

**Resilon™ HT (P4300) High-Performance Polyurethane**

No. 5202B-1 USA

**Resilon™ HT (P4300) High-Performance Polyurethane offers unequalled sealing capability in high-temperature, high-shock load environments!**

Today, there is a wide choice of polyurethane sealing materials available to the seal designer and user. Parker believes there are major differences in polyurethane compounds and offers Resilon™ HT (P4300) as the premier example of a state-of-the-art polyurethane seal material with major advantages over other urethane formulations.

**Three Basic Types of Sealing-Grade Polyurethanes**

There are three base formulations or chemical backbones used in compounding modern thermoplastic polyurethane (TPU) seal materials. They are:

- MDI (diphenylmethane diisocyanate)
- TODI (diphenyldiisocyanate)
- PPDI (p-phenylenediisocyanate)

All three produce the abrasion resistance and long wear benefits that are typical of any good polyurethane seal material. There are other physical properties though, such as temperature resistance, compression set resistance, and rebound/resilience, which are also major contributors to effective, long-term sealing characteristics. It is in these latter areas of performance that the properties inherent in MDI, TODI or PPDI formulations become most apparent. Parker's P4300 High-performance urethane is an excellent example. This unique Parker developed PPDI-based formulation yields the best over-all sealing performance of all commercially available TPU formulations currently on the market.

**When the "heat's on", Parker's P4300 delivers!**

One look at the photograph at above right illustrates the superior heat resistance of Parker P4300 over other TPU materials, including those of our competition.

P4300 also has superior resilience/rebound characteristics compared to other available TPU materials. The ability to rebound quickly is a major advantage in those sealing applications where there are likely to be severe shock loads and momentary pressure spikes.

The enhanced resilience/rebound characteristics of P4300 allow the sealing lips of a rod or piston seal to conform to the moving seal interface with greater rapidity, maintaining the critical sealing line of contact, and thereby allowing less fluid bypass.



**When the Heat's on, P4300 Delivers!**

**Manufactured Exclusively by Parker EPS Division**

Not only does P4300 have the strength and abrasion resistance typical of all polyurethane elastomers, it has the high resilience and low compression set characteristics of nitrile polymers.

**Benefits of Resilon™ HT (P4300)**

- Performs where other polyurethanes fail
- Higher temperature service
- Resists extrusion over a broad pressure range
- High wear-resistance for extended seal life
- Maintains sealing lip contact while reacting to rapid changes in pressure/load
- Excellent resistance to compression set

Physical Property Comparison	Parker P4300	Typical TPU
Specific Gravity	1.20	1.21
Hardness	93	94
<b>Bayshore Resilience</b>	<b>62%</b>	<b>35%</b>
Ultimate Tensile Strength	8000 psi	6500 psi
100% Modulus (psi)	1800	1600
300% Modulus (psi)	2700	4000
Elongation @ Break	600%	450%
<b>Compression Set</b>		
70 hrs @ 158° F	<b>18%</b>	30%
70 hrs @ 212° F	<b>32%</b>	60%
Operating Temp. Range	<b>-65° to 275° F</b>	-65 to 200° F

**... and you thought all urethanes were the same!**

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# Higher service temperature and tensile strength, longer life, low compression set! Specify Parker Polyurethane Compounds

## Parker offers a full spectrum of urethane materials

Just as there is no single seal profile or geometry that will optimally solve all the various sealing problems facing the seal designer and user, there is no single seal material that can be applied universally to all sealing environments.

For this reason, Parker has developed a number of different polyurethane material formulations using MDI, TODI and PPDI bases. Each of these materials offers some unique benefit to the customer, be it lower cost, increased resilience or improved compression set.

With Parker, you can choose between the world's finest urethane seal compounds, as well as a complete range of conventional elastomer and thermoplastic sealing materials.

## Parker offers a full spectrum of proven seal profiles

Each of Parker's seal profiles have been performance optimized using Finite Element Analysis (FEA) and extensively bench-tested in the hydraulic/pneumatic test facility at our Salt Lake City Headquarters. Parker Seal geometry, in combination with advanced Parker Seal materials offers the user high quality, performance-proven and truly cost-effective sealing solutions.

### Applications:

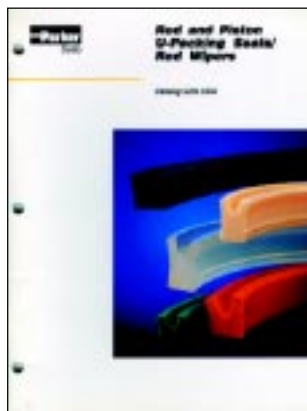
Recommended for piston seals, rod seals and wipers for all types of light, medium and heavy-duty hydraulic cylinders, shock absorbers, off-road, industrial and construction equipment. **P4300 is also available for pneumatic cylinder applications when long seal life is required.**

## Full Spectrum of Polyurethane Sealing Solutions

Typical Physical Properties	P4300 (PPDI)	P4500 (TODI)	P4615 (MDI)	P4700 (MDI)
Specific Gravity	1.20	1.20	1.21	1.20
Hardness	93	96	94	94
Bayshore Resilience	<b>62%</b>	45%	35%	35%
Ultimate Tensile Strength	8000 psi	6500 psi	6500 psi	6500 psi
100% Modulus (psi)	1800	1600	1600	1700
300% Modulus (psi)	2700	2700	4000	3500
Elongation @ Break	600%	500%	450%	550%
<b>Compression Set</b>				
70 hrs @ 158° F	<b>18%</b>	31%	30%	22%
70 hrs @ 212° F	<b>32%</b>	47%	60%	38%
Operating Temp. Range	<b>-65° to 275° F</b>	-40° to 225° F	-65° to 200° F	-40° to 200° F



This kind of heavy-duty application is where Parker Resilon™ HT (P4300) high-performance urethane can assist in providing a reliable, cost-effective sealing system.



Parker offers a wide variety of rod seals, piston seals and rod wipers. Many of these are available in one or more of Parker's polyurethane materials. Ask for Catalog 5225A.

Parker Hannifin Corporation  
**Engineered Polymer Systems Division**  
 Salt Lake City, UT 84119  
 Phone: 801-972-3000  
 Fax: 801-972-4777

**Build With The Best!**

