



TruTech[®] P1150 Material

Cook Compression[®] TruTech[™] P1150 is custom engineered to combat the negative effects of increased heat and friction under reduced lubrication rates. The material enables operators to dramatically reduce lubrication costs while maintaining the full useful life of compressor components, and without incurring higher component costs.

TruTech P1150 is a proprietary polymer blend designed for rod packing, piston rings and riders in lubricated compressors where enhanced wear resistance is critical. A specially formulated PTFE-based material, TruTech P1150 is resistant to most chemicals. Most importantly, TruTech P1150 exhibits a lower coefficient of thermal expansion (CTE) relative to similar available materials, holding tight sealing tolerances at higher running temperatures.

DRAMATIC REDUCTION IN LUBE CONSUMPTION

TruTech P1150 was developed specifically to address the high cost of lubrication consumption in natural gas (methane) transmission compressors. The combined use of TruTech P1150 material and an optimized lubrication strategy can reduce lubrication consumption by 40 to 50 percent compared to OEM specifications, without affecting compressor longevity or reliability.

For example, applying an optimized lubrication strategy with TruTech P1150 sealing components on an average size natural gas reciprocating compressor has generated lubrication consumption savings of \$9.63 per day, or \$2,100 per year. This can easily translate to \$500,000 to \$1,000,000 in annual savings for a large fleet of compressors.



TruTech P1150 material provides proven rod packing performance under reduced lubrication rates

ADVANTAGES

- Facilitates lower lubrication flow rates to reduce costs, without sacrificing compressor longevity
- Robust material with increased strength and reduced elongation
- Holds clearance tolerances at high running temperatures
- Improved performance in lubricated PTFE applications compared to traditional PTFE products
- Can be applied to seal rings, vent rings, piston rings and riders
- Fully optimized lubrication rates when combined with Cook Compression application-specific engineering analysis



TRUTECH MATERIALS

Incorporating the latest advances in polymer science, TruTech™ materials from Cook Compression offer superior durability and optimum performance characteristics for reciprocating compressor components.

Experienced Cook Compression specialists provide engineering support to ensure optimal results in each application.

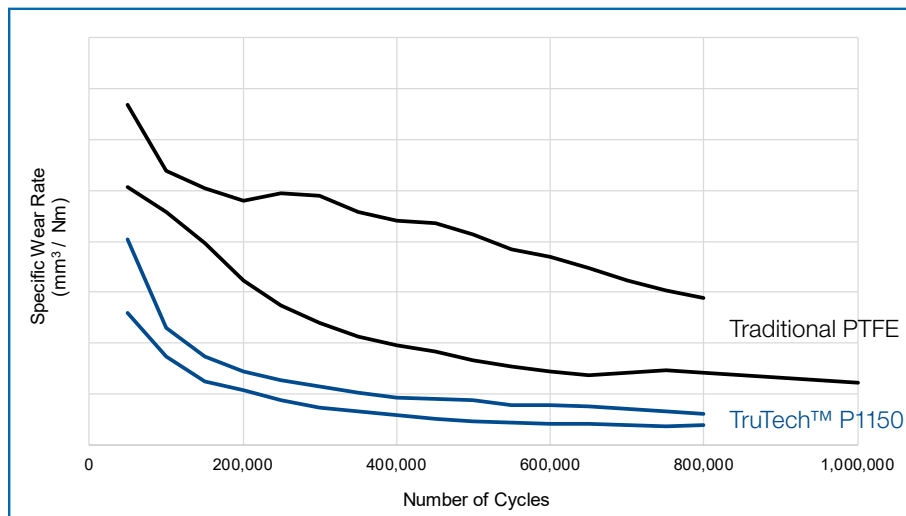
MATERIALS DEVELOPMENT

The Cook Compression Materials Technology program integrates materials research with extensive engineering resources and more than a century of practical experience. New materials receive intensive laboratory analysis and undergo comprehensive testing before release to the field.

A comprehensive quality control program ensures that materials and finished components meet the highest standards.



TRUTECH P1150 – TYPICAL PROPERTIES		
Tensile strength	2200 psi (15.2 MPa)	ASTM D638
Elongation	40%	ASTM D638
Coefficient of thermal expansion (CTE) – Radial	$4.1 \times 10^{-5}/^{\circ}\text{F}$ $(7.4 \times 10^{-5}/^{\circ}\text{C})$	ASTM D696
Coefficient of thermal expansion (CTE) – Axial	$5.2 \times 10^{-5}/^{\circ}\text{F}$ $(9.3 \times 10^{-5}/^{\circ}\text{C})$	ASTM D696
Density	0.073 lb/in ³ (2.02 g/cm ³)	ASTM D792



Results from a non-lubricated wear test with a PV of 35,000 psi ft/min, sampling each material from two separate batches. The similarity of the two TruTech P1150 curves illustrates the greater consistency of P1150 material, and thus better tolerances, compared to traditional PTFE materials.

In addition to a lower wear rate overall, the TruTech P1150 material quickly and consistently builds PTFE transfer film, providing minimal friction in the shortest cycle time.