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FLUID CONTROL SYSTEMS

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Chemical Resistance Chart

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Content

Introduction

When dealing with aggressive fluids the user is continuously faced with the problem of finding compatible materials.

In order to simplify the selection of suitable materials when using Bürkert products for aggressive fluids, the following tables provide useful information on the optimal choice of housing and gasket materials for a multitude of media.

Since corrosion performance is influenced by several factors, the information contained in this brochure should be treated only as a guide and is not necessarily valid for all operating conditions. Increased temperatures, higher concentrations, and the inadvertent ingress of water in originally pure chemicals can all lead to accelerated corrosion.

Dependent on the purity of the fluid as well as the compounding and nature of vulcanisation of the gasket materials, deviations can result which affect the suitability and durability of the plastics and elastomers.

The information quoted in this guide does not consider the effect of mechanical loading, which may also have a bearing on the material performance in the fluid. In cases of doubt when considering our products, we strongly recommend the prior testing of samples with various material combinations, in order to establish and check their suitability under the actual operating conditions of the application.

Where liquid food products are involved, the plastics and elastomers employed must normally conform with the local food and hygiene regulations. It is emphasized that these resistance tables are intended only as a guide and that no guarantees can be given in respect of the information contained in this publication.

Bürkert does not assume any liability for your selection. No claims on the basis of an incorrect advice can be made from the use of the Chemical Resistance Chart. Neither warranty claims, guarantee claims nor claims for damages can be derived. We also reserve the right to change, update or modify all information in this chart without notice.

Structure and content of the chemical resistance charts

The following chemical resistance tables are divided into three categories. These are basic chemicals (chapter 2.2), liquid commercial products (chapter 2.3) and liquid food ingredients (chapter 2.4).

The resistance of these fluids is rated in detail for the elastomeric materials, plastics and metallic materials commonly used in Bürkert products. Rarely used materials such as CSM as well as aluminum are not described in the tables. Epoxy resin, which is commonly used in the construction of our products, but which is not mentioned, is resistant to most common chemicals.

Information regarding the chemical resistance of the unlisted materials is available on request, including chrome and nickel-plated parts.

Please see the overview in chapter 2.1 for additional information regarding general chemical resistance of seal and body materials. For the most commonly used chemical substances the chemical formula is added in the charts. The suffix "pure" means the technical pureness of the fluid, which in most cases exceeds 95% purity. As a rule, organic fluidic or gaseous media have this supplement. "Acetic acid - pure" means for example a 98% acetic acid. The suffix "aqueous" is mostly used for water miscible substances (such as Ethanol) but also for aqueous solutions of inorganic salts.

Due to the great number of possible concentrations, an average concentration is always assumed. Saturated aqueous solutions are described only if explicitly noted and the reference temperature for all statements is room temperature. At higher temperatures a reduced chemical resistance must be considered.

Interpretation of Symbols

\+ material is not affected or is slightly affected by the chemical: suitable

o various attack level depending on prevailing conditions: limited suitability

– material exhibits severe attack: unsuitable

If materials are rated as "limited suitability", the time of impact has to be considered. At a long period of impact these materials can be heavily attacked or even destroyed. Therefore these parts are rated as wear parts and are not included in the standard warranty conditions.

In many cases it is not possible to make a clear statement due to different service conditions. In these cases the rating should also be "limited suitability".

References

All the information quoted in these resistance tables is based on industrial experience (for example "DECHEMA-Werkstoff-Tabelle", Germany or "DECHEMA Corrosion Handbook"), the data of our material and compound manufacturers and Bürkert's own stringent laboratory tests.

Chemical resistance properties gasket and housing materials

Overview

Material	Designation	General information on chemical resistance	Permissible temperatures		
			Neutral fluids long-term°C(°F)	Neutral fluids short-term°C(°F)	Aggressive fluids long-term°C(°F)
Gasket and diaphragm materials					
Ethylene propylene diene rubber	EPDM	Good resistance to ozone and weathering. Particularly suitable for aggressive chemicals. Unsatisfactory for oils and fats.	-30 (-22) to +130 (+266)		Dependant on aggressiveness of the fluid and on mechanical load.
Fluorine rubber	FKM	Chemical properties are superior to all other elastomers.	0 (+32) to +150 (+302)	0 (+32) to +200 (+392)	
Nitrile rubber	NBR	Fairly resistant to oil and petrol. Unsatisfactory with oxidising fluids.	-10 (+14) to +90 (+194)	-10 (+14) to +120 (+248)	
Chloroprene rubber	CR	The chemical properties are very similar to those of PVC and are between those of NBR and EPDM.	-10 (+14) to +100 (+212)	-10 (+14) to +110 (+230)	
Perfluorinated elastomers	FFKM	Similar to PTFE (dependent on blend)	+5 (+41) to +230 (+446)	+5 (+41) to +230 (446)	
Polytetrafluorethylene	PTFE	See plastic housing materials			

Material	Designation	General information on chemical resistance	Permissible temperatures		
			Neutral fluids long-term°C(°F)	Neutral fluids short-term°C(°F)	Aggressive fluids long-term°C(°F)
Housing materials - Metal					
Stainless steel	1.4401	Also applies for 1.4404, 1.4408, 1.4409	-20 (-4) to +400 (+752)		-20 (-4) to +150 (+302)
	1.4571	Also applies for 1.4581	-20 (-4) to +400 (+752)		-20 (-4) to +150 (+302)
	1.4305	Also applies for 1.4301, 1.4303	-20 (-4) to +400 (+752)		-20 (-4) to +150 (+302)
	1.4105	Also applies for 1.4113	-20 (-4) to +400 (+752)		-20 (-4) to +150 (+302)
Grey cast iron	GG	For neutral fluids	-20 (-4) to +180 (+356)		
Cast steel	GS	For neutral fluids	-20 (-4) to +400 (+752)		
Brass	MS	See individual resistance	-20 (-4) to +250 (+482)		
Red bronze	RG	See individual resistance	-20 (-4) to +250 (+482)		
Housing materials - Plastic					
Polyvinyl chlorid	PVC	Resistant to most acids, bases and salt solutions.	0 (+32) to +60 (+140)	0 (+32) to +60 (+140)	0 (+32) to +40 (+104)
Polypropylene	PP	Resistant to organic solvents as well as aqueous solutions of acids, bases and salts. Unsuitable for concentrated, oxidising acids	0 (+32) to +100 (+212)		0 (+32) to +60 (+140)
Polyamide	PA	Resistant to fats, oils, waxes, fuels, weak bases, aliphatic and aromatic hydrocarbons.	0 (+32) to +100 (+212)		0 (+32) to +60 (+140)
Ethylene tetrafluoro-ethylene copolymer	ETFE	Good resistance to many aggressive media (acids, aromatic hydrocarbons), not resistant against fuming nitric acid and sulphuric acid	-20 (-4) to +200 (+392)	-20 (-4) to +260 (+500)	-20 (-4) to +150(+302)
Polytetrafluor-ethylene	PTFE	Resistant to nearly all chemicals. Unsuitable for liquid sodium and fluorine compounds.	-20 (-4) to +200 (+392)	-20 (-4) to +260 (+500)	-20 (-4) to +150(+302)
Polyvinylidene-fluoride	PVDF	Unsuitable for hot solvents as well as for ketones, esters, and strong bases.	-20 (-4) to +100 (+212)		
Polyphenylene sulfide	PPS	Resistant to dilute mineral acids, bases, aliphatic and aromatic hydrocarbons, oils, fats, water, and to hydrolysis.	-40 (-40) to +200 (+392)	-40 (-40) to +260 (+500)	
Polyetherether-ketone	PEEK	Resistant to most chemicals. Unsuit-able for concentrated sulfuric and nitric acid and certain chlorohydrocarbons.	-20 (-4) to +150 (+302)	-20 (-4) to +170 (+338)	

Resistance in basic chemicals

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Chemicals																			
A																			
Acetaldehyde – aqueous	CH_3CHO	-	+	O	O	O	+	+	O	+	O	O	O	+	+	+	O	+	+
Acetaldehyde – pure	CH_3CHO	-	+	-	O	-	+	+	-	O	O	O	O	+	+	+	O	+	+
Acetic acid – pure	CH_3COOH	-	O	-	O	-	+	+	O	-	O	+	+	+	-	-	-	O	O
Acetic anhydride – pure	$CH_3COOCOCH_3$	-	O	-	O	-	+	+	-	-	-	-	+		-	O	O	O	O
Acetoacetic ester (acid-free) – pure	$CH_3COCH_2COOC_2H_5$	-	-	-	+	-	+	O	-	-	+	-	+		O	O	O	+	+
Acetone – pure	CH_3COCH_3	-	+	-	+	-	+	+	-	O	+	-	+	+	+	+	+	+	+
Acetophenone – pure	$C_6H_5COCH_3$	-		-	+	-	+	O	-		+	O	O		+	+	+	+	+
Acetylacetone – pure	$CH_3COCH_2COCH_3$	-	-	-	+	-	+		-	-	+	-			-	-	O	+	+
Acetylchloride – pure	CH_3COCl	-	-	-	+	-	+	+			-	-	+		O	O	O	O	O
Acetylene – technical	$HCCH$	-[1]	+[1]	-[1]	+[1]	-[1]	+	+	O	O	+	+	+	+	+[2]	-	+	+	+
Acrylonitrile – pure	CH_2CHCN	-	-	-	+	-	+	+	-	+	O	O	+	+	+	+	+	+	+
Adipic acid – aqueous	$HOOC(CH_2)_4COOH$	+	+	+	+	+	+	+	+	+	+	+	+				+	+	+
Albumin – pure		+	+	+		+	+		+	+	+				O	O	O	+	+
Allyl alcohol – pure	CH_2CHCH_2OH	+	+	O	+	O	+	+	-	+	+	+	+	+	+	+	+	+	+
Alum (potassium aluminium sulphate) – aqueous	$KAl(SO_4)_2$ x 12 H_2O	+	+	+	+	+	+		+	+	+	+	+	+	-	-	-	+	O
Aluminium acetate – aqueous	$Al(OOCCH_3)_3$	O	+	+	+	+	+		O	+	+	+	+		O	O	-	+	+
Aluminium chloride – aqueous	$AlCl_3$	+	+	+	+	+	+	+	+	+	O	+	+	+	O	O	O	O	O
Aluminium fluoride – aqueous	AlF_3	+	+	+	+	+	+	+	+	+	+	+	+		+	+	O	-	-

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Aluminium sulphate – aqueous	$Al(SO_4)_3$	+	+	+	+	+	+	+	+	+	O	+	+	+	-	-	-	O	O
Aminoacetic acid (glycine) – aqueous	NH_2CH_2COOH	O	+	+		+	+	+	+	+	O	+	+		O	O	O	+	+
Ammonia (gaseous) – pure	NH_3	-	+	O	O	+	+	+	+	+	O	+	O	+	-	-	+	+	+
Ammonia (liquid) – pure	NH_3	-	O[3]	O	O	+	+	+	O	O	+	-	O	+	O	O	+	+	+
Ammonia water (ammonia solution, ammonium hydroxide)	NH_4OH	-	+	O	O	+	+	+	+	+	O	O	O	+	-	-	+	+	+
Ammonium acetate – aqueous	CH_3COONH_4	+	+	+	+	+	+	+	+	+		+	+		O	O	O	+	+
Ammonium carbonate – aqueous	$(NH_4)_2CO_3$	+	+	+	+	+	+	+	+	+	+	+	+		-	-	O	+	+
Ammonium chloride – aqueous	NH_4Cl	+	+	+	+	+	+	+	+	+	+	+	+	+	O	O	O	O	O
Ammonium citrate – aqueous		+	+	+	+	+	+		+	+	O		+		O	O	O	+	+
Ammonium fluoride – aqueous	NH_4F	+	+	+	O	O	+	+	+	+		+	+		O	O	O	O	O
Ammonium fluosilicate – aqueous		+	+	+	+	+	+		+	+	O		+		O	O	O	+	+
Ammonium formate – aqueous	$HNCOONH_4$	+	+	+	+	+	+		+	+	+		+		O	O	O	+	+
Ammonium hydroxide (ammonia solution, ammonia water) – aqueous	NH_4OH	-	+	O	O	+	+	+	+	+	O	O	O	+	-	-	+	+	+
Ammonium nitrate – aqueous	NH_4NO_3	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	O	+	+
Ammonium oxalate – aqueous	$NH_4OOCCOONH_4$	+	+	+	+	+	+	+	+	+	O				O	O	O	+	+
Ammonium persulphate – aqueous	$(NH_4)_2S_2O_8$	-	+	+	+	O	+	+	O	+	-		+		O	O	-	O	O
Ammonium phosphate – aqueous	$(NH_4)_2HPO_4$	+	+	+	+	+	+	+	+	+	+	+	+		O	O	+	+	+
Ammonium sulphate – aqueous	$(NH_4)_2SO_4$	+	+	+	+	+	+	+	+	+	O	+	+	+	-	-	O	O	O
Ammonium sulphide – aqueous	$(NH_4)_2S$	+	+	O	+	+	+	+	+	+	+	+	+		-	-	O	+	+
Ammonium sulphite – aqueous	$(NH_4)_2SO_3$	+	+	+	+	+	+	O	+	+	+		+		-	-	O	+	O

Resistance in basic chemicals

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Ammonium thiocyanate – aqueous	NH_4NCS	+	+	+		+	+	+	+	+	+				-	-	O	+	+
Amyl acetate – pure	$CH_3COO(CH_2)_4CH_3$	-	O	-	+	-	+	+	-	O	+	+	+	+	+	+	O	+	+
Amyl alcohol – pure	$H_3C(CH_2)_4OH$	+	O	+	+	+	+	+	+	+	+	+	+		+	+	O	+	+
Aniline hydrochloride – aqueous	$C_6H_5NH_3Cl$	O	+	O[5]	+	O	+	O	O	O	-	+			-	-	-	-	-
Aniline – pure	$C_6H_5NH_2$	-	O	O	+	-	+	+	-	O	-	+	O	+	-	-	O	+	+
Anisole (methoxybenzene) – pure	$C_6H_5OCH_3$	O	O	-	+	-	+		-	-	+		+		+	+	+	+	+
Anone (cyclohexanone) – pure	$C_6H_{10}O$	-	-	-	+	-	+	+	-	-	+	O	+	+	O	O	O	+	+
Anthracene oil – pure		-	-	-	+	-	+		-	-	+				+	+	+	+	+
Anthraquinone sulphonic acid – aqueous	$C_6H_4COCOC_6H_4SO_3H$	O	+	+	+	+	+	O	+	+	O				O	O	O	O	O
Antimony chloride – aqueous	$SbCl_3$	O	+	+[5]	+	+	+		+	+	-	+	+	+	O	O	O	-	-
Aqua regia	$HNO_3 + HCl$	-	-	-	+	-	+	O	O	-	-	-	-	-	-	-	-	-	-
Arabic acid – aqueous		+	+	+	+	+	+		+	+					-	-	-	+	+
Argon – pure	Ar	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Arsenic acid – aqueous	H_3AsO_4	+	+	+	+	+	+	O	+	+	O	+			-	O	-	+	+
Arsenic trichloride – aqueous	$AsCl_3$	+	+	+	+	+	+		+	+	-				-	-	O	O	O
Arsenious acid – aqueous	H_3AsO_3	+	+	+	+	+	+		+	+					O	O	-	+	+
Arylsilicate – aqueous		O	O	O	+	O	+								+	+	+	+	+
Ascorbic acid – aqueous	$C_6H_8O_6$	+	+	+	+	+	+		+	+			+		-	-	-		
Aspartic acid – aqueous	$HOOCCHNH_2CH_2COOH$	+	+	+	+	+	+		+	+	+		+		-	-	O	+	+

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
B																			
Barium chlorate – aqueous	$Ba(ClO_3)_2$	+	+	+	+	+	+		+	+	-		+		+	+	O	+	+
Barium chloride – aqueous	$BaCl_2$	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	O	+	O
Barium hydroxide – aqueous	$Ba(OH)_2$	+	+	+	+	+	+	+	+	+	O	+	+		+	+	+	+	+
Barium sulphide and polysulfide – aqueous	BaS	+	+	+	+	+	+	+	+	+	-	+	+	+	O	O	O	+	+
Battery acid (sulphuric acid 20%)	H_2SO_4	O	+	+	+	O	+	+	+	+	-	+	+	O	-	-	-	+	O
Benzaldehyde – aqueous	C_6H_5CHO	O	+	+	+	-	+	+	-	+	O	O	O	+	O	O	-	+	
Benzene – pure	C_6H_6	-	-	-	+	-	+	O	-	-	+	O	O	+	O	O	O	+	+
Benzenesulfonic acid – aqueous	$C_6H_5SO_3H$	+	+	+	+	+	+	+	+	+		+	+	-	O	O	O	+	+
Benzidine sulphonic acids – aqueous	$NH_2C_6H_4C_6H_3$-SO_3HNH_2	+	+	+	+	+	+		+	+	+				+	+	+	+	+
Benzine (heptane, hexane) – pure		+	-	+	+	+	+	+	+	O	+	+	+	+	+	+	+	+	+
Benzoic acid – aqueous	C_6H_5COOH	+	+	+	+	+	+	+	+	+	-	+		+	O	O	O	+	+
Benzyl alcohol – pure	$C_6H_5CH_2OH$	-	+	O	+	O	+	+		+	O	+		+	+	+	O	+	+
Bergamot oil		-	-	-		-	+		-	-	-		+		O	O	O	+	+
Bisulphite (sodium bisulphite, sodium hydrogen sulphide) – aqueous	$NaHSO_3$	O	+	+	+	+	+	+	+	+	O	+	+	+	O	O	-	+	O
Borax – aqueous	$N_2B_4O_7$	+	+	+	+	+	+	+	+	+	+	+	+	+	+	O	+	+	+
Boron hydrofluoric acid (fluoroboric acid) – pure	HBF_4	+	+	+	O	+	+	+	+	+	-	+	+		-	-	-	-	-
Boric acid – aqueous	H_3BO_3	+	+	+	+	+	+	+	+	+	-	+		O	O	O	O	O	O
Brine (cooling brine)		+	+	+	+	+	+	+	+	+	+	+	+	+	O	O	-	O	O

Resistance in basic chemicals

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Bromine (liquid) – pure	Br_2	-	-	-	+	-	+	O	O	-	-	+	-	-	-	O	O	O	O
Butadiene – pure	$CH_2(CH)_2CH_2$	O	O	O	+	+	+	+	+	+	+	+	+		+	O	O	+	+
Butane (gaseous and liquid) – pure	C_4H_{10}	+	-	+	+	+	+	+	O	O	+	+	+	+	O	O	O	+	+
Butanediol – aqueous (10%)	$HO(CH_2)_4OH$	+	+	O	O	O	+	+	O	O	+	+	+	+	+	+	+	+	+
Butanol (butyl alcohol) – pure	$CH_3(CH_2)_3OH$	O	+	+	+	O	+	+	O	+	+	+	+	+	+	+	O	+	+
Butoxyl (methoxybutyl acetate) – pure	$CH_3OC_4H_4O_2CCH_3$	+	O	O		+	+		-	+					O	O	O	+	+
Butyl acetate – pure	$CH_3(CH_2)_3O_2CCH_3$	-	+	-	+	-	+	O	-	-	+	+	+	+	O	+	O	+	+
Butyl alcohol (butanol) – pure	$CH_3(CH_2)_3OH$	O	+	+	+	O	+	+	O	+	+	+	+	+	+	+	O	+	+
Butylbenzyl phthalate – aqueous		-	-	-	+	-	+		-	O	+		O		+	+	+	+	+
Butylene (liquid) – pure	$H_3CCH_2CHCH_2$	+	O	+	+	+	+	+	+	+	+	+	+		+	+	O	+	+
Butyl phthalate – pure	$C_6H_4(CO)_2(O(CH_2)_3CH_3)_2$	-	-	-	+	-	+		-	O	+		+		+	+	O	+	+
Butynediol – pure	$HOCH_2C_2CH_2OH$	O	O	O		O	+		O	+	+		+	+	+	+	+	O	+
Butyric acid – aqueous	$H_3C(CH_2)_2COOH$	O	O	O	O	O	+	+	O	-	O	+	+	+	O	O	-	+	O
C																			
Calcium chloride – aqueous	$CaCl_2$	+	+	+	+	+	+	+	O	+	O	+	+	+	-	-	O	O	O
Calciumhydrogensulphite – aqueous	$Ca(HSO_3)_2$	+	+	+	+	+	+	+	+	+	-		+	+	-	-	-	+	O
Calcium hydroxide (lime water) – aqueous	$Ca(OH)_2$	+	+	+	+	+	+	+	+	+	O	O	+	+	-	-	-	+	+
Calcium hypochlorite (chlorinated lime) – aqueous	$Ca(OCl)_2$	-	+	O	+	O	+	+	O	+	-	+	+	+	-	-	O	O	O
Calcium nitrate – aqueous	$Ca(NO_3)_2$	+	+	+	+	+	+	+	+	+	+	+	+	+	O	O	O	O	O
Carbitol (2-(2-ethoxyethoxy)ethanol) – pure	$CH_3CH_2O(CH_2)_2$-$O(CH_2)_2OH$	O	O	O	+	O	+	+	+		+		+		+	+	+	+	+

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Carbolineum (creosote) – pure		O	O	O	+	O	+		+	-	+				+	+	+	+	+
Carbolic acid (phenol, hydroxybenzene) – aqueous	C_6H_5OH	O	O	O	+	O	+	+	+	+	-	+	+	O	O	O	O	+	+
Carbon dioxide (dry) – pure	CO_2	+	O	+	+	O	+	+	+	+	+	+	+	+	+	+	+	+	+
Carbon dioxide (humid)	CO_2	+	O	O	+	O	+	+	O	O	O	+	+	+	O	O	O	+	+
Carbon disulphide – pure	CS_2	-	-	+	+	-	+	+	-	+	O	+	+		-	-	-	+	O
Carbonic acid – aqueous	H_2CO_3	+	+	+	+	+	+	+	O	+	O	+	+	+	O	O	O	+	+
Carbonyl chloride (phosgene) [liquid] – pure	$COCl_2$		-	O	+	-	+		O	O	O				+	+	+	+	+
Carbonyl chloride (phosgene) [gaseous] – pure	$COCl_2$		-	+	+	-	+	+	+	-	O	+			+	+	+	+	+
Carbon monoxide – pure	CO	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Carbon tetrachloride – pure	CCl_4	-	-	+	O	-	+	+	-	-	+	+	O	+	O	O	-	+	+
Caustic potash (potassium hydoxide) – aqueous	KOH	-	+	-	+	O	+	+	+	+	O	O	O	+	-	-	O	+	+
Cellosolve (glycol ethyl ether) – pure	$HO(CH_2)_2OCH_2CH_3$	-	-	-	+	-	+	+	-	-	+	+	+		+	+	+	+	+
Champhor oil – pure		+	-	+	O	-	+		+	-			O		O	O	O	+	+
Chloral hydrate (chloral) – aqueous	$CCl_3CH(OH)_2$	-	O	O	+	-	+	+	-	-	-	-	O		O	O	O	O	O
Chloric acid – aqueous	$HClO_3$	-	O	-	+	-	+		+	-	-	+			-	-	-	-	-
Chlorinated lime (calcium hypochlorite) – aqueous	$Ca(OCl)_2$	-	+	O	+	O	+	+	O	+	-	+	+	+	-	-	O	O	O
Chlorine bleaching lye (sodium hypochlorite) – aqueous	NaOCl	-	O	O	+	-	+	+	+	O	-	O	-	+	O	O	O	O	O
Chlorine dioxide – aqueous	ClO_2	-	-	O	+	-	+	+	+	O	-	O			-	-	O	O	O
Chlorine (gaseous and dry)	Cl_2	-	-	O	+	O	+	+	O	-	-	+	-	+	-	-	O	O	O
Chlorine (gaseous and humid)	Cl_2	-	-	O	O	-	+	+	O	-	-	O	-	-	-	-	-	-	-

Resistance in basic chemicals

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Chlorine (liquid) – pure	Cl_2	-	-	O	+	-	+	+	-	-	-	+	-	-	-	-	-	+	+
Chlorine water (humid)	Cl_2	-	-	O	O	-	+	+	+	-	-	O	-	-	-	-	-	-	-
Chloroacetic acid – aqueous	$ClCH_2COOH$	-	O	-	+	-	+	+	O	-	-	+	+	+	O	-	O	O	-
Chlorobenzene – pure	C_6H_5Cl	-	-	-	+	-	+	+	-	-	+	+	-	+	+	+	+	+	+
Chloroethanol (ethylene chlorohydrine) – pure	$ClCH_2CH_2OH$	-	-	O	+	-	+	+	-	+	O	+	O	O	+	+	+	+	+
Chlorofluorocarbons (frigenes)							+				+	O	O	+					
Chloroform (trichloromethane) – pure	$CHCl_3$	-	-	O	+	-	+	O	-	-	-	+	O	+	+	+	-	+	+
Chloromethane (methyl chloride) – pure	CH_3Cl	-	-	O	+	-	+	+	-	-	+	+	O	+	O	O	O	+	+
Chloronaphthalone – pure	$C_{10}H_7Cl$	-	-	O	+	-	+		-	-	+		O		+	+	+	+	+
Chlorophenole – pure	C_6H_4OHCl	-	-	-	+	-	+	+	O				O		+	+	O	+	+
Chlorophenoxyacetic acid – aqueous	$ClC_6H_4OCHOOH$	+	+	+		+	+		+	+							O	+	+
Chlorosulfonic acid – pure	$ClSO_3H$	-	-	-	+	-	+	O	O	-	-	O	-	-	O	O	O	O	O
Chloroxylenol (4-Chloro-3,5-dimethyl-phenol) – pure	$C_6H_2OH(CH_3)_2Cl$	-	-	-	+	-	+		O						+	+	O	+	+
Choline chloride – aqueous	$[HOCH_2CH_2N(CH_3)_3]Cl$	+	+	+		+	+		O	O					-	-	O		
Chrome alum (chromium(III) – potassium sulphate) – aqueous	$KCr(SO_4)_2 \times 12\ H_2O$	+	+	+	+	+	+		O	+	O	+			O	O	-	O	O
Chromic acid – aqueous	H_2CrO_4	-	O	+	+	O	+	O	+	O	-	+	-	O	-	-	O	O	O
Chromium sulphate – aqueous	$Cr_2(SO_4)_3$	+	+	+	+	+	+		+	+	O		+		O	O	-	O	O
Citral (citronella oil) – pure		-	-	-		-	+			-	+		+		+	+	O	+	+
Citric acid – aqueous	$C_6H_8O_7$	+	+	+	+	+	+	+	+	+	+	+	+	+	O	+	-	+	O
Colophonium (tall oil) (liquid)		O	O	O		O	+		+	+	+	+			-	-	-	+	O

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Cooling brine (brine)		+	+	+	+	+	+	+	+	+	+	+	+	+	O	O	-	O	O
Copper acetate – aqueous	$Cu(CH_3COO)_2$	O	+	+	+	+	+		+	+	O	+	+	+	O	-	O	+	+
Copper chloride – aqueous	$CuCl_2$	+	+	+	+	+	+	+	+	+	O	+	+	+	O	O	O	-	-
Copper sulphate – aqueous	$CuSO_4$	+	+	+	+	+	+	+	+	+	O	+	+	+	O	O	O	O	O
Creosote (carbolineum) – pure		O	O	O	+	O	+		+	-	+				+	+	+	+	+
Cresol – aqueous	$C_6H_4(OH)(CH_3)$	-	-	O	+	-	+	+	O	O	-	O	+	+	+	+	O	+	O
Cyclohexane – pure	C_6H_{12}	-	-	O	+	-	+	+	+	-	+	+	+	+	+	+	+	+	+
Cyclohexanol – pure	$C_6H_{11}OH$	-	-	+	+	+	+	+	O	+	+	+	+	+	+	+	+	+	+
Cyclohexanone (anone) – pure	$C_6H_{10}O$	-	-	-	+	-	+	+	-	-	+	O	+	+	O	O	O	+	+
Cymene – pure	$C_6H_4(CH_3)[CH(CH_3)_2]$	-	-	-		-	+		-	-	+		O		+	+	+	+	+
D																			
Decahydronaphthalene (decalin) – pure	$C_{10}H_{18}$	-	-	+	+	-	+	+	+	O	+		O		+	+	+	+	+
Dextrose (glycose) – aqueous	$C_6H_{12}O_6$	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Diacetone alcohol (anhydrous) – pure	$(CH_3)_2COHCH_2COCH_3$	-	+	-	+	O	+	+			O		+		O	+	O	+	+
Dibutyl phthalate – pure	$C_6H_4(COOC_4H_9)_2$	-	O	-	+	-	+	+	O	O	+	-	+		+	+	+	+	+
Dibutyl sebacate (DBS) – pure	$(C_4H_9COO)(CH_2)_8$-(OOC_4H_9)	-	O	-	+	-	+		-	+	+	-	+		+	+	+	+	+
Dichloroethane (ethylene chloride) – pure	$ClCH_2CH_2Cl$	-	-	-	+	-	+	+	-	-	+	+	O	+	-	-	-	+	-
Dichloroethene – pure	Cl_2CHCH_3	-	-	O	+	-	+	+	-	-	+	+	O	+	+	+	O	+	+
Dichloromethane (methylene chloride) – pure	CH_2Cl_2	-	-	O	+	-	+	+	-	-	-	-	O	O	+	+	-	+	+
Dicyclohexylammonium nitrate – pure	$[(C_6H_{11})_2NH_2]NO_2$	+	+	+	+	+	+								O	O	O	+	+

Resistance in basic chemicals

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Diethyl ether (ether) – pure	$CH_3CH_2OCH_2CH_3$	-	-	-	+	O	+	O	-	-	+	+	+	+	+	+	+	+	+
Dimethylamine – pure	$(CH_3)_2NH$	-	O	-	+	-	+	+	-	O	-	-	O		O	O	O	+	+
Dimethylformamide (DMF) – pure	$HCON(CH_3)_2$	-	-	-	+	-	+	O	-	+	-	-	O	+	O	O	O	+	+
Dimethyl sulfoxide (DMSO) – pure	$(CH_3)_2SO$				+		+				O	-	+	O					
Dinitrogen monoxide (laughing gas, nitrous oxide) – pure	N_2O	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Di-octyl-phthalate (DOP) – pure	$C_6H_4(COOC_8H_{17})_2$	-	O	O	+	-	+	+	-	+	+	O	+		+	+	+	+	+
Dioxane – pure	C_4H_8O	-	O	-	+	-	+	O	-	-	+	-	+		+	+	+	+	+
Diphenyl + diphenyl oxide – pure		-	-	-	+	-	+	+	-	-	+		+		+	+	+	+	+
Dissous gas (acetylene + acetone)	C_2H_2+ CH_3COCH_3	-	+	-		-	+	+	-	O	+		+		+		+	+	+
E																			
Essential oils		-	-	-	+	-	+		-	-	-		O		O	O	O	+	+
Ethane – pure	CH_3CH_3	+	-	+	+	+	+	+	-	-	+	-	+	+	+	+	+	+	+
Ethanedioic acid – aqueous (saturated)	HOOCCOOH	O	+	+	+	+	+	+	+	+	-	+	+	+	-	-	-	+	O
Ethanol (ethyl alcohol) – pure	CH_3CH_2OH	O	+	O	+	+	+	+	O	+	O	+	+	+	+	+	+	+	+
Ethanolamine – pure	$NH_2CH_2CH_2OH$	O	O	-	+	O	+		O	+	+	O	O		-	-	+	+	+
Ether (diethyl ether) – pure	$CH_3CH_2OCH_2CH_3$	-	-	-	+	-	+	O	-	-	+	+	+	+	+	+	+	+	+
Ethyl acetate – pure	$CH_3CO_2CH_2CH_3$	-	O	-	O	-	+	O	-	-	O	O	+	+	-	+	+	+	+
Ethyl acrylate – pure	$CH_2CHCOOC_2H_5$	-	O	-	+	-	+		-			O	+				+	+	+
Ethyl alcohol (ethanol) – pure	CH_3CH_2OH	O	+	O	+	+	+	+	O	+	O	+	+	+	+	+	+	+	+
Ethyl alcohol + acetic acid	CH_3CH_2OH+ CH_3COOH	O	+	O	+	O	+	+	O	+	-	+	+	+	O	O	O	+	+

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Ethyl alcohol – fermented mash		+	+	+	+	+	+	+	+	+	O	+	+	+	+	+	O	+	+
Ethyl alcohol – methylated (spirit)		O	O	O	+	O	+	+	+	+	O		+	+	O	O	+	+	+
Ethylbenzene – pure	$C_6H_5CH_2CH_3$	-	-	O	+	-	+	O	-	-	+	+	O		+	+	+	+	+
Ethyl chloride – pure	CH_3CH_2Cl	+	+	+	+	+	+	+	-	-	+	+	O		-	-	-	+	+
Ethylene – pure	CH_2CH_2	+	-	+	+	-	+		+	+	+	+	+	+	+	+	+	+	+
Ethylene bromide (anhydrous) – pure	CH_2CHBr	-	-	-	+	-	+	+	-	-	+	+	O	-	+	+	O	+	+
Ethylene chlorohydrin (chloroethanol) – pure	$ClCH_2CH_2OH$	-	-	O	+	-	+	+	-	+	O	+	O	O	+	+	+	+	+
Ethylene chloride (dichloroethane) – pure	$ClCH_2CH_2Cl$	-	-	-	+	-	+	+	-	-	+	+	O	+	-	-	-	+	-
Ethylenediamine – pure	$NH_2CH_2CH_2NH_2$	O	+	O	O	+	+	+	-	+	O	+	O		-	-	O	+	O
Ethylene glycol (glycol) – pure	$HOCH_2CH_2OH$	+	+	+	+	+	+	+	+	+	O	+	+	+	O	O	O	+	+
Ethylene oxide – pure	CH_2CH_2O	-	-	-	O	-	+	+	-	-	-	+			-	-	-	+	+
Ethyl formate – pure	$HCOOCH_2CH_3$	-	O	-	+	-	+		-	O	+	+	+		+	+	O	+	+
Exhaust fumes – containing hydrogen fluoride		+	+	+	+	+	+		+	+	O	+	-	-	O	O	O	O	O
Exhaust fumes – containing carbon dioxide		+	+	+	+	+	+		+	+	+	+	+	+	+	+	O	+	O
Exhaust fumes – containing carbon monoxide		+	+	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+
Exhaust fumes – containing nitrous gases		O	+	+	+	+	+		+	+	-	+		+	-	-	O	+	+
Exhaust fumes – containing hydrochloric acid		+	+	+	+	+	+		+	+	-	+	-	O	O	O	-	O	-
Exhaust fumes – containing sulphur dioxide (dry)		O	+	+	+	+	+		+	+	O	+	+	+	+	+	+	+	+
Exhaust fumes – containing sulphuric acid (humid)		O	+	+	+	+	+		+	+	-	+	O	-	-	-	-	+	O

Resistance in basic chemicals

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Exhaust fumes – containing sulphur trioxide (dry)		O	+	+	+	+	+		+	+	+	+		+	O	O	O	+	+
F																			
Fatty alcohols		+	O	+	+	+	+	+	+	O	+		+		+	+	O	+	O
Fatty alcohol sulphates – aqueous		+	O	+	+	+	+	+	+	+	O	+			O	O	O	+	+
Ferric chloride – aqueous (saturated)	$FeCl_3$	+	+	+	+	+	+	+	+	+	-	+	+	+	-	-	-	-	-
Fluorine (dry) – pure	F_2	-	-	O	O	-	O	O	O	-	-	-	-	-	O	O	-	+	+
Fluorine (humid) – pure	F_2	-	-	-	-	-	+	O	O	-	-	O	-	-	-	-	-	O	O
Fluoroboric acid (boron hydrofluoric acid)	HBF_4	+	+	+	O	+	+	+	+	+	-	+	+		-	-	-	-	-
Fluosilicic acid – aqueous	H_2SiF_6	O	O	O	+	O	+		+	+	-	+	-		-	-	-	O	O
Formaldehyde solution (formalin) – aqueous	CH_2O	O	O	O	+	O	+	+	+	+	+	+	O	O	-	+	-	+	+
Formamide – pure	$HCONH_2$	+	+	O	O	+	+		+	O	O		O		O	O	O	+	O
Formic acid – pure	HCOOH	-	O	-	O	O	+	+	O	O	-	O	O	O	-	-	-	+	O
Formic acid – aqueous	HCOOH	-	O	O	O	O	+	+	O	O	-	O	O	+	-	-	-	+	O
Frigene 12 (R-12) – pure	CCl_2F_2	+	-	O	O	O	+	+	O	O	+	O	O	+	+	+	+	+	+
Frigene 13 (R-13) – pure	$CClF_3$	+	-	O	O	+	+	+	-	-		-	+	+	+	+	O	+	+
Frigene 13 B 1 (R-13B1; halon 1301) – pure	$CBrF_3$	+	-	O	+	+	+		-	-	+	O			+	+	+	+	+
Frigene 22 (R-22) – pure	$CHClF_2$	-	-	-	O	-	+	+	-	-	+	-	+	+	+	+	+	+	+
Frigene 23 (R-23) – pure	CHF_3	+	-	O	-	+	+		-	-		O			+	+	O	+	+
Frigene 113 (R-113) – pure	$Cl_2FCCClF_2$	+	-	-	-	+	+	O	-	-	+	+	O	+	+	+	+	+	+
Frigene 502 (R-502) – pure	$C_2F_5Cl+CHF_2Cl$	-	-	-	O	O	+		+	O	+	O		+	+	+	+	+	+

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Frigene substitute HFCKW 123 (R-123) – pure	F_3CCHCl_2	-	-	-	-	-	+								+	+	+	+	+
Frigene substitute HFCKW 134a (R-134a) – pure	F_3CCH_2F			-	-		+						+	+	+	+	+	+	+
Fuming sulphuric acid (Oleum) – pure	H_2SO_4	-	-	O	+	-	+	+	O	O	-	-	O	-	-	-	O	+	O
G																			
Glycerine – aqueous	$HOCH_2CH(OH)-CH_2OH$	+	+	+	+	+	+	+	O	O	+	+	+	+	O	O	O	+	O
Glycerine – pure	$HOCH_2CH(OH)-CH_2OH$	O	+	+	+	O	+	+	O	O	+	+	+	+	O	O	O	+	O
Glycine (aminoacetic acid) – aqueous	NH_2CH_2COOH	O	+	+		+	+	+	+	+	O	+	+		O	O	O	+	+
Glycol (ethylene glycol) – pure	$HOCH_2CH_2OH$	+	+	+	+	+	+	+	+	+	O	+	+	+	O	O	O	+	+
Glycol ethyl ether (cellosolve) – pure	$HO(CH_2)_2OCH_2CH_3$	-	-	-	+	-	+	+	-	-	+	+	+		+	+	+	+	+
Glycolic acid – aqueous	$HOCH_2COOH$	+	+	+	+	+	+	+	+	+	-	+	+		O	O	O	O	O
Glycose (dextrose) – aqueous	$C_6H_{12}O_6$	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Grid gas (illuminating gas, town gas)		+	+	+	+	+	+	+	+		+	+			+	+	+	+	+
H																			
Helium – pure	He	+	+	+	+	+	+	+	+	+	+	+	+	+	O	O	O	+	+
Heptane (hexane, benzine) – pure		+	-	+	+	+	+	+	+	O	+	+	+	+	+	+	+	+	+
Hexamethylene tetramine (Urotropin) – aqueous	$C_6H_{12}N_4$	+	+	+	+	+	+	+	+	+	+		O		O	O	O	+	+
Humic acids		+	+	+		+	+	+	+	+	-				+	+	O	+	+
Hydrazine hydrate – aqueous	$NH_2NH_2 \times 2H_2O$	-	+	+	+	-	+	+	+	-		O		+	-	-	-	-	O
Hydrobromid acid – aqueous	HBr	-	+	+	+	O	+	+	+	+	-	+	-	-	-	-	O	-	-
Hydrochloric acid – aqueous (36%)	HCl	-	O	+[5]	+	-	+	+	+	+	-	+	-	O	-	-	-	O	O

Resistance in basic chemicals

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Hydrocyanic acid – aqueous	HCN	O	O	+	+	+	+	+	+	+	-	+	+		+	+	O	+	O
Hydrofluoric acid – aqueous	HF	-	-	-	-	-	+	+	O	O	-	+	-	-	-	-	-	O	-
Hydrogen chloride gas – pure	HCl	O	+	+	+	O	+	+	+	+	-	+	-	+	-	-	-	+	O
Hydrogen peroxide 0.5%	H_2O_2	O	+	+	+	+	+	+	-	-	+	+	O	+	-	-	-	+	O
Hydrogen peroxide 30%	H_2O_2	-	O	+[5]	+	-	+	+	-	-	-	+	O	+	-	-	-	O	-
Hydrogen – pure	H_2	+	+	+	+	+	+	+	+	+	+	+	+	+	+[7]	+[7]	+[7]	+[7]	+[7]
Hydrogen sulphide – aqueous	H_2S	O	+	-	O	O	+	+	O	O	-	+	O	+	O	O	O	+	+
Hydroquinone – aqueous	$C_6H_4(OH)_2$	+	+	+	+	O	+		+	+	-	+	O				O	O	+
Hydroxybenzene (carbolic acid, phenol) – aqueous	C_6H_5OH	O	O	O	+	O	+	+	+	+	-	+	+	O	O	O	O	+	+
Hydroxylamine sulphate – aqueous	$(NH_3OH)_2SO_4$	+	+	+	+	O	+		+	+	+				-	-	+	+	+
I																			
Illuminating gas (town gas, grid gas)		+	+	+	+	+	+	+	+		+	+			+	+	+	+	+
Inert gases – pure		+	+	+	+	+	+	+	+	+	+	+	+	+	O	O	O	O	+
Iodine + potassium iodine – aqueous	I_2+ KI	O	O	O	+	O	+		O	O	-	+	-	O	-	-	O	O	O
Iron sulphate – aqueous	$FeSO_4$	+	+	+	+	+	+	+	+	+	+	+	+	+	O	O	-	+	+
Isobutanol – pure	$(CH_3)_2CHCH_2OH$	O	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+
Isooctane – pure	$CH_3C(CH_3)_2CH_2CH(CH_3)CH_3$	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Isopropanol (2-propanol) – pure	$CH_3CH(OH)CH_3$	O	+	+	+	+	+	+	+	+	O	+	+	+	+	+	+	+	+
K																			
Kerosene		+	-	+	+	+	+	+	+	O	+	+	+	+	+	+	O	+	+

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
L																			
Lactic acid – aqueous	$HOOCCH(OH)CH_3$	O	O	+[5]	+	+	+	+	O	+	O	+	+	+	O	O	O	O	O
Laughing gas (dinitrogen monoxide, nitrous oxide) – pure	N_2O	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Lead acetate – aqueous	$Pb(CH_3COO)_2$	O	+	+	+	+	+	+	+	+	+	+	+	+	O	O	-	+	+
Lead nitrate – aqueous	$Pb(NO_3)_2$	+	+	+	+	+	+	+	+	+			+		-	-	O	+	+
Lead tetraethyl (tetraethyl lead) – pure	$Pb(CH_2CH_3)_4$	O	O	+	+	O	+	+	+	+	+	+		+	O	O	+	+	+
Light petroleum (petroleum spirit)		+	-	+	+	+	+	+	+	O	+	+	+	+	+	+	O	+	+
Lime water (calcium hydroxide) – aqueous	$Ca(OH)_2$	+	+	+	+	+	+	+	+	+	O	O	+	+	-	-	-	+	+
Linoleic acid – pure	$C_{18}H_{32}O$	O	-	O	+	-	+		+	-		+	+		O	O	O	+	O
Lithium chloride – aqueous	LiCl	+	+	+	+	O	+	+	+	+	O	+	+		O	O	O	O	O
M																			
Magnesium chloride – aqueous	$MgCl_2$	+	+	+	+	+	+	+	+	+	O	+	+	+	O	O	O	O	O
Magnesium sulphate – aqueous	$MgSO_4$	+	+	+	+	+	+	+	O	O	O	+	+	+	+	+	-	+	+
Maleic acid – aqueous	HOOCCHCHCOOH	+	+	+	+	+	+	+	+	+	O	+	+	+	O	O	O	+	O
Malic acid – aqueous	$HOOCCH_2CHOH$-COOH	+	+	+	+	+	+		+	+	+	+	+		-	-	-	+	+
Manganese chloride – aqueous	$MnCl_2$	+	+	+	+	+	+		+	+	+		+		O	O	O	O	O
Manganese sulphate – aqueous	$MnSO_4$	+	+	+	+	+	+		+	+	+	+	+		O	+	O	+	O
Marsh gas (methane, mine gas)	CH_4	+	-	+	+	-	+	+	O	O	+	O	+	+	+	+	+	+	+
Mercaptane		-	-	O	+	-	+		+		+	O			O	O	-	+	+
Mercury – pure	Hg	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	+	O	+

Resistance in basic chemicals

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Mercury chloride – aqueous	$HgCl_2$	+	+	+	+	+	+		O	+	-	+	+	+	-	-	-	O	O
Mercury salts – aqueous		+	+	+	+	+	+	+	+	+	-	+	+	+	-	-	-	+	+
Methane (mine gas, marsh gas)	CH_4	+	-	+	+	-	+	+	O	O	+	O	+	+	+	+	+	+	+
Methanol (methyl alcohol) – pure	CH_3OH	-	+	-	+	+	+	+	+	O	O	O	+	+	O	O	O	+	O
Methoxybenzene (Anisole) – pure	$C_6H_5OCH_3$	O	O	-	+	-	+		-	-	+		+		+	+	+	+	+
Methoxybutanol – pure	$CH_3O(CH_2)_3CH_2OH$	+	+	+	+	O	+		+	+			+		+	+	+	+	+
Methoxybutyl acetate (butoxyl) – pure	$CH_3OC_4H_4O_2CCH_3$	+	O	O		+	+		-	+					O	O	O	+	+
Methyl acetate – pure	CH_3COOCH_3	-	O	-	+	-	+	O	-	+	+	O	+	+	O	+	O	O	O
Methyl alcohol (methanol) – pure	CH_3OH	-	+	-	+	+	+	+	+	O	O	O	+	+	O	O	O	+	O
Methylamine – aqueous	CH_3NH_2	-	O	O	-	O	+	+	O	+	O	-	O	+	-	-	O	O	O
Methyl chloride (chloromethane) – pure	CH_3Cl	-	-	+	+	-	+	+	-	-	O	-	O	+	O	O	O	+	+
Methylene chloride (dichloromethane) – pure	CH_2Cl_2	-	-	O	+	-	+	O	-	-	-	-	O	O	+	+	-	+	+
Methyl ethyl ketone (2-butanon) – pure	$CH_3COCH_2CH_3$	-	O	-	+	-	+	+	-	-	O	-	O	O	+	+	O	+	+
Mine gas (methane, marsh gas)	CH_4	+	-	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+
Monosodium glutamate – aqueous	$C_5H_8NNaO_4$	+	+	+	+	+	+	+	+	+							O	+	+
Morpholine – pure	C_4H_9NO	-	O	O	O	O	+	+	-	+		+	O		+	+	+	+	+
N																			
Natural gas		+	-	+	+	+	+	+	O	O	+	+	+	+	O	O	O	+	+
Nickel sulphate – aqueous	$NiSO_4$	+	+	+	+	+	+	+	+	+	+	+	+	+	-	O	-	O	O
Nitrogen oxides (nitrous fumes)	(NO, NO_2, N_2O_3, N_2O_4, etc.)	-	O	-	O	-	+	O	O	O	-	O		+	-	-	-	O	-
Nitrogen – pure	N_2	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Nitrous oxide (laughing gas, dinitrogen monoxide) – pure	N_2O	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Nitric acid – aqueous (40%)	HNO_3	-	-	+[5]	+	-	+	O	O	O	-	+	-	O	-	-	-	+	-
Nitrobenzene – pure	$C_6H_5NO_2$	-	-	O	+	-	+	+	-	O	-	O	O	O	+	+	O	+	+
Nitrobenzoic acids – aqueous	$C_7H_5NO_4$	+	+	+	+	+	+		+	+	+		+		+	+	O	+	+
Nitrous fumes (nitrogen oxides)	(NO, NO_2, N_2O_3, N_2O_4, etc.)	-	O	-	O	-	+	O	O	O	-	O		+	-	-	-	O	-
Nitrotoluenes (o-, m-, p) – pure	$C_6H_4(NO_3)(CH_3)$	O	-	O	O	-	+		-	+	-	+	O	O	+	+	+	+	+
O																			
Oleum (fuming sulphuric acid) – pure	H_2SO_4	-	-	O	+	-	+	+	O	O	-	-	O	-	-	-	O	+	O
Oxygen – pure	O_2	O	O	+[6]	+	O	+	+	O	-	+	-	+[6]	+	+	+	-	+	+
Ozone (humid and dry)	O_3	-[4]	O[4]	O[4]	O[4]	-[4]	+	+	+	-[4]	-[4]	+	-[4]	O[4]	O	O	O	+	+
P																			
Paraffin oil		+	-	+	+	O	+	+	O	+	+	+	+	+	+	+	+	+	+
Peracetic acid – aqueous (6%)	CH_3CO_3H	-	O	-	+		+		+		-	O	-		-	-	-	+	+
Perchloroethylene (tetrachloroethylene) – pure	Cl_2CCCl_2	-	-	O	O	-	+	+	-	-	O	+	O	+	O	O	O	+	+
Peroxomonosulphuric acid – aqueous	H_2SO_5	-	-	-		-	+		+	-	-				-	-	-	-	-
Petroleum spirit (light petroleum)		+	-	+	+	+	+	+	+	O	+	+	+	+	+	+	O	+	+
Phenol (hydroxybenzene, carbolic acid) – aqueous	C_6H_5OH	O	O	O	+	O	+	+	+	+	-	+	+	O	O	O	O	+	+
Phosgene (carbonyl chloride) [liquid] – pure	$COCl_2$		-	O	+	-	+		O	O	O				+	+	+	+	+

Resistance in basic chemicals

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Phosgene (carbonyl chloride) [gaseous] – pure	$COCl_2$		-	+	+	-	+	+	+	-	O	+			+	+	+	+	+
Phosphoric acid – aqueous	H_3PO_4	O	O	+	+	-	+	+	+	+	-	+	+	+	-	-	-	+	-
Phosphorus chlorides – pure	PCl_2, PCl3, PCl_5	-	-	O	+	-	+	+	-	+	-	+		+		O	O	O	O
Picric acid (trinitrophenol) – pure	$C_6H_2(OH)(NO_2)_3$	O	-	O	+	-	+	+	-	+		+		+	+	+	+	+	+
Pinene (turpentine oil) – pure		O	-	O	+	-	+		O	-	+	+	+	+	O	O	+	+	+
Potash (potassium carbonate) – aqueous	K_2CO_3	+	+	+	+	O	+	+	+	+	O	O	+	+	O	O	O	+	+
Potassium aluminium sulphate (alum) – aqueous	$KAl(SO_4)_2$ x 12 H_2O	+	+	+	+	+	+		+	+	+	+	+	+	-	-	-	+	O
Potassium bromate – aqueous	$KBrO_3$	+	+	+	+	+	+	+	+	+		+	-		-	O	O	+	O
Potassium bromide – aqueous	KBr	+	+	+	+	+	+	+	+	+	-	+	+	+	+	+	O	O	O
Potassium carbonate (potash) – aqueous	K_2CO_3	+	+	+	+	O	+	+	+	+	O	O	+	+	O	O	O	+	+
Potassium chlorate – aqueous	$KClO_3$	O	O	O	+	O	+	+	+	+	O	O	-	+	O	O	O	O	O
Potassium chloride – aqueous	KCl	+	+	+	+	+	+	+	+	+	+	+	+	+	O	O	O	O	O
Potassium chromate – aqueous	K_2CrO_4	O	+	O	+	O	+	+	+	+	-	+	+		+	+	O	O	O
Potassium cyanide – aqueous	KCN	+	+	+	+	+	+	+	+	+	+	+		+	-	-	O	+	+
Potassium dichromate – aqueous	$K_2Cr_2O_7$	O	O	O	+	O	+		+	+	-	+	-	+	O	O	O	+	+
Potassium ferrocyanide (II) (yellow prussiate of potash) – aqueous	$K_4[Fe(CN)_6]$	+	+	+	+	+	+		+	+	+	+		+	+	+	O	O	-
Potassium ferrocyanide (III) (red prussiate of potash) – aqueous	$K_3[Fe(CN)_6]$	+	+	+	+	+	+		+	+	+	+	O	+	-	-	O	+	+
Potassium hydrogen fluoride – aqueous	KHF_2	+	+	+		+	+		+	+	-				O	O	O	+	+
Potassium hydroxide (caustic potash) – aqueous	KOH	-	+	-	+	O	+	+	+	+	O	O	O	+	-	-	O	+	+
Potassium hypochlorite – aqueous	KOCl	-	+	O	+	-	+	+	+	O	-	+	-	+	O	O	O	O	O
Potassium iodide – aqueous	KI	+	+	+	+	+	+	+	O	+		+			O	O	O	O	O
Potassium nitrate – aqueous	KNO_3	+	+	+	+	O	+	+	O	+	+	+	+	+	O	O	O	O	O
Potassium nitrite – aqueous	KNO_2	+	+	+	+	+	+		+	+	+	+		+	+	+	+	+	+
Potassium permanganate – aqueous	$KMnO_4$	-	-	-	+	O	+	+	+	O	-	+	-	+	O	O	O	+	O
Potassium peroxide – aqueous	K_2O_2	-	-	-	+	-	+		O	O	-		-	+	-	-	O	+	+
Potassium persulphate – aqueous	$K_2S_2O_8$	-	+	O	+	O	+	+	+	+	-	O	-	+	-	-	-	+	+
Potassium phosphate – aqueous	K_3PO_4	+	+	+	+	+	+		+	+	O	+		+	O	O	O	+	+
Potassium sulphate – aqueous	K_2SO_4	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	O	+	+
Potassium sulphide – aqueous	K_2S	+	+	+	+	+	+	+	+	+	O	O	+	+	O	-	O	+	+
Potassium sulphite – aqueous	K_2SO_3	+	+	+	+	+	+		O	+	+			+	O	+	O	+	O
Propane (liquid and gaseous) – pure	C_3H_8	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Propanol – pure	$CH_3CH_2CH_2OH$	-	+	+	+	+	+	+	+	+	O	+	+	+	+	+	+	+	+
Propylene glycol – pure	$HOCH_2CH_2CH_2OH$	+	+	+	+	+	+	+	+	+	O	+	+	+	+	O	+	+	+
Protein solutions		+	+	+		+	+		+	+	+				O	O	O	+	+
Pyridine – pure	C_5H_5N	-	-	-	+	-	+	+	-	O	+	O	O	+	+	+	+	+	O
R																			
Red prussiate of potash (Potassium ferrocyanide (III)) – aqueous	$K_3[Fe(CN)_6]$	+	+	+	+	+	+		+	+	+	+	O	+	-	-	O	+	+

Resistance in basic chemicals

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
S																			
Shellsol D (turpentine substitute, white spirit) – pure		O	-	O	+	O	+		O	O	+	+	+	+	+	+	+	+	+
Silicone oil		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Silver nitrate – aqueous	$AgNO_3$	O	+	+	+	+	+	+	O	+	+	+	+	+	-	-	-	+	+
Soda lye (sodium hydroxide) – aqueous	NaOH	O	+	O	+	+	+	+	+	+	O	-	O	+	-	-	O	O	O
Sodium arsenate – aqueous	Na_3AsO_4	+	+	+	+	+	+	+	+	+					+	+	+	+	+
Sodium arsenite – aqueous	Na_3AsO_3	+	+	+	+	+	+	+	+	+					+	+	+	+	+
Sodium benzoate – aqueous	C_6H_5COONa	+	+	+	+	+	+	+	+	+	+	+			+	+	+	+	+
Sodium bicarbonate (sodium hydrogen carbonate) – aqueous	$NaHCO_3$	+	+	+	+	+	+	+	+	+	+	+	+	+	O	+	O	+	+
Sodium bisulphate (sodium hydrogen sulphate) – aqueous	$NaHSO_4$	+	+	+	+	+	+	+	+	+	+	+			O	O	O	O	O
Sodium bisulphite (bisulphite, sodium hydrogen sulphide) – aqueous	$NaHSO_3$	O	+	+	+	+	+	+	+	+	O	+	+	+	O	O	-	+	O
Sodium bromate – aqueous	$NaBrO_3$	+	+	+	+	+	+	+	+	+	O	+	+	+	-	O	O	+	O
Sodium bromide – aqueous	NaBr	+	+	+	+	+	+	+	+	+	-	+	+	+	O	O	O	O	O
Sodium carbonate (soda) – aqueous	Na_2CO_3	+	+	+	+	O	+	+	+	+	+	O	+	+	O	O	O	+	+
Sodium chlorate – aqueous	$NaClO_3$	O	O	O	+	O	+	+	+	+	O	+	-	+	O	O	O	O	O
Sodium chloride (table salt) – aqueous	NaCl	+	+	+	+	+	+	+	+	+	+	+	+	+	-	O	-	O	O
Sodium chlorite – aqueous	$NaClO_2$	-	O	O	+	-	+	+	O	O	-	+			O	O	-	O	-
Sodium chloroacetate – aqueous	$NaCH_2ClCOO$	+	+	+	+	+	+		+	+					O	+	O	+	+
Sodium chromate – aqueous	$NaCrO_4$	O	+	O	+	O	+	+	+	+	-	+	+	O	+	+	O	O	O
Sodium cyanide – aqueous	NaCN	+	+	+	+	+	+	+	+	+	+	+		+	-	-	O	+	+

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Sodium disulphite (sodium metabisulphite) – aqueous	$Na_2S_2O_5$	O	+	+		+	+	+	+	+	+				O	O	-	+	O
Sodium dodecylbenzenesulfonate – aqueous	$C_{18}H_{29}NaO_3S$	+	+	+		+	+		+	O	+				O	O	O	+	+
Sodium fluoride – aqueous	NaF	+	+	+	+	+	+	+	+	+	+	+			+	+	O	+	O
Sodium hydrogen carbonate (sodium bicarbonate) – aqueous	$NaHCO_3$	+	+	+	+	+	+	+	+	+	+	+	+	+	O	+	O	+	+
Sodium hydrogen sulphate (sodium bisulphate) – aqueous	$NaHSO_4$	+	+	+	+	+	+	+	+	+	+	+			O	O	O	O	O
Sodium hydrogen sulphide (sodium bisulphite, bisulphite) – aqueous	$NaHSO_3$	O	+	+	+	+	+	+	+	+	O	+	+	+	O	O	-	+	O
Sodium hydroxide (soda lye) – aqueous	NaOH	O	+	O	+	+	+	+	+	+	O	-	O	+	-	-	O	O	O
Sodium hypochlorite (chlorine bleaching lye) – aqueous	NaOCl	-	O	O	+	-	+	+	+	O	-	O	-	+	O	O	O	O	O
Sodium iodide – aqueous	NaI	+	+	+	+	+	+	+	O	+		+	O		O	O	O	O	O
Sodium mercaptobenzothiazole – pure	$C_7H_5NS_2$	O	O	+	+	O	+		+	+					+	+	+	+	+
Sodium metabisulphite (sodium disulphite) – aqueous	$Na_2S_2O_5$	O	+	+		+	+	+	+	+	+				O	O	-	+	O
Sodium nitrate – aqueous	$NaNO_3$	+	+	+	+	+	+	+	O	O	+	+	+	+	-	-	-	+	-
Sodium nitrite – aqueous	$NaNO_2$	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+	+
Sodium pentachlorophenolate – aqueous	C_6Cl_5NaO	+	+	+		+	+		+	+	+				+	+	O	+	+
Sodium perborate – aqueous	$NaBO_3 \times nH_2O$	O	+	+	+	+	+	+	+	+		+	-		O	O	O	+	+
Sodium peroxodisulphate – aqueous	$Na_2S_2O_4$	O	+	+	+	+	+		+	+	-	+	-		-	-	-	+	O
Sodium phosphate – aqueous	Na_3PO_4	+	+	+	+	+	+	+	+	+	+	+			O	O	O	O	O
Sodium propionate – aqueous	CH_3CH_2COONa	+	+	+		+	+		+	+	+	+			+	+	+	+	+
Sodium silicate (soluble glass) – aqueous		+	+	+	+	+	+	+	+	+	+	+	+	+	O	O	+	+	+

Resistance in basic chemicals

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Sodium stannate – aqueous	Na_2SnO_3	+	+	+	+	+	+		+	+	O				O	O	+	+	+
Sodium sulphate – aqueous	Na_2SO_4	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	-	+	+
Sodium sulphide – aqueous	Na_2S	+	+	+	+	+	+	+	+	+	+	O	+	+	O	-	O	+	+
Sodium sulphite – aqueous	Na_2SO_3	+	+	+	+	+	+	+	O	+	+	+		+	O	+	O	+	O
Sodium tartrate – aqueous	$C_4H_4O_6Na_2$	+	+	+	+	+	+	+	+	+	+				+	+	O	+	+
Sodium thiosulphate – aqueous	$Na_2S_2O_3$	+	+	+	+	+	+	+	+	+	+	+	+		O	-	O	O	O
Sodium zincate – aqueous	$Na_2[Zn(OH)_4]$	O	+	+		+	+										+	+	+
Spirit (ethyl alcohol)		O	O	O	+	O	+	+	+	+	O		+	+	O	O	+	+	+
Starch solution – aqueous		+	+	+	+	+	+	+	+	+	+	+	+	+	O	O	O	+	+
Stearic acid – pure	$C_{18}H_{37}COOH$	+	+	+	+	+	+	+	+	+	+	+	+		O	+	-	+	+
Styrene – pure	$C_6H_5CHCH_2$	-	-	O	+	-	+	+	-	O	+	+		+	O	O	O	+	+
Succinic acid – aqueous	$HOOCCH_2CH_2COOH$	+	+	+	+	+	+		+	+		+	+		+	+	O	+	+
Sulphur chloride – pure	S_2Cl_2, SCl_2, SCl_4	-	-	+	+	-	+	+	-	-	-	+		+	O	O	O	+	-
Sulphur dioxide (liquid) – pure	SO_2	-	+	+	+	-	+	+	-	-	-	+	+	+	+	+	+	+	+
Sulphur dioxide (gaseous and humid)	SO_2	-	+	+	+	-	+	+	O	O	O	+	O	+	-	-	-	+	O
Sulphur dioxide (gaseous and dry) – pure	SO_2	-	+	+	+	-	+	+	O	O	O	+	+	+	O	O	O	+	O
Sulphur hexafluoride – pure	SF_6	O	+	O	O	+	+		+	+		+		+	+	+	+	+	+
Sulphuric acid – concentrated (96%)	H_2SO_4	-	-	O	+	-	+	+	O	O	-	+	O	-	-	-	-	-	-
Sulphuric acid – aqueous (30%)	H_2SO_4	O	+	+	+	O	+	+	O	+	-	+	O	O	-	-	-	-	-
Sulphurous acid – aqueous	H_2SO_3	-	+	+	+	+	+	+	+	+	-	+	O	+	-	-	-	+	-

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
T																			
Table salt (sodium chloride) – aqueous	NaCl	+	+	+	+	+	+	+	+	+	+	+	+	+	-	O	-	O	O
Tall oil (colophonium) (liquid)		O	O	O		O	+		+	+	+	+			-	-	-	+	O
Tannic acid (tannin) – aqueous		+	+	+	+	+	+	+	+	+	+	+	+	+	O	O	O	+	+
Tartaric acid – aqueous	$C_4H_6O_6$	+	+	+	+	+	+	+	+	+	O	+	+	+	-	-	-	+	+
Tetrachloroethylene (perchloroethylene) – pure	Cl_2CCCl_2	-	-	O	O	-	+	+	-	-	O	+	O	+	O	O	O	+	+
Tetraethyl lead (lead tetraethyl) – pure	$Pb(CH_2CH_3)_4$	O	O	+	+	O	+	+	+	+	+	+		+	O	O	+	+	+
Tetrahydrofuran – pure	C_4H_8O	-	-	-	+	-	+	+	-	-	+	-	O	+				+	+
Tetrahydronaphthalene (tetralin) – pure	$C_{10}H_{12}$	-	-	+	+	-	+	+	-	-	+		O		+	+	+	+	+
Thiophene – pure	C_4H_4S	-	-	-	+	-	+		-	O					O	O	O	+	+
Tin chlorides – aqueous	$SnCl_2$, $SnCl_4$	+	+	+	+	+	+	+	+	+	O	+	+	+	-	-	O	O	-
Toluene – pure	$C_6H_5CH_3$	-	-	O	+	-	+	+	-	-	+	O	O	+	+	+	+	+	+
Town gas (grid gas, illuminating gas)		+	+	+	+	+	+	+	+		+	+			+	+	+	+	+
Tributyl phosphate – pure	$(C_4H_9O)_3PO$	-	-	-	O	-	+	+	-	-		-	+		+	+	-	+	+
Trichloroacetic acid – aqueous	Cl_3CCOOH	O	O	-	O	O	+	+	+	O	-	O	+		-	-	-	-	-
Trichloroethylene – pure	C_2HCl_3	-	-	O	O	-	+	+	-	-	-	+	O	+	-	-	-	+	+
Trichloromethane (chloroform) – pure	$CHCl_3$	-	-	O	+	-	+	O	-	-	-	+	O	+	+	+	-	+	+
Tricresylphosphate – pure	$C_{21}H_{21}O_4P$	-	-	-	+	-	+		-	O	+	-	+		O	O	O	+	+
Triethanolamine – pure	$(CH_2CH_2OH)_3N$	-	-	-	+	+	+	+	-	+	O	+			O	O	O	+	+
Trinitrophenol (picric acid) – pure	$C_6H_2(OH)(NO_2)_3$	O	-	O	+	-	+	+	-	+		+		+	+	+	+	+	+

Resistance in basic chemicals

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
U																			
Uranium hexafluoride – pure	UF_6	+	+	+	O	+	+		+	+	-						-	+	O
Urea – aqueous	NH_2CONH_2	+	+	+	+	+	+	+	+	+	+	+	+	+	O	O	O	O	O
Urotropin (hexamethylene tetramine) – aqueous	$C_6H_{12}N_4$	+	+	+	+	+	+	+	+	+	+		O		O	O	O	+	+
V																			
Vinyl acetate – pure	$CH_2CHOOCH_2CH_3$	+	+	+	+	+	+	+	-	+		O	+		O	O	O	+	+
Vinyl chloride – pure	CH_2CHCl	-	O	+	+	-	+	+	-	O	+	+	O		-	-	O	O	O
W																			
Water – distilled	H_2O	+	+	+	+	+	+	+	+	+	+	+	O	+	O	+	-	+	O
Water (seawater)	H_2O	+	+	+	+	+	+	+	+	+	+	+	+	+	O	O	O	O	O
Water vapour (130 °C)	H_2O	O	+	+[5]	+	O	+	+	-	-	-	+	O	+	O	+	+	+	+
White spirit (Shellsol D, turpentine substitute) – pure		O	-	O	+	O	+		O	O	+	+	+	+	+	+	+	+	+
Wood tar (impregnating oils)		-	-	-	+	-	+		O	-			+		+	+	O	+	+
X																			
Xenon – pure	Xe	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Xylene – pure	$C_6H_4(CH_3)_2$	-	-	O	+	-	+	+	-	-	+	O	O	+	+	+	+	+	+
Y																			
Yeast – aqueous		+	+	+	+	+	+	+	+	+	+	+		+	O	O	O	+	+
Yellow prussiate of potash (Potassium ferrocyanide (II)) – aqueous	$K_4[Fe(CN)_6]$	+	+	+	+	+	+		+	+	+	+		+	+	+	O	O	-

Name	Formula	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Z																			
Zinc chloride – aqueous	$ZnCl_2$	+	+	+	+	+	+	+	+	+	-	+	+	+	-	-	-	O	-
Zinc sulphate – aqueous	$ZnSO_4$	+	+	+	+	+	+	+	+	+		+	+	+	-	-	-	+	-

Resistance in commercial products

Name	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Commercial products																		
A																		
Acronal dispersions (polyacrylates)	-	+	+		+	+		-	+	O		+		O	O	O	+	+
Acronal solutions	-	O	-		-	+		-	O	O		+		O	O	O	+	+
Alkane sulfonic acid chlorides (mersoles)	+	O	+		+	+		+	O					O	O	O	O	O
Anise oil	O				-	+		-	-	+		O		+	+	O	+	+
Antifrogen-N	+	+	+		+	+		+	+	+		O		O	O	O	+	+
ASTM fuel A	O	-	O	+	O	+		+	O	+				+	+	+	+	+
ASTM fuel B	O	-	O	+	-	+		O	O	+				+	+	+	+	+
ASTM fuel C	O	-	O	+	-	+		O	O	+		+		+	+	+	+	+
ASTM oil IRM 901	+	-	+	+	+	+		+	O	+				+	+	+	+	+
ASTM oil IRM 902	O	-	+	+	+	+		+	O	+				+	+	+	+	+
ASTM oil IRM 903	O	-	O	+	+	+		+	O	+		+		+	+	+	+	+
ATE brake fluid (brake fluid)	-	+	-	+	O	+		O	O	+		+	+	O	O	+	+	+
B																		
Beeswax	+	+	+		+	+		+	+	-		+		+	+	O	+	+
Biodiesel (fatty acid methyl ester)	O	-	+	+	O	+	+	+	O	O	+	+	+	-	-	-	+	+
Bone oil	O	-	+	+	O	+		O	+	+		+		+	+	+	+	+
Brake fluid (ATE brake fluids)	-	+	-	+	O	+		O	O	+		+	+	O	O	+	+	+

Name	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
C																		
Car antifreeze	O	+	+	+	+	+		+	+		+	O	+	+	O	+		
Cellulose lacquers	-	O	-	+	-	+		-	O	+		+		O	O	O	+	+
Chlophene (chlorodiphenyl)	+	O	+		-	+		-	+					+	+	O	+	+
Coconut oil	O	-	O	+	O	+	+	O	O	+	+	+	+	O	O	O	+	+
Cotton seed oil	O	-	+	+	O	+		+	-		+	+		+	+		+	+
Cutting oil (drilling oil)	O	-	O	+	O	+		+	O	O				+	+	+	+	+
Cyclanone (fatty alcohol sulfonate)	+	+	+		+	+		+	+	+						O	+	+
D																		
Desmodur T	-	-	+		-	+								+	+	+	+	+
Desmophen	+	+	+		+	+										+	+	+
Detergent (synth. laundry detergent)	O	+	O	+	+	+		+	O	O	+	+		O	O	O	+	+
Dextrin – aqueous	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	+	+
Diesel oil – pure	O	-	+	+	-	+	+	O	O	+	+	+	+	+	+	+	+	+
Drilling oil (cutting oil)	O	-	O	+	O	+		+	O	O				+	+	+	+	+
Dyeworks wetting agent (Nekal BX)	+	+	+	O	+	+		+	+			O		O	O	O	+	+
E																		
Engine oils (machine oils, paraffin oils, mineral oils)	+	-	+	+	O	+	+	O	+	+	+	+	+	+	+	+	+	+
F																		
Fatty acid methyl ester (biodiesel)	O	-	+	+	O	+	+	+	O	O	+	+	+	-	-	-	+	+

Resistance in commercial products

Name	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Fatty alcohol sulfonate (cyclanone)	+	+	+		+	+		+	+	+						O	+	+
Fatty oils (greases)	O	-	O	+	O	+	+	O	O	+	+	+	+	O	O	O	+	+
Fish liver oil	O	O	+	+	+	+		+	+			+		O	O	O	+	+
Fruit tree carbolineum	O	O	O	+	O	+		+	-	+		O		+	+	+	+	+
Fuel oils	O	-	+	+	O	+		O	O	+	+	+		+	+	+	+	+
G																		
Gelatine – aqueous	+	+	+	+	+	+		+	+	+	+		+	O	O	O	+	+
Greases (fatty oils)	O	-	O	+	O	+	+	O	O	+	+	+	+	O	O	O	+	+
H																		
Hair shampoo	O	O	O		O	+		+	O	+		+		O	O	O	+	+
Hydraulic fluid (Skydrol 500)	-	+	O	+	-	+		-		O		+	+	-	O	O	+	+
Hydraulic fluid (Skydrol 7000)	-	+	-	+	-	+		-		O				-	O	O	+	+
Hydraulic fluids – chlorinated hydrocarbons	-	O	+		-	+				+				-	O	O	+	
Hydraulic fluids – mineral oil based (H, H-L, H-LP)	O	-	O	+	O	+		+	+	+		+		+	+	+	+	+
Hydraulic fluids – phosphoric acid ester (HSD)	-	O	-	+	-	+		-	-	+		+		+	+	+	+	
Hydraulic fluid – polyglykol water (HSC)	+	+	+	+	O	+		+	+	+				+	+	+	+	+
Hydraulic fluids – water in oil (HSB)	O	-	+	+	O	+		+	+	+		+		+	+	+	+	+
Hydraulic fluids – water-oil emulsions (HSA)	O	-	+	+	O	+		+	+	+		+		+	+	+	+	+
I																		
Impregnating oils (wood tar)	-	-	-	+	-	+		O	-			+		+	+	O	+	+

Name	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Iodine tincture	O	O	O	O	O	+		-	O	-	+		O	O	O	O	O	O
L																		
Linseed oil	O	-	O	+	O	+		O	O	+	+	+	+	O	O	O	+	+
Lubricating oils	+	-	+	+	O	+	+	O	+	+	+	+	+	+	+	+	+	+
Lysol	-	-	O	+	-	+		O	O	-	O	+	+	+	+	O	+	O
M																		
Machine oils (paraffin oils, mineral oils, engine oils)	+	-	+	+	O	+	+	O	+	+	+	+	+	+	+	+	+	+
Mersoles (alkane sulfonic acid chlorides)	+	O	+		+	+		+	O				O	O	O	O	O	O
Mineral oils (paraffin oils, machine oils, engine oils)	+	-	+	+	O	+	+	O	+	+	+	+	+	+	+	+	+	+
Molasses (molasses-based flavour)	+	+	+	+	+	+	+	+	+	+	+	+	O	O	O	+	+	
N																		
Nekal BX (dyeworks wetting agent) – aqueous	+	+	+	O	+	+		+	+			O		O	O	O	+	+
Nickel baths	+	+	+		+	+		+	+	+				-	-	-	+	O
P																		
Paraffin oils (machine oils, mineral oils, engine oils)	+	-	+	+	O	+	+	O	+	+	+	+	+	+	+	+	+	+
Petroleum – pure	+	-	+	+	O	+		+	+	+	+	+	+	+	+	+	+	+
Petroleum benzole spirit (premium grade petrol-ethanol mixture)	-	-	O	+	-	+	+	-	-	O		+	+	O	O	+	+	+
Photograph emulsions, developers, fixing baths	O	O	O	+	O	+		+	+		+	O						
Pine needle oil (spruce needle oil)	O	-	+	+	-	+		O	+			O		O	O		+	+
Polyacrylates (acronal dispersions)	-	+	+		+	+		-	+	O		+		O	O	O	+	+

Resistance in commercial products

Name	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Premium grade petrol-ethanol mixture (petroleum benzole spirit)	-	-	O	+	-	+	+	-	-	O		+	+	O	O	+	+	+
S																		
Skydrol 500 (hydraulic fluid)	-	+	O	+	-	+		-		O		+	+	-	O	O	+	+
Skydrol 7000 (hydraulic fluid)	-	+	-	+	-	+		-		O				-	O	O	+	+
Soap solution – aqueous	O	O	O	+	O	+	+	O	O	O	+	+		O	+	O	+	+
Soda (sodium carbonate) – aqueous	+	+	+	+	O	+	+	+	+	+	O	+	+	O	O	O	+	+
Soluble glass (sodium silicates)	+	+	+	+	+	+	+	+	+	+	+	+	+	O	O	+	+	+
Spindle oils	+	-	+	+	O	+	+	O	+	+	+	+	+	+	+	+	+	+
Spruce needle oil	O	-	+	+	-	+		O	+			O		O	O		+	+
Synth. Laundry detergent (detergent)	O	+	O	+	+	+		+	O	O	+	+		O	O	O	+	+
T																		
Table salt (sodium chloride)	+	+	+	+	+	+	+	+	+	+	+	+	+	-	O	-	O	O
Transformer oil	+	-	+	+	O	+		O	O	+	+	+	+	+	+	+	+	+
Turpentine oil (pinene) – pure	O	-	O	+	-	+		O	-	+	+	+	+	O	O	+	+	+
Turpentine substitute (white spirit, Shellsol D) – pure	O	-	O	+	O	+		O	O	+	+	+	+	+	+	+	+	+
U																		
UV paint	-	+	-		-	+												
V																		
Varnishes	O	-	+	+	+	+		+	-	+		+		+	+	O	+	+
Vinegar 5% (grape vinegar)	-	+	O	O	-	+	+	O	+	O	+	+	+	-	O	O	O	+

Resistance in liquid foods and beverages

Name	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
Foodstuff																		
A																		
Apple juice (apple sauce)						+		+	+	+			+	-			+	+
Apricot juice						+								+	+		+	+
B																		
Beer	+	+	+		+	+	+	+	+	+	+	+	+	+	+	-	+	+
Butter	+	+	+		+	+	+	+	+	+	+		-	-	-	+	+	
Buttermilk	+	+	+		+	+	+	+	O	-		+		O	O	-	+	+
C																		
Cider	+	+	+			+		+	+	+	+	+				-	+	+
Corn oil	O	-	O	+	O	+	+	O	O	+	+	+	+	O	O	O	+	+
E																		
Edible oil	O	-	O	+	O	+	+	O	O	+	+	+	+	O	O	O	+	+
F																		
Fruit juices	O	O	O		O	+		O	O	O			+	-	-	-	+	+
Food fats and oils	O	-	O	+	O	+	+	O	O	+	+	+	+	O	O	O	+	+
G																		
Grape vinegar (vinegar 5%)	-	+	O	O	-	+	+	O	+	O	+	+	+	-	O	O	O	+
L																		
Lemon juice	O	+	+		+	+		+	+	+			+	O	O	-	+	O

Resistance in liquid foods and beverages

Name	NBR	EPDM	FKM	FFKM	CR	PTFE	ETFE	PVC	PP	PA	PVDF	PPS	PEEK	MS	RG	GG, GS	1.4401/1.4571	1.4305/1.4105
M																		
Milk	+	+	+		+	+		+	+	+	+	+	+	O	+	-	+	+
Mineral water	+	+	+	+	+	+	+	+	+	+	+	+	+	O	O	O	O	O
O																		
Olive oil	O	-	O	+	O	+	+	O	O	+	+	+	+	O	O	O	+	+
Orange juice						+		+										+
P																		
Pineapple juice					-	+		+						-	-	-	+	+
R																		
Rape seed oil	O	-	O	+	O	+	+	O	O	+	+	+	+	O	O	O	+	+
S																		
Saccharine (sweetener)	+	+	+		+	+		+	+			O		+	+	O	+	+
Soybean oil	O	-	O	+	O	+	+	O	O	+	+	+	+	O	O	O	+	+
Spirits (dependent on their ingredients)	O	O	O		O	+		+	+		+	+	+	-	-	O	+	+
Sugar solutions	+	+	+		+	+		+	+	+	+	+	+	+	+	O	+	+
Sweetener (saccharine)	+	+	+		+	+		+	+			O		+	+	O	+	+
W																		
Wines	+	+	+		+	+	+	+	+	-	+	+	+	-	-	-	+	+

[1] Technical acetylene contains solvents like alkanes, dimethyl formamide or acetone. Bürkert generally does not know what solvent lack is used in the gas suppliers acetylene. The chemical resistance of the gasket materials has to be proved according to the german specification DIN 9539.

[2] Brass with up to 58% Cu.

[3] Diffuses through EPDM

[4] Most of the polymer materials get damaged by ozone. Therefore the resistances have to be put into perspective.

[5] Only for acid resistant FKM compound.

[6] Under pressure permitted according to the BAM (Federal Institute for Materials Research and Testing).

[7] Hydrogen can lead to an embrittlement of metals.

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