Chemical resistance chart

The information in the following table refers to the chemical compatibility of mechanical seals with fluids, and should be considered as a general guideline for an initial orientation in the selection of a mechanical seal. For technical or economic reasons, other types of mechanical seals with different materials than those indicated here may be proposed.

Fluid	Materials I Rotary face	II Stationary face	III Elastomers	IV Springs	V Other metal parts	• Notes
Acetaldehyde	B	V	T	G	G	D
Acetic acid < 30 %	B	V	E	G	G	
Acetic acid ester (Propyl acetate)	B	V	T	G	G	
Acetic acid, glacial	B	V	T	G	G	
Acetic anhydride	B	V	T	G	G	
Acetone	F1	B	E	G	F1	
Acetyl chloride	V	B	V	G	G	
Acetyl salicylic acid	B	V	E	G	G	
Acetylene	V	B	E	G	G	D
Acrylonitrile	Q	Q	T	G	G	D
Adipic acid	G	B	V	G	G	
Alum (ammonia)	Q	Q	P	G	G	
Alum (chrome)	X	B	P	G	G	
Alum (potash)	Q	Q	P	G	G	
Aluminium	V	B	E	G	G	
Aluminium acetate	Q	Q	E	G	F	
Aluminium chloride	V	B	V	G	G	
Aluminium nitrate	V	B	P	G	G	
Aluminium sulphate	Q	Q	V	G	G	
Ammonia and oil	V	B	N	G	G	
Ammonia gas	X	B	E	G	G	D
Ammonia liquid	X	B	E	G	F	
Ammonium acetate < 10%	V	B	E	G	G	
Ammonium bromide < 10%	X	B	P	G	G	
Ammonium carbonate	V	B	E	G	G	D
Ammonium chloride	V	B	E	G	G	D
Ammonium hydrogen carbonate < 10%	V	B	E	G	G	
Ammonium hydroxyde	F1	B	E	G	F1	D
Ammonium nitrate	Q	B	P	G	G	
Ammonium pebulfate < 20 %	V	B	P	G	G	
Ammonium phosphate < 15%	V	B	P	G	G	
Ammonium sulfide	V	B	P	G	G	
Ammonium sulphate < 10 %	Q	Q	P	G	G	
Amyl acetate	V	B	E	G	G	
Amyl alcohol	F1	B	E	G	F1	
Amyl benzoate	F1	B	E	G	F1	
Amyl butyrate	F1	B	E	G	F1	
Amyl formate	F1	B	E	G	F1	
Amyl nitrate	F1	B	E	G	F1	
Amyl propionate	F1	B	E	G	F1	
Aniline	G	B	T	G	G	
Anthracene	Q	Q	V	G	G	
Arachic oil (peanut oil)	V	B	P	G	G	
Arsenic acid	V	B	V	G	G	D
Ascorbic acid	V	B	E	G	G	
Barium chloride	V	B	E	M2	M2	D
Barium hydroxide	V	B	P	G	G	
Barium nitrate	Q	Q	P	G	G	
Barium sulfide	V	B	P	G	G	
Barium sulphate	V	B	E	G	G	
Beer	X	B	V	G	F	
Benzene (benzol)	F1	B	V	G	F1	
Benzoic acid	V	B	V	G	G	
Borax (solution)	Q	Q	E	G	G	
Boric acid	Q	Q	P	G	G	
Brine	Q	B2	V	G	G	
Bromemethane	F1	B	V	G	F1	D
Butadiene	V	B	E	G	G	D
Butane	F1	B	V	G	F1	
Buthyl alcohol	X	B	P	G	F	
Butter	X	B	P	G	F	
Butyl benzoate	F1	B	E	G	F1	
Butyl butyrate	F1	B	E	G	F1	

Fluid	Materials I Rotary face	II Stationary face	III Elastomers	IV Springs	V Other metal parts	• Notes
Butyl cellosolve	Y	V	T	G	G	
Butyl formate	F1	B	E	G	F1	
Butyl lactate	F1	B	E	G	F1	
Butyl phosphate	F1	B	E	G	F1	
Butyl phthalate	F1	B	E	G	F1	
Butylamine	B	V	T	G	G	
Butylene	F1	B	V	G	F1	
Butyric acid	V	B	T	G	G	
Calcium acetate	V	B	E	G	G	
Calcium carbonate	Q	Q	P	G	G	
Calcium chloride	Q	B2	V	G	G	
Calcium hydrogen sulphate < 10%	X	B	P	G	F	
Calcium hydroxide > 10 %	Q	Q	P	G	G	*
Calcium hypochlorite 10 %	C1	V	E	G	G	
Calcium nitrate	X	B	P	G	G	
Calcium phosphate	B	V	P	G	G	
Calcium sulfide	V	B	P	G	G	
Camphor	Q	Q	T	G	G	
Carbinol	X	B	P	G	G	
Carbitol	G	B	T	G	G	
Carbolic acid	G	B	V	G	G	
Carbon dioxide	Q	B	P	G	G	
Carbon disulfide	G	B	T	G	G	D
Carbon monoxide	G	B	E	G	G	D
Carbon tetrachloride	V	B	V	G	G	
Carbonic acid	Q	B	E	G	G	
Carbonic anhydride	V	B	P	G	G	D
Castor oil	V	B	P	G	G	
Cellulose acetate	V	B	T	G	G	D
Cheese	Q	Q	V	G	F	D
Chloline, dry	Y	V	V	G	G	*/D
Chlorine solvents	V	B	T	G	G	
Chlorine, wet	Y	V	V	M1	M1	*
Chlorobenzene	G	B	V	G	G	
Chloroethane	F1	B	V	G	F1	
Chloroform	Q	B	V	G	F	
Chloromethane	G	B	V	G	G	
Chloropentane	G	B	V	G	G	
Chromic acid	Q	Q	V	G	G	D
Citric acid	X	B	E	G	G	
Cocoanut oil	V	B	P	G	G	
Cod liver oil	V	B	P	G	G	
Coffee	X	B	P	G	F	
Copper chloride	Q	Q	V	G	G	*
Copper cyanide	V	B2	P	G	G	D
Copper sulphate	V	B	P	G	G	
Cresol	G	B	T	G	G	
Cresylic acid	G	B	V	G	G	
Cumene	G	B	V	G	G	
Decahydronaphthalene F1	B	V	G	F1		
Diacetone alcohol	G	B	E	G	G	
Dichloroacetic acid	Y	B	T	M1	M1	
Dichlorobenzene	G	B	V	G	G	
Dichloroethane	G	B	T	G	G	
Dichloroethylene	G	B	V	G	G	
Dichloromethane	G	B	V	G	G	
Diethanolamine	G	B	T	G	G	
Diethyl carbonate	V	B	E	G	G	
Diethyl phthalate	G	B	T	G	G	
Diethylamine	G	B	T	G	G	
Diethylene glycol	F1	B	P	G	F1	
Dimethil sulphoxide	G	V	B	G	G	
Dimethyl formamide	B	V	T	G	G	
Dimethyl phthalate	G	B	V	G	G	
Dinitrochlorobenzene	G	B	T	G	G	

CHEMICAL RESISTANCE CHART

Fluid	Materials					
	I	II	III	IV	V	•
	Rotary face	Stationary face	Elastomers	Springs	Other metal parts	Notes
Dioctyl phthalate	G	B	T	G	G	
Dirty water	Q	Q	P	G	F	
Distiled water	X	B	P	G	F	
Drinking water	X	B	P	G	F	
Epichlorhydrin	V	B	T	M2	M2	D
Essences	G	B	E	G	G	
Ethane	Q	B	V	G	F	
Ethanodiol	X	B	P	G	F	
Ethanol	X	B	P	G	F	
Ethanolamine	G	B	T	G	G	
Ethyl acetate	V	B	T	G	G	
Ethyl alcohol (etanol)	X	B	P	G	F	
Ethyl benzoate	G	B	V	G	G	
Ethyl butyrate	G	B	E	G	G	
Ethyl chloride	B	V	T	G	G	
Ethyl formate	F1	B	E	G	F1	
Ethyl phthalate	F1	B	E	G	F1	
Ethyl propionate	F1	B	E	G	F1	
Ethyl sulphate	F1	B	E	G	F1	
Ethyleen oxide (gas T)	V	B	T	G	G	D
Ethylene	Q	B	V	G	F	
Ethylene chloride	V	B	T	G	G	
Ethylene glycol	X	B	E	G	F	
Fat	Q	Q	P	G	F	
Fatty acids	V	B	V	G	G	
Ferric chloride	Y	V	P	G	G	*
Ferric sulphate < 20 %	B	V	P	G	G	
Ferrous sulphate < 20 %	B	V	P	G	G	
Food products	Q	Q	P	G	G	*
Formaldehyde	V	B	T	G	G	D
Formic acid	B	V	E	M1	M1	
Formic acid > 40º C	Q1	B2	K	G	G	
Freon 11	Q	B2	T	G	F	
Freon 112	F1	B	V	G	F1	
Freon 113	X	B	N	G	F	
Freon 114	X	B	N	G	F	
Freon 115	X	B	N	G	F	
Freon 12	X	B	N	G	F	
Freon 13	X	B	N	G	F	
Freon 14	X	B	N	G	F	
Freon 21	Q	B2	T	G	F	
Freon 22	F1	B	N	G	F1	
Freon 31	F1	B	N	G	F1	
Freon 32	F1	B	N	G	F1	
Freon TF	X	B	P	G	F	
Fruit (juice)	V	B	P	G	G	
Fumaric acid	V	B	P	G	G	
Furfurol	Q	Q	T	G	G	
Furfuryl alcohol	Q	Q	T	G	G	
Gallic acid	V	B2	V	G	G	
Gas oil	X	B	V	G	F	
Gas town	V	B	V	G	G	D
Gelatine	Q	Q	P	G	F	
Glucose	F1	B	V	G	F1	
Glycerine	Q	B2	P	G	F	
Glycol ethylene	X	B	E	G	F	
Grain oil	V	B	P	G	G	
Grape juice	Q	Q	P	G	F	
Heavy water	G	B	P	G	G	
Helium	V	B	E	G	G	D
Heptane	G	B	V	G	G	
Hexane	G	B	V	G	G	
Hexanone	G	B	T	G	G	
Hidraulic oil	F1	A	P	G	F1	
Hydrazine	V	B	E	G	G	*
Hydrochloric acid	V	B2	V	G	G	*
Hydrocianic	V	B2	V	G	G	
Hydrocyanic acid	V	B	E	G	G	
Hydrofluoric acid 40 %	T	Y	T	G	T	*/D
Hydrogen	F1	B	P	G	F1	D
Hydrogen peroxide	Y	V	V	G	G	D
Hydrogen sulphide	Y	V	V	G	G	
Ice-cream	V	B2	P	G	G	
Ink	V	B	V	G	G	
Iodine	Y	V	V	G	G	
Isoamyl alcohol	V	B	E	G	G	
Kerosene	F1	B	V	G	F1	
Lactic acid	G	B	V	G	G	

Fluid	Materials					
	I	II	III	IV	V	•
	Rotary face	Stationary face	Elastomers	Springs	Other metal parts	Notes
Lard	Q	Q	P	G	F	
Lead nitrate	V	B2	P	G	G	
Linseed oil	V	B	P	G	G	
Liquers	G	B	V	G	G	
Lubricants	F1	A	P	G	F1	
Lubricating oil	F1	A	E	G	F1	
Lysoform	G	B	T	G	G	
Magnesium chloride > 5%	V	B	E	M1	M1	
Magnesium hydroxide < 10 %	V	B	E	G	G	
Magnesium sulphate	V	B	E	G	G	
Maleic acid	V	B	V	G	G	
Maleic anhydride	Q	B	T	G	G	
Malic acid	V	M	P	G	G	
Malonic acid	G	B	P	G	G	
Manganese chloride	G	B	V	G	G	
Manganese nitrate	V	B	E	G	G	
Manganese sulphate	G	B	V	G	G	
Mayonnaise	Q	Q	P	G	F	
Mercaptane (ethyl mercaptane)	V	B	T	G	G	D
Mercury chloride	V	B	E	G	G	D
Mercury nitrate	V	B	V	G	G	
Methane	Q	B2	T	G	F	D
Methanol	G	B	E	G	G	
Methyl acetate	G	B	T	G	G	
Methyl acrylate	G	B	T	G	G	
Methyl alcohol (methanol)	X	B	P	G	F	
Methyl benzoate	G	B	V	G	G	
Methyl bromide	V	B	V	G	G	
Methyl butyrate	G	B	T	G	G	
Methyl formate	G	B	T	G	G	
Methyl methacrylate	G	B	T	G	G	
Methyl propionate	G	B	T	G	G	
Methylamina	G	B	T	G	G	
Methyl-butyl ketone	V	B	E	G	G	
Methylchloride	G	B	V	G	G	D
Methylene chloride	G	B	T	G	G	
Methylene oxide	G	B	T	G	G	
Methyl-ethyl ketone	G	B	E	G	G	
Methyl-isobutyl ketone	G	B	E	G	G	
Milk 100 º C	V	B	E	G	G	
Mineral oil	F1	A	P	G	F1	
Molasses	Q	Q	P	G	F	
Naphtalene	Q	Q	V	G	F	
Naphtha	F1	A	V	G	F1	
Nickel chloride	V	B	P	G	G	
Nickel sulphate	V	B	P	G	G	
Nitric acid < 20 %	V	B2	V	G	G	
Nitric acid > 20 %	Q	Q	T	G	G	
Nitro benzene	G	B	T	G	G	
Nitro solvents	V	B	T	G	G	
Nitrocellulose	Q	Q	T	G	F	
Nitrogen	V	B	P	G	G	D
Nitroglycerine	F1	B	V	G	F1	
Nonil phenol	G	B	V	G	G	
Octyl alcohol	F1	B	E	G	F1	
Oil (cutting solubre)	F1	A	P	G	F1	
Oil (domestic fuel)	Q	Q	P	G	F	
Oil (paraffin base)	V	B2	V	G	G	
Oil (transformer)	F1	A	P	G	F1	
Oil and ammonium	F1	B	N	G	F1	
Oleic acid	V	B	T	G	G	
Olive oil	V	B	P	G	G	
Oven gas	G	B2	V	G	G	D
Oxalic acid	V	B	E	G	G	
Oxigen (gas)	Y	V	V	G	G	*/D
Ozone	Y	V	E	G	G	D
P.V.A. (polyvinyl acetate)	Q	Q	E	G	G	
P.V.C. (polyvinyl chloride)	Q	Q	E	G	G	
Palmitic acid	V	B	V	G	G	
Paraffins	F1	B	V	G	F1	
Pentane	F1	B	V	G	F1	
Perchloro etylene	V	B	V	G	G	
Petrol < 97 octanes	V	B	P	G	G	
Petrol > 97 octanes	V	B	V	G	G	
Petroleum	Q	Q	V	G	G	

CHEMICAL RESISTANCE CHART

Fluide	Materials					
	I	II	III	IV	V	•
	Rotary face	Stationary face	Elastomers	Springs	Other metal parts	Notes
Petroleum (kerosene)	F1	B	V	G	F1	
Petroleum ether	F1	B	V	G	F1	
Petroleum oil	F1	A	P	G	F1	
Phenol	G	B	V	G	G	
Phenoloctyl	G	B	T	G	G	
Pheny chloride	G	B	V	G	G	
Phosphoric acid < 10 %	V	B2	E	G	G	
Phosphoric acid concentrated	V	Y	V	M1	M1	
Phthalic acid	V	B	T	G	G	D
Phthalic anhydride	Q	Q	T	G	G	
Picric acid	V	B	V	G	G	
Potassium acetate	V	B	E	G	G	
Potassium bromide	Q	Q	T	G	G	
Potassium carbonate	V	B	P	G	G	
Potassium chlorate	V	B	T	G	G	
Potassium chloride	V	B	P	M2	M2	
Potassium cyanide	V	B	P	G	G	D
Potassium hydrogen carbonate	V	B	P	G	G	
Potassium phosphate	V	B	V	G	G	
Potassium silicate	V	B	P	G	G	
Potassium sulphate	V	B	P	G	G	
Propane	F1	B2	P	G	F1	
Propellant	G	B	T	G	G	
Propil acetate	Y	V	T	G	G	
Propionate butyl	F1	B	E	G	F1	
Propionic acid	B	V	T	G	G	
Propyl benzoate	F1	B	E	G	F1	
Propyl butyrate	F1	B	E	G	F1	
Propyl formate	F1	B	E	G	F1	
Propyl phthalate	F1	B	E	G	F1	
Propyl propionate	F1	B	E	G	F1	
Propylene	Q	B	V	G	G	D
Propylene glycol	F1	B	V	G	F1	
Propylene oxide	V	B	T	G	G	D
Pyridine	G	B	T	G	G	
Pyrogallic acid	V	B	V	G	G	
Rapeseed oil	G	B	V	G	G	
Resin (alkyd)	Q	Q	V	G	G	D
Resin (melamine)	Q	Q	T	G	G	D
Resin (phenolic)	Q	Q	V	G	G	D
Salicylic acid		V	B	E	G	G
Sandy water (high concentration)	Q	Q	P	G	F	
Sea (salt) water	V	B	P	G	G	
Silicone liquid	Q	B	E	G	F	
Silicone oil	F1	A	E	G	F1	
Soap solution	X	B	P	G	F	
Sodium acetate >10%	V	B	E	G	G	D
Sodium carbonate	V	B	P	G	G	
Sodium chloride < 10%	V	B	E	G	G	D
Sodium citrate	Q	Q	E	G	G	
Sodium cyanide	V	B	P	G	G	D
Sodium dichromate	Y	B	T	G	G	
Sodium disulfite	V	B	P	G	G	
Sodium hydrogen carbonate	V	B	P	G	G	
Sodium hydrogen sulphate < 20%	V	B	P	G	G	
Sodium hydroxide < 10 %	Q	Q	E	G	F	
Sodium hydroxide > 10 %	Q	Q	E	G	F	D
Sodium hypochlorite	Y	V	V	M1	M1	*
Sodium nitrate	V	B	E	G	G	
Sodium silicate	Q	Q	P	G	G	
Sodium sulfide	V	B	P	G	G	
Sodium sulfide < 2 %	V	B	P	G	G	
Sodium sulphate	Q	Q	P	G	G	
Sodium tetraborate	Q	Q	E	G	G	
Sodium thiocyanate	V	B	P	G	G	D
Sodium thiosulfate	V	B	E	G	G	
Soyabean oil	V	B	P	G	G	
Starch	Q	Q	E	G	F	*
Stearic acid	V	B	T	G	G	
Stoddard solvent	G	B	V	G	G	
Styrene	Q	Q	T	G	G	
Succinic acid	V	B	E	G	G	
Sugar juice	V	B	P	G	G	

Fluide	Materials					
	I	II	III	IV	V	•
	Rotary face	Stationary face	Elastomers	Springs	Other metal parts	Notes
Sugar juice < 10 %	Q	Q	P	G	G	
Sugar juice > 10 %	Q	Q	P	G	G	*/D
Sulphonated oils	V	B2	V	G	G	
Sulphuric acid < 10 %	V	B2	V	G	G	
Sulphuric acid < 35 %	Y	V	V	M	M	
Sulphuric acid concentrated	Y	V	V	M	M	*
Tannic acid	V	B	P	G	G	
Tannin	V	B	P	G	G	
Tartaric acid	V	B	P	G	G	
Tetrachloro ethane	V	B	V	G	G	
Tetrachloro ethylene	V	B	V	G	G	
Tetrahydrofuron	V	B	T	G	G	
Thermic oil	F1	A	V	G	F1	
Toluene	V	B	V	G	G	
Tomatoe juice	Q	Q	P	G	G	
Tooth paste	Q	Q	P	G	F	*
Trichloro acetic acid < 50 %	V	B2	T	G	G	
Trichloro ethane	G	B	T	G	G	
Trichloro ethylene	V	B	V	G	G	
Tricresyl phosphate	V	B	E	G	G	
Triethanolamine	G	B	T	G	G	
Triethylamine	V	B	P	G	G	
Turpentine	X	B	P	G	F1	
Turpentine	X	B	P	G	F	
Urea	V	B	T	G	G	D
Urea formaldehyde resins	Q	Q	T	G	G	D
Varnish	Q	Q	V	G	G	D
Varnish (solvent nitro)	Q	Q	T	G	G	D
Vegetable oil	F1	A	P	G	F1	
Vinegar	F1	B	E	G	F1	
Vinyl acetate	G	B	T	G	G	
Vinyl chloride	Q	Q	T	G	G	D
Viscose	Q	Q	T	G	G	D
Water	X	B	P	G	F	
Water (de-ionised)	G	B	P	G	G	
Water (demineralised)	X	B	P	G	F	
Water (detergent)	X	B	P	G	F	
Water (mud)	Q	Q	P	G	F	
Water (sandy)	Q	Q	P	G	F	
Water (soapy)	X	B	P	G	F	
Water < 140 °C	Q	B2	E	G	F	
Water < 90 °C	V	B	P	G	F	
Water and oil (emulsion)	F1	A	P	G	F1	
Wax	F1	B	V	G	F1	
Whisky	X	B	P	G	F	
Wine	X	B	P	G	F	
Xylene (xylol)	V	B	V	G	G	
Zinc chloride	V	B	P	G	G	
Zinc cyanide	V	B	P	G	G	D
Zinc nitrate	V	B	P	G	G	
Zinc sulphate 2 %	V	B	P	G	G	D

D: Back to back double seal assembly (with barrier fluid compatible with the product at a pressure of 1,5 to 2 Bar above the pressure of the pressure to be sealed).
*: Consult a technical office.