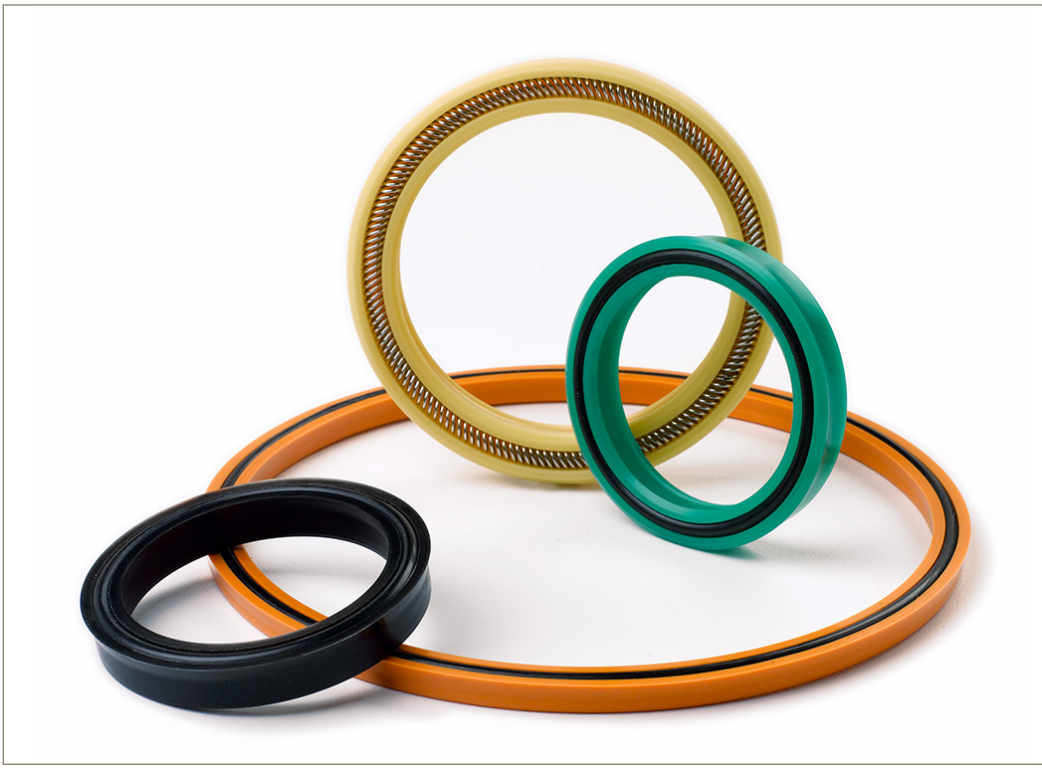
API 16C Annex B Approved Materials for Riser System Choke and Kill Equipment

Parker Sealing Materials Certified to Industry Test Standard

As the Oil and Gas industry strives to improve the safety and reliability of off-shore operations, the requirements for equipment become more demanding as reflected in the recent Annex B update to the API 16C specification for elastomeric materials. In support of the industry, Parker has received certification for five of its elastomer compounds under the fluid immersion requirements of the updated specification.

For drillers, specifying Parker seals assures full compliance and eliminates the added expense of independent certification. Contact us to learn more.



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Material Features:

- Wide range of certified materials for choke and kill applications (FKM, HNBR, Resilon® TPU, TPCE)
- Seal materials qualified to API 16C (10% Sour Gas) through independent test laboratory
- Worldwide availability

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API 16C Qualified Elastomeric and Thermoplastic Materials

Parker's elastomeric and thermoplastic materials have been immersion tested to API 16C Annex B by an independent, accredited laboratory and passed all certification requirements. Choke and kill equipment manufacturers who specify Parker API 16C certified sealing solutions can now focus on drilling technology development without the added expense of providing their own certification for non-metallic sealing components.

Each batch of material is rigorously tested to strict specifications to ensure realiability and performance. Choke and kill seals produced from these materials will undergo dimensional verification, visual examination and physical property testing.

Certification Requirements

Sour Service Test Condition	API 16C, Annex F Table B.1 – Standard Test Fluid
Gas composition	(30% Vol.) 10:85:5 H_2S:CH_4:CO_2
Liquid composition	(50% Vol.) Diesel #2 (ASTM D975)
Other	(20% Vol.) Saturated brine at 60°F (15.5°C)
Temperature (°F)	FKM: 392°F / HNBR: 302°F / TPU: 180°F / TPCE: 180°F
Pressure	1000 psig, +/- 100 psig
Exposure time	160 hours
Test specimens	Five each, ASTM D412 Type C specimens immersed half in liquid phase and half in gas phase
Acceptance criteria	Parker recommended material limits
Swelling	+5% / -1% volume change
Hardness	+10 / -20
Tensile, elongation, modulus	+/- 50%
Visual inspection	No dissolution tendency, cracking, blistering, deformation

Certified material test reports including hardness, tensile strength, elongation at break and specific gravity available upon request. Independent laboratory test report also available upon request. Contact us via phone at 800 233 3900, or email: eps-ccare@parker.com.

API 16C, Annex B Certified Compounds

Material Type	Parker Compound	Temperature Range	API 16C, Annex B
FKM	V4266A95	-5 to +400°F	√
FKM	VG109-90*	-49 to +400°F	√
HNBR	N4007A95	-20 to +320°F	√
TPU	P4301A90	-35 to +225°F**	√
TPCE	Z4651D60	-65 to +275°F	√

* In addition to meeting the fluid immersion certification requirements, Parker's VG109-90 material in Parker's Type "B" PolyPak® seal geometry passed the rigorous laboratory testing in compliance with all API 16C test parameters specified for duration, temperature range (-4°F to 350°F), working pressure (15,000 psi), extrusion gap (0.0084"), and fluid (Phillips 66 Megaflow® AW 46).

** 180°F maximum recommended for water-based hydraulic fluids.

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