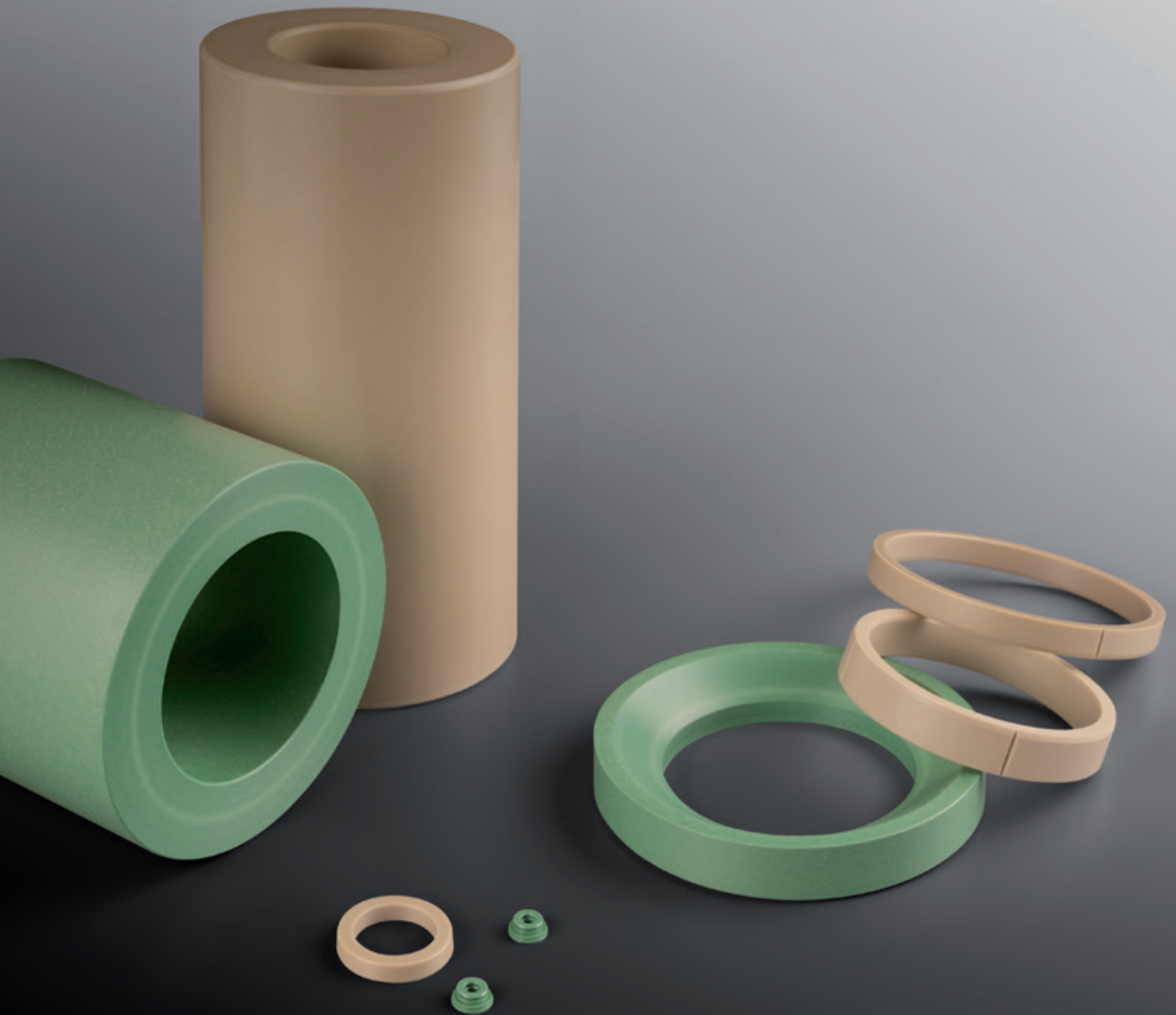


VICTREX CT™ POLYMERS



**HIGH-PERFORMANCE POLYMERS  
FOR CRYOGENICS**

 **FLUORTEN<sup>®</sup>**  
PTFE & TECHNOLOGICAL POLYMERS MANUFACTURING

# VICTREX CT™ Polymers

The continued global growth of natural gas production, sealing applications in the storage and distribution of Liquefied Natural Gas (LNG) and nitrogen, and the engineering challenges associated with the resulting cryogenic temperatures, that will be increasingly part of our future as well, make VICTREX CT™ polymers, a family of PAEK (Polyaryletherketone) polymers, the perfect solution in these fields.

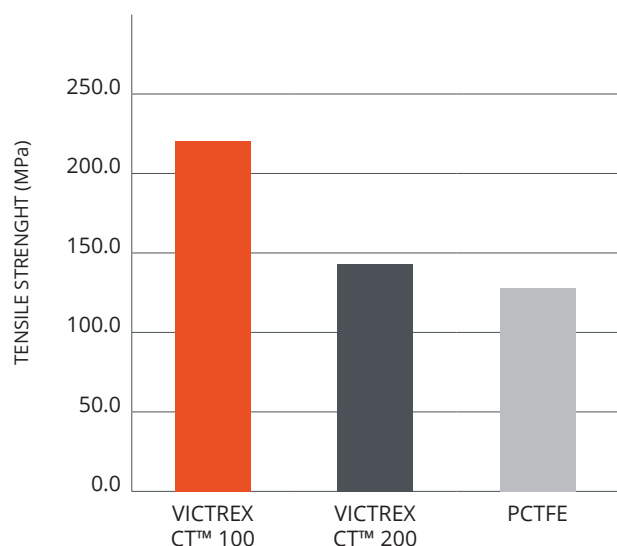
## VICTREX CT™ 100 AND CT™ 200

- Extend the temperature range of cryogenic valves.
- Increase sealing reliability through improved mechanical and thermal properties.
- Lower the torque: over a range of temperatures from -196°C to +120°C we see an equivalent or better performance in torque requirement for VICTREX CT™ 200 relative to PCTFE.
- Provide low and stable static and dynamic coefficients of friction which allows lower opening force and turning force for ball valves.
- Deliver potential cost savings.

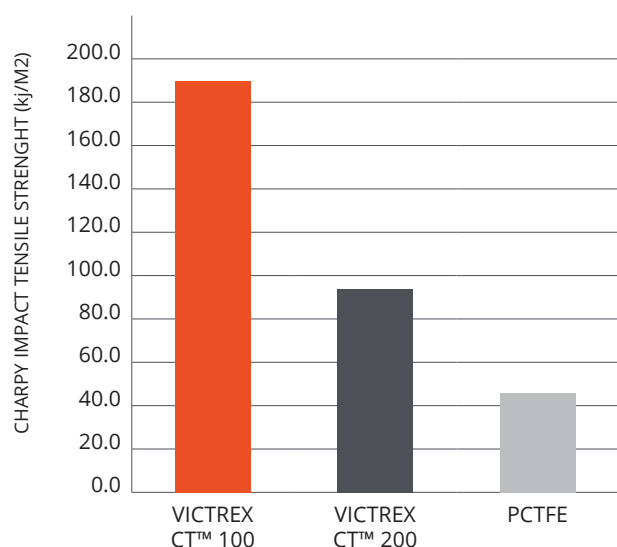
## VICTREX CT™ POLYMERS COMPARED TO PCTFE

- **Higher tensile strength** coupled with comparable modulus confirms more ductility across a wider range of temperatures; testing at -196°C to +150°C indicates better sealing capabilities which could also extend to higher temperatures in the range of +200°C.
- **Higher impact strength** with more robust sealing performance in conditions that require higher ductility and toughness.
- **Working temperature range -196°C / +150°C**, depending on applied pressure and expected deformation.
- **Higher thermal conductivity** permits a faster reaction to temperature changes allowing the seat seal to keep interference with the steel counter-surface at all times – contributing to more consistent sealing.
- **Lower and constant coefficient of thermal expansion** ensures more dimensional stability and minimizes the shrinkage at low temperatures. VICTREX CT™ 100 and VICTREX CT™ 200 show a clear benefit over PCTFE and are dimensionally more stable with consistency observed over a wide range of temperature.

### TENSILE STRENGTH AT -196°C

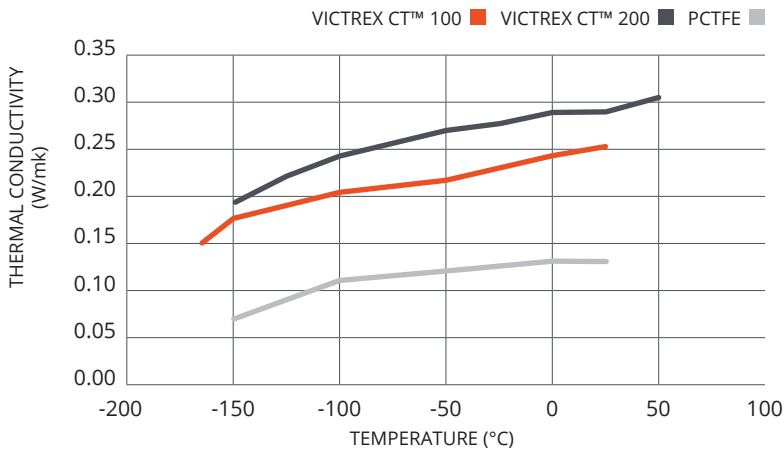


### CHARPY IMPACT STRENGTH AT -196°C





### THERMAL CONDUCTIVITY AS A FUNCTION OF TEMPERATURE



### VICTREX CT™ GRADE COMPARISON

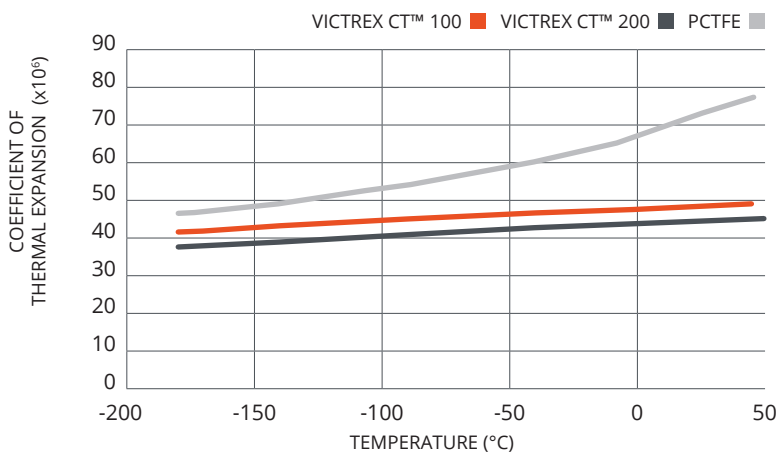
**VICTREX CT™ 100** should be the material of choice when the leakage allowance is very tough to achieve. It guarantees:

- Outstanding ductility at -196°C, higher tensile elongation and slightly lower compressive modulus.
- Victrex CT™ 100 is tougher than Victrex CT™ 200 at lower temperatures.

**VICTREX CT™ 200** should be the material of choice when no hardening processes are foreseen on the ball, as it contains self-lubricating additives which lower the torque and reduce the wear. It guarantees:

- Incrementally better thermal properties than CT™ 100 with lower coefficient of thermal expansion (CTE) and higher thermal conductivity.
- Lower static and dynamic coefficient of friction which allows for lower torque.

### THERMAL EXPANSION COEFFICIENT AS A FUNCTION OF TEMPERATURE



### ACKNOWLEDGMENTS

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