Resistance table

Which materials for which fluids?

The resistance table supports you in your search for suitable materials and compiles information on the chemical resistance of sealing and enclosure materials for gaseous and liquid media. **The table is subject to updating.

Contents of the resistance table

- The suitability of the materials is confirmed by a simple "+".
- For some media, only the minimum requirement is confirmed with a "+". This means that higher quality materials can also be used.
- Ask if you are unsure, even if a medium is not listed.
- Operating conditions cannot be derived from the table.
- There is no such thing as an unconditional application. Therefore, also consider operational dependencies such as pressure, temperature, viscosity, concentration, degree of contamination. These can have a negative effect on the longevity of the valve.
- The table does not claim to be complete.
- No warranty claims can be derived from the information given.
- We reserve the right to change the information given at any time without notice.

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			Material Sealing																					Material Housing															
Media	Density (kg/m³)	Gaseous	-30°C 140°C EPDM	-30°C 140°C EPDM/EPDM	-30°C 120°C EPDM/PTFE	-15°C 200°C FFKM	-10°C 140°C FKM	-10°C 140°C FKM/FKM	-40°C 300°C Metall	-40°C 80°C Metall/HP	-20°C 400°C Metall/Wills®	-10°C 80°C NBR	-10°C 80°C NBR/NBR	-200°C 80°C PCTFE	-40°C 250°C PEEK-HT	-40°C 80°C Peek/PCTFE	-196°C 140°C PEEK/PCTFE-HP	PEEK/UHMW-PE	-10°C 90°C POM	-196°C 230°C PTFE	-10°C 200°C PTFE/FKM	-10°C 80°C PTFE/Peek	-40°C 230°C PTFE/Silikon	-196°C 250°C AISI 304 - 1.4301	-196°C 300°C AISI 316 - 1.4408	-196°C 300°C AISI 316 Ti - 1.4571(81)	-196°C 80°C AISI 316L - 1.4404	-40°C 250°C AISI 316L - 1.4435	-40°C 250°C AISI 318LN - 1.4462	-40°C 80°C AISI S165M - 1.4418	aluminium AL anodised	-40°C 200°C CC499K red brass	-196°C 300°C CW617N brass	-10°C 300°C EN-GJL250 grey cast	-20°C 300°C EN-GP240GH cast steel	-10°C 300°C EN-JS1025 ductile iron	-10°C 300°C P250GH+N - C22.8 PN160	PTFE Polyetrafluoroethylene	PVC	Polyvinyl chloride
potassium hydroxide KOH, 50%, aqueous	1000		+		+															+				+	+	+													
2-methylpentan, isohexane, liquid																				+				+	+	+							+						
Acetone CH3COCH3	791		+														+			+				+		+			+			+	+	+	+				
Acetylene C2H2	1.17	ja	+									+					+			+				+		+			+				+	+	+				
Additives for Fuels							+	+												+	+			+	+	+							+						
Air	1.2	ja	+	+	+		+	+				+					+		+	+	+		+	+	+	+			+		+	+	+	+	+	+	+		+
Ammoniac NH3	0.77	ja	+		+												+			+				+	+	+									+				
Antifrogen N	1140																			+													+						
Argon Ar	1.78	ja					+					+					+			+				+		+			+			+	+		+				
Argon, liquified cryogenic -186°C														+			+			+				+		+	+						+						
Bilge Water (water-oil mix)	1000		+				+					+								+	+					+							+	+	+				
Biodiesel, Rapsmethylester (RME)	885						+	+												+				+	+	+							+						
biogas (wet, max. 3% H2S)		ja					+																		+														
Biogas <= 0,5% H2S		ja					+					+					+			+	+			+		+			+					+		+			
Boron Trichloride BCL3 <0,5% Halogen																																							
Brake Fluid	1100		+	+				+												+					+	+						+	+		+				
Butadien C4H6	2.4	ja																		+					+	+													
Calibration gas, test gas, dry	0.72	ja					+										+			+				+					+										

Media	Density (kg/m³)	Gaseous	Material Sealing																				
			EPDM -30°C 140°C	EPDM/EPDM -30°C 140°C	EPDM/PTFE -30°C 120°C	FFKM -15°C 200°C	FKM -10°C 140°C	FKM/FKM -10°C 140°C	Metall -40°C 300°C	Metall/HP -40°C 80°C	Metall/Wills® -20°C 400°C	NBR -10°C 80°C	NBR/NBR -10°C 80°C	PCTFE -200°C 80°C	PEEK-HT -40°C 250°C	Peek/PCTFE -40°C 80°C	PEEK/PCTFE-HP -196°C 140°C	PEEK/UHMW-PE	POM -10°C 90°C	PTFE -196°C 230°C	PTFE/FKM -10°C 200°C	PTFE/Peek -10°C 80°C	PTFE/Silikon -40°C 230°C
CNG - Compressed Natural Gas	0.7	ja								+		+		+			+			+			
CO carbon monoxide	1.25	ja					+	+				+					+			+	+		
CO2 carbon dioxide gas	1.98	ja					+	+		+		+					+			+	+		
Coke oven gas	0.6	ja					+																
Condensate			+				+	+												+			
Condensate 200°C																				+	+		
Cool Emulsion, Cooling Water	1000		+				+	+				+					+			+	+		
Dimethylether DME	2	ja																		+			
Dipropylenglycolmethylether DPM																				+			
dirty Fluids							+						+								+		
Ethane C2H6	1.36	ja					+	+				+					+			+			
Ethanol	789		+		+												+			+	+		
Ethylacetat CH3 CO2 CH2 CH3	894																			+			
Ethylene C2H4	1.26	ja					+					+								+			
flour, powder, dust, soot			+				+					+											
Flue Gas SOX, SO2, N2, O2, CO		ja													+		+			+			
Formic Acid HCOOH 50% 20°C	1000																			+			
Forming Gas		ja					+	+				+								+			
Fuel Oil	920						+	+									+			+	+		
gaseous, liquid, aggressive		ja													+					+			
Gases flammable		ja					+	+				+					+			+			
Gasoline, Dieseloil, Fuels	800						+	+												+	+		
Glycerine aqueous, H2O with C3H8O3	1260						+														+		
granules, sand, gravel, chalk			+				+					+											
Grinding oil with dirt and abrasion particles							+														+		

Media	Material Housing															
	AISI 304 - 1.4301 -196°C 250°C	AISI 316 - 1.4408 -196°C 300°C	AISI 316 Ti - 1.4571(81) -196°C 300°C	AISI 316L - 1.4404 -196°C 80°C	AISI 316L - 1.4435 -40°C 250°C	AISI 318LN - 1.4462 -40°C 250°C	AISI S165M - 1.4418 -40°C 80°C	aluminium AL anodised	CC499K red brass -40°C 200°C	CW617N brass -196°C 300°C	EN-GJL250 grey cast -10°C 300°C	EN-GP240GH cast steel -20°C 300°C	EN-JS1025 ductile iron -10°C 300°C	P250GH+N - C22.8 PN160 -10°C 300°C	PTFE Polytetrafluoroethylene	PVC | Polyvinyl chloride
CNG - Compressed Natural Gas	+		+	+		+				+						
CO carbon monoxide	+		+			+			+	+	+	+				
CO2 carbon dioxide gas	+		+	+		+			+	+	+	+				
Coke oven gas		+	+							+						
Condensate	+		+						+	+	+	+	+			
Condensate 200°C		+	+						+	+	+	+	+			
Cool Emulsion, Cooling Water	+	+	+						+	+	+	+				
Dimethylether DME	+	+	+													
Dipropylenglycolmethylether DPM	+		+													
dirty Fluids	+		+						+	+						
Ethane C2H6	+		+			+			+	+						
Ethanol	+	+	+						+	+	+	+				
Ethylacetat CH3 CO2 CH2 CH3		+	+						+	+	+	+				
Ethylene C2H4	+								+	+						
flour, powder, dust, soot					+			+								
Flue Gas SOX, SO2, N2, O2, CO		+	+											+		
Formic Acid HCOOH 50% 20°C		+	+													
Forming Gas			+							+	+	+				
Fuel Oil	+		+						+	+	+	+				
gaseous, liquid, aggressive		+	+									+				
Gases flammable	+		+			+			+	+	+	+				
Gasoline, Dieseloil, Fuels		+	+						+	+	+	+	+			
Glycerine aqueous, H2O with C3H8O3	+															
granules, sand, gravel, chalk					+			+								
Grinding oil with dirt and abrasion particles	+															

			Material Sealing																					Material Housing															
Media	Density (kg/m³)	Gaseous	EPDM -30°C 140°C	EPDM/EPDM -30°C 140°C	EPDM/PTFE -30°C 120°C	FFKM -15°C 200°C	FKM -10°C 140°C	FKM/FKM -10°C 140°C	Metall -40°C 300°C	Metall/HP -40°C 80°C	Metall/Wills® -20°C 400°C	NBR -10°C 80°C	NBR/NBR -10°C 80°C	PCTFE -200°C 80°C	PEEK-HT -40°C 250°C	Peek/PCTFE -40°C 80°C	PEEK/PCTFE-HP -196°C 140°C	PEEK/UHMW-PE	POM -10°C 90°C	PTFE -196°C 230°C	PTFE/FKM -10°C 200°C	PTFE/Peek -10°C 80°C	PTFE/Silikon -40°C 230°C	AISI 304 - 1.4301 -196°C 250°C	AISI 316 - 1.4408 -196°C 300°C	AISI 316 Ti - 1.4571(81) -196°C 300°C	AISI 316L - 1.4404 -196°C 80°C	AISI 316L - 1.4435 -40°C 250°C	AISI 318LN - 1.4462 -40°C 250°C	AISI S165M - 1.4418 -40°C 80°C	aluminium AL anodised	CC499K red brass -40°C 200°C	CW617N brass -196°C 300°C	EN-GJL250 grey cast -10°C 300°C	EN-GP240GH cast steel -20°C 300°C	EN-JS1025 ductile iron -10°C 300°C	P250GH+N - C22.8 PN160 -10°C 300°C	PTFE Polyetrafluoroethylene	PVC | Polyvinyl chloride
HCL Hydrogen chloride gas	1.64	ja					+													+						+													
Helium Gas He	0.18	ja					+			+		+					+			+				+	+	+	+		+				+						
heptane (hexan, petrol)	684						+					+								+				+	+	+							+						
high viscous Fluids up to 1000 mm²/s							+														+			+		+							+						
Hot Air 180°C	1.2	ja																		+	+				+	+						+	+	+	+	+			
hot Gases 230°C	1	ja													+										+	+						+	+		+				
Hydraulic Oil	800						+					+					+			+				+		+						+	+	+	+				
Hydrogen H2	0.09	ja					+	+		+						+	+			+	+			+	+	+	+			+			+	+	+	+	+		
Hydrogen Peroxide 0,5% H2O2, +20°C	1000						+													+					+	+													
Hydrogen Sulfide, gas, dry, H2S	1.6	ja	+				+													+				+	+	+												+	
Isobutane C4H10	2.51	ja					+													+				+		+							+						
isoprene C5H8	681																			+				+	+	+													
Isopropanol CH3 CH(OH)CH3	786						+													+				+	+	+						+	+						
JP-8 jet fuel aviation, kerosine	800						+										+			+	+				+	+							+		+				
Liqud Nitrogen -196°C LN2														+			+			+				+		+	+						+						
Liquid Carbon Dioxide LCO2							+										+			+	+			+		+							+						
LNG liquified natural gas -162°C	1590													+			+			+						+	+						+						
LPG liquified petrol gas propane, butane	600						+	+												+	+			+	+	+						+	+		+	+			
Mercaptane		ja				+											+			+				+	+	+			+										
Methane CH4	0.72	ja					+	+				+					+			+				+	+	+			+			+	+	+	+	+			
Methanol Alcohole CH3OH	793		+		+												+			+				+	+	+													
Mineral Oil	800						+	+				+					+			+				+	+	+						+	+	+	+				
Motor Oil	800						+	+				+					+			+	+			+	+	+						+	+	+	+				
natural Gas CH4	0.7	ja					+	+		+		+		+			+			+	+			+	+	+	+		+			+	+	+	+	+	+		
neongas NE	0.84	ja					+					+																					+						

			Material Sealing																					Material Housing															
Media	Density (kg/m³)	Gaseous	EPDM -30°C 140°C	EPDM/EPDM -30°C 140°C	EPDM/PTFE -30°C 120°C	FFKM -15°C 200°C	FKM -10°C 140°C	FKM/FKM -10°C 140°C	Metall -40°C 300°C	Metall/HP -40°C 80°C	Metall/Wills® -20°C 400°C	NBR -10°C 80°C	NBR/NBR -10°C 80°C	PCTFE -200°C 80°C	PEEK-HT -40°C 250°C	Peek/PCTFE -40°C 80°C	PEEK/PCTFE-HP -196°C 140°C	PEEK/UHMW-PE	POM -10°C 90°C	PTFE -196°C 230°C	PTFE/FKM -10°C 200°C	PTFE/Peek -10°C 80°C	PTFE/Silikon -40°C 230°C	AISI 304 - 1.4301 -196°C 250°C	AISI 316 - 1.4408 -196°C 300°C	AISI 316 Ti - 1.4571(81) -196°C 300°C	AISI 316L - 1.4404 -196°C 80°C	AISI 316L - 1.4435 -40°C 250°C	AISI 318LN - 1.4462 -40°C 250°C	AISI S165M - 1.4418 -40°C 80°C	aluminium AL anodised	CC499K red brass -40°C 200°C	CW617N brass -196°C 300°C	EN-GJL250 grey cast -10°C 300°C	EN-GP240GH cast steel -20°C 300°C	EN-JS1025 ductile iron -10°C 300°C	P250GH+N - C22.8 PN160 -10°C 300°C	PTFE Polyetrafluoroethylene	PVC | Polyvinyl chloride
Nitric acid aqueous 40%, HNO3	1100						+													+	+				+	+												+	
Nitrogen dioxide NO2	2.053																			+				+	+	+													
Nitrogen Gas N2	1.25	ja	+				+	+		+		+					+		+	+	+			+		+	+		+		+	+	+	+	+				
Nitrogen oxides, nitrous gases NOx		ja															+			+				+	+	+													
Nitrous Oxide N2O	2	ja					+			+							+			+	+			+		+	+		+				+		+				
Odorant		ja				+											+			+				+		+			+										
Oxygen Liquid, -183°C LOX	1140																			+						+							+						
Oxygen O2	1.43	ja					+	+									+			+	+			+	+	+			+			+	+	+	+	+			
paint, ink - highly viscous			+				+					+									+							+			+		+						
Phenol, Carbolic Acid - diluted with water						+														+					+	+													
Propane/Butane gaseous C3H8	2	ja					+					+					+			+	+			+	+	+			+			+	+	+	+	+			
Propionic acid C3H6O2	990						+													+	+			+	+	+													
propylene glycol C3H8O2							+					+								+												+	+	+					
Propylene, Propene - C3H6	1.915	ja					+													+				+	+	+						+	+						
Rape Oil							+	+												+						+						+	+	+	+				
refrigerant R290, R600a																				+				+	+	+						+	+						
Refrigerant R407C	2.51	ja																		+				+	+	+						+	+						
Resins							+													+	+			+	+	+													
sea water	1000											+																				+							
sewage gas, proportionally H2S, NH3	0.77	ja	+																							+													
silan gas	1.34	ja					+													+	+			+	+	+													
slurry of chalk							+																	+									+						
Sodium hydroxide (sodium hydroxide), NaOH, 30%, +20°C			+																	+					+	+													
sodium hypochlorite NaOCl (Chlorine bleach) max. 12%, +20°C																	+			+						+													

Media	Density (kg/m^3)	Gaseous	EPDM -30°C 140°C	EPDM/EPDM -30°C 140°C	EPDM/PTFE -30°C 120°C	FFKM -15°C 200°C	FKM -10°C 140°C	FKM/FKM -10°C 140°C	Metall -40°C 300°C	Metall/HP -40°C 80°C	Metall/Wills® -20°C 400°C	NBR -10°C 80°C	NBR/NBR -10°C 80°C	PCTFE -200°C 80°C	PEEK-HT -40°C 250°C	Peek/PCTFE -40°C 80°C	PEEK/PCTFE-HP -196°C 140°C	PEEK/UHMW-PE	POM -10°C 90°C	PTFE -196°C 230°C	PTFE/FKM -10°C 200°C	PTFE/Peek -10°C 80°C	PTFE/Silikon -40°C 230°C
Sodium nitrite - aqueous $NaNO_2$	1290						+					+								+			
Sodium Phosphate Na_3PO_4							+										+			+	+		
sodium silicate (waterglass)	1000						+					+								+	+		
Sole (cooling sole) up to 40%			+									+											
Steam 110°C	0.6		+																	+			
Steam 180°C	0.6	ja																		+	+		
Steam 200°C																				+			
Steam 230°C															+								
Steam 250°C									+		+				+								
Steam 300°C									+		+												
Sulfur Dioxide Gaseous, dry SO_2	2.93	ja																					
Sulfur Dioxide Gaseous, wet, SO_2	2.93	ja					+													+	+		
Sulfur Dioxide Liquid SO_2							+													+			
Sulfuric acid H_2SO_4 max. 10%, 20°C	1.6	ja					+																
Tetraflourmethane CF_4, gas	1.69	ja																		+			
Thermal-Oil >180°C	1000																			+	+		
Thermal-Oil >200°C	1000																			+			
Thermal-Oil >230°C	1000														+								
Thermal-Oil >250°C	1000								+		+				+								
Thermal-Oil >300°C	1000										+												
Toluol $C_6H_5CH_3$	867																			+			
Triglycole, Triethylenglycole $C_6H_{14}O_4$	1100						+													+			
Urea	1300						+													+			
Used Oil, Waste Oil							+													+			
Vacuum	1.2	ja	+	+			+	+				+	+										

Media	AISI 304 - 1.4301 -196°C 250°C	AISI 316 - 1.4408 -196°C 300°C	AISI 316 Ti - 1.4571(81) -196°C 300°C	AISI 316L - 1.4404 -196°C 80°C	AISI 316L - 1.4435 -40°C 250°C	AISI 318LN - 1.4462 -40°C 250°C	AISI S165M - 1.4418 -40°C 80°C	aluminium AL anodised	CC499K red brass -40°C 200°C	CW617N brass -196°C 300°C	EN-GJL250 grey cast -10°C 300°C	EN-GP240GH cast steel -20°C 300°C	EN-JS1025 ductile iron -10°C 300°C	P250GH+N - C22.8 PN160 -10°C 300°C	PTFE Polyetrafluoroethylene	PVC | Polyvinyl chloride
Sodium nitrite - aqueous $NaNO_2$	+	+	+													
Sodium Phosphate Na_3PO_4	+	+	+			+										
sodium silicate (waterglass)	+	+	+													
Sole (cooling sole) up to 40%										+						
Steam 110°C	+		+						+	+	+	+	+			
Steam 180°C		+	+						+	+	+	+	+			
Steam 200°C			+							+		+				
Steam 230°C		+	+						+	+		+				
Steam 250°C		+	+							+		+				
Steam 300°C		+	+									+				
Sulfur Dioxide Gaseous, dry SO_2																
Sulfur Dioxide Gaseous, wet, SO_2			+													
Sulfur Dioxide Liquid SO_2	+	+	+													
Sulfuric acid H_2SO_4 max. 10%, 20°C			+													
Tetraflourmethane CF_4, gas	+		+													
Thermal-Oil >180°C		+	+						+	+	+	+	+			
Thermal-Oil >200°C			+							+		+				
Thermal-Oil >230°C		+	+						+	+		+				
Thermal-Oil >250°C		+	+							+		+				
Thermal-Oil >300°C			+									+				
Toluol $C_6H_5CH_3$	+		+							+						
Triglycole, Triethylenglycole $C_6H_{14}O_4$		+	+													
Urea		+	+													
Used Oil, Waste Oil									+	+						
Vacuum		+	+						+	+	+					

Media	Density (kg/m^3)	Gaseous	EPDM -30°C 140°C	EPDM/EPDM -30°C 140°C	EPDM/PTFE -30°C 120°C	FFKM -15°C 200°C	FKM -10°C 140°C	FKM/FKM -10°C 140°C	Metall -40°C 300°C	Metall/HP -40°C 80°C	Metall/Wills® -20°C 400°C	NBR -10°C 80°C	NBR/NBR -10°C 80°C	PCTFE -200°C 80°C	PEEK-HT -40°C 250°C	Peek/PCTFE -40°C 80°C	PEEK/PCTFE-HP -196°C 140°C	PEEK/UHMW-PE	POM -10°C 90°C	PTFE -196°C 230°C	PTFE/FKM -10°C 200°C	PTFE/Peek -10°C 80°C	PTFE/Silikon -40°C 230°C
			Material Sealing																				
Vacuum + Pressure		ja	+	+				+				+	+							+			
vapour aggressive (natural gas + steam)	0.9	ja				+																	
Water demineralised, Osmose	1000		+				+													+	+		
Water H2O with Glycole	1000		+				+	+				+					+			+	+		
Water, H2O	1000		+		+		+	+				+	+				+			+	+	+	
Water, Hot above 90°C H2O	1000		+				+													+	+		

Media	Density (kg/m^3)	Gaseous	AISI 304 - 1.4301 -196°C 250°C	AISI 316 - 1.4408 -196°C 300°C	AISI 316 Ti - 1.4571(81) -196°C 300°C	AISI 316L - 1.4404 -196°C 80°C	AISI 316L - 1.4435 -40°C 250°C	AISI 318LN - 1.4462 -40°C 250°C	AISI S165M - 1.4418 -40°C 80°C	aluminium AL anodised	CC499K red brass -40°C 200°C	CW617N brass -196°C 300°C	EN-GJL250 grey cast -10°C 300°C	EN-GP240GH cast steel -20°C 300°C	EN-JS1025 ductile iron -10°C 300°C	P250GH+N - C22.8 PN160 -10°C 300°C	PTFE Polyetrafluoroethylene	PVC | Polyvinyl chloride
			Material Housing															
Vacuum + Pressure		ja		+	+						+	+	+	+				
vapour aggressive (natural gas + steam)	0.9	ja			+													
Water demineralised, Osmose	1000		+	+	+							+						
Water H2O with Glycole	1000		+	+	+						+	+	+	+				
Water, H2O	1000		+	+	+						+	+	+	+	+	+		
Water, Hot above 90°C H2O	1000		+		+						+	+	+	+	+			