



HIGH PERFORMANCE PEEK POLYMERS

VICTREX® PEEK POLYMER

PUMPS

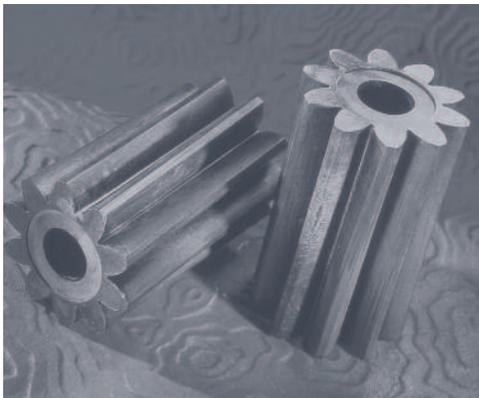
VICTREX PEEK replaces metals and other materials in an array of components used in pumps for the industrial, chemical and processing industries.

With its outstanding mechanical properties, chemical resistance and excellent processability, VICTREX PEEK is able to withstand extreme pressures and continuous temperatures of up to 500°F (260°C), delivering enhanced performance that results in longer service life and reduced down time.

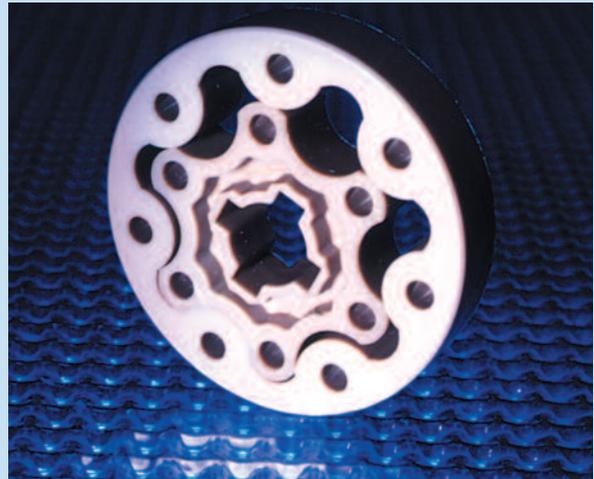
A wide range of pump applications operating in the harshest application environments that require high strength and wear resistance over a wide range of temperatures, demonstrate the excellent physical properties of the polymer. Replacing stainless steel impellers in centrifugal pumps, and in gear wheels and G-rotor pumps, VICTREX PEEK delivers a significant reduction in wear, reduced noise levels and more consistent running properties. In vacuum pump applications, VICTREX PEEK can also improve operating efficiency and result in significant noise reduction.

BENEFITS

- Dimensional and thermal stability
- High performance tribological properties
- Hydrolysis resistance
- Self-lubricating properties
- Extended service-life
- Reduced downtime and costs
- Low moisture content
- Noise reduction



Helical gears from Northern Pump that won't gall or swell made with VICTREX PEEK.



ARGO's internally geared pumps benefits from VICTREX PEEK

PUMP ROTOR

By replacing metal with VICTREX PEEK for the rotor on this internally geared pump, the German manufacturer Argo has achieved a number of key benefits. With its inherent wear and chemical resistance, the polymer provides a minimum service life of 30,000 hours, a noise level that is 10 dB lower at maximum operating speed, and new opportunities for the rotor in lubrication pumps used in automotive engines and transmission systems. Injection molded as a finished component, the rotor meets critical requirements for consistent roundness, flatness and close tolerance geometry.

Key property profile:

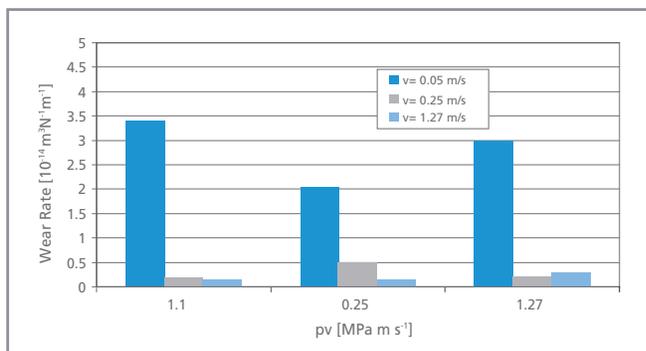
- Outstanding wear resistance and low noise generation
- Broad chemical resistance at elevated temperatures
- High quality straight-from-mold surface finish

PUMPS

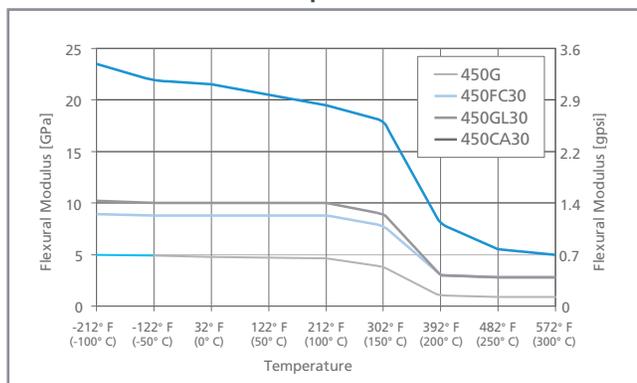
PHYSICAL PROPERTIES OF VICTREX PEEK

| PROPERTY (UNIT) | | 450G | 450GL30 | 450FC30 | 450CA30 |
|--|---------------------------|-----------|-----------|------------|-----------|
| Density (g/cm ³) | Crystalline | 1.30 | 1.51 | 1.44 | 1.40 |
| | Amorphous | 1.26 | | | |
| Tensile Strength (psi) | @ 73°F (23°C) | 14,065 | 24,000 | 20,000 | 33,000 |
| | @ 482°F (250°C) | 1,850 | 4,300 | 5,700 | 8,700 |
| Tensile Elongation (%) | Break, 73°F (23°C) | >50 | 2.7 | 2.5 | 1.8 |
| Flexural Strength (psi) | @ 73°F (23°C) | 22,400 | 33,500 | 30,500 | 48,000 |
| | @ 248°F (120°C) | 14,500 | 25,375 | 19,575 | 37,700 |
| | @ 482°F (250°C) | 1,885 | 10,150 | 5,220 | 15,225 |
| Flexural Modulus (psi) | @ 73°F (23°C) | 597,000 | 1,480,000 | 1,370,000 | 2,700,000 |
| | @ 248°F (120°C) | 580,000 | 1,334,000 | 1,160,000 | 2,697,000 |
| | @ 482°F (250°C) | 43,500 | 435,000 | 435,000 | 739,500 |
| Compressive Strength (psi) Flow, @ 73°F (23°C) | | 17,110 | 31,175 | 21,750 | 34,800 |
| Glass Transition Temperature °F (°C) | | 289 (143) | 289 (143) | 289 (143) | 289 (143) |
| Melting Point °F (°C) | | 644 (343) | 644 (343) | 644 (343) | 644 (343) |
| Heat Deflection Temperature @ 264psi °F (°C) | | 306 (152) | 599 (315) | >560 (293) | 599 (315) |
| Coefficient of Thermal Expansion (<T _g) 10 ⁻⁵ /°F ⁻¹ | | 2.6 | 1.2 | 1.2 | 0.8 |
| Dielectric Constant | 50 Hz, 32-302°F (0-150°C) | 3.2 | 3.7 | - | - |
| | 50 Hz, 392°F (200°C) | 4.5 | 4.5 | - | - |
| Volume Resistivity (10 ¹⁶ W-cm) | | 4.9 | 1.0 | - | - |
| Flammability UL 94 | | V-0@1.5mm | V-0@1.5mm | V-0@0.75mm | V-0@1.5mm |

Wear Rate of VICTREX 450FC30



Flexural Modulus vs. Temperature



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