RESILON® 4301 POLYURETHANE

Superior performance in water and petroleum-based fluids at high temperatures

Superior PPDI-based Formulation

Parker's Resilon® 4301 is a premium grade polyurethane engineered to provide superior performance by maintaining its mechanical properties in both water and petroleum-based fluids. When traditional polyurethane is exposed to water at high temperatures, it starts to experience hydrolysis which can cause premature failure. Resilon® 4301 is a PPDI-based polyurethane that resists hydrolysis to deliver superior wear resistance and low compression set for longer seal life.

Features & Benefits:

- Hydrolysis-resistant formulation that will not crack when exposed to hydraulic fluids with water content
- Compression set resistance helps seal maintain lip contact under rapid changes to pressure and load
- PPDI polymer backbone
- Maintains its physical properties in petroleum-based fluids
- Improved strength and wear-resistance
- Resists extrusion over a broad pressure range
- Extends service life and reduces maintenance

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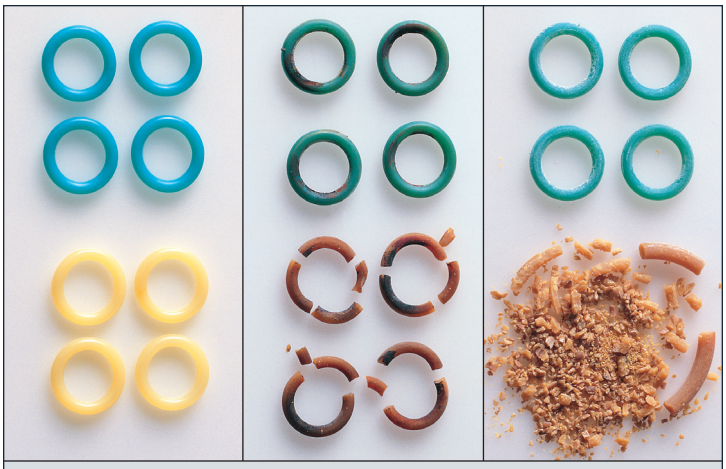
COMPARISON OF MDI-BASED TPU

Resilon® 4301 polyurethane vs. conventional urethanes

High-performance polyurethanes may meet long life and/or high pressure operating criteria in oil-based fluids; however, more applications are using water based fluids for environmental or safety concerns. At room temperature, water-based fluids cause little problem, but as the temperature rises even the toughest long wearing materials start to suffer from hydrolysis or breakdown of the molecules. PPDI-based Resilon® 4301 polyurethane can be used at temperatures where normal polyurethanes break down because its unique formulation makes it resistant to hydrolytic deterioration. Resilon® 4301 maintains excellent physical properties at operating temperatures as high as 212°F.



From left, aqua proprietary Resilon® 4301 polyurethane seals and competitor's yellow conventional urethane seals as manufactured; after 1493 hours of exposure to 212°F water; and after 1493 hours of exposure to steam.

Resilon® 4301 Polyurethane

Typical Physical Properties	4301A90
Hardness, Shore A, pts	91
Modulus @ 100% psi (MPa)	1841
Ultimate Tensile Strength, psi (MPa)	6513
Elongation, %	508
Specific Gravity	1.19
Rebound, %	40
Compression Set, %, 70 hrs @ 100°C *70 hrs @ 70°C	30.4

	MDI Typical TPU	Resilon® 4301
Media: Distilled Water	**720 hrs. @ 160F**	**720 hrs. @ 160F**
Hardness Change, pts.	+2	+5
100% Modulus Change, %	-5	-3
300% Modulus Change, %	-24	-7
Ultimate Tensile Change, %	-16	+9
Elongation Change, %	+8	+2
Weight Change, %	+1	+1
Volume Change, %	+2	+2
Media: Distilled Water	**720 HRS @180F**	**720 HRS @180F**
Hardness Change, pts.	+3	+5
100% Modulus Change, %	-7	-4
300% Modulus Change, %	-29	-8
Ultimate Tensile Change, %	-15	-32
Elongation Change, %	+4	-9
Weight Change, %	+1	+1
Volume Change, %	+2	+3
Media: Distilled Water	**1000 HRS @ 212F**	**1000 HRS @ 212F**
Hardness Change, pts.	Too Brittle to Test	-2
100% Modulus Change, %		-16
300% Modulus Change, %		-22
Ultimate Tensile Change, %		-24
Elongation Change, %		+3
Weight Change, %		+1
Volume Change, %		+2

Parker Hannifin Corporation
Engineered Polymer Systems Division
2220 South 3600 West
Salt Lake City, UT 84119, USA

Phone: 801-972-3000
www.parker.com/eps

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