

Elastomer & Plastic Compatibility

Oilfield Sealing

Property Compatibility Ratings:

- VG** Very good performance. Highly recommended
- G** Good: satisfactory performance under all conditions
- F** Fair: limited performance. Satisfactory only if temperature and/or concentration is low, or if seal is static.
- P** Poor: little or no tolerance to the chemical. DO NOT USE.
- N/A** No data available.

Material Code & Chemical Nature	Elastomeric Sealing Materials												Plastic Back-Ups		
	AU/EU <small>Polyurethane</small>	CR <small>Poly-chloroprene</small>	NBR <small>Nitrile</small>	XNBR <small>Carboxy Nitrile</small>	ECO <small>Epichloro-hydrin</small>	HNBR <small>Hydrogenated Nitril</small>	EPDM <small>Ethylene propylene diene Monomer</small>	FSI <small>Fluoro silicone</small>	FKM <small>VF2 Fluoro elastomer</small>	TFEP <small>TFE/P Fluoro elastomer</small>	FFKM <small>Perfluoro elastomer</small>	FFKM <small>Perfluoro elastomer</small>	PPS <small>Polyphenylene sulfide</small>	PEEK <small>Polyether ether ketone</small>	PTFE <small>Polytetrafluoro-ethylene</small>
Common Trade Name	Adiprene	Neoprene	Buna-N		Hydrin	Therban	Nordel	Silastic	Viton	Aflas	Chemrez	Kalrez	Ryton	Vlotrex	Teflon
ASTM D200	BG	BC/BE	BF/CH	CH	CH/DK	CH	AA/DA	FK	HK	HK	HK	HK	HK	HK	JK
Low Temp Duty °F (°C)	-22 (-30)	-13 (-25)	-22 (-30)	-4 (-20)	-22 (-30)	-4 (-20)	-40 (-40)	-49 (-45)	14 (-10)	86 (30)	32 (0)	95 (35)			-310 (-190)
High Temp Duty °F (°C)	194 (90)	212 (100)	248 (120)	248 (120)	275 (135)	302 (150)	302 (150)	374 (190)	392 (200)	428 (220)	446 (230)	500 (260)	446 (230)	482 (250)	500 (260)
Chemical Properties	AU/EU	CR	NBR	XNBR	ECO	HNBR	EPDM	FSI	FKM	TFEP	FFKM	FFKM	PPS	PEEK	PTFE
Aliphatic Hydrocarbons	G	F	G	G	G	G	P	F	G	F	G	G	G	G	G
Aromatic Hydrocarbons	P	P	P	P	F	F	P	F	G	F	G	G	G	G	G
Crude Oil at < 120°C	F	F	G	F	G	G	P	F	G	F	G	G	G	G	G
Crude Oil at > 120°C	P	P	P	P	P	F	P	F	F	F	G	G	G	G	G
Sour Crude Oil	F	F	F	F	F	G	P	F	F	F	F	F	G	G	G
Sour Natural Gas	F	F	F	F	F	G	F	F	F	F	F	F	G	G	G
Oil-based Mud	F	F	G	F	G	G	P	F	G	F	G	G	G	G	G
Water-based Mud	F	F	G	G	F	G	G	G	G	G	G	G	G	G	G
Water	F	F	G	G	F	G	G	G	F	G	G	G	G	G	G
Steam	P	P	P	F	P	F	G	P	P	G	G	G	G	G	G
Amine Corrosion Inhibitors	P	F	F	F	F	F	F	P	F	G	G	G	G	G	G
Brines:															
CaCl2 / CaBr2	F	F	G	G	G	G	G	G	G	G	G	G	G	G	G
ZnBr2	F	F	P	P	G	F	F	G	G	G	G	G	G	G	G
Seawater	F	F	G	G	G	G	G	G	G	G	G	G	G	G	G
Control Fluids:															
Mineral Oils	G	F	G	G	G	G	F	G	G	F	G	G	G	G	G
Glycol-based	P	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Phosphate Water	P	P	P	P	P	P	G	F	G	G	G	G	G	G	G

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Methanol	P	G	G	G	G	G	G	G	F	G	G	G	G	G	G
Acids:															
HCl Acid (dil)	F	F	F	F	P	F	G	F	G	G	G	G	G	G	G
HCl Acid (cono)	P	P	P	P	P	P	F	F	G	G	G	G	G	F	G
HF Acid (< 65% cold)	P	G	F	F	P	F	G	P	G	G	G	G	G	F	G
Chlorine Solvents	P	P	P	P	P	F	P	G	G	P	G	G	G	G	G
Methane	F	F	G	G	G	G	P	F	G	F	G	G	G	G	G
Carbon Dioxide	G	F	G	G	G	G	F	F	F	G	G	G	G	G	G
H2S at < 80°C < 100 ppm	F	G	G	G	G	G	G	G	G	G	G	G	G	G	G
H2S at > 150°C > 15%	P	P	P	P	P	P	P	P	F	F	G	G	G	G	G
Physical Properties	AU/EU	CR	NBR	XNBR	ECO	HNBR	EPDM	FSI	FKM	TFEP	FFKM	FFKM	PPS	PEEK	PTFE
Tear Resistance	VG	G	G	G	G	G	P	F	G	F	F	F	G	VG	G
Abrasion Resistance	VG	VG	G	G	G	G	G	F	G	F	F	F	G	VG	G
Compression Set Resistance	G	G	VG	VG	F	G	F	G	G	F	P	P	N/A	N/A	N/A
Resilience	VG	VG	F	G	F	F	F	F	P	P	P	P	N/A	N/A	N/A
Gas Impermeability	G	F	F	G	VG	G	G	F	VG	G	VG	VG	G	G	G