Pur

Color - Green

Pur is a thermoplastic polyurethane elastomer (TPU) on the polyester basis, relates to the group of polar and saturated elastomers. Because of the special raw material, Pur is an excellent material for manufacture of seals by a machining method and traditionally – by injection molding.

Pur is the first and simplest material among polyurethane elastomers, but in comparison with rubber elastomers it already exhibits excellent mechanical characteristics - low abrasion, low compression set and extremely low residual strain (20% at 70°C/70h).

Products made out of this material can be used in mineral oil (water content - not more than 0.2%), in water up to 40°C and in bio-degradable hydraulic oils like vegetable oils and synthetic esters from -30°C up to +110°C. Pur is resistant to ozone, weather and temperature's effects. Also, this material has a very high resistance to radiation exposure.

Resistance

Good resistance	Average resistance	Low resistance
Hydraulic fluids based on mineral oil	Non-ethanol fuel	Aromatic hydrocarbons
Mineral oil and grease (modifying additives can cause the decrease)	Biodegradable hydraulic fluid	Ketones, methyl ethyl, glycols.
Water up to +40°C	Fire-resistant hydraulic fluids HFA, HFB up to +30°C	Brake fluids based on glycol
Aliphatic hydrocarbons (propane, butane)	Silicone oil and grease	Fire-resistant hydraulic fluids HFC and HFD
Compressed air up to 110°C		Hot water, steam, alkali, amines, acids and base.
		Chlorinated hydrocarbons

Application

Pur mainly used for seals, resistant to mineral oils and in those cases, when it is necessary to provide high mechanical properties - wear resistance, low compression set, as well as easy installation to the groove with small dimensions. For example: seals, which require slight abrasion, minimal wear, simple installation and dismantling, compact sizes and increased longevity.

Operating practice of different seals shows that Pur has better wear resistance than the rubber elastomers (standard molding to a press-form) more than 8-15 times.

Pur has high hardness, so it has been used successfully for the seals, which are operated in a highly worn pairings at high pressure and must have a high resistance to extrusion.

Mainly used

- Wipers
- Piston seals
- Rod seals
- O-Rings
- Rotor seals

Pur Material Data Sheet

Properties	Value	Unit	Standard
Hardness	95 +/-3	Sh A	DIN 53505
Hardness	48+/-3	Sh D	DIN 53505
Density	1,20	g/cm³	DIN 53479 or DIN EN ISO 1183-1
Compression set 70°C / 24 h, 20 % deformation	≤25	%	
Compression set 70°C / 70 h, 10 % deformation	20	%	DIN 53517 or DIN ISO 815-1
Compression set 100°C / 24 h, 20 % deformation	≤30	%	
100 % modulus	≥15	N/mm²	DIN 53504
Rebound resilience	45	%	DIN 53512
Tensile strength	≥35	N/mm²	DIN 53504
Elongation at break	≥400	%	DIN 53504
Tear strength	≥100	N/mm	DIN 53515 or DIN ISO 34-1
Abrasion	15	mm³	DIN 53516
Min. service temperature	-30	°C	
Max. service temperature	+110	°C	