



HIGH PERFORMANCE PEEK POLYMERS

Combining superior strength, stiffness and impact resistance with ease of processing into thin or thick geometries, VICTREX® PEEK polymer has long been the standard for medical devices requiring aggressive sterilization methods used in hospitals and laboratories around the world. Unfilled, glass-filled and carbon-filled grades of VICTREX PEEK compounds not only meet, but exceed customers requirements in a wide range of applications. This material is not for human implantation, blood and tissue contact of 24 hours or more, or permanent oral/dental contact.

KEY FEATURES

- Mechanical Strength and Stiffness — flexural moduli ranging from 4.1-20.2MPa (594-2929kpsi). Allows for thin wall design which saves space, weight and money.
- Sterilizability — maintains mechanical and chemical properties past 2,500 hours in high-pressure steam. Many other materials change dimensions after running through sterilization cycles.
- Radiation Resistance — outstanding stability upon exposure to radiation.
- Chemical Resistance — withstands virtually every chemical with the exception of extremely strong oxidizing acids.
- Wear Resistance/Lubricity — inherently lubricious; outstanding wear resistance.
- Stability at High Temperatures — withstands the harshest high-heat environments. Maintains impact strength, stiffness and minimum levels of creep. Maintains mechanical properties at temperatures up to 300°C (575°F).
- Precision Manufacturing — easily processed using conventional injection molding, extrusion, blow molding and compression molding techniques. Machining is often used to make medical parts due to small volumes and/or precision tolerance requirements.

MATERIAL OF CHOICE TO REPLACE METAL

VICTREX PEEK polymer enables medical OEMs worldwide to design with confidence when replacing materials such as stainless steel, titanium, aluminum and even glass with advanced thermoplastics.



Dental Attachment Components

With its unparalleled combination of high performance properties and ease of processing, VICTREX PEEK polymer continues to revolutionize the medical device industry in applications where the use of plastics was previously thought to be impossible.

Since its introduction more than 30 years ago, VICTREX PEEK polymer has been the material of choice for applications requiring outstanding resistance to chemicals, heat, steam, radiation, wear and aggressive sterilization methods.

FIRST IN STERILIZATION

VICTREX PEEK polymer is the number one choice where sterilization and chemical cleaning of components are required.

To ensure that devices are clean and infection-free, today's sterilization processes incorporate aggressive chemicals, higher pressures in steam autoclaves and higher doses of radiation.

Medical Components and Instrumentation

VICTREX® PEEK POLYMER...

Due to its semi-crystalline nature, VICTREX PEEK polymer maintains its mechanical and chemical properties past 2,500 hours in high pressure steam. It has outstanding stability upon exposure to radiation and will withstand virtually every chemical with the exception of extremely strong oxidizing acids. Typical amorphous resins, like polycarbonate and polyetherimide, are susceptible to stress cracking after repeated steam sterilization and lack good chemical resistance.

VICTREX PEEK Polymer Grades	
450G 381G 150G	Unfilled VICTREX PEEK Polymer
450GL30 150GL30	30% Glass-Reinforced VICTREX PEEK Compounds
450CA30 150CA30	30% Carbon-Reinforced VICTREX PEEK Compounds

APPLICATION GUIDE

	Delivery Systems	Medical Equipment	Surgical and Dental Devices	Analytical and Chemical Instruments
Product	VICTREX PEEK 381G	VICTREX PEEK 450G, 381G, 450GL30, 450CA30	VICTREX PEEK 450G, 381G, 450GL30, 450CA30	VICTREX PEEK 450G, 381G, 450GL30
Typical Customer Applications	Tubing Catheters Blood Management Drug Delivery Dialysis Hardware	Housings Gears Bushings Valves Sterilizing Hardware Pumps & Motors	Endoscopy Laparoscopy Electrosurgical Operating Room Dental Tools	Chromatography Chemical Testing Bio-Hazard Handling
Advantages	Strength/Stiffness Work Area/Thin Wall Cut & Kink Resistance Lubricity Toughness Cost/Reusability Sterilizable	Chemical, Steam & Radiation Resistance High Temperature Low Thermal Expansion Easy Metal Replacement Lubridity/Wear Strength/Stiffness	Sterilizable Stiffness/Strength Impact Dielectric Strength Corrosion Resistance Ergonomics Weight & Size Reduction Cost Reduction	Chemical Resistance Hydrolytic Stability Corrosion Resistance Purity Inert to Most Substances Industry Standard
Materials Replaced	PVC, Olefins, Polyester, Urethane	Plastic, Metal, Glass	Metal, High-Performance Plastics, Elastomers	Stainless Steel, PVC, Urethane



...used in Medical Components and Instrumentation

Figure 1: Specific Strength

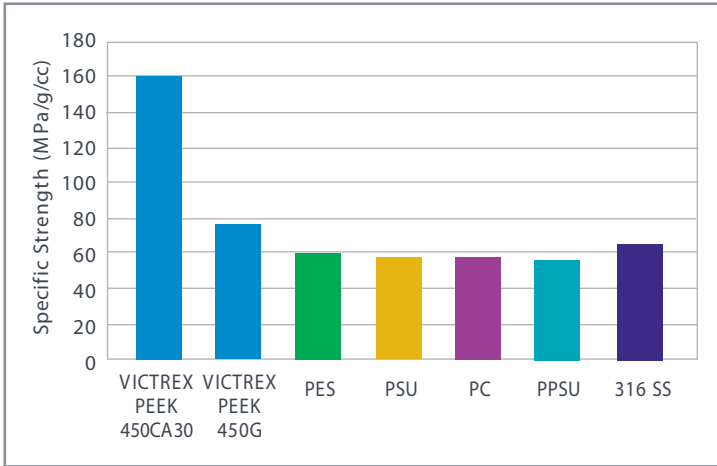
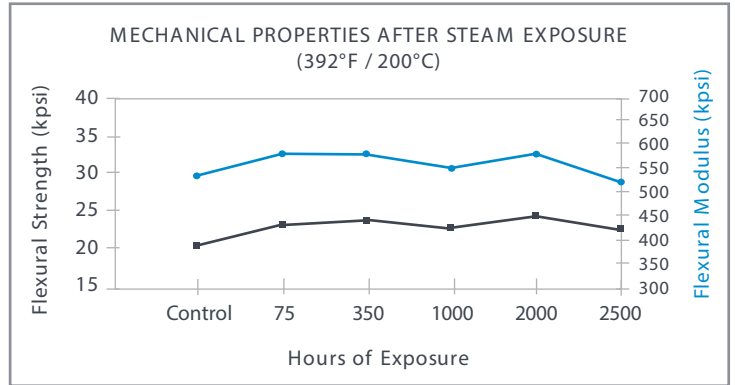
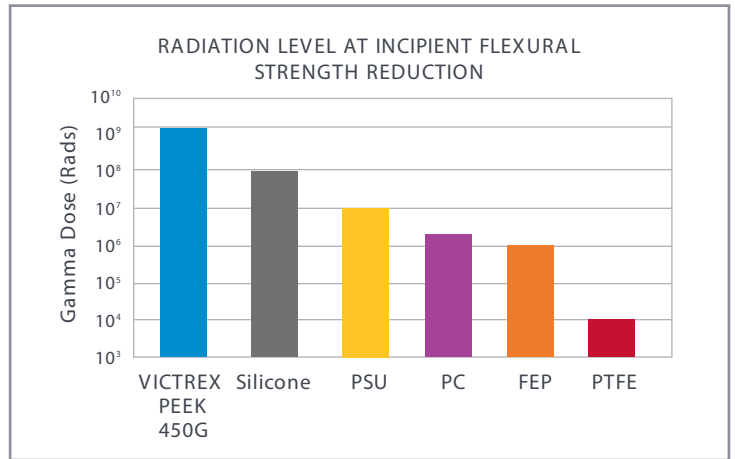


Figure 2: Steam Stability



Surgical Luer Tubing Assembly

Figure 3: Radiation Stability



Chemical Resistance		
CHEMICAL	PEEK	STAINLESS STEEL
Acid, strong	C	C
Acid, weak	A	B
Alcohol	A	A
Base, strong	A	B
Bleach	A	C
Ethylene Oxide	A	B
Salt Solutions	A	C
Steam	A	A
Sulfur Compounds	A	C

A = <2% Change B = <10% Change C = >10% Change



X-Ray Equipment Gear Wheels

www.victrex.com



Victrex Polymer Solutions, a division of Victrex plc, is the world's leading manufacturer of Polyaryletherketones, high performance polymers, which are sold under the brand names VICTREX® PEEK polymer, VICOTE® Coatings, APTIV® films and VICTREX Pipes™. With production facilities in the UK backed by sales and distribution centres serving more than 30 countries worldwide, our global market development, sales, and technical support services work hand-in-hand with OEMs, designers and processors offering assistance in the areas of processing, design and application development to help them achieve new levels of cost savings, quality, and performance.



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