H-NBR

Color - green

H-NBR is an elastomer based on hydrogenated acrylonitrile-butadiene rubber, which can be used in aliphatic hydrocarbon (i.e. propane, butane) and mineral oils and lubricants (short time up to 170°C), also for raw petroleum which contains hydrogen sulfide. H-NBR also can be used in diluted acids and alkali, saline, even at high temperatures and in water-glycol composition. H-NBR is not compatible with fuels, which are high in aromatic hydrocarbons (composition of premium gasoline), petrol ketones (fuel-spirituous compositions), esters, ethers and chlorinated hydrocarbons (i.e. trichloroethylene and tetrachlorethylene).

H-NBR is soot free and is suitable for electrical insulation

In comparison with NBR, H-NBR has better mechanical properties, such as conventional tensile strength, relative elongation at break and abrasion resistance. The temperature range is much wider (from -25°C up to +150°C; short time up to 170°C). This material has a high ozone, weather and ageing resistance. Swelling in mineral oils is low, but depends very much on the composition of the oil. The compatibility with oils, which have a high percentage of additives, is much better than NBR.

Resistance

Good resistance	Medium resistance	Low resistance
Mineral oils and grease	40% aromat. fuels (leaded fuels)	Aromatic hydrocarbon (toulene, benzol)
Aliphatic hydrocarbons (propane, butane, petrol)	Biodegradable hydraulic fluids	Chlorinated hydrocarbones (trichloroethylene; perchlorethylene)
Water	Silicone oil and grease (oils can cause the decrease)	Brake fluids based on glycol
Fire-resistant pneumatic fluids HFA, HFB, HFC		Fire-resistant hydraulic fluids HFD
Adipose and vegetable oils and grease	–	Polar solvents (acetone, ethyl acetate)
Diesel, petrol	–	Hot steam
Oils with big amount of additives	–	–
Big amount of acids and bases, salt solutions at room temperature	–	–
Raw petroleum (containing hydrogen sulfide and amines)	–	–

Application

H-NBR is mainly used in cases, where high abrasion, fuel and mineral oil resistance, excellent elasticity at high temperatures in oil with a high percentage of additives, are required (i.e. FPM substitute).

For example: engine and gearbox seals in automotive industry, seal parts for petroleum and natural gas production industry.

Mainly used

- Rotary seals, seals for automotive technologies
- O-rings

H-NBR Material Data Sheet

Properties	Value	Unit	Standard
Hardness	85 +/-3	Sh A	DIN 53505
Density	1,32	g/cm³	DIN 53479 or DIN EN ISO 1183-1
Compression set 100°C / 22 h	18	%	DIN 53517 or DIN ISO 815-1
Compression set 150°C / 24 h	23	%	DIN 53517 or DIN ISO 815-1
100 % modulus	9,6	MPa	DIN 53504
Rebound resilience	36	%	DIN 53512
Tensile strength	19,5	MPa	DIN 53504
Elongation at break	189	%	DIN 53504
Tear strength	4,6	N/mm	DIN 53515 or DIN ISO 34-1 A
Abrasion	112	mm³	DIN 53516
Min. service temperature	-25	°C	
Max. service temperature	+150	°C	