Chemical Resistance of Plastics and Elastomers Used in Pipeline Construction

The Chemical Resistance Guide is also available on our website

1. Introduction

It is now inconceivable to construct pipelines without the use of plastics. Pipes made from plastics are used not only for drinking water, water for general use and waste water, but also for the conveyance of aggressive liquids and gases. Expensive pipe materials such as lined metal, ceramic or glass, have been largely superseded by plastic pipes. It is, however, important that the most suitable plastic material is selected for each application. This "Chemical Resistance List" serves as a useful guide in this respect. The list is periodically revised to include the latest findings. It contains all plastics and elastomers in the George Fischer product range which can come into direct contact with the media.

The information is based on experiments, immersion and, when available, on data from tests which include temperature and pressure as stress factors. The results achieved in immersion experiments cannot be applied without reservation to pipes under stress, i.e. internal pressure, as the factor "stress corrosion cracking" is not taken into consideration. In certain cases it can be of advantage to test the suitability under the planned working conditions. The tests referred to have been carried out partly by George Fischer and partly by the International Standardization Organization (ISO) or national standards organizations.

Pure chemicals were used for the tests. If a mixture of chemicals is to be conveyed in practice this may affect the chemical resistance of the plastic. It is possible in special cases to carry out appropriate tests with the specific mixture. Suitable test equipment is available at George Fischer for this purpose, which we regard as part of our service to the customer. It goes without saying that we are willing to give individual advice at any time. In this connection it is worth mentioning that George Fischer already possesses information concerning the behavior towards plastics of a number of chemicals or mixtures of chemicals which are not yet included in this list. The "Chemical Resistance List" gives valuable assistance in the planning of plastic pipelines. Please refer to the following instructions, which are important for the application and evaluation of this list.

2. Instructions for the Use of the Chemical Resistance List

2.1 General

As stated in the introduction, the "Chemical Resistance List" is only intended as a guide. Changes in the composition of the medium or special working conditions could lead to deviations. If there is any doubt, it is advisable to test the behavior of the material under the specific working conditions, by means of a pilot installation. No guarantees can be given in respect of the information contained in this booklet. The data shown is based upon information available at the time of printing, but it may, however, be revised from time to time in the light of subsequent research and experience.

2.2 Classification

The customary classifications: **resistant, conditionally resistant** and **not recommended** are depicted by the signs: +, O, and –, which allow simple presentation and application. These classifications are defined as:

Resistant: +
Within the acceptable limits of pressure and temperature the material is unaffected or only insignificantly affected.

Conditionally Resistant: O
The medium can attack the material or cause swelling. Restrictions must be made in regard to pressure and/or temperature, taking the expected service life into account. The service life of the installation can be noticeably shortened. Further consultation with George Fischer is recommended.

Not recommended: –
The material cannot be used with the medium at all, or only under special conditions.

2.3 Pipe Joints

2.3.1 Solvent Cement Joints (PVC)

Solvent cement joints made with standard PVC cement and primer systems are generally as resistant as the PVC material itself. The following chemicals are, however, an exception:

- Sulphuric acid H_2SO_4 in concentrations above 70 percent
- Hydrochloric acid HCl in concentrations above 25 percent
- Nitric acid HNO_3 in concentrations above 20 percent
- Hydrofluoric acid in any concentration

In conjunction with the above media the solvent cement joining is classified as "conditionally resistant". Previously recommended solvent cement (Dytex, by Henkel, Germany) used for pipe and fittings to carry concentrated acids, can no longer be brought into the United States because of its methylene chloride solvent system being classified as a carcinogen. There is no known domestically available substitute. Special consideration should be given to the possible attack of the cemented joints by these concentrated acids.

2.3.2 Fusion Joints

In the case of PE, PP, and PVDF (SYGEF®) heat fusion joints have practically the same chemical resistance as the respective material. In conjunction with media which could cause stress cracking, the fused joints can be subjected to an increased risk due to residual stress from the joining process.

2.4 Sealing Materials

Depending upon the working conditions and the stress involved, the life span of the sealing materials can differ from that of the pipeline material. Seals in PTFE, which are not included in this list, are resistant to all the chemicals indicated. The greater permeability of PTFE should, however, be considered. Under certain working conditions, for example when conveying highly aggressive media such as hydrochloric acid, this material characteristic must be taken into account.

2.5 General Summary and Limits of Application

The following table includes all the materials contained in the George Fischer product range, and their abbreviations. The summary gives preliminary information regarding the general behavior of the materials and the temperature limits.

2.6 Standards

This list has been compiled with reference to the following ISO standards:

ISO/TR 7473
Unplasticized polyvinyl chloride pipes and fittings – Chemical resistance with respect to fluids.

ISO/TR 7474
High density polyethylene pipes and fittings – Chemical resistance with respect to fluids to be conveyed.

ISO/TR 7471
Polypropylene (PP) pipes and fittings – Chemical resistance with respect to fluids.

ISO TR 10358
Plastic pipes and fittings – Combined chemical resistance classification table.

DVS 2205 Part I
Calculations for thermoplastic containers and appliances.

DIN 8080 Supplement 1 «Pipes of chlorinated polyvinyl chloride (PVC-C), PVC-C 250 – Chemical Resistance».

Material	Abbre-viation	Remarks	Maximum Permissible Temperature (Water) °C	
			Constant	Short Term
Polyvinyl Chloride	PVC	Resistant to most solutions of acids, alkalis and salts and to organic compounds miscible with water. Not resistant to aromatic and chlorinated hydrocarbons	60°	60°
Chlorinated Polyvinyl Chloride	CPVC	Can be used similarly to PVC but at higher temperatures. Consult factory for specific applications.	90°	110°
High-density Polyethylene	PE 50	Resistant to hydrous solutions of acids, alkalis and salts as well as to a large number of organic solvents. Unsuitable for concentrated oxidizing acids.	60°	80°
Polypropylene, heat stabilized	PP	Chemical resistance similar to that of PE but suitable for higher temperatures	90°	110°
Polyvinylidene Fluoride	PVDF (SYGEF®)	Resistant to acids, solutions of salts, aliphatic, aromatic and chlorinated hydrocarbons, alcohols and halogens. Conditio-nally suitable for ketones, esters, organic bases and alkaline solutions	140°	150°
Polybutylene-1	PB	Similar to PE 50, but can be used up to 90°C	90°	100°
Polyoxymethylene	POM	Resistant to most solvents and hydrous alkalis. Unsuitable for acids	60°	80°
Polytetrafluoroethylene (e.g. Teflon®)	PTFE	Resistant to all chemicals in this list	250°	300°
Nitrile Rubber	NBR	Good resistance to oil and petrol. Unsuitable for oxidizing media	90°	120°
Butyl Rubber Ethylene Propylene Rubber	IIR EPDM	Good resistance to ozone and weather. Especially suitable for aggressive chemicals. Unsuitable for oils and fats	90°	120°
Chloroprene Rubber (e.g. Neoprene®)	CR	Chemical resistance very similar to that of PVC-U and between that of Nitrile and Butyl Rubber	80°	110°
Fluorine Rubber (e.g. Viton®)	FPM	Has best chemical resistance to solvents of all elastomers	150°	200°
Chlorine Sulphonyl Polyethylene (e.g. Hypalon®)	CSM	Chemical resistance similar to that of EPDM	100°	140°

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The abbreviations listed below are found throughout the listings and have the following definition:

Q/E (Quellung/Erweichung) = swelling/softening
D/P (Diffusion/Permeation) = diffusion/permeation
SpRB (Spannungsrissbildung) = environmental stress cracking
G (Gas/Ausgasend/Gasbildend) = gas/outgassing/gas forming
GL (Gesättigte Lösung) = saturated solution
Fp (Fliesspunkt) = melting point
^– (Hochgestelltes Minuszeichen) = diffusion/permeation

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Acetaldehyde	CH_3-CHO	21	technically pure	20 40 60 80 100 120 140	- 	- 	-- 	+ ○ 	○ - 	- 		+ ○ - 	○ - 	- 	- 	○ -
Acetaldehyde			40%, aqueous solution	20 40 60 80 100 120 140	○ - 	- 	- 	+ + ○ 	+ + + ○ - 	- 		+ + + + 	+ + ○ - 	- 	+ + ○ - 	+ + + +
Acetic acid (ESC)	CH_3COOH	118	technically pure, glacial	20 40 60 80 100 120 140	○ - 	- 	- 	+ + ○ 	+ + ○ - 	+ ○ - 		○ 	- 	- 	○ 	○
Acetic acid (ESC)	CH_3COOH		10%, aqueous	20 40 60 80 100 120 140	+ + ○ 	+ + + + 	+ + ○ 	+ + + 	+ + + + + 	+ + + + + + 		+ + ○ 	○ - 	+ ○ 	+ + ○ 	○ -
Acetic acid (ESC)		118	98%	20 40 60 80 100 120 140	- 	- 	- 	+ 	+ 	+ 		○ 	- 			
Acetic acid (ESC)	CH_3COOH		60%	20 40 60 80 100 120 140	+ 	- 	- 	+ 	+ 	+ 		+ 				
Acetic acid (ESC)			50%, aqueous	20 40 60 80 100 120 140	+ + ○ 	+ 	- 	+ + + 	+ + + 	+ + + ○ ○ 		+ 	○ 	- 	○ 	○

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Acetic acid anhydride (ESC)	$(CH_3\text{-}CO)_2O$	139	technically pure	20 40 60 80 100 120 140	- 	- 	-- 	+ O 	+ O 	- 		O 	- 	- 	- 	+
Acetic acid isobutyl ester	$(CH_2)_2\text{-}CH\text{-}(CH_2)_2\text{-}CO_2H$		technically pure	20 40 60 80 100 120 140	 	 	 	 	 	- 		 	 	 	 	
Acetone	$CH_3\text{-}CO\text{-}CH_3$	56	technically pure	20 40 60 80 100 120 140	- 	- 	- 	+ + + 	+ + + 	- 		+ + + 	- 	- 	- 	O O O
Acetone			up to 10%, aqueous	20 40 60 80 100 120 140	- 	- 	O 	+ + + 	+ + + 	O O O 		+ + + 	O O - 	- 	+ O - 	O O O
Acetonitrile	CH_3CN	81.6	100%	20 40 60 80 100 120 140	- 	- 	- 	 	 	- 		 	 	 	 	
Acetophenone	$CH_3\text{-}CO\text{-}C_6H_5$		100 %	20 40 60 80 100 120 140	- 	- 	- 	 	 	- 		+ 	- 	- 	- 	
Acrylic acid methyl ester	$CH_2{=}CHCOOCH_3$	80.3	technically pure	20 40 60 80 100 120 140	- 	- 	- 	 	 	+ 		O 	 	 	 	

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Acrylic ester	CH_2=CH-COO CH_2CH_3	100	technically pure	20	-	-	--		-	-		O	-	-	O	+
				40												
				60												
				80												
				100												
				120												
				140												
Acrylonitrile	CH_2=CH-CN	77	technically pure	20	-	-	-	+	+	-		+	O	-	+	O
				40				+	O			+	O		+	O
				60				+				O	-		+	-
				80												
				100												
				120												
				140												
Adipic acid	HOOC-$(CH_2)_4$-COOH	Fp., 153	saturated, aqueous	20	+	+	-	+	+	+		+	+	+	+	+
				40	+	+		+	+			+	+	+	+	+
				60	-	+		+	+			+	+	+	+	+
				80		+			+							
				100												
				120												
				140												
Alcoholic spirits (Gin, Whisky,etc.)			approx. 40% ethyl alcohol	20	+	O	-	+	+	+		+	+	+	+	+
				40												
				60												
				80												
				100												
				120												
				140												
Allyl alcohol	H_2C=CH-CH_2-OH	97	96%	20	O	O	-	+	+			O	O	+	O	+
				40	-			+	+			O	-	+	-	+
				60				+	+			O		+		+
				80								-		+		-
				100												
				120												
				140												
Alum	see Potassium aluminium sulphate															
Aluminium chloride	$AlCl_3$		10%, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	+	+	+	+	+	+		+	+	O	+	+
				80		+				+		+	+			+
				100						+		+	+			
				120						+						
				140												
Aluminium chloride	$AlCl_3$	115	saturated	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	+	+	+	+	+	+		+	+	+	+	+
				80		+			+	+			+	O	+	+
				100					O	+			+	-		+
				120						+						
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Aluminium fluoride	AlF_3		saturated	20		+	-			+						
				40		+				+						
				60		+				+						
				80						+						
				100												
				120												
				140												
Aluminium hydroxide	$Al(OH)_3$		Suspension	20		+						+				
				40		+						+				
				60		+						+				
				80		+										
				100												
				120												
				140												
Aluminium nitrate	$Al(NO_3)_3$		saturated	20		+				+		+				
				40		+				+		+				
				60		+				+		+				
				80		+										
				100												
				120												
				140												
Aluminium sulphate	$Al_2(SO_4)_3$		10%, aqueous	20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+	+	+	+			+	+	+	+
				60	O	+	+	+	+	+		+	+	+	+	+
				80		+			+	+			+			O
				100					+	+						
				120						+						
				140												
Aluminium sulphate			cold saturated, aqueous	20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+	+	+	+			+	+	+	+
				60	+	+	+	+	+	+		+	+	+	+	O
				80		+			+	+			+			O
				100						+						
				120						+						
				140												
Ammonia (ESC, G)	NH_3	-33	gaseous, technically pure	20	+	-	-	+	+	+		+	+	+	+	+
				40	+			+	+	+			O			
				60	+			+	+	O						
				80						O						
				100						O						
				120												
				140												
Ammonium acetate	CH_3COONH_4		aqueous, all	20	+	+	O	+	+	+		+	+	+	+	+
				40	+	+		+	+	+		+	+	O	+	+
				60	O	+		+	+	+		+	+		O	
				80		+			+	+		O				
				100					+	+						
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Ammonium aluminium sulfate				20			-			+						
				40						+						
				60						+						
				80						+						
				100						+						
				120												
				140												
Ammonium bromide				20						+						
				40						+						
				60						+						
				80												
				100												
				120												
				140												
Ammonium carbonate	$(NH_4)_2CO_3$		50%, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	O	+	+	+	+	+		+	+	+	+	+
				80		+			+	+		+	+			+
				100					+	+						
				120						+						
				140												
Ammonium chloride	NH_4Cl	115	aqueous, cold saturated	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	O	+	+	+	+	+		+	+	+	+	+
				80		+			+	+		+	+		+	+
				100					+	+		+	+			+
				120						+			+			
				140												
Ammonium citrate				20	+					+						
				40	+					+						
				60	+					+						
				80						+						
				100						+						
				120												
				140												
Ammonium dicromate	$(NH_4)_2\ Cr_2\ O_7$		saturated	20		+										
				40		+										
				60		+										
				80		+										
				100												
				120												
				140												
Ammonium dihydrogenphosphate				20	+			+	+							
				40	+			+	+							
				60	+			+	+							
				80					+							
				100												
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEFI)		EPDM	FPM	NBR	CR	CSM
Ammonium fluoride	NH_4F			20	+	+	-	+	+	+						
				40	+			+	+	+						
				60	+			+	+	+						
				80					+	+						
				100						+						
				120												
				140												
Ammonium formiate				20						+						
				40						+						
				60						+						
				80						+						
				100						+						
				120												
				140												
Ammonium hexafluorosilicate				20						+						
				40						+						
				60						+						
				80						+						
				100						+						
				120												
				140												
Ammonium hydrogen carbonate				20	+			+	+							
				40	+			+	+							
				60	+			+	+							
				80					+							
				100												
				120												
				140												
Ammonium hydrogen fluoride	NH_4HF_2		50%, aqueous	20	+	+	-	+	+	+		+	+			
				40	+	+		+	+	+						
				60	O	+		+	+	+						
				80												
				100												
				120												
				140												
Ammonium hydrogen phosphate				20	+			+	+							
				40	+			+	+							
				60	+			+	+							
				80					+							
				100												
				120												
				140												
Ammonium hydrogen sulfite	$(NH_4)H_5$			20						+						
				40						+						
				60						+						
				80						+						
				100						+						
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Ammonium hydroxide	NH_4OH		aqueous, cold	20	+	-	+		+	-		+	-	+	+	+
			saturated	40	+		+		+			+		O	+	+
				60	O		O		+			O		O	+	O
				80											O	-
				100												
				120												
				140												
Ammonium nitrate	NH_4NO_3	112	aqueous,	20	+	+	+	+	+	+		+	+	+	+	+
			saturated	40	+	+	+	+	+	+		+	+	+	+	+
				60	+	+	+	O	+	+		+	+	O		O
				80		+			O	+			+			
				100						+						
				120						+						
				140												
Ammonium oxalate	$H_4NOOC\text{-}COONH_4$			20						+		+				
				40						+						
				60						+						
				80						+						
				100						+						
				120												
				140												
Ammonium persulphate	$(NH_4)_2S_2O_8$			20		+				+						
				40		+				+						
				60		+				+						
				80		+				+						
				100						+						
				120												
				140												
Ammonium phosphate	$(NH_4)_3PO_4$		saturated	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	+	+	+	+	+	+			+	O	+	O
				80					+	+			+			
				100						+			+			
				120												
				140												
Ammonium sulphate	$(NH_4)_2SO_4$		aqueous,	20	+	+	+	+	+	+		+	+	+	+	+
			saturated	40	+	+	+	+	+	+		+	+	+	+	+
				60	+	+	+	+	+	+		+	+	O	+	O
				80		+			+	+		+	+			
				100					+	+			+			
				120						+						
				140												
Ammonium sulphide	$(NH_4)_2S$		aqueous, all	20	+	O	+	+	+	+		+	+	+	+	+
				40	+	O	+	+	+	+		+	O	+	+	+
				60	O	O	+	+	+	+		+	-	+	+	+
				80		-			+							
				100												
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Ammonium tetrafluoroborate	$(NH_4)BF_4$			20			-			+						
				40						+						
				60						+						
				80						+						
				100						+						
				120												
				140												
Ammonium thiocyanate	NH_4SCN		saturated	20		+				+						
				40		+				+						
				60		+				+						
				80		+										
				100												
				120												
				140												
Amyl acetate	$CH_3(CH_2)_4$-$COOCH_3$	141	technically pure	20	-	-	-	+	○	+		○	-	-	-	-
				40				+	○	○						
				60				+	-	○						
				80												
				100												
				120												
				140												
Amyl alcohol (ESC)	$CH_3(CH_2)_3$-CH_2-OH	137	technically pure	20	+	+	-	+	+	+		+	○	+	+	○
				40	+	+		+	+	+		+		+	+	
				60	○	+		+	+	+		+		+	+	
				80					+	+						
				100						+						
				120						○						
				140												
Aniline	$C_6H_5NH_2$	182	technically pure	20	-	-	-	○	○	+		-	○	-	-	-
				40						○			○			
				60						-			○			
				80												
				100												
				120												
				140												
Aniline hydrochloride	C_6H_7N+HCl	245	aqueous, saturated	20	+	+	-	+	+	+		+	○	○	-	+
				40	○	+		+	+			+	-	-		+
				60				○	○			+				+
				80												○
				100												
				120												
				140												
Antimony thiocyanate	S_6SCN			20						+						
				40						+						
				60						+						
				80						+						
				100						+						
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Antimony trichloride (ESC)	$SbCl_3$		90%, aqueous	20	+	+	--	+	+	+		+	+	-	+	+
				40	+			+	+	+						
				60				+	+	+						
				80												
				100												
				120												
				140												
Aqua regia (ESC)	HNO_3+HCl			20	+	+	-	-	-	O		-	O	-	-	O
				40	O											
				60												
				80												
				100												
				120												
				140												
Arsenic acid	H_3AsO_4		80%, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	O	+	+	+	+	+		+	+	+	+	+
				80		+			+	+		+	+	O	+	+
				100						+			+			
				120						+						
				140												
Barium carbonate	$BaCO_3$		S	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+		+	+	+		+	+	+		
				60	+	+		+	+	+		+				
				80		+			+							
				100												
				120												
				140												
Barium chloride	$BaCl_2$		saturated	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+		+	+	+		+	+	+		
				60	+	+		+	+	+		+	+			
				80		+			+	+			+			
				100						+						
				120												
				140												
Barium hydroxide	$Ba(OH)_2$	102	aqueous, saturated	20	+	+	+	+	+	-		+	+	+	+	+
				40	+	+	+	+	+			+		+	+	O
				60	O	+	+	+	+			+		+	+	
				80		+			+			+				
				100												
				120												
				140												
Barium salts			aqueous, all	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	+	+	+	+	+	+		+	+	+	+	+
				80		+			+	+		+	+			
				100						+						
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEFI)		EPDM	FPM	NBR	CR	CSM
Barium sulfate	$BaSO_4$		S	20	+		-	+	+	+		+				
				40	+			+	+	+		+				
				60	+			+	+	+		+				
				80					+	+						
				100						+						
				120												
				140												
Barium sulfide	BaS		suspension	20	+	+		+	+	+		+				
				40	+	+		+	+	+		+				
				60	+	+		+	+	+		+				
				80		+			+	+						
				100						+						
				120												
				140												
Battery acid see Sulphuric acid 40%				20												
				40												
				60												
				80												
				100												
				120												
				140												
Beef tallow emulsion, sulphonated (ESC)			usual commercial	20	+	O	+	+	+	+		-	+	+	+	+
				40						+						
				60						+						
				80												
				100												
				120												
				140												
Beer			usual commercial	20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+	+	+	+						
				60	+	+	+	+	+	+						
				80		+				+						
				100												
				120												
				140												
Benzaldehyde	C_6H_5-CHO	180	saturated, aqueous	20	-	-	-	+	+	+		+	+	O	-	-
				40				+		O		+	+			
				60				+		-		+	+			
				80												
				100												
				120												
				140												
Benzene	C_6H_6	80	technically pure	20	-	-	-	O	O	+		-	+	O	-	-
				40				O	-	O						
				60						-						
				80												
				100												
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Benzenesulfonic acid	$C_6H_5SO_3H$		technically pure	20			-			+			+			
				40						+			+			
				60						+						
				80						+						
				100						+						
				120												
				140												
Benzine (Gasoline) (ESC)	C_5H_{12} to $C_{12}H_{26}$	80-130	free of lead and aromatic compounds	20	+	+	-	+	○	+		-	+	+	-	○
				40	+	+		+		+			+	+		-
				60	+	+		○	-	+			+	+		
				80						+						
				100						+						
				120						+						
				140												
Benzoic acid	C_6H_5-COOH	Fp., 122	aqueous, all	20	+	+	+	+	+	+		+	+	-	-	-
				40	+	+	+	+	+	+		+	+			
				60	○	+		+	+	+			+			
				80		○			+	+			+			
				100					+	+			○			
				120						+						
				140												
Benzyl alcohol (ESC)	C_6H_5-CH_2-OH	206	technically pure	20	○	-	-	+	+	+		-	+	-	+	○
				40				+	+	+					+	
				60				○	○	○					+	
				80						-						
				100												
				120												
				140												
Benzyl chloride	$C_6H_5CHCl_2$		technically pure	20						+						
				40						+						
				60						+						
				80						○						
				100						-						
				120												
				140												
Beryllium chloride	$BeCl_2$			20						+						
				40						+						
				60						+						
				80												
				100												
				120												
				140												
Beryllium sulfate	$BeSO_4$			20						+			+			
				40						+			+			
				60						+			+			
				80						+						
				100						+						
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Borax	$Na_2B_4O_7$		aqueous, all	20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+	+	+	+			+	+	+	+
				60	O	+		+	+	+		+	+	+	+	O
				80		+			+	+		+	+			
				100					+	+						
				120												
				140												
Boric acid	H_3BO_3		all, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	O	+	+	+	+	+		+	+	+	+	+
				80		+			+	+		+	+			
				100					+	+			+			
				120						+						
				140												
Brine, containing chlorine	NaCl Cl_2			20	+	+	-	+	O	+		O	+	O	O	O
				40	+	+				+						
				60	+	+				O						
				80												
				100												
				120												
				140												
Bromine, liquid (G)	Br_2	59	technically pure	20	-	-	-	-	-	+		-	+	-	-	-
				40						+						
				60						+						
				80						+						
				100						O						
				120												
				140												
Bromine, vapours	Br_2		high	20	-	-	-	-	-	+		-	+	-	-	-
				40						+						
				60						+						
				80						+						
				100						O						
				120												
				140												
Bromine water (G)	$Br.H_2O$		saturated, aqueous	20	+	o	-	-	-	+		-	+	-	-	-
				40						+						
				60						+						
				80						+						
				100												
				120												
				140												
Bromobenzene	C_6H_5Br			20	-	-				+			+			
				40												
				60												
				80												
				100												
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Butadiene (Q/E, G)	$H_2C=CH-CH=CH_2$	-4	technically pure	20	+	+	--	+	+	+		-	O	-	+	+
				40					+	+					+	O
				60					+	+					O	-
				80						+						
				100						+						
				120												
				140												
Butane (G)	C_4H_{10}	0	technically pure	20	+	+	+	+	+	+		-	+	+	+	+
				40												
				60												
				80												
				100												
				120												
				140												
Butanediol (ESC)	$HO-(CH_2)_4-OH$	230	aqueous, 10%	20	+	+	-	+	+			+	+	+	O	+
				40	O	+		+	+			+	+	+	-	+
				60				+	+			+	+	+		+
				80												
				100												
				120												
				140												
Butanol (ESC)	C_4H_9OH	117	technically pure	20	+	+	-	+	+	+		+	+	+	+	+
				40	+	+		+	+	+		+	O	+	+	+
				60	O	+		+	O	+		+	-	+	O	+
				80		O			-	+						
				100						O						
				120												
				140												
Butyl acetate	$CH_3COOCH_2CH_2CH_2CH_3$	126	technically pure	20	-	-	-	+	O	+		+	O	-	O	O
				40						O		-	-		-	-
				60						-						
				80												
				100												
				120												
				140												
Butyl phenol, p-tertiary	$(CH_3)_3C-C_6H_4-OH$	237	technically pure	20	O	O	-	O	+	+		-	O	-	-	-
				40	-	-				+						
				60						+						
				80						+						
				100												
				120												
				140												
Butylene glycol (ESC)	$HO-CH_2-CH=CH-CH_2-OH$	235	technically pure	20	+	+	+	+	+	+		+	+	-	+	O
				40	+	+	+	+	+	+		+	+		+	-
				60	O	+	+	+	+	+		+	O		+	
				80						+						
				100												
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Butylene liquid	C_4H_8	51	technically pure	20	+		-	-	-	+		O	+	+	+	O
				40												
				60												
				80												
				100												
				120												
				140												
Butyric acid (ESC)	CH_3-CH_2-CH_2-COOH	163	technically pure	20	+	+	-	+	+	+		O	O	-	O	O
				40				+		+						
				60				O		+						
				80						+						
				100						O						
				120												
				140												
Cadmium bromide	$CdBr_2$			20	+	+		+	+			+	+			
				40	+	+		+	+			+	+			
				60	+	+		+	+			+	+			
				80		+							+			
				100												
				120												
				140												
Cadmium chloride	$CdCl_2$			20	+	+		+	+			+	+			
				40	+	+		+	+			+	+			
				60	+	+		+	+			+	+			
				80					+							
				100												
				120												
				140												
Cadmium cyanide	$Cd(CN)_2$			20	+			+	+							
				40	+			+	+							
				60	+			+	+							
				80					+							
				100												
				120												
				140												
Cadmium sulfate	$CdSO_4$			20	+	+		+	+			+	+			
				40	+	+		+	+			+	+			
				60	+	+		+	+			+	+			
				80		+			+				+			
				100												
				120												
				140												
Calcium acetate	$(CH_5COO)_2Ca$		saturated	20	+	+	+	+	+	+		+	+			
				40	+	+		+	+	+		+				
				60		+		+	+	+		+				
				80		+										
				100												
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Calcium bisulphite	$Ca(HSO_3)_2$		cold saturated, aqueous	20	+	+	+			+		+	+	-	O	+
				40		+	+			+			+			
				60		+				+			+			
				80		+				+			+			
				100						+			+			
				120						+						
				140												
Calcium bromide	$CaBr_2$			20	+	+		+	+			+	+			
				40	+	+		+	+			+	+			
				60	+	+		+	+			+	+			
				80		+			+							
				100												
				120												
				140												
Calcium carbonate	$CaCO_3$			20	+	+		+	+	+		+	+			
				40	+	+		+	+	+		+	+			
				60	+	+		+	+	+		+	+			
				80		+			+	+		+	+			
				100						+						
				120												
				140												
Calcium chlorate	$Ca(ClO_3)_2$			20	+	+		+	+	+						
				40	+	+		+	+	+						
				60	+	+		+	+	+						
				80		+										
				100												
				120												
				140												
Calcium chloride	$CaCl_2$	125	saturated, aqueous, all	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	O	+		+	+	+		+	+	O	+	+
				80		+			+	+		+	+	O	O	+
				100					+	+		O	+			+
				120						+						
				140												
Calcium fluoride	CaF_2			20	+			+	+				+			
				40	+			+	+				+			
				60	+			+	+				+			
				80					+							
				100												
				120												
				140												
Calcium hydrogencarbonate	$Ca(HCO_3)_2$			20						+		+	+			
				40						+		+	+			
				60						+		+	+			
				80						+		+	+			
				100						+			+			
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Calcium hydrogensulfide	$Ca(SH)_2$			20		+	-			+		+				
				40		+				+		+				
				60		+				+		+				
				80		+				+						
				100						+						
				120												
				140												
Calcium hydrosulfite	$Ca(HSO_3)_2$		saturated	20						+						
				40						+						
				60						+						
				80						+						
				100						+						
				120												
				140												
Calcium hydroxide	$Ca(OH)_2$	100	saturated, aqueous	20	+	+	+	+	+	O		+	+	+	+	+
				40	+	+	+	+	+	-		+	+	+	+	+
				60	+	+	+	+	+			+	+	O	+	+
				80		+			+			+	+			+
				100									+			+
				120												
				140												
Calcium lactate	$(CH_3COO)_2Ca$		saturated	20				+	+	+		+				
				40				+	+	+		+				
				60				+	+	+		+				
				80					+	+						
				100						+						
				120												
				140												
Calcium nitrate	$Ca(NO_3)_2$	115	50%, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60		+		+	+	+		+	+			+
				80		+				+			+			
				100						+						
				120												
				140												
Calcium phosphate	$Ca(H_2PO_4)_2$ $CaHPO_4$ $Ca_3(PO_4)_2$			20						+						
				40						+						
				60						+						
				80						+						
				100						+						
				120												
				140												
Calcium sulfide	Ca_5			20	+				+			+				
				40	+				+							
				60	+				+							
				80					+							
				100												
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Calcium sulphate	$CaSO_4$		suspensions	20	+	+	-			+		+				
				40	+	+				+		+				
				60	+	+				+		+				
				80		+				+						
				100						+						
				120												
				140												
Calcium sulphite	$Ca(HSO_3)_2$		aqueous, cold saturated	20	+			+	+			+				
				40	+			+	+							
				60	+			+	+							
				80					+							
				100												
				120												
				140												
Calcium tungstate	CaO_4W			20						+						
				40						+						
				60						+						
				80												
				100												
				120												
				140												
Caprolactam	$C_6H_{11}NO$			20		-										
				40												
				60												
				80												
				100												
				120												
				140												
Caprolactone	$C_6H_{10}O_2$			20		-										
				40												
				60												
				80												
				100												
				120												
				140												
Carbon dioxide -carbonic acid (G)	CO_2		technically pure, anhydrous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	+	+	+	+	+	+			+	+	+	+
				80		+			+	+			+			+
				100						+						
				120												
				140												
Carbon disulphide	CS_2	46	technically pure	20	-	-	-	O	O	+			+	-	-	-
				40												
				60												
				80												
				100												
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Carbon tetrachloride	CCl_4	77	technically pure	20	-	-	--	-	-	+		-	+	-	-	-
				40												
				60												
				80												
				100												
				120												
				140												
Carbonic acid	H_2CO_3			20	+	+		+	+	+		+	+			
				40	+	+		+	+	+		+	+			
				60	+	+		+	+	+		+	+			
				80		+			+	+		+	+			
				100						+			+			
				120												
				140												
Caro's acid	see Peroxomonosulfuric acid															
Casein				20						+						
				40						+						
				60						+						
				80												
				100												
				120												
				140												
Caustic potash solution (potassium hydroxide)	KOH	131	50%, aqueous	20	+	+	+	+	+	-			-	O	-	+
				40	+	+	+	+	+					-		+ O
				60	O	+	+	+	+			+				+ O
				80		+			+			O				-
				100					+							
				120												
				140												
Caustic soda solution	NaOH		50%, aqueous	20	+	+	+	+	+	O		+	-	O	-	+
				40	+	+		+	+			+		-		O
				60		+		+	+			+				-
				80					+							
				100												
				120												
				140												
Cerium (III) -chloride	$CeCl_3$			20						+						
				40						+						
				60						+						
				80												
				100												
				120												
				140												
Cesium chloride	ClCs			20						+						
				40						+						
				60						+						
				80												
				100												
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Cesiumhydroxide	CsOH			20 40 60 80 100 120 140			- 	 	 	+ + + 		 	 	 	 	
Chloral hydrate	CCl_3-$CH(OH)_2$	98	technically pure	20 40 60 80 100 120 140	- 	 	- 	+ + + 	○ - 	- 		○ 	○ 	- 	○ 	+
Chloric acid (ESC)	$HClO_3$		10%, aqueous	20 40 60 80 100 120 140	+ + ○ 	+ + + 	- 	+ + 	- 	+ + 		+ + + 	- 	- 	- 	+ + +
Chloric acid (ESC)	$HClO_3$		20%, aqueous	20 40 60 80 100 120 140	+ + ○ 	+ + + 	- 	○ 	- 	+ 		+ + 	- 	- 	- 	+ +
Chlorine	Cl_2		moist, 97%, gaseous	20 40 60 80 100 120 140	- 	- 	- 	- 	- 	- 		- 	+ 	- 	- 	○
Chlorine	Cl_2		anhydrous, technically pure	20 40 60 80 100 120 140	- 	- 	- 	○ ○ - 	- 	+ + + + ○ 		○ 	+ 	- 	- 	○
Chlorine	Cl_2		liquid, technically pure	20 40 60 80 100 120 140	- 	- 	- 	- 	- 	+ 		- 	○ 	- 	- 	-

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Chlorine water (ESC, G)	Cl_2 H_2O		saturated	20 40 60 80 100 120 140	+ + O	+ + O -	O	O O	O	O		O	O	-	O	-
Chloroacetic acid, mono (ESC)	$ClCH_2COOH$		50%, aqueous	20 40 60 80 100 120 140	+ +	-	-	+ + +	+ + +	+ O -		O	-	-	-	O
Chloroacetic acid, mono (ESC)	$ClCH_2COOH$	188	technically pure	20 40 60 80 100 120 140	+ + O	-	-	+ + +	+ + +	-		O	-	-	-	O
Chlorobenzene	C_6H_5Cl	132	technically pure	20 40 60 80 100 120 140	-	-	-	O	+	+ + O -		-	-	-	-	O
Chloroethanol	$ClCH_2$-CH_2OH	129	technically pure	20 40 60 80 100 120 140	-		-	+ + +	+ + +	+ O O -		O	-	+	-	O
Chlorosulphonic acid	$ClSO_3H$	158	technically pure	20 40 60 80 100 120 140	O	-	-	-	-	O -		-	-	-	-	-
Chrome alum (chromium potassium sulphate)	$KCr(SO_4)_2$		cold saturated, aqueous	20 40 60 80 100 120 140	+ + +	+ + +	+ +	+ + +	+ + +	+ +		+ + + +	+ + + + +	+ + +	+ + +	+ + +

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Chromic acid (ESC)	CrO_3 H_2O		up to 50%, aqueous	20 40 60 80 100 120 140	○ ○ - 	+ ○ ○ ○ - 	-- 	○ - 	○ - 	+ + + + + + ○ ○ ○		○ ○ ○ ○ ○	+ + + +	- 	- 	○ ○ ○ ○
Chromic acid (ESC)	CrO_3 H_2O		all, aqueous	20 40 60 80 100 120 140	○ 	○ 	- 	○ 	○ 	+ + + + ○ ○ ○			+ + + ○	- 	- 	○ ○ ○ ○
Chromic acid + sulphuric acid + water (ESC)	CrO_3 H_2SO_4 H_2O		50 g 15 g 35 g	20 40 60 80 100 120 140	+ + + ○ 	+ + + ○ + ○	- 	- 	- 	+ + + + ○ 		○ ○ ○ ○ 	+ + + + 	- 	- 	○ ○ ○ ○
Chromium (II) -chloride	$CrCl_3$			20 40 60 80 100 120 140	+ + + + 	 	 	 	 	+ + + + + +		 	 	 	 	
Chromium (II) -fluoride	CrF_3			20 40 60 80 100 120 140	 	 	 	 	 	+ + + + 		 	 	 	 	
Chromium (III) -chloride	$CrCl_3$			20 40 60 80 100 120 140	+ + + + 	 	 	 	 	+ + + + + +		 	 	 	 	
Chromium (III) -nitrate	$Cr(NO_3)_3$			20 40 60 80 100 120 140	+ + + + 	 	 	 	 	+ + + + + +		 	 	 	 	

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Chromium (III) -sulfate	$Cr(SO_4)_3$			20	+		-			+						
				40	+					+						
				60	+					+						
				80						+						
				100						+						
				120												
				140												
Cider				20	+	+	+	+	+	+		+	+	+	+	+
				40			+			+						
				60						+						
				80												
				100												
				120												
				140												
Citric acid		Fp., 153	10%, aqueous	20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	O	+	+	+	+	+		+	+	O	+	+
				80					+	+						
				100					+	+						
				120												
				140												
Coal gas, benzene free (G)				20	+	+	+	+	+	+			+	+	O	+
				40												
				60												
				80												
				100												
				120												
				140												
Coconut fat alcohol (ESC)			technically pure	20	+	-	-	+	+	+			+	+	+	+
				40	+			O	+	+			+	+	O	O
				60	O				O	+			+	+		
				80												
				100												
				120												
				140												
Compressed air, containing oil (ESC)				20	-	-	-	+	O	+		-	+	+	+	+
				40				+		+						
				60						+						
				80												
				100												
				120												
				140												
Copper salts	$CuCl$, $CuCl_2$, CuF_2, $Cu(NO_3)_2$, $CuSO_4$, $Cu(CN)_2$		all, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	O	+	+	+	+	+			+	O	+	O
				80		+			+	+			+			
				100						+						
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Corn oil (ESC)			technically pure	20 40 60 80 100 120 140	O	O O	O	+ + O	+ + O	+ + + +			+ + +	+ + +	O - 	+ + O
Cresol	$HO-C_6H_4-CH_3$		cold saturated, aqueous	20 40 60 80 100 120 140	O	-	-	+ +	+ +	+ + + O			+ +	O O	-	O
Crotonic aldehyde	$CH_3-CH=CH-CHO$	102	technically pure	20 40 60 80 100 120 140	-	-	-	+	+	+ O -		+	+	+	+	+
Cyclohexane (Q/E)	C_6H_{12}	81	technically pure	20 40 60 80 100 120 140	-	-	-	+ + +	+	+ + + +		-	+	+	-	-
Cyclohexanol (ESC)	$C_6H_{12}O$	161	technically pure	20 40 60 80 100 120 140	+ + +	+ + + O	-	+ + +	+ + O	+ + O -		-	+	O	+	+
Cyclohexanone	$C_6H_{10}O$	155	technically pure	20 40 60 80 100 120 140	-	-	-	+ O O	+ O O	+ O -		O	-	-	-	-
Densodrine W				20 40 60 80 100 120 140	+ + +	+ + +	O			+			+	+	+	

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Detergents see washing powder (ESC)			for usual washing lathers	20 40 60 80 100 120 140	+ + O	O	--	+ + +	+ + +	+ + + + +		 + +	+ + +	+ + +	+ + +	+ + +
Dextrine	$(C_6H_{10}O_5)n$		usual commercial	20 40 60 80 100 120 140	+ + +	+ + + +	+ + +	+ + +	+	+ + + + + +		+ + +	+ + +	+ + +	+ + +	+ + +
Dextrose				20 40 60 80 100 120 140	+ + +	+ + + +	+	+ + +	+ + + +	+ + + + +		+ + + +	+ + + + +			
Di isobutyl ketone	$[(CH_3)_2CHCH_2]_2CO$	124	technically pure	20 40 60 80 100 120 140	-	-	-	+ -	+ -	+ + O		O	-	-	-	-
Dibuttyl ether	$C_4H_9OC_4H_9$	142	technically pure	20 40 60 80 100 120 140	-	-	-	O -	O -			-	+ + O	+ O -	-	O O O
Dibutyl phthalate	$C_6H_4(COOC_4H_9)_2$	340	technically pure	20 40 60 80 100 120 140	-	-	-	+ O O	+ O O	+ + O		O	O	-	-	-
Dibutyl sebacate	$C_8H_{16}(COOC_4H_9)_2$	344	technically pure	20 40 60 80 100 120 140	-	-	-	+	+	+		+	+	-	-	-

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Dichloroacetic acid	$Cl_2CHCOOH$	194	technically pure	20	+	-	--	+	+	+		+	○	-	○	+
				40	+ +			+ +	+ +	+ +		+ +	-		-	○
				60	○			○	○	○		+				-
				80						-						
				100												
				120												
				140												
Dichloroacetic acid (ESC)	$Cl_2CHCOOH$		50%, aqueous	20	+	-	-	+	+	+		+	○	-	+	+
				40	+ +			+ +	+ +	+ +		+ +	○		○	+ +
				60	○			+	+	+ +		+	-		-	○
				80						○						
				100						-						
				120												
				140												
Dichloroacetic acid methyl ester	$Cl_2CHCOOCH_3$	143	technically pure	20	-	-	-	+	+	○		+	-	-	-	+
				40				+	+			+				+
				60				+	+			○				○
				80												
				100												
				120												
				140												
Dichlorobenzene	$C_6H_4Cl_2$	180	technically pure	20	-	-	-									
				40												
				60												
				80												
				100												
				120												
				140												
Dichloroethane	Ethylene chloride															
Dichloroethylene	ClCH=CHCl	60	technically pure	20	-	-	-	-	○	+		-	○	-	-	-
				40						+						
				60												
				80												
				100												
				120												
				140												
Dichloromethane	CH_2Cl_2			20	-	-	-									
				40												
				60												
				80												
				100												
				120												
				140												
Diesel oil (ESC, Q/E)				20	+	+	○	+	○	+		-	+	+	○	○
				40	+	+				+ +			+	+		-
				60				○		+ +						
				80						+ +						
				100						+ +						
				120						+						
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Diethyl ether	H_5C_2-O-C_2H_5			20 40 60 80 100 120 140	-	-	- -									
Diethylamine	$(C_2H_5)_2NH$	56	technically pure	20 40 60 80 100 120 140	O	-	-	+	+	+ O -		O	-	-	-	-
Diethylene glycol butyl ether	C_4H_9-O-$(CH_2)_2$-O-$(C_{42})_2$-O-$_4$			20 40 60 80 100 120 140	-	-	-									
Diglycolic acid (ESC)	HOOC-CH_2-O-CH_2-COOH	Fp., 148	30%, aqueous	20 40 60 80 100 120 140	+ + O	+ + +	+	+ + +	+ + +	+		+	O	+	+	O
Dimethyl formamide	$(CH_3)_2CHNO$	153	technically pure	20 40 60 80 100 120 140	-	-	-	+ + O	+ + +	-		O	-	O	+	+
Dimethylamine	$(CH_3)_2NH$	7	technically pure	20 40 60 80 100 120 140	O	-	-	+ O	+	O -		O	-	-	-	-
Dimethylphthalate (DMP)	$C_6H_4(CH_3)_2$			20 40 60 80 100 120 140	-	-	-									

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Dinonyl phthalate (DNP)	$C_6H_4[(CH_2)_8CH_3]_2$		technically pure	20 40 60 80 100 120 140	- 	- 	-- 	○ 	+ 	 		○ 	+ 	- 	- 	-
Dioctyl phthalate (DOP) (ESC)			technically pure	20 40 60 80 100 120 140	- 	- 	- 	○ 	+ - 	 		○ 	+ 	- 	- 	-
Dioxane	$C_4H_8O_2$	101	technically pure	20 40 60 80 100 120 140	- 	- 	- 	+ + + 	○ ○ ○ - 	- 		 	- 	○ 	- 	-
Drinking water	see water															
Ethanolamine	Annino ethanol															
Ethyl acetate	$CH_3COOC_2H_5$	77	technically pure	20 40 60 80 100 120 140	- 	- 	- 	+ ○ ○ 	+ ○ ○ 	○ 		+ 	- 	- 	- 	-
Ethyl alcohol + acetic acid (fermentation mixture)			technically pure	20 40 60 80 100 120 140	+ + ○ 	○ 	- 	+ + + 	+ 	+ + + ○ 		○ ○ 	○ ○ ○ 	○ ○ 	+ + + 	+ + +
Ethyl alcohol (Ethnoc) (ESC)	CH_3-CH_2-OH	78	technically pure, 96%	20 40 60 80 100 120 140	+ + ○ 	○ 	- 	+ + + 	+ + + + 	+ ○ - 		+ + + 	○ ○ ○ 	○ 	+ 	+

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEFI)		EPDM	FPM	NBR	CR	CSM
Ethyl benzene	C_6H_5-CH_2CH_3	136	technically pure	20 40 60 80 100 120 140	- 	- 	-- 	O 	O - 	O 		- 	+ 	- 	- 	-
Ethyl chloride (G)	C_2H_5Cl	12	technically pure	20 40 60 80 100 120 140	- 	- 	- 	O 	O 	O 		- 	O 	- 	- 	-
Ethyl ether	CH_3CH_2-O-CH_2CH_3	35	technically pure	20 40 60 80 100 120 140	- 	- 	- 	+ 	O 	+ 		- 	- 	- 	- 	-
Ethylene bromide (1,2-Dibromoethane)	Br-C_{42}-C_{42}-Br			20 40 60 80 100 120 140	- 	- 	- 									
Ethylene chloride	$ClCH_2$-CH_2Cl	83	technically pure	20 40 60 80 100 120 140	- 	- 	- 	O 	O 	+ + + O - 		- 	+ + O 	O - 	O - 	-
Ethylene diamine	H_2N-CH_2-CH_2-NH_2	117	technically pure	20 40 60 80 100 120 140	O 	- 	- 	+ + + 	+ + + 	O O - 		+ 	O O - 	+ O - 	+ O - 	O O -
Ethylene glycol (ESC)	HO-CH_2-CH_2-OH	198	technically pure	20 40 60 80 100 120 140	+ + + 	O 	- 	+ + + 	+ + + + + 	+ + + + + + 		+ + + + 	+ + + O 	+ + O 	+ + O 	+ + + O

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Ethylene oxide (G)	CH_2-CH_2	10	technically pure, moist	20	-	-	--	-	O	+		O	-	-	-	-
				40												
				60												
				80												
				100												
				120												
				140												
Ethylenediamin-etetraacetic acid (EDTA)	$C_{10}H_{16}N_2O_8$			20				+	+	+		+				
				40												
				60												
				80												
				100												
				120												
				140												
Fatty acids >C6 (ESC)	R-COOH		technically pure	20	+	+	-	+	+	+		+	+	O	O	-
				40	+	+		+	+	+						
				60	+	+		O	+	+						
				80						+						
				100												
				120												
				140												
Fatty alcohol sulphonates (ESC)			aqueous	20	+	+		+	+	+		+	+	+	+	+
				40	+	+		+	+	+		+	+	+	+	+
				60	O	O		+	O	+		+	+	+	+	+
				80						+						
				100						+						
				120												
				140												
Fertilizers			aqueous	20	+	+	O	+	+	+		+	+	+	+	+
				40	+	+		+	+	+		+	+	+	+	+
				60	O	+		+	+	+		+	+	+	+	+
				80		+				+			+			+
				100									+			
				120												
				140												
Fluorine (G)	F_2		technically pure	20	-	-	-	-	-	-		-	-	-	-	-
				40												
				60												
				80												
				100												
				120												
				140												
Fluoroboric acid	HBF_4			20												
				40												
				60												
				80												
				100												
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Fluorosilicic acid (Q/E)	H_2SiF_6		32%, aqueous	20	+	+	+	+	+	+		+	O	O	O	+
				40	+	+	+	+		+				-	-	O
				60	+	+	+	+		+						-
				80						+						
				100						+						
				120												
				140												
Formaldehyde (ESC)	HCHO		40%, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60			+	+		+		+	+	O	O	O
				80						+						
				100												
				120												
				140												
Formamide	$HCONH_2$	210	technically pure	20	-	-	-	+	+			+	O	+	+	
				40				+	+							
				60				+	+							
				80												
				100												
				120												
				140												
Formic acid (ESC)	HCOOH		up to 50%, aqueous	20	+	-	O	+	+	+		+	+	-	+	+
				40	+			+	+	+		+	+		+	+
				60	O			+	O	+		O	O		O	+
				80						+			-			O
				100						+						
				120												
				140												
Formic acid (ESC)			25%	20	+	+		+	+	+		+				
				40	+	+		+	+	+		+				
				60	+	+		+	+	+		+				
				80					+	+						
				100												
				120												
				140												
Formic acid (ESC)	HCOOH	101	technically pure	20	+	-	-	+	+	+		+	+	-	+	+
				40	O			+	O	+		+			O	+
				60	-			+	-	+		+			-	+
				80						+		O				O
				100						+						
				120												
				140												
Frigen 12 (Freon 12) (D/P, G)	CCl2F2	-30	technically pure													
Freon 13 (see tri floro, trichloroethane)																

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Fruit juices (ESC)				20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	+	+	+	+	+	+		+	+	+	+	+
				80		+			+	+		+	+	+	+	+
				100						+		+	+	+		+
				120						+			+			
				140												
Fruit pulp				20	+	+	+	+	+			+	+	+	+	+
				40			+	+	+							
				60				+	+							
				80												
				100												
				120												
				140												
Fuel oil				20	+	+		○	○	+		-	+	+	+	-
				40	○	+		-	-	+			+	+	+	
				60						+			+	+	○	
				80						+						
				100						+						
				120												
				140												
Furfuryl alcohol (ESC)	$C_5H_6O_2$	171	technically pure	20	-	-	-	+	+	+		○	-	-	○	○
				40				+		+						
				60				+	○	○						
				80						-						
				100												
				120												
				140												
Gasoline (see Benzine)																
Gelatin			all, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60		+	+	+	+	+						
				80						+						
				100												
				120												
				140												
Glucose	$C_6H_{12}O_6$	Fp., 148	all, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	○	+	+	+	+	+		+	+	+	+	+
				80		+			+	+		+	+	+	+	+
				100						+			+			
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Glycerol	$HO\text{-}CH_2\text{-}CH(OH)\text{-}CH_2OH$	290	technically pure	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		O	+	+	+	+
				60	+	+		+	+	+		O	O	+	+	+
				80		+			+	+			-	O	+	+
				100					+	+					O	O
				120						+						
				140												
Glycocoll (ESC)	$NH_2\text{-}CH_2\text{-}COOH$	Fp., 233	10%, aqueous	20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+	+	+	+			+	O	+	O
				60		+				+						
				80						+						
				100												
				120												
				140												
Glycolic acid	$HO\text{-}CH_2\text{-}COOH$	Fp., 80	37%, aqueous	20	+	-	+	+	+	+			+	+	+	+
				40			+	+		+						
				60				+		+						
				80						+						
				100						+						
				120												
				140												
Heptane (ESC)	C_7H_{16}	98	technically pure	20	+	O	-	+	+	+		-	+	+	+	+
				40						+			+	+	+	O
				60				O	O	+			+	+	+	-
				80						+						
				100						+						
				120												
				140												
Hexane (ESC)	C_6H_{14}	69	technically pure	20	+	O	-	+	+	+		-	+	+	+	+
				40						+			+	+	+	O
				60				O	O	+			+	+	+	-
				80						+						
				100						+						
				120												
				140												
Hydrazine hydrate (ESC)	$H_2N\text{-}NH_2 \cdot H_2O$	113	aqueous	20	+	-	-	+	+	-		+	O	-	-	+
				40				+	+							
				60				+	+							
				80												
				100												
				120												
				140												
Hydrobromic acid (ESC)	HBr	124	aqueous, 50%	20	+	+	+	+	+	+		+	+	O	+	+
				40	+	+	+	+	+	+		+	+	-	+	+
				60	+	+		+	+	+		O	+		O	+
				80		O				+		-	O		-	O
				100						+			-			-
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Hydrochloric acid (Q/E, D/P, G)	HCl		5%, aqueous	20	+		+	+	+	+		+	+	○	○	+
				40	+ +		+	+ +	+ +	+ +		+ +	+ +	-	-	○
				60	○			+	+ +	+ +		+	+ +			-
				80					○	+ +			+			
				100						+ +						
				120						+						
				140												
Hydrochloric acid (Q/E, D/P, G)	HCl		36%, aqueous	20	+	+	-	+	+	+			+	-	-	○
				40	+ +	+ +		+ +	○	+ +		○	○			-
				60	○	○ ○		+	-	+ +		-	-			
				80		○				+ +						
				100						+						
				120												
				140												
Hydrochloric acid (Q/E, D/P, G)	HCl		up to 38%	20	+	+	-	+	○	+		+	+	-	○	+
				40	+ +	+ +		+		+ +			+			
				60	+	+				+ +						
				80						+ +						
				100						+						
				120												
				140												
Hydrochloric acid (Q/E, D/P, G)	HCl		up to 30%, aqueous	20	+	+	○	+	+	+			+	-	-	+
				40	+ +	+ +	-	+ +	○ ○	+ +		+	+ +			○
				60	○	+ +		+	○ ○	+ +		○	○			-
				80		+			-	+ +						
				100						+						
				120												
				140												
Hydrochloric acid (Q/E, D/P, G)	HCl		10%, aqueous	20	+	+	+	+	+	+		+	+	○	○	+
				40	+ +	+ +	+	+ +	+ +	+ +		+ +	+ +	-	-	○
				60	○	+ +		+	○ ○	+ +		+	+ +			-
				80		+			○	+ +			+			
				100						+ +						
				120						+						
				140												
Hydrocyanic acid (G)	HCN	26	technically pure	20	+	+	-	+	+	+		+	+	○	○	+
				40	+ +	+ +		+ +	+ +	+ +		○	○	-	-	○
				60	○	+ +		+	+	+ +						
				80						+						
				100												
				120												
				140												
Hydrofluoric acid (G)	HF		40 %	20	+	-	-	+	+	+		-	+	-	-	+
				40	○			+	+	+			+			+
				60	○			○	+	+			○			○
				80						+						
				100						+						
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEFI)		EPDM	FPM	NBR	CR	CSM
Hydrogen (G)	H_2	-253	technically pure	20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	+	+	+	+	+	+		+	+	+	+	+
				80		+				+		+	+	+	+	+
				100					-	+		+	+	+		
				120												
				140												
Hydrogen chloride (Q/E, G)	HCl	-85	technically pure, gaseous	20	+	+	-	+	+	+		+	+	O	O	O
				40	+	+		+	+	+		+	+	-	-	O
				60	O	+		+	+	+		+	+			-
				80		O				+						
				100						+						
				120												
				140												
Hydrogen peroxide (ESC)	H_2O_2		10%, aqueous	20	+	+	-	+	+	O			+	O	-	+
				40	+			+	+	O		O	O	-		+
				60	O			+	+	-		-	-			O
				80												-
				100												
				120												
				140												
Hydrogen peroxide (ESC)	H_2O_2	139	90%, aqueous	20	+		-	+	-	O			O	-	-	O
				40												
				60				-								
				80												
				100												
				120												
				140												
Hydrogen peroxide (ESC)	H_2O_2		50%, aqueous	20	+	+	-	+	+	O		O	+			
				40												
				60												
				80												
				100												
				120												
				140												
Hydrogen peroxide (ESC)	H_2O_2	105	30%, aqueous	20	+	+	-	+	+	O		O	+	-	-	+
				40												O
				60												-
				80												
				100												
				120												
				140												
Hydrogen sulphide (G)	H_2S		technically pure	20	+	+	+	+	+	+		+	+	+	O	+
				40	+	+	+	+	+	+		-	+	O	-	O
				60	+	+		O	+	+			O	-		O
				80						+			-			-
				100						+						
				120						+						
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Hydrogen sulphide	H_2S		saturated, aqueous	20	+	+	+	+	+	+		+	+	-	+	+
				40	+ +	+	+	+	+	+		-	+	-	-	+
				60	O	+		+	+	+			+			O
				80						+			O			-
				100						+						
				120						+						
				140												
Hydroquinone	$C_6H_4(OH)_2$		30 %	20	+	+		+	+			+				
				40	+	+		+	+							
				60				+	+							
				80					+							
				100												
				120												
				140												
Hydroxylamine sulphate	$(NH_{30}H)_2SO_4$		all, aqueous	20	+	+	-	+	+			+	+	+	O	+
				40	+	+		+	+				+	O		+
				60				+	+							
				80												
				100												
				120												
				140												
Iodine-potassium iodide solution (lugol's solution)	I-KI			20	+	-	-			+			+			
				40												
				60												
				80												
				100												
				120												
				140												
Iodium	I_2	185	100%	20	-	-	-			+			+			
				40												
				60												
				80												
				100												
				120												
				140												
Iron (II) -chloride	$FeCl_2$		saturated	20	+	+	+	+	+	+		+	+			
				40	+	+		+	+	+		+	+			
				60	+	+		+	+	+		+	+			
				80		+			+	+		+	+			
				100						+			+			
				120												
				140												
Iron (III) -nitrate	$Fe(NO_3)_2$		saturated	20	+	+	+	+	+	+		+	+			
				40	+	+		+	+	+		+	+			
				60	+	+		+	+	+		+	+			
				80		+			+	+			+			
				100						+			+			
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Iron (III) -chloride	$FeCl_3$		saturated	20	+	+	+	+	+	+		+	+			
				40	+	+		+	+	+		+	+			
				60	+	+		+	+	+		+	+			
				80		+			+	+		+	+			
				100						+			+			
				120												
				140												
Iron (III) -chloridsulfate	$FeClSO_4$		saturated	20	+	+	+	+	+	+		+	+			
				40	+	+		+	+	+		+	+			
				60	+	+		+	+	+		+	+			
				80		+			+	+		+	+			
				100						+			+			
				120												
				140												
Iron (III) -sulfate	$Fe_2(SO_4)_3$		saturated	20	+	+	+	+	+	+		+	+			
				40	+	+		+	+	+		+	+			
				60	+	+		+	+	+		+	+			
				80		+			+	+		+	+			
				100						+			+			
				120												
				140												
Iron salts			all, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	O	+		+	+	+		+	+	+		+
				80		+			+	+		+	+			+
				100						+			+			
				120						+						
				140												
Isooctane (ESC)	$(CH_3)_3$-C-CH_2-CH-$(CH_3)_2$	99	technically pure	20	+		-	+	+	+			+	+	+	O
				40						+						
				60				O	O	+						
				80						+						
				100						+						
				120												
				140												
Isophorone (ESC)	$C_9H_{14}O$		technically pure	20						-						
				40												
				60												
				80												
				100												
				120												
				140												
Isopropyl alcohol (ESC)	$(CH_3)_2$-CH-OH	82	technically pure	20				+	+	+		+				
				40						+						
				60						+						
				80						O						
				100												
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Isopropyl ether	$(CH_3)_2$-CH-O-CH-$(CH_3)_2$	68	technically pure	20	-	-	--	○	○	+		○	-	-	-	-
				40						+						
				60				-	-	+						
				80												
				100												
				120												
				140												
Isopropylbenzene	CaH_{12}			20	-	-	-									
				40												
				60												
				80												
				100												
				120												
				140												
Jam, Marmalade				20	+	+	+	+	+	+			+	+	+	+
				40	○	+	+	+	+	+			+	+	+	+
				60	○	+		+	+	+		+	+	+	+	+
				80					+	+		+	+			
				100					+	+						
				120						+						
				140												
Lactic acid (ESC)	$CH_3CHOHCOOH$		10%, aqueous	20	+	+	+	+	+	+			+	-	-	○
				40	○	+	○	+	+	+			○			○
				60	-	+	-	+	+	○		○	○			○
				80		+			+	○		-	○			
				100					+	-						
				120												
				140												
Lanolin (ESC)			technically pure	20	+	o	+	+	+	+			+	+	+	○
				40	○		+	+	+	+			+	+	○	-
				60			+	+	+	+			+	+	-	
				80						+						
				100						+						
				120						+						
				140												
Lead acetate	$Pb(CH_3COO)_2$		aqueous, saturated	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	+	+	+	+	+	+		+	+	+	+	+
				80		+				+						
				100						+						
				120												
				140												
Lead carbonate	$PbCO_3$			20	+	+		+	+	+		+				
				40						+						
				60						+						
				80												
				100												
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Lead fluoroborate	$Pb(BF_4)_2$			20			-									
				40												
				60												
				80												
				100												
				120												
				140												
Lead nitrate	$Pb(NO_3)_2$			20		+										
				40		+										
				60		+										
				80		+										
				100												
				120												
				140												
Lead salts	$PbCl_2$, $Pb(NO_3)_2$, $PbSO_4$		saturated	20		+										
				40		+										
				60		+										
				80		+										
				100												
				120												
				140												
Linoleic acid				20						+						
				40						+						
				60						+						
				80						+						
				100						+						
				120												
				140												
Linseed oil (ESC)			technically pure	20	+	+	+	+	+	+			+	+	O	+
				40	+	+	-	+	+	+			+	+	-	O
				60	O			+	+	+			+	+		-
				80					+	+						
				100					+	+						
				120						+						
				140												
Liqueurs				20	+			+	+	+		+	+	+	+	+
				40	+			+		+						
				60						+						
				80						+						
				100												
				120												
				140												
Liquid fertilizers				20				+	+			+				
				40				+	+			+				
				60				+	+			+				
				80					+							
				100												
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Lithium bromide	LiBr			20	+	+	-	+	+	+		+	+			
				40						+						
				60						+						
				80						+						
				100						+						
				120												
				140												
Lithium sulfate	Li_2SO_4			20	+	+		+	+	+		+	+			
				40						+						
				60						+						
				80												
				100												
				120												
				140												
Lubricating oils				20	+	O	-	+	O	+		-	+	+	+	+
				40	+			+		+			+	+	O	O
				60	+			O		+			+	O	-	-
				80						+			O			
				100						+			-			
				120						+						
				140												
Magnesium salts	$MgCl_2$, $MgCO_3$, $Mg(NO_3)_2$, $Mg(OH)_2$, $MgSO_4$		all, aqueous,saturated	20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+	+	+	+			+	+	+	+
				60	O	+		+	+	+		+	+	+	+	+
				80		+			+	+		+	+			+
				100					+	+			+			
				120						+						
				140												
Magnesium-hydrogen carbonate				20	+			+	+			+				
				40	+			+	+			+				
				60	+			+	+			+				
				80												
				100												
				120												
				140												
Maleic acid (ESC)	$(CH\text{-}COOH)_2$	Fp., 131	cold saturated, aqueous	20	+	+	+	+	+	+			+	-	-	-
				40	+	+		+	+	+			+			
				60	O			+	+	+			+			
				80						+			-			
				100						+						
				120						+						
				140												
Mercury	Hg	357	pure	20	+	+	+	+	+	+			+	+	+	+
				40	+			+	+	+		+	+	+	+	+
				60	+			+	+	+		+	+	+	+	+
				80						+			+			
				100						+						
				120						+						
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Mercury (II) -chloride	$HgCl_2$			20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+		+	+	+		+	+	+	+	+
				60	+	+		+	+	+		+	+	+	+	+
				80		+			+	+						
				100						+						
				120												
				140												
Mercury (II) -cyanide	$Hg(CN)_2$			20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+		+	+	+		+	+	+	+	+
				60	+	+		+	+	+		+	+	+	+	+
				80		+				+						
				100						+						
				120												
				140												
Mercury (II) -cyanide	$Hg(NO_3)_2$			20	+	+		+	+	+		+	+	+	+	+
				40	+	+		+	+	+		+	+	+	+	+
				60	+	+		+	+	+		+	+	+	+	+
				80		+			+	+			+			
				100						+						
				120												
				140												
Mercury (II) -sulfate	$HgSO_4$			20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+		+	+	+		+	+	+	+	+
				60	+	+		+	+	+		+	+	+	+	+
				80		+			+	+			+			
				100						+						
				120												
				140												
Mercury salts	$HgNO_3$, $Hg\ Cl_2$, $Hg(CN)_2$		cold saturated, aqueous	20	+	+	+	+	+	+		+	+	O	O	O
				40	+	+		+	+	+		+	+	O	O	O
				60	O	+		+	+	+			+	-	-	-
				80						+						
				100						+						
				120						+						
				140												
Methane see natural gas (G)	CH_4	-161	technically pure	20	+	+	+	+	+	+			+	+	-	-
				40						+						
				60						+						
				80												
				100												
				120												
				140												
Methanol (ESC)	CH_3OH	65	all	20	+	-	-	+	+	+			O	+	+	+
				40	+			+	+	O			O	+	+	+
				60	O			+	+	-		+	O	+	O	+
				80												
				100												
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Methyl acetate	CH_3COOCH_3	56	technically pure	20 40 60 80 100 120 140	- 	- 	-- 	+ 	+ + ○ 	+ ○ 			- 	- 	- 	-
Methyl amine (G)	CH_3NH_2	-6	32%, aqueous	20 40 60 80 100 120 140	○ 	- 	- 	+ 	+ 	○ 			+ 	- 	+ 	+
Methyl bromide (G)	CH_3Br	4	technically pure	20 40 60 80 100 120 140	- 	- 	- 	○ 	- 	+ + + 			○ 	- 	- 	○
Methyl chloride (G)	CH_3Cl	-24	technically pure	20 40 60 80 100 120 140	- 	- 	- 	○ 	- 	+ + + 			- 	- 	- 	-
Methyl ethyl ketone	$CH_3COC_2H_5$	80	technically pure	20 40 60 80 100 120 140	- 	- 	- 	+ ○ - 	+ ○ ○ 	- 			- 	- 	- 	-
Methylene chloride	CH_2Cl_2	40	technically pure	20 40 60 80 100 120 140	- 	- 	- 	○ 	○ 	+ ○ ○ 			○ 	- 	- 	-
Methylisobutylketone	$C_6H_{12}O$			20 40 60 80 100 120 140	- 	- 	- 									

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Methylmethacrylate	$C_5H_8O_2$			20	-	-	--									
				40												
				60												
				80												
				100												
				120												
				140												
Methylphenylketone (Acetophenon)	C_8H_8O			20	-	-	-									
				40												
				60												
				80												
				100												
				120												
				140												
Milk (ESC)				20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+	+	+	+						
				60	+	+	+	+	+	+						
				80		+			+	+						
				100					+	+						
				120						+						
				140												
Mineral oils, free of aromatics				20	+	+	-	+	+	+			+	+	O	O
				40	+			+	+	+			+	+	-	-
				60	+			O	O	+			+	+		
				80						+						
				100						+						
				120						+						
				140												
Mineral water				20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+	+	+	+			+	+	+	+
				60	+	+	+	+	+	+		+	+	+	+	+
				80		+			+	+		+	+	+		+
				100					+	+		+	+			+
				120						+			+			
				140												
Mixed acid	HCl CH_3OH		90% 10%	20												
				40												
				60												
				80												
				100												
				120												
				140												
Mixed acids - nitric - hydrofluoric - sulphuric	15 % HNO_3 15 % HF 18 % H_2SO_4		3 parts 1 part 2 parts	20	O	O	-	O	-	+			+	-	-	+
				40						+			O			O
				60						+						
				80												
				100												
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Mixed acids - sulphuric - nitric - water	H_2SO_4 HNO_3 H_2O		48% 49% 43%	20 40 60 80 100 120 140	+ ○ -	+	--	-	-	+			-	-	-	-
Mixed acids - sulphuric - nitric - water	H_2SO_4 HNO_3 H_2O		10% 87% 43%	20 40 60 80 100 120 140	○	○	-	-	-	○			-	-	-	-
Mixed acids - sulphuric - nitric - water	H_2SO_4 HNO_3 H_2O		50% 50% 40%	20 40 60 80 100 120 140	○ -	○	-	-	-	+			-	-	-	-
Mixed acids - sulphuric - nitric - water	H_2SO_4 HNO_3 H_2O		50% 31% 19%	20 40 60 80 100 120 140	+		-	-	-	+			+	-	○	○
Mixed acids - sulphuric - nitric - water	H_2SO_4 HNO_3 H_2O		10% 20% 70%	20 40 60 80 100 120 140	+ +	+	-	○	-	+ + + +			+ + +	-	○	+ ○
Mixed acids - sulphuric - nitric - water	H_2SO_4 HNO_3 H_2O		50% 33% 17%	20 40 60 80 100 120 140	+ ○	+	-	-	-	+			+	-	-	○
Mixed acids - sulphuric - phosphoric - phosphoric	H_2SO_4 H_3PO_4 H_2O		30% 60% 10%	20 40 60 80 100 120 140	+ +	+ + +	-	+ ○	+ ○	+ + + +			+ + +	-	+ ○	+ ○

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Molasses				20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	O	+	+	+	+	+			+	+	+	+
				80		+				+			+	+	O	+
				100												
				120												
				140												
Monochloroacetic acid ethyl ester	$ClCH_2COOC_2H_5$	144	technically pure	20	-	-	-	+	+	O			O	-	-	-
				40				+	+	-						
				60				+	+							
				80												
				100												
				120												
				140												
Morpholin	C_4H_9NO	129	technically pure	20	-	-	-	+	+	+			+	-	O	O
				40				+	+	+						
				60				+	+	O						
				80												
				100												
				120												
				140												
Mowilith D			usual commercial	20	+	+		+	+	+			+	+	+	+
				40												
				60												
				80												
				100												
				120												
				140												
Naphthalene	$C_{10}H_8$	218	technically pure	20	-	-	-	+	+	+		-	+	+	-	O
				40						+			+	+		-
				60				O		O			+	+		
				80												
				100												
				120												
				140												
Nickel salts	$(CH_3COO)_2Ni$, $NiCl_2$, $NI(NO_3)_2$, $Ni\ SO_4$		cold saturated, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	O	+	+	+	+	+			+	+	+	+
				80						+			+			
				100						+			+			
				120						+						
				140												
Nitrating acid	H_2SO_4 HNO_3 H_2O		65% 20% 15%	20						+						
				40												
				60												
				80												
				100												
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Nitric acid (see note 2.3.1 on jointing) (ESC, G)	HNO_3		6,3%, aqueous	20 40 60 80 100 120 140	+ + +	+ + + +	+ o	+ + +	+ + o	+ + + + +		+ + o	+ + o -	-	-	+ o -
Nitric acid (see note 2.3.1 on jointing) (ESC, G)	HNO_3		up to 40%, aqueous	20 40 60 80 100 120 140	+ + o	+ + + o	-	o o -	o o -	+ + + + +		+ + o	+ + o -	-	-	o o -
Nitric acid (see note 2.3.1 on jointing) (ESC, G)	HNO_3		85%	20 40 60 80 100 120 140	-	-	-			+ +						
Nitric acid (see note 2.3.1 on jointing) (ESC, D/P)	HNO_3		100%	20 40 60 80 100 120 140	-	-	-	-	-	-		-	-	-	-	
Nitric acid (see note 2.3.1 on jointing) (ESC, G)	HNO_3		65%, aqueous	20 40 60 80 100 120 140	o o -	+ +	-	o -	-	+ + + o -		-	+ o -	-	-	o -
Nitric oxide see Nitrous gases (G)	NO x			20 40 60 80 100 120 140												
Nitrilotriacetic acid	$N(CH_2\text{-}COOH)_3$			20 40 60 80 100 120 140				+	+			+				

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Nitrobenzene	C_6H_5-NO_2	209	technically pure	20	-	-	--	+	+	+		-	O	-	-	-
				40				O	+	O						
				60				O		-						
				80												
				100												
				120												
				140												
Nitrotoluene (o-, m-, p-)	$C_7H_7NO_2$	222-238	technically pure	20	-	-	-	+	+	+		-	O	O	-	-
				40				O	O	+			-	-		
				60						+						
				80						+						
				100						O						
				120												
				140												
Nitrous acid	HNO_2			20	+	+	-	+	-	+		+	+			
				40	+	+				+						
				60						+						
				80												
				100												
				120												
				140												
Nitrous gases see Nitric oxide	NOx		diluted, moist, anhydrous	20	+	+	-	+	+	+			+	O	+	+
				40				+	O	+			+	-	O	+
				60	O			+	-	+		O	+		-	O
				80						+						
				100						+						
				120												
				140												
N-Methylpyrrolidon	C_5H_9NO			20	-	-	-									
				40												
				60												
				80												
				100												
				120												
				140												
N,N-Dimethylaniline	$C_6H_5N(CH_3)_2$		technically pure	20	-	-	-	+	+			+				
				40												
				60												
				80												
				100												
				120												
				140												
n-Pentylacetate	$C_7H_{14}O_2$			20	-	-	-									
				40												
				60												
				80												
				100												
				120												
				140												

Aggressive Media					Chemical Resistance												
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Oleic acid (ESC)	$C_{17}H_{33}COOH$		technically pure	20 40 60 80 100 120 140	+ ++ +	○	--	+ ++ ○	+ ++ ○	+ +++ +		-	+ ○ -	○ -	-	-
Oleum (ESC, G)	$H_2SO_4+SO_3$		10% SO3	20 40 60 80 100 120 140	-	-	-	-	-	-		-	-	-	-	-
Oleum vapours (ESC)	SO_3		traces	20 40 60 80 100 120 140	+	-	-	-	-	-		-	+	-	-	○
Olive oil (ESC)				20 40 60 80 100 120 140	+ ++ +	-	-	+ ++ ○	+ ++ +	+ +++ +		-	+ +++ +	+ ++ +	+ ++ +	+ ++ ○ -
Oxalic acid (ESC)	$(COOH)_2$		cold saturated, aqueous	20 40 60 80 100 120 140	+ ++ +	+ ++ ○+	+ ++	+ ++ +	+ ++ +	+ +++ +		+ 	+ ++ ○ -	○ -	○ -	○ ○ -
Oxygen (G)	O_2		technically pure	20 40 60 80 100 120 140	+ ++ +	+	+ ++ +	+ ++ ○	+ ++ ○	+ +++ + ○○ ○		+ ++ +	+ +++ + +	+	+ ++ + +	+ +++ + +
Ozone (ESC, G)	O_3		up to 2%, in air	20 40 60 80 100 120 140	+	+	-	○ -	○ -	○		○	+	-	○	+

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Ozone (ESC, G)	O_3		cold saturated, aqueous	20 40 60 80 100 120 140	+ +	+	--	O -	O -	O		-	+ O -	-	O -	+ + O
Palm oil, palm nut oil (ESC)				20 40 60 80 100 120 140	+ -	O	+	+ + O	+ + O	+ + + + +		-	+ + +	+ + O	+ O -	O -
Palmitic acid (ESC)	$C_{15}H_{31}COOH$	390	technically pure	20 40 60 80 100 120 140	+	-	+	O	O -	+ + + + + +		O	+ O -	O -	+ -	O -
Paraffin emulsions			usual commercial, aqueous	20 40 60 80 100 120 140	+ +	+ +	O	+ + O	+ + O	+ + + + +		-	+ + + +	+ + O	+ O -	+ -
Paraffin oil				20 40 60 80 100 120 140	+ + O	+	O	+ + +	+ + O	+ + + + + +		-	+ + + O	+ O O	+ O -	O -
p-Dibromo benzene	$C_6H_5Br_2$		technically pure	20 40 60 80 100 120 140	-	-	-	O	O	+ + + + +		-	+	-	-	-
Perchloric acid				20 40 60 80 100 120 140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Perchlorid acid (ESC)	$HClO_4$		10%, aqueous	20 40 60 80 100 120 140	+ + ○	+ + +	○	+ + +	+ + +	+ + + + +		○ + ○	+ + + ○	- 	-	+ + ○ -
Perchlorid acid (ESC)	HCl_{04}		70%, aqueous	20 40 60 80 100 120 140	○	○	-	+ ○ -	○ -	+ + + + +		-	+ + + ○	- 	-	+ + ○
Perchloroethylene (tetrachlorethylene)	$Cl_2C=CCl_2$	121	technically pure	20 40 60 80 100 120 140	-	-		○	○	+ + + ○ -			+ + +	○ -	-	-
Petroleum			technically pure	20 40 60 80 100 120 140	+	-	-	+ + ○	+ ○ ○	+ + + + + +		-	+ + ○	+ + +	○ -	-
Petroleum ether (ESC)		40-70	technically pure	20 40 60 80 100 120 140	+ + +	-	-	+ ○ ○	+ ○ ○	+ + + + +		-	+ + ○	+ ○ -	-	-
Phenol (ESC)	C_6H_5-OH	182	up to 10%, aqueous	20 40 60 80 100 120 140	+ ○	+ +	-	+ + ○	+ + +	+ + + + +		○ + ○	+ + + ○	-	-	-
Phenol (ESC)	C_6H_5-OH		up to 90%, aqueous	20 40 60 80 100 120 140	○	-	-	+ + ○	+ + +	+ + ○		-	+ ○ -	-	- ○	-

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Phenol (ESC)	C_6H_6O		up to 5%	20	+	+	--	+	+	+		+	+	-	-	
				40		+		+	+	+		○	+			
				60				+	+	+			+			
				80						+			○			
				100						○						
				120												
				140												
Phenylhydrazine	C_6H_5-NH-NH_2	243	technically pure	20	-	-	-	○	○	○		-	+	-	-	-
				40						-			+			
				60									○			
				80												
				100												
				120												
				140												
Phenylhydrazine hydrochloride	C_6H_5-NH-NH_2HCl		aqueous	20	○	○	-		+	+			+	○	○	+
				40					○	+			+	-	-	+
				60					○	+		○	○			○
				80									-			-
				100												
				120												
				140												
Phosgene (ESC, G)	$COCl_2$	8	liquid, technically pure	20	-	-	-	-	-	-		-	+	○	+	+
				40												
				60												
				80												
				100												
				120												
				140												
Phosgene (ESC, G)	$COCl_2$		gaseous, technically pure	20	+	-	-	○	○	+		+	+	+	+	+
				40	○					+			+	+	○	○
				60	○								○	+	-	
				80												
				100												
				120												
				140												
Phosphoric acid	H_3PO_4		up to 30%, aqueous	20	+	+	+	+	+	+		+	+	○	+	+
				40	+	+	+	+	+	+		+	+	○	+	+
				60	○	+	○	+	+	+		○	+	-	+	+
				80		+			+	+			+		○	○
				100						+			+			
				120						+						
				140												
Phosphoric acid	H_3PO_4		75%	20	+	+	-	+	+	+			+			
				40	+	+		+	+	+			+			
				60	+	+			+	+			+			
				80		+			+	+			+			
				100						+			○			
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Phosphoric acid	H_3PO_4		up to 95%	20	+	+	--	+	+	+		○	+	-	-	-
				40	+	+ +		+	+	+ +			+ +			
				60		+				+ +			○ +			
				80						+						
				100												
				120												
				140												
Phosphoric acid	H_3PO_4		85%, aqueous	20	+	+	+	+	+	+		+	+	-	+	+
				40	+	+ +	+ +	+	+	+ +		+	+		+	○
				60	+	+	○	○	+	+		○	+		○	-
				80		+			+	+			+			
				100						+			○			
				120						+						
				140												
Phosphoric acid	H_3PO_4		50%, aqueous	20	+	+	+	+	+	+		+	+	○	+	+
				40	+	+	+ +	+	+	+		○	+	-	+	+
				60	+	+	○	+	+	+			+		○	+
				80		+			+	+			+ +			+
				100						+			○			○
				120						+						
				140												
Phosphoric acid tributyl ester	$(H_9C_4O)_3P=O$			20	-	-	-	+	+	-		+	-			
				40												
				60												
				80												
				100												
				120												
				140												
Phosphorous chlorides:		175	technically pure	20	-	-	-	-	-	-			-	-	-	-
- Phosphorous trichloride	PCl_3	162		40												
- Phosphorous pentachloride	PCl_5	105		60												
- Phosphorous oxichloride	$POCl_3$			80												
(ESC)				100												
				120												
				140												
Photographic developer (ESC)			usual commercial	20	+	+	+	+	+	+		+	+	○	+	+
				40	+	+	+ +	+	+	+ +		+	+	○	+	+
				60	○	+	○	○		+						
				80		○										
				100												
				120												
				140												
Photographic emulsions (ESC)				20	+	+	+	+	+	+		+	+	○	+	+
				40	+	+	+	+	+	+		+	+		+	+
				60		○				+						
				80												
				100												
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Photographic fixer (ESC)			usual commercial	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	O	+	O			+						
				80												
				100												
				120												
				140												
Phthalic acid (ESC)	$C_6H_5(COOH)_2$	Fp., 208	saturated, aqueous	20	+	-	-	+	+	+		+	-	-	+	+
				40	O			+	+	+		O			+	+
				60	-			+	+	+					O	
				80						+						
				100						+						
				120												
				140												
Phthalic acid dioctyl ester	$C_{24}H_{38}O_4$			20	-	-	-	+	+	-		+	-	-		
				40												
				60												
				80												
				100												
				120												
				140												
Picric acid (ESC)	$C_6H_3N_3O_7$	Fp., 122	1%, aqueous	20	+	-	-	+	+	+		+	+	O	O	+
				40						+		+	+	-	-	O
				60						+		+	+			-
				80						+		+	+			
				100						+		+	+			
				120												
				140												
Potash lye	KOH		50%	20	+	+		+	+	-		+				
				40	+	+		+	+			+				
				60	+	+		+	+			+				
				80												
				100												
				120												
				140												
Potash see potassium carbonate	K_2CO_3		cold saturated, aqueous	20	+	+	+	+	+	+			+	+	+	+
				40	+	+		+	+	O		+	+	+	+	+
				60		+			+	O						
				80												
				100												
				120												
				140												
Potassium acetate (ESC)	CH_3COOK		saturated	20	+	+	+	+	+	+		+	-			
				40	+	+		+	+	+		+				
				60	+	+		+	+	+		+				
				80		+			+	+		+				
				100						+						
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Potassium aluminium sulfate (alum)	$KAl(SO_4)_2$		50%	20 40 60 80 100 120 140	+ + +	+ + + +	- 	+ + + 	+ + + + 	+ + + + + 		+ + + + 	 	 	 	
Potassium bichromate (ESC)	$K_2Cr_2O_7$	107	saturated, aqueous	20 40 60 80 100 120 140	+ + ○	+ + +	+ + +	+ + +	+ + + + +	+ + + + + +		+ 	+ + + 	+ ○ 	○ - 	+ + +
Potassium borate	K_3BO_3		10%, aqueous	20 40 60 80 100 120 140	+ + ○	+ + + +	+ + +	+ + +	+ + +	+ + +		+ 	+ + + 	+ + + 	+ + + 	+ + +
Potassium bromate	$KBrO_3$		cold saturated, aqueous	20 40 60 80 100 120 140	+ + ○	+ + + +	+ + +	+ + ○	+ + + + +	+ + + + + +		+ + + 	+ + + + 	+ + + + ○ 	+ + + ○ ○ 	+ + + + +
Potassium bromide	KBr		all, aqueous	20 40 60 80 100 120 140	+ + ○	+ + + +	+ + +	+ + +	+ + +	+ + + + + +		+ + + 	+ + + + 	+ + + ○ ○ 	+ + + + ○ 	+ + + + +
Potassium carbonate (potash)	K_2CO_3			20 40 60 80 100 120 140	+ + +	+ + + +	+	+ + +	+ + + +	○		+ + + 	 	 	 	
Potassium chlorate (ESC)	$K ClO_3$		cold saturated, aqueous	20 40 60 80 100 120 140	+ + +	+ + + +	+ + +	+ + +	+ + +	○ -		+ + 	+ + + + + 	+ ○ 	+ ○ 	+ + + ○

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Potassium chloride	KCl		all, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	+	+	+	+	+	+		+	+	+	+	+
				80		+			+	+			+			+
				100					+	+			+			
				120						+						
				140												
Potassium chromate (ESC)	K_2CrO_4		cold saturated, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+		+	+			+	O	+	+
				60	+	+	+		+	+			+	-	O	O
				80						+						
				100						+						
				120												
				140												
Potassium cyanide	KCN		cold saturated, aqueous	20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+	+	+	+			O	+	+	+
				60	+	+	+	+	+	O		+	-	+	O	+
				80		+			+			+		+	-	+
				100												
				120												
				140												
Potassium dichromate	$K_2Cr_2O_7$		saturated	20		+		+	+	+		+	+			
				40		+		+	+	+						
				60		+		+	+	+						
				80		+				+						
				100						+						
				120												
				140												
Potassium fluoride	KF		saturated	20	+	+		+	+	+			+			
				40	+	+		+	+	+						
				60	+	+		+	+	+						
				80		+			+	+						
				100						+						
				120												
				140												
Potassium Hexacyanoferrate -(II)	$K_4[Fe(CN)_6].3H_2O$			20	+	+		+	+	+		+	+			
				40	+	+		+	+	+						
				60	+	+		+	+	+						
				80		+			+	+						
				100						+						
				120												
				140												
Potassium hexacyanoferrate -(III)	$K_3[Fe(CN)_6]$.			20	+	+		+	+	+		+	+			
				40	+	+		+	+	+						
				60	+	+		+	+	+						
				80		+			+	+						
				100						+						
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Potassium hydrogen carbonate	$KHCO_3$		saturated	20 40 60 80 100 120 140	+ + +	+ + + +	-	+ + +	+ + + +	+ + +		+ + +	+			
Potassium hydrogen sulphate	$KHSO_4$		saturated	20 40 60 80 100 120 140	+ + +	+ + + +		+ + +	+ + + +			+ + + +				
Potassium Hydroxide	see Caustic potash															
Potassium iodide	KJ		cold saturated, aqueous	20 40 60 80 100 120 140	+ + +	+ + + +	+ + +	+ + +	+ + +	+ + + + +		+	+ + + +	+ ○ -	+ ○ -	+ + +
Potassium nitrate	KNO_3		50%, aqueous	20 40 60 80 100 120 140	+ + +	+ + + +	+ + +	+ + +	+ + +	+ + + + +		+	+ + +	+ + +	+ + +	+ + +
Potassium nitrite	KNO_2			20 40 60 80 100 120 140						+ + + + +						
Potassium perchlorate (ESC)	$KClO_4$		cold saturated, aqueous	20 40 60 80 100 120 140	+ + ○	+ + + +		+		+ + + +		+	+ + + +	+ ○	+ ○	+ + + ○
Potassium Permanganate (ESC)	$KMnO_4$		cold saturated, aqueous	20 40 60 80 100 120 140	+ + ○	+ +		+ + ○	+ +	+ + + +		+	+ + + +	○ -	○ -	+ + +

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Potassium persulphate (ESC)	$K_2S_2O_8$		all, aqueous	20	+	+	+	+	+	+		+	+	-	+	+
				40	+	+	+	+	+	+		+	+		+	+
				60	O	+	+	+	+	+			+		+	+
				80						+			+		O	O
				100									+			
				120												
				140												
Potassium phosphate	KH_2PO_4 and $K_2H\ PO_4$		all, aqueous	20	+	+	O	+	+	+		+	+	+	+	+
				40	+	+		+	+	+		+	+	O	O	+
				60	O	+		+	+	+			+	-	-	+
				80		+			+	+			+			O
				100									+			
				120												
				140												
Potassium sulphate	K_2SO_4		all, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	O	+	+	+	+	+			+	+	+	+
				80		+				+			+			
				100						+			+			
				120												
				140												
Potassium sulphide	K_2S		saturated	20	+	+		+	+	O		+				
				40	+	+		+	+	O		+				
				60	+	+		+	+	O		+				
				80		+			+			+				
				100												
				120												
				140												
Potassium sulphite	K_2SO_3		saturated	20	+	+		+	+			+				
				40	+	+		+	+							
				60	+	+		+	+							
				80		+										
				100												
				120												
				140												
Potassium tartrate	$C_4H_4K_2O_6$			20	+			+	+	+		+				
				40	+			+	+	+		+				
				60				+	+	+		+				
				80					+	+						
				100						+						
				120												
				140												
Potassiumhydrogensulfite	$KHSO_3$			20	+					+		+				
				40	+					+		+				
				60						+						
				80						+						
				100						+						
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Potassiumhypochlorite	KOCl			20 40 60 80 100 120 140	+ 	○ 	- 	+ 	+ 	○ 		+ 	○ 	 	 	
Potassiumperoxodisulfate	$K_2S_2O_8$		saturated	20 40 60 80 100 120 140	+ + + 	+ + + + 	 	 	 	 		 	 	 	 	
Propane (G)	C_3H_8	-42	technically pure, liquid	20 40 60 80 100 120 140	+ 	- 	- 	+ 	+ 	+ + + 		- 	+ 	+ 	- 	-
Propane (G)	$H_3C\text{-}CH_2\text{-}CH_3$		technically pure, gaseous	20 40 60 80 100 120 140	+ 	+ 	- 	+ 	+ 	+ + + 		- 	+ 	+ 	+ 	○
Propanol, n- and iso- (ESC)	C_3H_7OH	97 bzw. 82	technically pure	20 40 60 80 100 120 140	+ ○ ○ 	- 	- 	+ + + 	+ + + 	+ + + ○ 		+ + 	+ + + 	+ ○ - 	+ + + 	+ ○ ○
Propargyl alcohol (ESC)	CHčC-CH_2-OH	114	7%, aqueous	20 40 60 80 100 120 140	+ + + 	- 	- 	+ + + 	+ + + 	+ ○ ○ 		+ + 	+ + + 	+ + + 	+ + ○ 	+ + ○
Propionic acid (ESC)	CH_3CH_2COOH	141	50%, aqueous	20 40 60 80 100 120 140	+ + ○ 	○ 	- 	+ + + 	+ + + 	+ + + 		+ + 	+ + ○ 	- 	○ - 	○ -

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Propionic acid (ESC)	$H_3C\text{-}CH_2\text{-}COOH$	141	technically pure	20	+	O	--	+	+	+		+	+	-	-	-
				40	O			O	O	+		O	+			
				60				O	O	+			+			
				80									O			
				100												
				120												
				140												
Propylene glycol (ESC)	$C_3H_8O_2$	188	technically pure	20	+	-	O	+	+	+		+	+	+	+	+
				40	+			+	+	+		+	+	O	+	+
				60	+			+	+	+			O	-		+
				80												
				100												
				120												
				140												
Propylene oxide	C_3H_6O	35	technically pure	20	O		-	+	+	+		O	-	-	-	-
				40						O						
				60												
				80												
				100												
				120												
				140												
Pyridine	C_5H_5N	115	technically pure	20	-	-	-	+	O	+		O	-	-	-	-
				40				O	O	-						
				60				O	O							
				80												
				100												
				120												
				140												
Pyrogallol	$C_6H_3(OH)_3$		100%	20						+			+			
				40						+						
				60												
				80												
				100												
				120												
				140												
Ramsit fabric waterproofing agents			usual commercial	20	+			+	+	+		+	+	+	+	+
				40	+					+						
				60	+					+						
				80												
				100												
				120												
				140												
Salicylic acid	$C_6H_4(OH)COOH$		saturated	20	+	+	O	+	+	+		+	+	+	+	+
				40	+			+	+	+		+				
				60				+	+	+		+				
				80						+						
				100												
				120												
				140												
Sea water	see Brine															

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Silicic acid	$Si(OH)_4$			20	+	+	+	+	+			+				
				40	+	+		+	+			+				
				60	+	+		+	+			+				
				80					+							
				100												
				120												
				140												
Silicone oil				20	+	+	+	+	+	+		+	+	+	+	+
				40	O	+		+	+	+		+	+	+	+	+
				60	-			+	+	+		+	+	+	O	
				80					+	+						
				100						+						
				120												
				140												
Silver Cyanide	AgCN		saturated	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+		+	+	+		+	+			
				60	+	+		+	+	+		+	+			
				80												
				100												
				120												
				140												
Silver salts	$AgNO_3$, AgCN, AgCl		cold saturated, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	O	+	+	+	+	+		+	+	+	+	+
				80		+			+	+						
				100						+						
				120												
				140												
Soap solution (ESC)			all, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	O	+		+	+	+		+	+	+	+	+
				80						+						
				100						+						
				120												
				140												
Sodium acetate	CH_3COONa		all, aqueous	20	+	+	+	+	+	+		+	-	+	+	O
				40	+	+		+	+	+		+		+	+	
				60	+	+		+	+	+		+				
				80		+			+	+						
				100					+	O						
				120												
				140												
Sodium aluminium sulfate				20	+			+	+							
				40	+			+	+							
				60	+			+	+							
				80					+							
				100												
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Sodium arsenite	$Na_3 AsO_3$		saturated	20	+	+	-	+	+			+				
				40	+	+		+	+			+				
				60	+	+		+	+			+				
				80		+			+							
				100												
				120												
				140												
Sodium benzoate	C_6H_5-COONa		cold saturated, aqueous	20	+	+	-	+	+	+		+	+	+	+	+
				40	+	+		+	+	+		O	+	+	+	+
				60	O	+		+	+	+			+			O
				80		+				+			O			
				100						O						
				120												
				140												
Sodium bicarbonate	$NaHCO_3$		cold saturated, aqueous	20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+	+	+	+			+	+	+	+
				60	+	+	+	+	+	+		+	+	+	+	+
				80					+	+		+	+			
				100						+						
				120												
				140												
Sodium bisulphate	$NaHSO_4$		10%, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		O	+	O	+	+
				60	O	+	+	+	+	+			+	-	O	
				80						+			+			
				100						+			+			
				120						+						
				140												
Sodium bisulphite	$NaHSO_3$		all, aqueous	20	+	+		+	+	+		+	O	O	+	+
				40	O	+		+	+	+		O	-	-	+	+
				60	-	+		+	+	+		-			O	+
				80						+					-	O
				100						+						
				120												
				140												
Sodium borate	Na_3BO_3		saturated	20	+	+		+	+			+	+			
				40	+	+		+	+			+	+			
				60	+	+		+	+			+	+			
				80		+			+							
				100												
				120												
				140												
Sodium bromate	$NaBrO_3$		all, aqueous	20	+	+		+	+	+		+	+	+	+	+
				40	O	+		O	O	+			+	O	+	+
				60						+			+	-	O	+
				80						+						
				100						+						
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Sodium bromide	NaBr		all, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+			+	O	+	+
				60	O	+	+	+	+	+			+		O	O
				80		+			+	+			+			
				100						+						
				120						+						
				140												
Sodium carbonate (soda)	Na_2CO_3		cold saturated, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	+	+	+	+	+	+		+	+	+	+	+
				80		+			+	+		+				
				100												
				120												
				140												
Sodium chlorate (ESC)	$NaClO_3$		all, aqueous	20	+	+	+	+	+	O			+	+	+	+
				40	+	+	+	+	+				+	O	+	+
				60	O	+	+	+	+			+	+	-	O	+
				80		+						O	+		-	O
				100								-				
				120												
				140												
Sodium chloride	NaCl		all, aqueous	20	+	+	+	+	+	+		+	+			
				40	+	+	+	+	+	+		+	+			
				60	+	+		+	+	+		+	+			
				80		+			+	+		+	+			
				100						+			+			
				120												
				140												
Sodium chlorite (ESC)	$NaClO_2$		diluted, aqueous	20	O	+		+	+	+			+	-	O	+
				40		+		O	O	O			+		-	+
				60		+				O		+	+			+
				80		+										
				100												
				120												
				140												
Sodium chromate (ESC)	Na_2CrO_4		diluted, aqueous	20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+		+	+			+	O	+	+
				60	O		+			+		+	+	-	O	O
				80						+						
				100						+						
				120												
				140												
Sodium cyanide	NaCN			20	+	+		+	+	+		+	+			
				40	+	+		+	+	+		+	+			
				60	+	+		+	+	+		+	+			
				80		+			+							
				100												
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Sodium dichromate	$Na_2Cs_2O_7$			20	O	+	-	+	+			+	+			
				40		+		+				+	+			
				60		+							+			
				80		+										
				100												
				120												
				140												
Sodium disulphite	$Na_2S_2O_5$		all, aqueous	20	+	+		+	+	+			+	O	+	+
				40	+	+				+			+	-	+	+
				60	O	+				+		+	+		+	O
				80						+						
				100						+						
				120												
				140												
Sodium dithionite	hyposulphite		up to 10%, aqueous													
Sodium fluoride	NaF		cold saturated, aqueous	20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+			+			+	+	+	+
				60	+	+	+			+		+	+	O	+	+
				80						+						
				100						+						
				120												
				140												
Sodium hydrogencarbonate (sodium bicarbonate)	$NaHCO_3$			20	+	+	+	+	+	+		+	+	+	+	
				40	+	+	+	+	+	+		+	+	+	+	
				60	+	+	+	+	+	+		+	+	+	+	
				80		+			+							
				100												
				120												
				140												
Sodium hydrogensulfate	$NaHSO_4$			20	+	+	+	+	+	+		+	+			
				40	+	+		+	+	+		+	+			
				60	+	+		+	+	+		+	+			
				80		+			+	+						
				100						+						
				120												
				140												
Sodium hydrogensulfite	$NaHSO_3$			20	+	+		+	+	+		+	+			
				40	+	+		+	+	+		+				
				60	+	+		+	+	+		+				
				80		+			+	+						
				100						+						
				120												
				140												
Sodium Hydroxide	see Caustic Soda															

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Sodium hypochlorite (ESC)	Bleaching lye NaOCl stabilized by NaOH		12,5% active chlorine, aqueous	20 40 60 80 100 120 140	+ + O	+ +	-	O -	O -	O		+	+	-	-	+
Sodium iodide	NaJ		all, aqueous	20 40 60 80 100 120 140	+ + O	+ + + +	+ + +	+	+	+ + + + +		+	+ + +	+ + O	+ + +	+ + O
Sodium nitrate	$NaNO_3$		cold saturated, aqueous	20 40 60 80 100 120 140	+ + O	+ + +	+ +	+ + +	+ + + +	+ + + + + +		+ +	+ + +	+ + +	+ + +	+ + +
Sodium nitrite	$NaNO_2$		cold saturated, aqueous	20 40 60 80 100 120 140	+ + +	+ + + +	+ +	+ + +	+ + + +	+ + + + + +		+	+ + +	+ O -	+ + +	+ + +
Sodium oxalate	$Na_2C_2O_4$		cold saturated, aqueous	20 40 60 80 100 120 140	+ + O	+ + +	+	+	+	+ + O			+	+	+	+
Sodium perborate	$NaBO_3\ _4H_2O$		saturated	20 40 60 80 100 120 140	+ + +	+ + + +		+	+	+ + +		+	+			
Sodium perchlorate	$NaClO_4$		saturated	20 40 60 80 100 120 140	+ + +	+ + + +		+	+			+	+			

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Sodium persulphate (ESC)	$Na_2S_2O_8$		cold saturated, aqueous	20	+		-	+	+	+		+	+	-	+	+
				40	+			+	+	+		+	+		+	+
				60	O			+	+	+			+		+	+
				80									+		O	O
				100									+			
				120												
				140												
Sodium phosphate	Na_3PO_4		cold saturated, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+		+	+	+		+	+	+	+	+
				60	O	+		+	+	+		+	+	+	+	+
				80		+			+	O						
				100					+	-						
				120												
				140												
Sodium silicate	Na_2SiO_3		all, aqueous	20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+	+	+	+			+	+	+	+
				60	O	+		+	+	O		+	+	+	+	+
				80					+	-						
				100												
				120												
				140												
Sodium sulfate				20	+	+	+	+	+	+		+	+			
				40	+	+		+	+	+		+	+			
				60	+	+		+	+	+		+	+			
				80		+			+	+		+	+			
				100						+			+			
				120												
				140												
Sodium sulphate	Na_2SO_4		cold saturated, aqueous	20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+	+	+	+			+	+	+	+
				60	O	+	+	+	+	+		O	+	+	+	+
				80					+	+			+			
				100						+						
				120						+						
				140												
Sodium sulphide	Na_2S		cold saturated, aqueous	20	+	+	+	+	+	O		+	+	+	-	+
				40	+	+	+	+	+	O		+		+		+
				60	O	+	+	+	+	O		+		+		+
				80		+			+							
				100												
				120												
				140												
Sodium sulphite	Na_2SO_3		cold saturated, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+		+	+	+		+	+	O	+	+
				60	O	+		+	+	+		+	+	-	O	+
				80		+			+	+						
				100						+						
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Sodium thiosulphate	$Na_2S_2O_3$		cold saturated, aqueous	20 40 60 80 100 120 140	+ 	+ 	+ 	+ 	+ 	+ 		+ 	+ 	+ O - 	+ + O 	+ + O
Sodiumtetraborate (Borax)	$Na_2B_4O_7$			20 40 60 80 100 120 140	+ + + 	+ + + + 	+ 	+ + + 	+ + + + 	+ + + 		+ + + 	+ 	 	 	
Spinning bath acids containing carbon disulphide (ESC)			100 mg CS2/l	20 40 60 80 100 120 140	+ + 	 	 	+ 	+ 	+ + 		 	+ 	- 	- 	O
Spinning bath acids containing carbon disulphide (ESC)			700 mg CS2/l	20 40 60 80 100 120 140	- 	 	 	+ 	+ 	+ + 		- 	+ 	- 	- 	-
Spinning bath acids containing carbon disulphide (ESC)			200 mg CS2/l	20 40 60 80 100 120 140	O 	 	 	+ 	+ 	+ + 		- 	+ 	- 	- 	-
Stannous chloride	Tin II chloride		cold saturated, aqueous													
Stannous chloride - Tin IV chloride	$SnCl_4$		cold saturated, aqueous	20 40 60 80 100 120 140				+ + + 	+ + + + 							

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Starch solution	$(C_6H_{10}O_5)n$		all, aqueous	20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	+	+		+	+	+		+	+	+	+	+
				80		+				+						
				100						+						
				120												
				140												
Starch syrup	$(C_6H_{10}O_5)n$		usual commercial	20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	+	+		+	+	+		+	+	+	+	+
				80		+			+	+		+	+	+	+	+
				100						+		+	+	+	+	+
				120												
				140												
Stearic acid (ESC)	$C_{17}H_{35}COOH$	Fp., 69	technically pure	20	+	○	+	+	+	+			+	+	+	○
				40	+		+			+		+	+	+	+	○
				60	+			○	○	+		○	○	○	○	-
				80						+						
				100						+						
				120						+						
				140												
Styrene	$H_5C_6\text{-}CH{=}CH_2$			20	-	-	-			+			+			
				40												
				60												
				80												
				100												
				120												
				140												
Succinic acid	$HOOC\text{-}CH_2\text{-}CH_2\text{-}COOH$	Fp., 185	aqueous, all	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+		+	+	+		+	+	+	+	+
				60	+	+		+	+	+		+	+	+	+	+
				80									+			
				100												
				120												
				140												
Sugar syrup			usual commercial	20	+	+	+	+	+	+			+	+	+	+
				40	+	+	○	+	+	+		+	+	+	+	+
				60	○	+		+	+	+		+	+	+	+	+
				80					+	+		+	+			+
				100					+	+						
				120						+						
				140												
Sulfur	S	Fp., 119	technically pure	20	○	○	-	+	+	+		+	+	-	+	+
				40	-			+	+	+			+			+
				60				+	+	+			+			+
				80					+	+			+			+
				100						+						
				120						+						
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Sulfur dioxide (G)	SO_2	-10	technically pure, anhydrous	20 40 60 80 100 120 140	+ + +	+ + +	-- 	+ + +	+ + +	O O -		+ O -	+ O	-	-	O -
Sulfur dioxide (G)	SO_2		technically pure, moist	20 40 60 80 100 120 140	-	-	-	-	-	-		-	O	-	-	O
Sulfur dioxide (G)	SO_2		all, moist	20 40 60 80 100 120 140	+ + O	+ +	-	+ + +	+ + +	+ O -		+ O -	+ O -	-	-	O -
Sulfur trioxide (G)	SO_3			20 40 60 80 100 120 140	-	-	-	-	-	-		-	-	-	-	-
Sulfuric acid saturated by Chlorine	$H_2SO_4+Cl_2$		60%	20 40 60 80 100 120 140						+ + + + + +						
Sulfuric acid (see note 2.3.1 on jointing)	H_2SO_4	120	up to 40%, aqueous	20 40 60 80 100 120 140	+ + O	+ + + +	+ O	+ + +	+ + +	+ + + + + +		 + + O -	+ + + O -	O -	+ O	+ + O O -
Sulfuric acid (see note 2.3.1 on jointing) (ESC)	H_2SO_4	140	up to 60%, aqueous	20 40 60 80 100 120 140	+ + +	+ + + +	-	+ + +	+ O -	+ + + + + +		+ + O -	+ + + O	-	-	+ O O -

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEFI)		EPDM	FPM	NBR	CR	CSM
Sulfuric acid (see note 2.3.1 on jointing) (ESC)	H_2SO_4		96%, aqueous	20 40 60 80 100 120 140	+ + O	+ + +	-- 	- 	- 	+ + -		- 	+ + 	- 	- 	-
Sulfuric acid (see note 2.3.1 on jointing) (ESC)	H_2SO_4		97%	20 40 60 80 100 120 140	+	+ + 	- 	- 	- 	O 		- 	+ 	- 	- 	-
Sulfuric acid (see note 2.3.1 on jointing) (ESC)	H_2SO_4	250	90%, aqueous	20 40 60 80 100 120 140	+ +	+ + +	- 	O 	O 	+ + + + O O		- 	+ + 	- 	- 	-
Sulfuric acid (see note 2.3.1 on jointing) (ESC)	H_2SO_4	195	up to 80%, aqueous	20 40 60 80 100 120 140	+ + +	+ + + +	- 	+ + O 	+ + O 	+ + + + + O		O O -	+ + O -	- 	- 	+ O -
Sulfuric acid (see note 2.3.1 on jointing) (ESC)	H_2SO_4	340	98%	20 40 60 80 100 120 140	+ O	+ + O	- 	- 	- 	- 		- 	O 	- 	- 	-
Sulfurous acid	H_2SO_3		saturated, aqueous	20 40 60 80 100 120 140	+ + O	+ + 	O + 	+ + +	+ + +	+ + + + +		+ - 	+ + O -	- 	- 	O O -
Sulfuryl chloride	SO_2Cl_2	69	technically pure	20 40 60 80 100 120 140	-	-	-	-	-	O 		 	+ 	- 	O 	+

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Surfactants (ESC)			up to 5%, aqueous	20 40 60 80 100 120 140	O O O O	-	--	+	+	+ O O O O O O		+	+	+	+	+
Tallow (ESC)			technically pure	20 40 60 80 100 120 140	+ + + +	-	-	+ + + +	+ + + +	+ + + + + + + +		 + +	+ + + +	+ + + +	+ + + +	+ + + +
Tannic acid (ESC)			all, aqueous	20 40 60 80 100 120 140	+	+ + + +	+ +	+ + + +	+ + + +				+	+	+	+
Tanning extracts form plants (ESC)			usual commercial	20 40 60 80 100 120 140	+	+ +	+ +	+	+	+		+	+	+	+	+
Tartaric acid	HO_2C-CH(OH)-CH(OH)-CO_2H		all, aqueous	20 40 60 80 100 120 140	+ + + O	+	+ +	+ + + +	+ + + +	+ + + + + + + +		+ + + +	+ + + +	+ + + O	+ + + +	+ + + +
Tetrachlorethylene see Perchloroethylene	Cl_2C-CCl_2	121		20 40 60 80 100 120 140	-	-	-	-	-	+		-	+			
Tetrachloroethane	Cl_2CH-$CHCl_2$	146	technically pure	20 40 60 80 100 120 140	-	-	-	O	O	+ + + O		-	O	-	-	-

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Tetraethylene lead (ESC)	$(C_2H_5)_4Pb$		technically pure	20 40 60 80 100 120 140	+ 	+ 	-- 	+ 	+ 	+ + + + + + +		O 	+ 	+ 	O 	+
Tetrahydrofurane	C_4H_8O	66	technically pure	20 40 60 80 100 120 140	- 	- 	- 	O 	O 	- 		O 	- 	- 	- 	-
Tetrahydronaphthalene	Teralin	207	technically pure													
Thionyl chloride	$SOCl_2$	79	technically pure	20 40 60 80 100 120 140	- 	- 	- 	- 	- 	- 		O 	+ 	- 	- 	-
Tin (IV) -chloride				20 40 60 80 100 120 140	+ + + 	+ + + + 				+ + + + + 		+ + + 	+ + + + 			
Tin-(II)-chloride	$SnCl_2$			20 40 60 80 100 120 140				+ + + 	+ + + + 							
Toluene	C_6H_5-CH_3	111	technically pure	20 40 60 80 100 120 140	- 	- 	- 	O 	O 	+ 		- 	+ 	- 	- 	-
Triacetin (Glycerol acetate) (Glycerintriacetat)	$CaH_{14}O_6$			20 40 60 80 100 120 140	- 	- 	- 	+ 	+ 	+ + 		+ 				

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Tributyl phosphate	$(C_4H_9)_3PO_4$	289	technically pure	20 40 60 80 100 120 140	-	-	- + +	+ + +	+ + +	+		+	-	-	-	-
Trichloroacetic acid	Cl_3C-COOH	196	technically pure	20 40 60 80 100 120 140	○	-	-	+ ○ -	+ + ○	○		○	-	-	-	-
Trichloroacetic acid	Cl_3-C-COOH		50%, aqueous	20 40 60 80 100 120 140	+ ○	-	-	+ + +	+ + ○	+ + ○ -		○	-	-	-	-
Trichloroethane	Methylchloroform	74	technically pure													
Trichloroethylene	Cl_2C=CHCl	87	technically pure	20 40 60 80 100 120 140	-	-	-	-	○	+ + + ○		-	+	-	-	-
Trichloromethane	Chloroform	61	100%													
Tricresyl phosphate (ESC)	H_3C-C_6H_5-O)$_3PO_4$		technically pure	20 40 60 80 100 120 140	-	-	-	+ + +	+ ○			+	-	○ -	-	-
Triethanolamine (ESC)	N(CH_2-CH_2-OH)$_3$	m.p. 21	technically pure	20 40 60 80 100 120 140	○	-	-	+	+	+ +		○	-	○	-	-

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Triethylamine (ESC)	$N(CH_2\text{-}CH_3)_3$	89	technically pure	20	-	-	--	+	+	O		-	-	-	-	-
				40						-						
				60												
				80												
				100												
				120												
				140												
Trifluoro acetic acid (ESC)	$F_3C\text{-}COOH$		up to 50%	20	-	-	-	+	+	+		O	-	-	-	-
				40						O						
				60												
				80												
				100												
				120												
				140												
Trioctyl phosphate (ESC)	$(C_8H_{17})_3\ PO_4$		technically pure	20	-	-	-	+	+	O		+	-	O	-	-
				40				+	O							
				60												
				80												
				100												
				120												
				140												
Turpentine oil (ESC)			technically pure	20	+	-	-	O	-	+		-	+	O	-	-
				40	O			O					+			
				60									+			
				80												
				100												
				120												
				140												
Urea (ESC)	$H_2N\text{-}CO\text{-}NH_2$	Fp., 133	up to 30%, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	O	+		+	+	+		+	+	+	+	+
				80		O				+						
				100						O						
				120												
				140												
Urine				20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	O	+		+	+	+		+	+	+	+	+
				80						+						
				100						+						
				120												
				140												
Vaseline			technically pure	20	O	O	-	+	O	+		-	+	+	-	-
				40	-					+			+	+		
				60				-	-	+			+	+		
				80						+			+	+		
				100						+			+	+		
				120						+			+			
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Vaseline oil see paraffin oil				20 40 60 80 100 120 140			-									
Vegetable oils				20 40 60 80 100 120 140	○	-	-	+	+	+ + +		-	+	+	○	○
Vegetable oils and fats (ESC)				20 40 60 80 100 120 140	+ ○	○	-	+ ○	+ + ○	+ + + + +		-	+ + +	+ + +	○ ○ -	○ ○ -
Vinegar (see Wine vinegar)				20 40 60 80 100 120 140												
Vinyl acetate	CH_2=CHOOCCH$_3$	73	technically pure	20 40 60 80 100 120 140	-	-	-	+ +	+ ○	+ -		+	-	-	-	-
Vinyl chloride (G)	CH_2=CHCl	-14	technically pure	20 40 60 80 100 120 140	-	-	-	-	-	+ +		-	+	-	-	
Viscose spinning solution				20 40 60 80 100 120 140	+ + +	-	-	+ + +	+ + +	+ + +		+ +	+ + +	-	○ ○ -	+ + +

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Waste gases containing - Alkaline				20	+	+	-	+	+	+		+	+	+	+	+
				40	+	+		+	+	O		+	+	+	+	+
				60	+	+		+	+	-		+	+	+	+	O
				80		+			+			+	O			-
				100									-			
				120												
				140												
Waste gases containing - Carbon oxides			all	20	+	+		+	+	+		+	+	+	+	+
				40	+	+		+	+	+		+	+	+	+	+
				60	+	+		+	+	+		+	+	+	+	+
				80		+			+	+		+	+			+
				100						+			+			
				120						+						
				140												
Waste gases containing - Hydrochloric acid			all	20	+	+		+	+	+		+	+	O	+	+
				40	+	+		+	+	+		+	+	-	+	+
				60	+	+		+	O	+		+	+		+	+
				80		+				+		O	+			+
				100						+			+			
				120						+						
				140												
Waste gases containing - Hydrogen fluoride (ESC)			traces	20	+	+		+	+	+		+	+	+	+	+
				40	+	+		+	+	+		+	+	O	+	+
				60	+	+		+	+	+		O	+	-	O	+
				80		+				+			+			
				100						+						
				120												
				140												
Waste gases containing - Nitrous gases			traces	20	+	+		+	+	+		+	+	O	+	+
				40	+	+		+	+	+		+	+	-	+	+
				60	+	+		+	O	+		+	+		O	+
				80		+				+		O	+			O
				100						+			O			
				120												
				140												
Waste gases containing - Sulphur dioxide			traces	20	+	+		+	+	+		+	+	O	+	+
				40	+	+		+	+	+		+	+	-	+	+
				60	+	+		+	+	+		+	+		+	+
				80		+			+	+		+	+			+
				100						+			+			
				120						+						
				140												
Waste gases containing - Sulphur trioxide (ESC)			traces	20	+	+		+	+	+		+	+	O	+	+
				40	+	+		+	+	+		+	+	-	+	+
				60	+	+		+	O	+		+	+		+	+
				80		+				+		O	+			
				100						+						
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Waste gases containing - Sulphuric acid			all	20	+	+	-	+	+	+		+	+	O	+	+
				40	+	+		+	+	+		+	+	-	+	+
				60	+	+		+	+	+		+	+		+	+
				80		+			O	+		O	+			+
				100						+			+			
				120						+						
				140												
Water - distilled - deionised	H_2O	100		20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	+	+	+	+	+	+		O	+	+	+	+
				80		+			+	+		-	+	+		+
				100					+	+			+	+		
				120						+			+			
				140												
Water, condensed				20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	O	+	+	+	+	+		O	+	+	+	+
				80		+			+	+			+	O		+
				100						+						
				120						+						
				140												
Water, drinking, chlorinated				20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60	+	+	+	+	+	+		O	+	+	+	+
				80					+	+			+	O		+
				100					+	+			+			
				120						+						
				140												
Water, waste water without organic solvent and surfactants				20	+	+	+	+	+	+			+	+	+	+
				40	+	+	+	+	+	+		+	+	+	+	+
				60		+	+	+	+	+		O	+	+	+	+
				80		+			+	+			+	+		+
				100						+				O		
				120						+						
				140												
Wax alcohol (ESC)	$C_{31}H_{63}OH$		technically pure	20	+	O	-	O	O	+		+	+	+	+	-
				40	+			-	-	+		+	+	+	+	
				60	+					+		+	+	+	+	
				80												
				100												
				120												
				140												
Wine vinegar (ESC)			usual commercial	20	+	O	O	+	+	+		+	O	-	O	+
				40	+			+	+	+			-		-	O
				60	+			+	+	+						-
				80					+	+						
				100						+						
				120												
				140												

Aggressive Media					Chemical Resistance											
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Wines, red and white			usual commercial	20	+	O	+	+	+	+		+	+	+	+	+
				40			+	+	+	+						
				60				+	+	+						
				80						+						
				100						+						
				120												
				140												
Xylene	$C_6H_4(CH_3)_2$	138-144	technically pure	20	-	-	-	-	-	+		-	+	-	-	-
				40						+			O			
				60						O			-			
				80						-						
				100												
				120												
				140												
yeasts			all, aqueous	20	+	+	+	+	+	+		+	+	+	+	+
				40	+	+		+	+	+		+	+	+	+	+
				60		+		+	+	+						
				80		+				+						
				100												
				120												
				140												
Zinc chloride			saturated	20	+	+	+	+	+	+		+	+			
				40	+	+		+	+	+		+	+			
				60	+	+		+	+	+		+	+			
				80		+			+	+			+			
				100						+						
				120												
				140												
Zinc nitrate	$Zn(NO_3)_2$		saturated	20	+	+	+	+	+	+		+	+			
				40	+	+		+	+	+		+	+			
				60	+	+		+	+	+		+	+			
				80		+			+	+			+			
				100						+						
				120												
				140												
Zinc oxide	ZnO		suspension	20												
				40												
				60												
				80												
				100												
				120												
				140												
Zinc phosphate	$Zn_3(PO_4)_2$		saturated	20	+	+	O	+	+	+		+	+			
				40	+	+		+	+	+		+	+			
				60	+	+		+	+	+		+	+			
				80		+			+	+			+			
				100						+						
				120												
				140												

Aggressive Media					Chemical Resistance												
Medium	Formula	Boiling point °C	Concentration	Temperature °C	PVC	CPVC	ABS	PE	PP-H	PVDF (SYGEF)		EPDM	FPM	NBR	CR	CSM
Zinc salts	$ZnCl_2$, $ZnCO_3$, $Zn(NO_3)_2$, $ZnSO_4$		all, aqueous	20	+	+	+	+	+	+			+	O	+	+
				40	+	+	+	+	+	+		+	+	O	+	+
				60	O	+		+	+	+		+	+	-	+	+
				80						+						
				100						+						
				120						+						
				140												
Zinc stearate	$Zn(C_{17}H_{35}\text{-}COO)_2$		suspension	20	-	-	-	+	+	+		+	O			
				40				+	+	+		+				
				60				+	+	+		+				
				80					+	+						
				100						+						
				120												
				140												
Zinc sulfate	$ZnSO_4$			20	+	+		+	+	+		+	+			
				40	+	+		+	+	+		+	+			
				60	+	+		+	+	+		+	+			
				80		+			+	+		+	+			
				100						+			+			
				120												
				140												
1-Chloropentane	$C_5H_{11}Cl$			20	-	-	-									
				40												
				60												
				80												
				100												
				120												
				140												
1,1,2-Trifluoro, 1,2,2-Trichloroethane (Freon 113) (ESC)	$FCl_2C\text{-}CClF_2$	47	technically pure	20	+		-			+			+	+	+	+
				40	+											
				60												
				80												
				100												
				120												
				140												