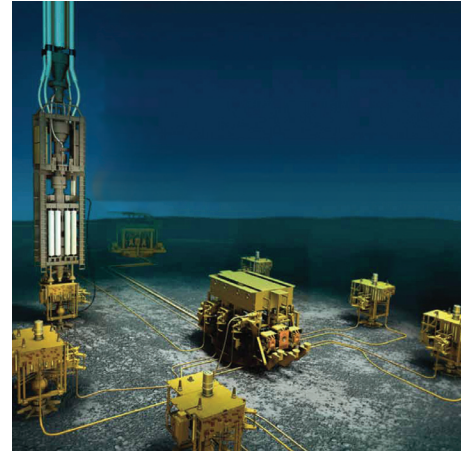


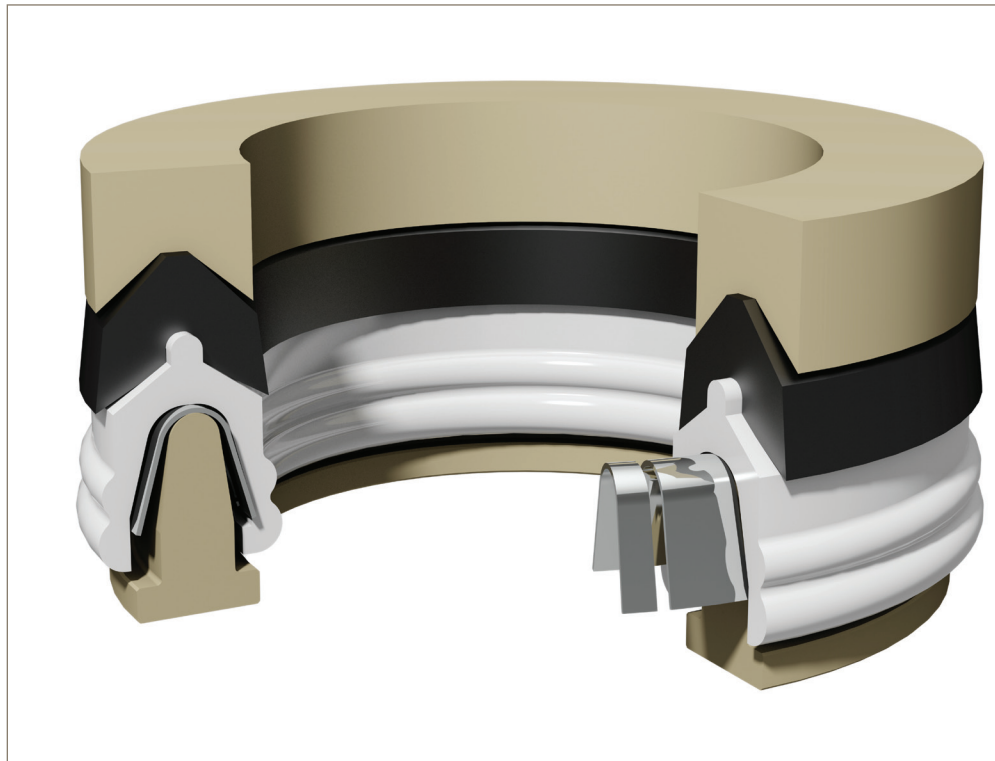
# Specification Grade HPHT Thermoplastic Materials



## Certified material reports with each part

Unlike products produced from most commercial grade PTFE and PEEK materials, parts manufactured from Parker's new "specification grade" thermoplastic materials are accompanied by certified material test reports from each lot of material. These physical properties are derived from tensile tests performed on test coupons machined from actual billets of each material lot, rather than from data supplied from the resin or powder manufacturer. These "real world" properties provide an extra level of quality and assurance – with full lot traceability – that each and every part meets specified physical properties.

To learn more, contact Parker's experienced application engineers.



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## Material Features:

- Batch level certified material test reports (CMTR) included with every order made from the new materials
- PTFE materials with superior mechanical strength for increased reliability, long life and enhanced seal performance
- High molecular weight PEEK materials with superior impact resistance and elongation performance in HPHT conditions
- Qualified to API 6A FF/HH (10% Sour Gas) and suitable for demanding downhole environments



ENGINEERING YOUR SUCCESS.

## API 6A Qualified Thermoplastic Materials

Parker's new thermoplastic compounds expand our family of specialty materials for high pressure, high-temperature Oil & Gas service.

These "specification grade" PTFE and PEEK thermoplastic materials have been immersion tested to API 6A (ISO 10423) Annex F for fluids FF/HH. Parts made from these materials are suitable for use in equipment certified to product specification levels 1 through 4 (PSL1 – PSL4).

All parts produced from these new materials undergo dimensional verification and visual examination. In addition to providing full lot traceability, real world lot-based testing assures that every part made from the same lot of material meets the critical minimum physical properties specified.

## Certification Requirements

Sour Service Test Condition	API 6A(FF/HH) H <sub>2</sub> S
Gas composition	(35% Vol.) 10:80:10; H <sub>2</sub> S:CO <sub>2</sub> :CH <sub>4</sub>
Liquid composition	(60% Vol.) NORSOK fluid: 70% heptane, 20% cyclohexane, 10% toluene
Other	(5% Vol.) Deionized water
Temperature (°C)	177 ±2
Pressure	1000 psig, ±100 psig
Exposure time	160 hours
Test specimens	Five
Acceptance criteria	Parker acceptance criteria
Swelling	+5%/-1% volume change
Hardness	+10/-20
Tensile, elongation, modulus	±50%
Visual inspection	No dissolution tendency, cracking, blistering, deformation

*Certified material tests reports will accompany each part shipment, providing actual lot hardness, tensile strength, elongation at break and specific gravity.*

## Typical Physical Properties

Code	Material Description	Temp (°F)	Tensile Strength (minimum)	Elongation at Break (minimum)	Shore D
0130	Unfilled PTFE	-100 to +500	3,000 psi	250%	55
0317	Carbon and graphite filled PTFE	-100 to +500	2,200 psi	100%	65
0318	Graphite filled PTFE	-100 to +500	2,700 psi	220%	63
0622	PPS, MoS <sub>2</sub> and carbon filled PTFE	-100 to +500	1,500 psi	130%	65
W4773	Extruded, high molecular weight, impact resistant PEEK	-100 to +500	15,000 psi	100%	87
W4605	Hot compression molded, high molecular weight, impact resistant PEEK	-100 to +500	15,000 psi	25%	87
W4768	Injection molded, high molecular weight, impact resistant PEEK	-100 to +500	14,000 psi	50%	87

