



Cycletime Tips - Automotive

Volume 18: Flexible Thermoplastic Polyurethane Characteristics

Thermoplastic Polyurethane is finding its way into niche applications within automobiles more and more each model year. It's important to understand what benefits this engineered soft segment (flexible) polymer brings to the table. If you're looking for an abrasion resistant elastomer with excellent resiliency and weld line strength, look no further. Typically, these materials exist in two families (or derivations of the two) - polyester based and polyether based. The attached chart gives you an informal overview of the benefits that each brings.

Polyester vs. Polyether Property Chart		
Property	Ester	Ether
Tensile & Tear Strength	◆	
Abrasion Resistance	◆	
Fuel/Oil/Grease Resistance	◆	
Water Resistance		◆
Compression Set @ 25°C	◆	◆
Compression Set @ 70°C	◆	
Density		◆
Clarity	◆	
Low Temp Flexibility		◆
Fungus Resistance		◆
Moisture Vapor Transmission		◆
Price	◆	

Polyester-Based TPU Benefits:

- Toughness
- Oil Resistance
- Chemical Resistance

Polyether-Based TPU Benefits:

- Low Temperature Properties
- Hydrolytic Stability
- Resistance to Micro-organisms

If are planning on utilizing this engineered polymer for future or existing applications, please contact Jim Cardinal or me and we will be pleased to assist.

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