

H-Pur

Color - red

H-Pur is a hydrolysis resistant thermoplastic polyurethane elastomer (TPU). This material is the further development and modernising of material Pur, but it perfectly works in hot water (natural and sea, temp. up to +90°C) based, flame retardant hydraulic fluids (HFA, HFB), biologically degradable fluids (bio-oils), mineral oils (water content - more than 0.2%), etc.

H-Pur is highly resistant to ozone, weather impact and temperatures. This material is very recommended for usage in tropical regions. Swelling in mineral oils is low. H-Pur has the same high resistance to radiation exposure as the Pur. The gas permeability of H-Pur is much lower than of the Pur.

Due to its' hydrolysis resistance, H-Pur can be used in water hydraulics and mining, tunneling, production of presses. H-Pur is especially recommended for usage in natural and sea water, for HFA and HFB liquids and biologically degradable fluids for hydraulic systems (vegetable oil and synthetic esters) and nutritional components.

H-Pur is approved by KTW and corresponds to FDA

In comparison with Pur, H-Pur has about the same mechanical properties and wear resistance. Breaking strain is very low (20% at 70°C/70h). The temperature rate: from -20°C up to +115°C.

The main difference between H-Pur and Pur, is a very high hydrolysis and chemical resistance of H-Pur, which is very unusual for polyurethanes.

Resistance

Good resistance	Average resistance	Low resistance
Hydraulic fluids based on mineral oil	Fire-resistant fluids of type HFC (water glycol mixture)	Aromatic hydrocarbons
Biologically degradable hydraulic fluids	Some additives for power can have destructive effect (e.g. fungicides)	Chlorinated hydrocarbons (dichloromethane, trichloromethane)
Fire-resistant pressure fluids HFA and HFB	Ethanol	Ketones and glycols
Mineral oils and grease (certain additives can have destructive effects)	Non-ethanol fuels (except premium blend petrol and unleaded fuels)	Break fluids, based on glycol
Silicone oils and grease	–	Hot steam exceeding +100°C
Aliphatic hydrocarbons (e.g. propane, butane)	–	Concentrated acids and basis
Hot water and sea water up to +90°C	–	–
Diluted acids and basis	–	–

Application

H-Pur is mainly used in those cases where among with the high resistance to mineral oils, hydrolysis and chemical resistance are required.

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

H-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.

There is a Certificate confirming H-Pur to be intended as a sealing material for the use in food processing machinery is in full compliance with FDA regulations.

Mainly used

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

H-Pur Material Data Sheet

Properties	Value	Unit	Standard
Hardness	95 +/-3	Sh A	DIN 53505
Hardness	48+/-3	Sh D	DIN 53505
Density	1,21	g/cm ³	DIN 53479 or DIN EN ISO 1183-1
Compression set 70°C / 24 h, 20 % deformation	≤29	%	
Compression set 70°C / 70 h, 10 % deformation	20	%	DIN 53517 or DIN ISO 815-1
Compression set 100°C / 24 h, 20 % deformation	≤32	%	
100 % modulus	≥12	N/mm ²	DIN 53504
Rebound resilience	28	%	DIN 53512
Tensile strength	≥45	N/mm ²	DIN 53504
Elongation at break	≥315	%	DIN 53504
Tear strength	≥100	N/mm	DIN 53515 or DIN ISO 34-1
Abrasion	16	mm ³	DIN 53516
Min. service temperature	-20	°C	
Max. service temperature	+115	°C	