ cm}$ | 10^5 |

| Fire Smoke Toxicity | | | | |
|---------------------|-------------------------|----------------|-----|------|
| Glow Wire Test | 2mm thickness | IEC 60695-2-12 | °C | 960 |
| Toxicity Index | CO content | NES 713 | n/a | 0.05 |
| | CO ₂ content | | | 0.12 |
| | Total gases | | | 0.17 |

| Recommended Processing Conditions | |
|-----------------------------------|--|
| Drying Temperature / Time | 150°C / 3h or 120°C / 5h |
| Temperature settings | 375 / 380 / 385 / 390 / 395°C (Nozzle) |
| Hopper Temperature | Not greater than 100°C |
| Mould Temperature | 180°C - 210°C (max 250°C) |
| Runner | Die / nozzle >3mm, manifold >3.5mm |
| Gate | >2mm or 0.5 x part thickness |

| Mould Shrinkage and Spiral Flow | | | | | |
|---------------------------------|--------------------------|-------------------|-----------|----|-----|
| Spiral Flow | 395°C nozzle, 200°C tool | 1mm thick section | Victrex | mm | 75 |
| | | 3mm thick section | | | 330 |
| Mould Shrinkage | 395°C nozzle, 200°C tool | Along flow | ISO 294-4 | % | 0.1 |
| | | Across flow | | | 0.5 |

Important note:

Data are generated in accordance with prevailing national, international and internal standards, and should be used for material comparison. Actual property values are highly dependent on part geometry, mould configuration and processing conditions. Properties may also differ for along flow and across flow directions

Detailed data available on our website www.victrex.com or upon request

World Headquarters

Victrex plc, Hillhouse International, Thornton Cleveleys, Lancashire FY5 4QD United Kingdom

Tel: + (44) 1253 897700 Fax: + (44) 1253 897701 Email: victrexplc@victrex.com

VICTREX PLC BELIEVES THAT THE INFORMATION CONTAINED IN THIS BROCHURE IS AN ACCURATE DESCRIPTION OF THE TYPICAL CHARACTERISTICS AND/OR USES OF THE PRODUCT OR PRODUCTS, BUT IT IS THE CUSTOMER'S RESPONSIBILITY TO THOROUGHLY TEST THE PRODUCT IN EACH SPECIFIC APPLICATION TO DETERMINE ITS PERFORMANCE, EFFICACY AND SAFETY FOR EACH END-USE PRODUCT, DEVICE OR OTHER APPLICATION. SUGGESTIONS OF USES SHOULD NOT BE TAKEN AS INDUCEMENTS TO INFRINGE ANY PARTICULAR PATENT. THE INFORMATION AND DATA CONTAINED HEREIN ARE BASED ON INFORMATION WE BELIEVE RELIABLE. MENTION OF A PRODUCT IN THIS DOCUMENTATION IS NOT A GUARANTEE OF AVAILABILITY. VICTREX PLC RESERVES THE RIGHT TO MODIFY PRODUCTS, SPECIFICATIONS AND/OR PACKAGING AS PART OF A CONTINUOUS PROGRAM OF PRODUCT DEVELOPMENT. VICTREX® IS A REGISTERED TRADEMARK OF VICTREX MANUFACTURING LIMITED. VICTREX PIPES™ IS A TRADEMARK OF VICTREX MANUFACTURING LIMITED. PEEK-ESD™, HT™, ST™ AND WG™ ARE TRADEMARKS OF VICTREX PLC. VICOTE® AND APTIV® ARE REGISTERED TRADEMARKS OF VICTREX PLC.

VICTREX PLC MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, A WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR OF INTELLECTUAL PROPERTY NON-INFRINGEMENT, INCLUDING, BUT NOT LIMITED TO PATENT NON-INFRINGEMENT, WHICH ARE EXPRESSLY DISCLAIMED, WHETHER EXPRESS OR IMPLIED, IN FACT OR BY LAW. FURTHER, VICTREX PLC MAKES NO WARRANTY TO YOUR CUSTOMERS OR AGENTS, AND HAS NOT AUTHORIZED ANYONE TO MAKE ANY REPRESENTATION OR WARRANTY OTHER THAN AS PROVIDED ABOVE. VICTREX PLC SHALL IN NO EVENT BE LIABLE FOR ANY GENERAL, INDIRECT, SPECIAL, CONSEQUENTIAL, PUNITIVE, INCIDENTAL OR SIMILAR DAMAGES, INCLUDING WITHOUT LIMITATION, DAMAGES FOR HARM TO BUSINESS, LOST PROFITS OR LOST SAVINGS, EVEN IF VICTREX HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, REGARDLESS OF THE FORM OF ACTION.

