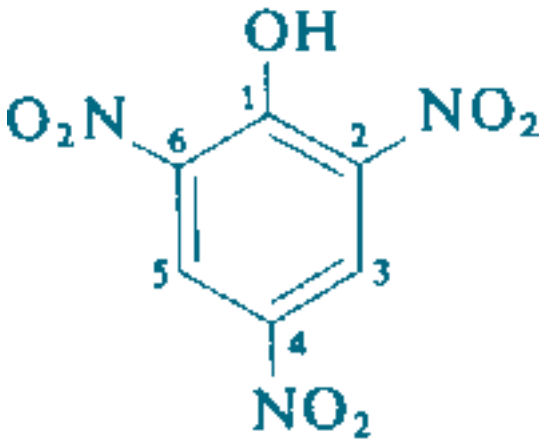
Chemical Resistance of Thermoplastics used in Dual Laminate Constructions



Picric acid
2,4,6-Trinitrophenol

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1. Introduction

It is now inconceivable to construct pipelines and tanks without the use of plastics. Pipes made from plastics are used not only for drinking water, for general use and waste water, but also for the conveyance of aggressive liquids and gases. However limitations imposed by lower tensile strength and temperature of thermoplastics dictate that for certain applications some type of reinforcement be used. A typical example of this is the lining of metal pipe by a suitable plastic. Another and, for many applications, a better way is to use fiberglass reinforcement (also known as "Dual Laminate" construction) which can provide a better bonding between the liner plastic and the reinforcement. With tanks the problem of bonding between a thermoplastic liner and a metal shell is reduced because the larger diameter allows for different bonding techniques to be used. Even so there can be additional advantages to be gained thru the use of fiberglass reinforcement for tanks also.

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 in "Dual Laminate" 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, B. F. Goodrich, Symalit, DuPont and partly by the International Standardization Organization (ISO) or national standards organizations.

Pure chemicals were used for the tests except where indicated. 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 for this purpose. It is recommended that the companies suppling the test data for this Guide be contacted directly for additional information or testing. (See page 2 for specific information on the source company.)

The "Chemical Resistance List" gives valuable assistance in the planning of plastic pipelines and tanks and Dual Laminates. 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.

DLFA is grateful to the following companies for their permission to reproduce the information contained in this Chemical Resistance Guide:

George Fischer, Inc. 2882 Dow Av, Tustin, CA 92680-7285
(Basic Guide Layout plus data for PVC, PE, PP and PVDF.)

Symalit AG, CH-5600 Lenzburg, Switzerland -
(Data on ECTFE, FEP and PFA.)

B F Goodrich, 9911 Brecksville Road, Cleveland, Ohio 44141-3247 -
(Data on CPVC)

E. I. DuPont de Nemours, 1625 Newport Gap Pike, Wilmington DE, 19808 (Data on ETFE.)

Please contact the above supplier for further information on Chemical Resistance.

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.

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:

Sulfuric 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 General Summary and Limits of Application

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

In this connection we refer to the "Chemical Resistance Lists" which have been published as Standards. From the ISO these are:

ISO/TR 7473-1979
Unplasticised polyvinyl chloride pipes and fittings - Chemical resistance with respect to fluids

ISO/TR 7474-1979
High density polyethylene pipes and fittings - Chemical resistance with respect to fluids to be conveyed

ISO/TR 7471-1978
Polypropylene (PP) pipes and fittings - Chemical resistance with respect to fluids

The technical data given in this publication are for general information purposes only. They imply no warranty of whatever kind.

Physical Constants of Organic & Inorganic Compounds

Density values given at room temperature unless otherwise indicated by superscript figure: thus 0.97^{112} indicates a density of 0.97 for the substance at 112 °C. A density of 0.89^{16}_{4} indicates a density of 0.89 for the substance at 16 °C relative to water at 4 °C.

Material	Abrev.	Remarks	Maximum Permissible Temperature (Water) °C	
			Constant	Short
Polyvinyl Chloride	PVC	Resistant to most solutions of acids, alkalis and to organic compunds miscible with water. Not resistant to aromatic and chlorinated hydrocarbons.	60°	60°
Chorinated Polvinyl Chloride	CPVC	Can be used similarly to PVC but at higher temperatures. Consult with 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, salt solutions, halogens, aliphatic and aromatic hydrocarbons, chlorinated hydrocarbons and alcohols. Conditionally suitable for ketones, esters, organic bases and alakaline solutions.	140°	150°
Ethylene-chlorotriflluoro-ethylene Copolymer	ECTFE	Resistant to acids, salt solutions, halogens, aliphatic and aromatic hydrocarbons, chlorinated hydrocarbons and alcohols. Conditionally suitable for ketones, esters, organic bases and alakaline solutions.	150°	175°
Etylene-tetrafluoroethylene Copolymer	ETFE	Resistant to acids, alkalines, salt solutions, halogens, aliphatic and aromatic hydrocarbons, Ketones, Amines, Alcohols, Furanes, Esters and Aldehydes.	200°	225°
Fluorinated ethylene-propylene	FEP	Resistant to acids, alkalines, salt solutions, halogens, aliphatic and aromatic hydrocarbons, Ketones, Amines, Alcohols, Furanes, Esters and Aldehydes.	200°	225°
Perfluor-alkoxy	PFA	Resistant to acids, alkalines, salt solutions, halogens, aliphatic and aromatic hydrocarbons, Ketones, Amines, Alcohols, Furanes, Esters and Aldehydes.	225°	



Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Acetaldehyde	CH_3–CHO (C_2H_4O)	21	technically pure	d_4^{16} 0.78	20	–	–	+	0	–	+	+	+	+
					40	0	–		+	+	+	+	+	+
					60			0				+	+	+
					80							+	+	+
					100								+	+
			"40% aqueous"		20	0	–	+	+	–	+	+	+	+
				solution	40	–		+	+		+	+	+	+
					60			0	+			+	+	+
					80				0			+	+	+
					100				–				+	+
					120									
					150									
Acetic acid	CH_3COOH	118	"technically pure," glacial	d_4^{20} 1.05	20	0	–	+	+	+	+	+	+	+
					40	–		+	+	0	+	+	+	+
					60			0	0	–		+	+	+
					80				–			+	+	+
					100							+	+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Acetic acid	CH_3COOH		"50% aqueous"		20	+	–	+	+	+	+	+	+	+
					40	+		+	+	+	+	+	+	+
					60			+	+	+	+	+	+	+
					80					0	+	+	+	+
					100					0	+	+	+	+
					120							+	+	+
					150									
			"10% aqueous"		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100				+	+	+	+	+	+
					120					+		+	+	+
					150								+	+
Acetic acid anhydride	$CH_3–CO$ \ O / $CH_3–CO$	139	technically pure	1.08^{15}_{4}	20	–	–	+	+	–	+	+	+	+
					40			0	0		+	+	+	+
					60							+	+	+
					80							+	+	+
					100							+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Acetic ether			see Ethyl acetate											
Acetone	$CH_3–CO–CH_3$	56	technically pure.	d_4^{20} 0.80	20	–	–	+	+	–	+	+	+	+
					40			+	+		+	+	+	+
					60			+	+			+	+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
	$CH_3–CO–CH_3$		"up to 10%" aqueous		20	–	–	+	+	+	+	+	+	+
					40			+	+	+	+	+	+	+
					60			+	+	+		+	+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Acrylic ester	$CH_2=CH–COO\ CH_2CH_3$	100	technically pure	d_4^{20} 0.93	20	–	–			0	+		+	+
					40					–	+		+	+
					60							+	+	
					80								+	+
					100								+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Acrylonitrile	CH_2=CH–CN	77	technically pure	0.81 $^{20}_{4}$	20	–	--	+	+	–		+	+	+
					40			+	0	–		+	+	+
					60			+				+	+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Adipic acid	HOOC–$(CH_2)_4$–COOH	153*	"saturated," aqueous	1.17 $^{22}_{4}$	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+		+	+	+	+
					60	0	+	+	+		+	+	+	+
					80		+		+		+	+	+	+
					100						+	+	+	+
					120							+	+	+
					150								+	+
Alcoholic spirits "(Gin, Whiskey, etc.)"			approx. 40% ethyl alcohol		20	+	0	+	+	+	+		+	+
					40					+	+		+	+
					60					+	+		+	+
					80					+	+		+	+
					100					+	+		+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Allyl alcohol	$H_2C=CH-CH_2-OH$	97	96%	0.85^{20}_{4}	20	0	0	+	+	+	+	+	+	+
					40	–		+	+	+	+	+	+	+
					60			+	+		+	+	+	+
					80							+	+	+
					100							+	+	+
					120								+	+
					150								+	+
Alum	see Potassium/aluminium sulphates													
Aluminium chloride	$AlCl_3$		"10% aqueous"	2.44^{25}	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	+	+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
		115	saturated		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	+	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
								Sygef						
Aluminium sulphate	$Al_2(SO_4)_3$		"10% aqueous"	1.61	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100				+	+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
			"cold saturated," aqueous		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	+	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
Ammonia	NH_3	−33	"gaseous," technically pure		20	+	−	+	+	+	+	+	+	+
					40	+		+	+	+		+	+	+
					60	+		+	+	0		+	+	+
					80					0		+	+	+
					100					0		+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Ammonium acetate	CH_3COONH_4		"aqueous, all"	1.17^{20}	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100				+	+	+	+	+	+
					120								+	+
					150								+	+
Ammonium carbonate	$(NH_4)_2CO_3$		"50% aqueous"		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100				+	+	+	+	+	+
					120					+	+	+	+	+
					150							+	+	+
Ammonium chloride	NH_4Cl		"aqueous, 10%"	1.53^{25}	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100				+	+	+	+	+	+
					120					+		+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Ammonium chloride		115	aqueous		20	+	+	+	+	+	+	+	+	+
			cold saturated		40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100				+	+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
Ammonium hydrogen fluoride	NH_4HF_2		"50% aqueous"	1.51	20	+	+	+	+	+	+		+	+
					40	+	+	+	+	+	+		+	+
					60	0	+	+	+	+	+		+	+
					80		+				+		+	+
					100						+		+	+
					120								+	+
					150								+	+
Ammonium hydroxide	NH_4OH		"aqueous,"		20	+	0	+	+	–	+	+	+	+
			cold saturated		40	+		+	+		+	+	+	+
			≈25%		60	0		+	+		+	+	+	+
					80						+	+	+	+
					100						+	+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
								Sygef						
Ammonium nitrate	NH_4NO_3		"aqueous, 10%"	1.73^{25}	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	0	+	+	+	+	+	+
					80		+		0	+	+	+	+	+
					100					+	+	+	+	+
					120					+			+	+
					150								+	+
		112	"aqueous," saturated		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	+	+	0	+	+	+	+	+	+
					80		+		0	+	+	+	+	+
					100					+	+	+	+	+
					120					+			+	+
					150								+	+
Ammonium phosphate	$NH_4H_2PO_4$		"aqueous, all"		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	+	+	+	+	+	+	+	+	+
					80		0		+	+	+	+	+	+
					100				+	+	+	+	+	+
					120					+		+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Ammonium sulphate	$(NH_4)_2SO_4$		"10% aqueous"	1.77^{20}	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100				+	+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
			"aqueous," saturated		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	+	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100				+	+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
Ammonium sulphide	$(NH_4)_2S$		"aqueous, all"	1.3	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+				+	+	+	+
					100						+	+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Amyl acetate	$CH_3(CH_2)_4–OOCCH_3$	141	technically pure	0.88^{20}	20	–	–	+	0	+	+	+	+	+
					40			+	0	0	+	+	+	+
					60			+	–	0		+	+	+
					80							+	+	+
					100							+	+	+
					120							+	+	+
					150								+	+
Amyl alcohol	$CH_3(CH_2)_3–CH_2–OH$	137	technically pure	0.81$^{20}_{4}$	20	+	0	+	+	+	+	+	+	+
					40	+		+	+	+	+	+	+	+
					60	0		+	+	+	+	+	+	+
					80				+	+		+	+	+
					100					+		+	+	+
					120					0		+	+	+
					150							+	+	+
Aniline	$C_6H_5NH_2$	182	technically pure	1.02^{20}	20	–	0	0	0	+	–	+	+	+
					40					+		+	+	+
					60					0		+	+	+
					80					–		+	+	+
					100							+	+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Aniline hydrochloride	NH_3++Cl–		"aqueous," saturated		20	+		+	+	+		+		
					40	0		+	+			+		
					60			0	0			+		
					80							+		
					100									
					120									
					150									
Anon	see Cyclohexanone													
Antimony trichloride	$SbCl_3$		"90% aqueous"	3.10	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+		+	+	+
					60		+	+	+	+		+	+	+
					80		+					+	+	+
					100							+	+	+
					120								+	+
					150								+	+
Aqua regia	HNO_3+HCl		Concentrated		20	+	+	–	0	0	+	+	+	+
					40	0	0		–		+	+	+	+
					60							+	+	+
					80							+	+	+
					100							+	+	+
					120								+	+
					150									+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Arsenic acid	H_3AsO_4		"80% aqueous"		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100					+	+	+	+	+
					120					+	+	+	+	+
					150							+	+	+
Barium hydroxide	$Ba(OH)_2$	1012	"aqueous," saturated	2.2[1] [6]	20	+	+	+	+	–	+	+	+	+
					40	+	+	+	+		+	+	+	+
					60	0	+	+	+		+	+	+	+
					80		+				+	+	+	+
					100						+	+	+	+
					120							+	+	+
					150							+	+	+
Barium salts			"aqueous, all"	4.4	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	+	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100					+	+	+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Arsenic acid	H_3AsO_4		"80% aqueous"		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100					+	+	+	+	+
					120					+	+	+	+	+
					150							+	+	+
Barium hydroxide	$Ba(OH)_2$	1012	"aqueous," saturated	2.2[1] [6]	20	+	+	+	+	–	+	+	+	+
					40	+	+	+	+		+	+	+	+
					60	0	+	+	+		+	+	+	+
					80		+				+	+	+	+
					100						+	+	+	+
					120							+	+	+
					150							+	+	+
Barium salts			"aqueous, all"	4.4	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	+	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100					+	+	+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Battery acid	see Sulphuric acid 40%													
"Beef tallow emulsion," sulphonated			usual commercial		20	+		+	+	+	+		+	+
					40					+	+		+	+
					60					+			+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Beer			usual commercial		20	+	+	+	+	+	+		+	+
					40	+	+	+	+	+	+		+	+
					60	+	+	+	+	+	+		+	+
					80		+			+	+		+	+
					100						+		+	+
					120								+	+
					150								+	+
Benzaldehyde	C_6H_5CHO	180	"saturated," aqueous	1.04 ^{20}	20	–	–	+	+	+	+	+	+	+
					40			+		0	+	+	+	+
					60			+		–		+	+	+
					80							+	+	+
					100							+	+	+
					120									

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Benzene	C_6H_6	80	technically pure	0.88 $^{15}_{4}$	20	–	–	0	0	+	+	+	+	+
					40			0	–	0	+	+	+	+
					60					–	+	+	+	+
					80							+	+	+
					100							+	+	+
					120								+	+
					150								+	+
Benzine	C_5H_{12} to $C_{12}H_{26}$	80–130	free of lead and aromatic compounds		20	+		+	0	+	+		+	+
					40	+		+		+	+		+	+
					60	+		0	–	+	+		+	+
					80					+			+	+
					100					+			+	+
					120					+			+	+
					150								+	+
Benzoic acid	C_6H_5COOH	122*"	aqueous, all"	1.08	20	+	+	+	+	+	+	+	+	
					40	+	0	+	+	+	+	+	+	+
					60	0		+	+	+	+	+	+	+
					80				+	+		+	+	+
					100				+	+		+	+	+
					120					+		+	+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Benzyl alcohol	$C_6H_5CH_2OH$	206	technically pure	1.05^{20}_{4}	20	0	–	+	+	+	+	+	+	+
					40			+	+	+		+	+	+
					60			0	0	0		+	+	+
					80					–		+	+	+
					100							+	+	+
					120							+	+	+
					150							+	+	+
Bleaching lye	NaOCl + NaCl		12.5% active "chlorine," aqueous		20	+	+	0	0	0		+		
					40	+	+	–	–	0		+		
					60	0	+			–		+		
					80		+					+		
					100							+		
					120									
					150									
Borax	$Na_2B_4O_7$		"all, aqueous"	1.4	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100				+	+	+	+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Boric acid	H_3BO_4		"aqueous, all"	0.86	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100				+	+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
"Brine, sea water"					20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100				+	+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
"Bromine, liquid"	Br_2	59	technically pure	3.10	20	–	–	–	–	+	+	+	+	+
					40					+		+	+	+
					60					+		+	+	+
					80					+			+	+
					100					0			+	+
					120									
					150									

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
"Bromine, vapours"	Br_2		high		20	–	–	–	–	+	+		+	+
					40					+			+	+
					60					+			+	+
					80					+			+	+
					100					0			+	+
					120									
					150									
Bromine water	Br - water		"saturated," aqueous		20	+		–	–	+	+	+	+	+
					40					+	+	+	+	+
					60					+	+	+	+	+
					80					+	+	+	+	+
					100						+	+	+	+
					120								+	+
					150									
Butadiene	$H_2C=CH-CH=CH_2$	–4	technically pure	0.65-6	20	+		+	+	+	+	+	+	+
					40				+	+	+	+	+	+
					60				+	+	+	+	+	+
					80					+	+	+	+	+
					100					+	+	+	+	+
					120							+	+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Butane	C_4H_{10}	0	technically pure	0.60^{0}	20	+		+	+	+	+	+	+	+
					40						+	+	+	+
					60						+	+	+	+
					80						+	+	+	+
					100						+	+	+	+
					120							+	+	+
					150							+	+	+
Butanediol	HO–CH_2–CH_2–CH_2–CH_2–OH	230	"aqueous, 10%"	1.01$^{25}_{4}$	20	+			+	+		+	+	+	+
					40	0			+	+		+	+	+	+
					60				+	+		+	+	+	+
					80							+	+	+	+
					100							+	+	+	+
					120							+	+	+	+
					150									+	+
Butanol	C_4H_9OH	117	technically pure	0.81$^{20}_{4}$	20	+		0	+	+	+	+		+	+
					40	+			+	+	+	+		+	+
					60	0			+	0	+	+		+	+
					80					0	+	+		+	+
					100						0	+		+	+
					120									+	+
					150									+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Butyl acetate	$CH_3COOCH_2CH_2CH_2CH_3$	126	technically pure	0.89 20/4	20	–	--	+	0	+	+	+	+	+
					40					0	+	+	+	+
					60					–		+	+	+
					80							+	+	+
					100							+	+	+
					120								+	+
					150								+	+
"Butyl phenol, " p-tertiary	$(CH_3)_3CC_6H_4OH$	237	technically pure	0.98 20/4	20	0		0	+	+	+	+	+	+
					40	–				+	+	+	+	+
					60					+	+	+	+	+
					80					+	+	+	+	+
					100						+	+	+	+
					120						+		+	+
					150								+	+
Butylene glycol	$HO–CH_2–CH=CH–CH_2–OH$	235	technically pure	1.00	20	+		+	+	+				
					40	+		+	+	+				
					60	0		+	+	+				
					80					+				
					100									
					120									
					150									

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Butylene liquid	C_4H_8		technically pure	0.70	20	+		–	–	+	+	+	+	+
					40						+	+	+	+
					60						+	+	+	+
					80						+	+	+	+
					100						+	+	+	+
					120							+	+	+
					150							+	+	+
Butyric acid	$CH_3–CH_2–CH_2–COOH$	163	technically pure	0.96	20	+	–	+	+	–	+	+	+	+
					40			+		+	+	+	+	+
					60			0		+	+	+	+	+
					80					+		+	+	+
					100					0		+	+	+
					120							+	+	+
					150								+	+
Calcium bisulfite	$Ca(HSO_3)_2$		"cold saturated," aqueous		20	+	+			+	+	+	+	+
					40		+			+	+	+	+	+
					60		+			+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Calcium chloride	$CaCl_2$	125	"saturated," aqueous (all)	2.16^{25}	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100				+	+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
Calcium hydroxide	$Ca(OH)_2$	100	"aqueous," saturated	2.34	20	+	+	+	+	0	+	+	+	+
					40	+	+	+	+	–	+	+	+	+
					60	+	+	+	+		+	+	+	+
					80		+		+		+	+	+	+
					100						+	+	+	+
					120							+	+	+
					150							+	+	+
Calcium hypochlorite	$Ca(OCl)_2$		"cold saturated," aqueous	2.35	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60		+	+	+	0	+	+	+	+
					80		+			0	+	+	+	+
					100						+	+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Calcium nitrate	$Ca(NO_3)_2$	115	"50% aqueous"	2.50[18]	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60		+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120							+	+	+
					150							+	+	+
Carbon dioxide (carbonic acid)	CO_2		"technically pure," anhydrous	1.35	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	+	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100					+	+	+	+	+
					120						+	+	+	+
					150								+	+
			"technically pure," moist		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100						+	+	+	+
					120						+	+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Carbon disulphide	CS_2	46	technically pure	1.26^{30}_{4}	20	–	--	0	0	+		+	+	+
					40							+	+	+
					60							+	+	+
					80							+	+	+
					100								+	+
					120								+	+
					150								+	+
Carbon tetrachloride	CCl_4	77	technically pure	1.59^{25}_{25}	20	–	–	–	–	+	+	+	+	+
					40					+	+	+	+	+
					60					0	+	+	+	+
					80							+	+	+
					100							+	+	+
					120							+	+	+
					150								+	+
Caustic potash solution (potassium hydroxide)	KOH	131	"50% aqueous"	2.00	20	+	+	+	+	–	+	+	+	+
					40	+	+	+	+		+	+	+	+
					60	0	+	+	+		0	+	+	+
					80		+		+			+	+	+
					100				+			+	+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Caustic soda solution (Sodium hydroxide)	NaOH		"up to 10%" aqueous	2.13 $^{20}_{4}$	20	+	+	+	+	–	+	+	+	+
					40	+	+	+	+		+	+	+	+
					60	0	+	+	+		+	+	+	+
					80		+		+		+	+	+	+
					100				+		+	+	+	+
					120								+	+
					150								+	+
Carbon tetrachloride	CCl_4		"up to 40%" aqueous		20	+	+	+	+	–	+	+	+	+
					40	+	+	+	+	–	+	+	+	+
					60	0	+	+	+	–	+	+	+	+
					80		+		+	–	+	+	+	+
					100				+		+	+	+	+
					120							0	+	+
					150								+	+
			"50% aqueous"	2.1	20	+	+	+	+	–	+	+	+	+
					40	+	+	+	+	–	+	+	+	+
					60	+	+	+	+	–	+	+	+	+
					80		+		+	–	+	+	+	+
					100				+		+	+	+	+
					120							0	+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Chloral hydrate	$CCl_3–CH(OH)_2$	98	technically pure	1.9	20	–			+	0	–	+	+	+	+
					40				+				+	+	+
					60				+	–			+	+	+
					80								+	+	+
					100								+	+	+
					120									+	+
					150									+	+
Chlorethanol	$ClCH_2–CH_2OH$	129	technically pure		20	–			+	+	+				
					40				+	+	0				
					60				+	+	0				
					80						–				
					100										
					120										
					150										
Chloric acid	$HClO_3$		"10% aqueous" 40% Sol.	1.28 $^{20}_{4}$	20	+	+		+	–	+	+		+	+
					40	+	+		+		+			+	+
					60	0	+							+	+
					80		+							+	+
					100									+	+
					120									+	+
					150									+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Chloric acid (conti)			"20% aqueous"		20	+	+	0	–	+	+		+	+
					40	+	+						+	+
					60	0	+						+	+
					80		+						+	+
					100								+	+
					120								+	+
					150								+	+
Chlorine	Cl_2		"moist," 97% gaseous		20	0	–	–	–	0	+	+	+	+
					40						+	+	+	+
					60						+	+	+	+
					80							+	+	+
					100							+	+	+
					120							+	+	+
					150								+	+
			"anhydrous," technically pure		20	0		0	–	+	+	+	+	+
					40			0		+	+	+	+	+
					60			–		+	+	+	+	+
					80					+		+	+	+
					100					0		+	+	+
					120								+	+
				150								+	+	

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Chlorine (conti.))			"liquid," technically pure	1.56[-35]	20	–	–	–	–	+	+		+	+
					40						+		+	+
					60						+		+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Chlorine water			saturated		20	0	+	0	0	0	+		+	+
					40	0	+	0			+		+	+
					60		+						+	+
					80		+						+	+
					100								+	+
					120								+	+
					150								+	+
"Chloroacetic acid," mono	$ClCH_2COOH$	188	technically pure	1.58	20	+		+	+	–	+		+	+
					40	+		+	+		+		+	+
					60	0		+	+		+		+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
"Chloroacetic acid," mono (conti)			"50% aqueous"		20	+		+	+	+	+	+	+	+
					40	+		+	+	0	+	+	+	+
					60			+	+	–	+	+	+	+
					80						+	+	+	+
					100						+	+	+	+
					120								+	+
					150								+	+
Chlorobenzene	C_6H_5Cl	132	technically pure	1.11^{20}	20	–	–	0	+	+	+	+	+	+
					40					+	+	+	+	+
					60					0	–	+	+	+
					80					–		+	+	+
					100							+	+	+
					120								+	+
					150								+	+
Chloroform	$CHCl_3$	62	technically pure	1.48^{20}_{20}	20	–	–	–	0	+	+	+	+	+
					40					+	+	+	+	+
					60					+		+	+	+
					80					+		+	+	+
					100							+	+	+
					120								+	+
					150								+	+
Chloromethane	see Methylchloride													

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Chlorosulphonic acid	$ClSO_3H$	158	technically pure		20	0		–	–	0		+	+	+
					40					–			+	+
					60									
					80									
					100									
					120									
					150									
Chrome alum (chromium potassium sulphate)	$KCr(SO_4)_2$		"cold saturated," aqueous	1.83^{25}	20	+		+	+	+			+	+
					40	+		+	+	+			+	+
					60	+		+	+				+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Chromic acid	CrO_3+H_2O		"up to 50%" aqueous	2.7^{25}	20	+	+	0	0	+	+	+	+	+
					40	+	+	–	–	+	+	+	+	+
					60	0	+			+	+	+	+	+
					80		+			+			+	+
					100					0			+	+
					120					0			+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Chromic acid (conti)			"all, aqueous"		20	+		0	0	+	+	+	+	+
					40					+	+	+	+	+
					60					+	+	+	+	+
					80					0			+	+
					100					0			+	+
					120								+	+
					150								+	+
Chromic acid	CrO_3		50g	2.7^{25}	20	+		–	–	+	+		+	+
plus Sulfuric acid	H_2SO_4		15g	1.83^{20}	40	+				+			+	+
plus water	H_2O		35g		60	0				+			+	+
					80					0			+	+
					100								+	+
					120								+	+
					150								+	+
Cider					20	+		+	+	+				
					40					+				
					60					+				
					80									
					100									
					120									
					150									

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	Sygef PVDF	ECTFE	ETFE	FEP	PFA
Citric acid	HO C CH_2–COOH HOOC CH_2–COOH	153*	"10% aqueous"	1.67	20	+	+	+	+	+	+		+	+
					40	+	+	+	+	+	+		+	+
					60	0	+	+	+	+	+		+	+
					80		+		+	+	+		+	+
					100				+	+	+		+	+
					120								+	+
Clophenes	C_6H_5-C_6H_4Cl	2	technically pure		20	–					+		+	+
					40								+	+
					60								+	+
					80								+	+
					100								+	+
"Coal gas, benzene free"					20	+		+	+	+		+		
					40							+		
					60							+		
					80							+		
					100							+		

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Coconut fat alcohol			technically pure		20	+		+	+	+	+		+	+
					40	+		0	+	+	+		+	+
					60	0			0	+	+		+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Coconut oil			technically pure		20	+	0	+	+	+	+		+	+
					40	+		+	+	+	+		+	+
					60	0		0	+	+	+		+	+
					80					+	+		+	+
					100					+	+		+	+
					120					+			+	+
					150								+	+
Compressed air containing oil					20	0		+	0	+				
					40			+		+				
					60					+				
					80									
					100									
					120									
					150									

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Cooking salt	see Sodium chloride													
Copper salts			"all, aqueous"		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	0	+	+	+	+	+
					60	0	+	+	–	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120							+	+	+
					150							+	+	+
Corn oil			technically pure		20	0	0	+	+	+	+		+	+
					40			+	+	+	+		+	+
					60			0	0	+	+		+	+
					80					+	+		+	+
					100						+		+	+
					120						+		+	+
					150								+	+
Cresol	$HO-C_6H_4-CH_3$		"cold saturated," aqueous	1.03[41]	20	0	–	+	+	+	+	+	+	+
					40			+	+	+	+	+	+	+
					60					+	+	+	+	+
					80					0		+	+	+
					100							+	+	+
					120							+	+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	PP	Sygef PVDF	ECTFE	ETFE	FEP	PFA
Crotonic aldehyde	$CH_3–CH=CH–CHO$	102	technically pure	0.85^{20}	20	–	–	+	+	+	+	+	+	+
					40					0		+	+	+
					60					–		+	+	+
					80							+	+	+
					100							+	+	+
					120								+	+
					150								+	+
Cyclohexane	C_6H_{12}	81	technically pure	0.78	20	–	–	+	+	+	+	+	+	+
					40			+		+	+	+	+	+
					60			+		+	+	+	+	+
					80					+		+	+	+
					100							+	+	+
					120							+	+	+
					150							+	+	+
Cyclohexanol	$C_6H_{11}–OH$	161	technically pure	0.96	20	+	–	+	+	+	+	+	+	+
					40	+		+	+	+	+	+	+	+
					60	+		+	0	0	+	+	+	+
					80					0		+	+	+
					100					–		+	+	+
					120							+	+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Cyclohexanone	$C_6H_{10}O$	155	technically pure III	0.95 $^{20}_{4}$	20	–	–	+	+	+	+	+	+	+
					40			0	0	0	+	+	+	+
					60			0	0	–		+	+	+
					80							+	+	+
					100							+	+	+
					120							+	+	+
					150							+	+	+
Densodrin W					20	+				+				
					40	+								
					60	+								
					80									
					100									
					120									
					150									
Detergents (washing powder)			for usual washing lathers		20	+	0	+	+	+				
					40	+		+	+	+				
					60	0		+	+	+				
					80				+	+				
					100					+				
					120									
					150									

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Dextrine (starch gum)			usual commercial	1.04	20	+	+	+	+	+	+	+	+	+
					40	+	+	+		+	+	+	+	+
					60	+	+	+		+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
Dextrose	see Glucose													
Dibutyl ether	$C_4H_9OC_4H_9$	142	technically pure	0.77^{20}_4	20	–	–	0	0		+		+	+
					40						+		+	+
					60			–	–		+		+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Dibutyl phthalate	$C_6H_4(COOC_4H_9)_2$	340	technically pure	1.05^{20}_4	20	–	–	+	+	+	+		+	+
					40			0	0	+	+		+	+
					60			0	0	0	+		+	+
					80								+	+
					100								+	+
					120								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Dibutyl sebacate	$C_8H_{16}(COOC_4H_9)_2$	344	technically pure	0.94 ^{20}	20	–	–	+	+	+	+		+	+
					40						+		+	+
					60								+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Dichloroacetic acid	$Cl_2CHCOOH$	194	technically pure	1.56 $^{20}_{4}$	20	+		+	+	+	+	+	+	+
					40	+		+	+	+	+	+	+	+
					60	0		0	0	+	+	+	+	+
					80					+			+	+
					100					0			+	+
					120								+	+
					150								+	+
			"50% aqueous"		20	+		+	+	+	+	+	+	+
					40	+		+	+	+	+	+	+	+
					60	0		+	+	+	+	+	+	+
					80					+			+	+
					100					0			+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Dichloroacetic acid methyl ester	$Cl_2CHCOOCH_3$	143	technically pure	1.38	20	–	–	+	+	0	+	+	+	
					40			+	+		+		+	+
					60			+	+		–		+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Dichlorobenzene	$C_6H_4Cl_2$	180	technically pure	1.31^{20}_{4}	20	–	–	0	0	+	+	+	+	+
					40					+	–	+	+	+
					60					+		+	+	+
					80					0			+	+
					100								+	+
					120								+	+
					150								+	+
Dichloroethane	see Ethylene chloride													
Dichloroethylene	ClCH=CH.Cl	60	technically pure	1.25	20	–	–	–	0	+	+	+	+	+
					40					+	+	+	+	+
					60							+	+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Diesel oil					20	+		+	0	+	+		+	+
					40	+				+	+		+	+
					60			0		+	+		+	+
					80					+	+		+	+
					100					+	+		+	+
					120					+			+	+
					150								+	+
Diethylamine	$(C_2H_5)_2NH$	56	technically pure	0.71 $^{20}_{4}$	20	0	–		+	+		+	+	+
					40					0		+	+	+
					60					–		+	+	+
					80									
					100									
					120									
					150									
Diglycolic acid	$HOOC–CH_2–O–CH_2–COOH$	148*	"30% aqueous"		20	+		+	+	+	+	+	+	+
					40	+		+	+		0	+	+	+
					60	0		+	+		0	+	+	+
					80							+	+	+
					100							+	+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Di-isobutyl ketone	$(CH_3)_2CH–CH_2–CO–CH_2–CH(CH_3)_2$	124	technically pure	0.88	20	–		+	+	+	+	+	+	+
					40					+	+	+	+	+
					60			–	–	0		+	+	+
					80							+	+	+
					100							+	+	+
					120								+	+
					150								+	+
Dimethyl formamide (methyl pyrolidene)	$HCON(CH_3)_2$	153	technically pure	0.94^{25}_{4}	20	–	–	+	+	–	+		+	+
					40			+	+		+		+	+
					60			0	+				+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Dimethylamine	$(CH_3)_2NH$	7	technically pure	0.68^{0}_{4}	20	0	–	+	+	0		+	+	+
					40					–		+	+	+
					60			0					+	+
					80									
					100									
					120									
					150									

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
								Sygef						
Dinonyl phthalate	$C_6H_4(COOC_9H_{19})_2$	220	technically pure		20	–		0	+		+		+	+
					40						+		+	+
					60								+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Dioctyl phthalate	$C_6H_4(COOC_8H_{13})_2$	231	technically pure		20	–		0	+		+		+	+
					40						+		+	+
					60				0				+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
"1,4 Dioxane"	$OCH_2CH_2OCH_2CH_2$	101	technically pure	1.03^{20}_4	20	–		+	0	–	+	+	+	+
					40			+	0		+	+	+	+
					60			+	0			+	+	+
					80				–				+	+
					100								+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Drinking water	see Water													
Ethyl acetate	$CH_3COOCH_2–CH_3$	77	technically pure	0.90 $^{20}_{4}$	20	–	–	+	+	0	+	+	+	+
					40			0	0	–	+	+	+	+
					60			0	0		0	+	+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Ethyl alcohol	$CH_3–CH_2–OH$	78	"technically pure," 96%	0.79 $^{20}_{4}$	20	+		+	+	+	+	+	+	+
					40	+		+	+	0	+	+	+	+
					60	0		+	+	–	+	+	+	+
					80				+			+	+	+
					100							+	+	+
					120							+	+	+
					150							+	+	+
Ethyl alcohol + acetic acid					20	+		+	+	+				
					40	+		+		+				
(fermentation mixture)					60	0		+		+				
					80					0				
					100									
					120									
					150									

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Ethyl benzene	$C_6H_5C_2H_5$	136	technically pure	0.87 $^{20}_{4}$	20	–	–		0	+			+	+
					40								+	+
					60				–				+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Ethyl chloride	$CH_3–CH_2Cl$	12	technically pure	0.92 $^{0}_{4}$	20	–	–	0	0	+	+	+	+	+
					40					+		+	+	+
					60					+		+	+	+
					80					+		+	+	+
					100					0		+	+	+
					120							+	+	+
					150							+	+	+
Ethyl ether	$CH_3CH_2–O–CH_2CH_3$	35	technically pure	0.74 $^{20}_{4}$	20	–	–	0	+	+	+		+	+
					40					+			+	+
					60								+	+
					80								+	+
					120								+	+
					150								+	+
												+	+	

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Ethylene chloride	$ClCH_2–CH_2Cl$	83	technically pure	1.25 $^{20}_{4}$	20	–	–	0	0	+		+	+	+
					40					+		+	+	+
					60					+		+	+	+
					80					+		+	+	+
					100					0		+	+	+
					120					–		+	+	+
					150							+	+	+
Ethylene diamine	$H_2N–CH_2–CH_2–NH_2$	117	technically pure	0.90 $^{20}_{4}$	20	0	–	+	+	0		+	+	+
					40			+		0		+	+	+
					60			+		–			+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Ethylene glycol	$HO–CH_2–CH_2–OH$	198	technically pure	1.12 $^{20}_{4}$	20	+	0	+	+	+	+	+	+	+
					40	+		+	+	+	+	+	+	+
					60	+		+	+	+	+	+	+	+
					80				+	+		+	+	+
					100				+	+		+	+	+
					120					+		+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Ethylene oxide	$CH_2–CH_2$ \ / O	10	"technically pure," liquid	0.9 $^{20}_{4}$	20	–	–	–	0	+	+	+	+	+
					40					+	+	+	+	+
					60					+	+	+	+	+
					80					0	+	+	+	+
					100						+	+	+	+
					120								+	+
					150								+	+
Fatty acids >C6	R–COOH		technically pure		20	+		+	+	+	+	+	+	+
					40	+		+	+	+	+	+	+	+
					60	+		0	+	+	+	+	+	+
					80					+	+	+	+	+
					100						+	+	+	+
					120							+	+	+
					150							+	+	+
Fatty alcohol sulphonates			aqueous		20	+		+	+	+				
					40	+		+	+	+				
					60	0		+	0	+				
					80					+				
					100					+				
					120									
					150									

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Fertilizer salts			aqueous		20	+		+	+	+	+		+	+
					40	+		+	+	+	+		+	+
					60	0		+	+	+	+		+	+
					80					+	+		+	+
					100						+		+	+
					120								+	+
					150								+	+
Fluorine	F_2		technically pure	1.11	20	–	–	–	–	–		+	+	+
					40							+	+	+
					60								+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Fluosilicic acid	H_2SiF_6		"32% aqueous"	1.46	20	+	+	+	+	+	+	+	+	+
					40	+		+		+	+	+	+	+
					60	+		+		+		+	+	+
					80		0			+		+	+	+
					100					+		+	+	+
					120							+	+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Formaldehyde	$HCHO$		"40%, aqueous"	0.82^{-20}_{4}	20	+	–	+	+	+	+	+	+	+
					40	+		+	+	+	+	+	+	+
					60			+		+	0	+	+	+
					80					+		+	+	+
					100							+	+	+
					120								+	+
					150								+	+
Formamide	$HCONH_2$	210	technically pure	1.13^{20}_{4}	20	–		+	+					
					40			+	+					
					60			+	+					
					80									
					100									
					120									
					150									
Formic acid	$HCOOH$	101	"up to 50%," aqueous		20	+	+	+	+	+	+	+	+	+
					40	+	+	+		+	+	+	+	+
					60	0	+	+	0	+	+	+	+	+
					80		+			+		+	+	+
					100		<25%			+		+	+	+
					120							+	+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Formic acid (contined)			technically pure	1.22^{20}_{4}	20	+		+	+	+	+	+	+	+
					40	0		+	0	+	+	+	+	+
					60	–		+	–	+	+	+	+	+
					80					+		+	+	+
					100					+		+	+	+
					120					–		+	+	+
					150								+	+
Freon 113	"see 1,1,2-trifluoro-1,2,2-trichloroethane"													
Frigen 12	CF_2Cl_2	-30	technically pure	1.49^{30}	20	+	0	–	–	0		+		
					40							+		
					60							+		
					80							+		
					100							+		
					120									
					150									
Fruit juices					20	+		+	+	+	+		+	+
					40	+		+	+	+	+		+	+
					60	+		+	+	+	+		+	+
					80				+	+	+		+	+
					100					+	+		+	+
					120								+	+
					150									

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Fruit pulp					20	+		+	+		+		+	+
					40			+	+		+		+	+
					60			+	+		+		+	+
					80						+		+	+
					100						+		+	+
					120								+	+
Fuel oil					20	+		0	0		+	+	+	+
					40	0		–	–		+	+	+	+
					60						+	+	+	+
					80						+	+	+	+
					100						+	+	+	+
					120								+	+
					150								+	+
Furfuryl alcohol	$C_4H_3CH_2OH$	171	technically pure	1.13^{20}_{4}	20	–		+	+		+	+	+	+
					40			+			+	+	+	+
					60			+	0	0			+	+	+
					80					–			+	+	+
					100								+	+	+
					120									+	+
					150									+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Gelatine			"all, aqueous"		20	+		+	+	+	+		+	+
					40	+		+	+	+	+		+	+
					60			+	+	+	+		+	+
					80					+	+		+	+
					100						+		+	+
					120								+	+
Glucose	$C_6H_{12}O_6$	148*	"all, aqueous"		20	+	+	+	+	+	+		+	+
					40	+	+	+	+	+	+		+	+
					60	0	+	+	+	+	+		+	+
					80		+		+	+	+		+	+
					100				+	+	+		+	+
					120					+			+	+
					150									
Glycerine	$HO-CH_2-CH(OH)-CH_2OH$	290	technically pure	1.26 ^{20}	20	+	+	+	+	+	+		+	+
					40	+	+	+	+	+	+		+	+
					60	+	+	+	+	+	+		+	+
					80		+		+	+	+		+	+
					100				+	+	+		+	+
					120					+			+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Glycerine (conti.)			"all, aqueous"		20	+		+	+	+				
					40	+		+	+	+				
					60			+	+	+				
					80				+	+				
					100				+	+				
					120					+				
					150									
Glycocoll	$NH_2–CH_2–COOH$	233*	"10% aqueous"		20	+		+	+	+			+	+
					40	+		+	+	+			+	+
					60					+			+	+
					80					+			+	+
					100								+	+
					120								+	+
					150								+	+
Glycol	see Ethylene glycol													
Glycolic acid	$CH_2OH(CHOH)_4COOH$	80*	"37% aqueous"		20	+		+	+	+	+	+	+	+
					40			+		+	+	+	+	+
					60			+		+	+	+	+	+
					80					+	+	+	+	+
					100					+	+	+	+	+
					120							+	+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Heptane	C_7H_{16}	98	technically pure	0.68 $^{20}_{4}$	20	+	+	+	+	+	+	+	+	+
					40					+	+	+	+	+
					60			0	0	+	+	+	+	+
					80		–			+		+	+	+
					100					+		+	+	+
					120							+	+	+
					150							+	+	+
Hexane	C_6H_{14}	69	technically pure	0.66 $^{20}_{4}$	20	+		+	+	+	+	+	+	+
					40					+	+	+	+	+
					60			0	0	+	+	+	+	+
					80					+		+	+	+
					100					+		+	+	+
					120							+	+	+
					150							+	+	+
Hydrazine hydrate	$H_2N–NH_2$ - H_2O	113	aqueous		20	+	–	+	+	–			+	+
					40			+	+				+	+
					60			+	+				+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Hydrobromic acid	HBr	124	"aqueous, 50%"	1.5	20	+		+	+	+	+	+	+	+
					40	+		+	+	+	+	+	+	+
					60	+		+	+	+	+	+	+	+
					80					+	+	+	+	+
					100					+	+	+	+	+
					120							+	+	+
					150							+	+	+
Hydrochloric acid "(see note on joining," page 38)	HCl		"5% aqueous"		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+		0	+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
			"10% aqueous"		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	0	+	+	+	+	+
					80		+		0	+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	Sygef PVDF	ECTFE	ETFE	FEP	PFA
Hydrochloric acid (continued)			"up to 30%" aqueous		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	0	+	+	+	+	+
					60	0	+	+	0	+	+	+	+	+
					80		+		–	+		+	+	+
					100					+		+	+	+
					120							+	+	+
					150							+	+	+
			"36% aqueous"	1.19	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	0	+	+	+	+	+
					60	0	+	+	–	+	+	+	+	+
					80					+	+	+	+	+
					100					+	+	+	+	+
					120							+	+	+
					150							+	+	+
Hydrocyanic acid	HCN	26	technically pure	0.90	20	+		+	+	+		+	+	+
					40	+		+	+	+		+	+	+
					60	0		+	+	+		+	+	+
					80					+		+	+	+
					100							+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Hydrofluoric acid "(see note on joining," page 38)	HF		"up to 40%" aqueous		20	+		+	+	+	+	+	+	+
					40	0		+	+	+	+	+	+	+
					60	0		0	+	+	+	+	+	+
					80					+		+	+	+
					100					+		+	+	+
					120							+	+	+
					150									
			"50% aqueous"		20	+		+	+	+	+	+	+	+
					40			+	+	+	+	+	+	+
					60			0	+	+	+	+	+	+
					80					+		+	+	+
					100					+		+	+	+
					120							+	+	+
					150								+	+
			"70% aqueous"		20	+		+	+	+	+	+	+	+
					40					+	+	+	+	+
					60			0		+	+	+	+	+
					80					+		+	+	+
					100					+		+	+	+
					120							+	+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Hydrogen	H_2	–253	technically pure		20	+		+	+	+	+	+	+	+
					40	+		+	+	+	+	+	+	+
					60	+		+	+	+	+	+	+	+
					80					+		+		
					100				–	+		+		
					120							+		
					150							+		
Hydrogen chloride	HCl	–85	"technically pure," gaseous	1.53 ^{20} gr/L	20	+		+	+	+	+		+	+
					40	+		+	+	+	+		+	+
					60	0		+	+	+	+		+	+
					80					+			+	+
					100					+			+	+
					120								+	+
					150								+	+
Hydrogen peroxide	H_2O_2		"10% aqueous"	1.46 ^{0}	20	+	+	+	+	0	+	+	+	+
					40	+	+	+	+	–	+	+	+	+
					60	0		+	+	–	+	+	+	+
					80		–					+	+	+
					100							+	+	+
					120							+	+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Hydrogen peroxide (continued)			"30% aqueous"		20	+	+	+	+	–	+	+	+	+
					40	+	+	+	+	–	+	+	+	+
					60			+	0	–	+	+	+	+
					80		–					+	+	+
					100							+	+	+
					120							+	+	+
					150								+	+
		"90% aqueous"			20			+	–	–	+	+	+	+
					40							+	+	+
					60			–				+	+	+
					80								+	+
					100								+	+
					120									
					150									
Hydrogen sulphide	H_2S		technically pure g/L°	1.54	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	+	+	0	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Hydrogen sulphide (continued)			"saturated," aqueous		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
Hydroxylamine sulphate	$(H_2N-OH)_2H2SO4$		"all, aqueous"		20	+		+	+				+	+
					40	+		+	+				+	+
					60			+	+				+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Hyposulphite	see Sodium dithionite													
Iodine solution	J_2		6.5% iodine in ethanol		20	–		+	+	+	+	+	+	+
					40					+	+	+	+	+
					60			0		+		+	+	+
					80							+	+	+
					100							+	+	+
					120								+	+
					150									

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Iron salts			"all, aqueous"		20	+		+	+	+	+		+	+
					40	+		+	+	+	+		+	+
					60	0		+	+	+	+		+	+
					80				+	+	+		+	+
					100					+	+		+	+
					120					+			+	+
					150								+	+
Iso-octane	$(CH_3)_3–C–CH_2–CH–(CH_3)_2$	99	technically pure	0.69 $^{20}_{4}$	20	+		+	+	+	+		+	+
					40					+	+		+	+
					60			0	0	+	+		+	+
					80					+	+		+	+
					100					+	+		+	+
					120								+	+
					150								+	+
Isopropyl alcohol	$(CH_3)_2$ - CH - OH	82	technically pure	0.79 $^{20}_{4}$	20	+		+	+	+	+		+	+
					40			+	+	+	+		+	+
					60			+	+	+	+		+	+
					80				+	0			+	+
					100				+				+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Isopropyl ether	$(CH_3)_2 \cdot CH-O-CH-(CH_3)_2$	68	technically pure	0.72	20	–		0	0	+	+		+	+
					40					+	+		+	+
					60			–	–	+			+	+
					80								+	+
					100								+	+
					120								+	+
					150									
Lactic acid	$CH_3CHOHCOOH$		"10% aqueous"	1.24^{15}_{4}	20	+	+	+	+	+	+	+	+	+
					40	0	+	+	+	+	+	+	+	+
					60	–		+	+	0	+	+	+	+
					80				+	0		+	+	+
					100				+	–		+	+	+
					120							+	+	+
					150								+	+
Lanolin			technically pure		20	+		+	+	+	+		+	+
					40	0		+	+	+	+		+	+
					60			+	+	+	+		+	+
					80					+	+		+	+
					100					+	+		+	+
					120					+			+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Linseed oil			technically pure		20	+		+	+	+	+	+	+	+
					40	+		+	+	+	+	+	+	+
					60	0		+	+	+	+	+	+	+
					80				+	+	+	+	+	+
					100				+	+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
Liqueurs					20	+		+	+	+	+		+	+
					40	+		+		+	+		+	+
					60					+	+		+	+
					80					+	+		+	+
					100						+		+	+
					120									
					150									
Lead acetate	$Pb(CH_3COO)_2$		"aqueous,"		20	+	+	+	+	+	+	+	+	+
			saturated		40	+	+	+	+	+	+	+	+	+
					60	+	+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Lubricating oils					20	+	+	+	0	+	+	+	+	+
					40	+	+	+		+	+	+	+	+
					60	+		0		+	+	+	+	+
					80		–			+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
Lubricating oils free of aromatic compounds					20	+		+	+	+	+	+	+	+
					40	+		+	+	+	+	+	+	+
					60	+		0	0	+	+	+	+	+
					80					+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
Magnesium salts	$MgCl_2$		"all, aqueous"	2.3	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100				+	+	+	+	+	+
					120					+		+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Maleic acid	CH–COOH CH–COOH	131*	"cold saturated," aqueous		20	+		+	+	+	+	+	+	+
					40	+		+	+	+	+	+	+	+
					60	0		+	+	+	+	+	+	+
					80					+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150								+	+
Marmelade					20	+		+	+	+	+		+	+
					40	0		+	+	+	+		+	+
					60	0		+	+	+	+		+	+
					80				+	+	+		+	+
					100				+	+	+		+	+
					120					+			+	+
					150									
Mercury	Hg		pure	13.5[25]	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	+	+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150									

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Mercury salts			"cold saturated," aqueous		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150								+	+
Methane (natural gas)	CH_4	–161	technically pure	0.72 g/L	20	+		+	+	+	+	+	+	+
					40					+	+	+	+	+
					60					+	+	+	+	+
					80						+	+	+	+
					100						+	+	+	+
					120							+	+	+
					150									
Methanol	CH_3OH	100	all	0.79 $20/4$	20	+	+	+	+	+	+		+	+
					40	+	+	+	+	0	+		+	+
					60	0	+	+	+	–			+	+
					80		+						+	+
					100								+	+
					120		<10%						+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Methyl acetate	CH_3COOCH_3	56	technically pure	0.93 $^{20}_{4}$	20	–		+	+	+	+		+	+
					40				+	0	+		+	+
					60				0				+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Methyl amine	CH_3NH_2	–6	"32% aqueous"	0.70 $^{11}_{4}$	20	0		+	+	0			+	+
					40								+	+
					60								+	+
					80								+	+
					100								+	+
					120									
					150									
Methyl bromide	CH_3Br	4	technically pure	1.73 $^{0}_{0}$	20	–		0	–	+	+	+	+	+
					40					+		+	+	+
					60					+		+	+	+
					80							+	+	+
					100							+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Methyl chloride	CH_3Cl	–24	technically pure	0.92^{20}	20	–	–	0	–	+	+	+	+	+
					40					+		+	+	+
					60					+		+	+	+
					80							+	+	+
					100							+	+	+
					120							+	+	+
					150							+	+	+
Methylene chloride	CH_2Cl_2	40	technically pure	1.33$^{20}_{4}$	20	–	–	0	0	+	+	+	+	+
					40					0	–	+	+	+
					60					0		+	+	+
					80							+	+	+
					100							+	+	+
					120								+	+
					150								+	+
Methyl ethyl ketone	$CH_3CO\,C_2H_5$	80	technically pure	0.82	20	–	–	+	+	–	+	+	+	+
					40			0	0		+	+	+	+
					60			–	0			+	+	+
					80							+	+	+
					100							+	+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Milk					20	+		+	+	+	+		+	+
					40	+		+	+	+	+		+	+
					60	+		+	+	+	+		+	+
					80				+	+	+		+	+
					100				+	+	+		+	+
					120					+			+	+
					150									
Mineral water					20	+	+	+	+	+	+		+	+
					40	+	+	+	+	+	+		+	+
					60	+	+	+	+	+	+		+	+
					80		+		+	+	+		+	+
					100				+	+	+		+	+
					120					+				
					150									
Mixed acids														
"(sulphuric,"	H_2SO_4		48%	1.83^{20}	20	+		–	–	+				
"nitric,"	HNO_3		49%	1.55^{0}	40	0								
water)	H_2O		3%		60	–								
					80									
					100									
					120									
					150									

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Mixed acids (continued)	H_2SO_4 HNO_3 H_2O		50% 50% 0%		20	0		–	–	+		+		
					40	–						+		
					60							+		
					80							+		
					100							+		
					120									
					150									
	H_2SO_4 HNO_3 H_2O		10% 87% 3%		20	0		–	–	0				
					40									
					60									
					80									
					100									
					120									
					150									
	H_2SO_4 HNO_3 H_2O		50% 31% 19%		20	+		–	–	+				
					40									
					60									
					80									
					100									
					120									
					150									

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Mixed acids (continued)	H_2SO_4 HNO_3 H_2O		50% 33% 17%		20 40 60 80 100 120 150	+		–	–	+				
						0								
	H_2SO_4 HNO_3 H_2O		10% 20% 70%		20 40 60 80 100 120 150	+		0	–	+				
						+				+				
										+				
										+				
Mixed acids ("nitric," "hydrofluoric," sulphuric)	15% pure HNO_3 5% pure HF 18% pure H_2SO_4		3 parts 1 part 2 parts	1.55° 0.92° 1.83²°	20 40 60 80 100 120 150	0		0	–	+				
										+				
										+				

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Mixed acids														
"(sulphuric,"	H_2SO_4		30%	1.83^{20}	20	+		+	+	+				
"phosphoric,"	H_3PO_4		60%	1.87^{25}	40	+		0	0	+				
water)	H_2O		10%		60					+				
					80					+				
					100									
					120									
					150									
Molasses					20	+		+	+	+	+		+	+
					40	+		+	+	+	+		+	+
					60	0		+	+	+	+		+	+
					80					+	+		+	+
					100						+		+	+
					120								+	+
					150									
Molasses wort					20	+		+	+	+	+		+	+
					40	+		+	+	+	+		+	+
					60	+		+	+	+	+		+	+
					80					+	+		+	+
					100						+		+	+
					120								+	+
					150									

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Monochloroacetic acid ethyl ester	$ClCH_2COOC_2H_5$	144	technically pure		20	0		+	+	0				
					40			+	+	–				
					60			+	+					
					80									
					100									
					120									
					150									
Monochloroacetic acid methyl ester	$ClCH_2COOCH_3$	130	technically pure		20	0		+	+	+				
					40			+	+	0				
					60			+	+					
					80									
					100									
					120									
					150									
Morpholin	C_4H_8ONH	129	technically pure	1.0 $^{20}_{4}$	20	–		+	+	+		+	+	+
					40			+	+	+		+	+	+
					60			+	+	0		+	+	+
					80							+	+	+
					100							+	+	+
					120								+	+
					150									

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Mowilith D			usual commercial		20	+		+	+	+				
					40									
					60									
					80									
					100									
					120									
					150									
Naphthalene	$C_{10}H_6$	218	technically purel	1.16^{20}_{2}	20	–	–	+	+	+	+	+	+	+
					40					+	+	+	+	+
					60			0		0	+	+	+	+
					80							+	+	+
					100							+	+	+
					120							+	+	+
					150							+	+	+
Nickel salts			"cold saturated," aqueous		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Nitric acid "(see note on joining," page 38)	HNO_3		"63% aqueous"		20	+	+	+	+	+	+		+	+
					40	+	+	+		+	+		+	+
					60	+	+	+	0	+	+		+	+
					80		+			+	+		+	+
					100					+	+		+	+
					120								+	+
					150								+	+
			"up to 40%" aqueous		20	+	+	0	0	+	+	+	+	+
					40	+	+			+	+	+	+	+
					60	0		–	–	+		+	+	+
					80					+			+	+
					100					+			+	+
					120								+	+
					150								+	+
			"65% aqueous"		20	0	+	0	–	+	+	+	+	+
					40	0	+	–		+	+		+	+
					60	–		–		+			+	+
					80					0			+	+
					100					–			+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Nitric acid (continued)			100%	1.55^{0}	20	–		–	–	0			+	+
					40					–			+	+
					60								+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Nitric oxide	see Nitrous gases													
Nitrobenzene	$C_6H_5NO_2$	209	technically pure	1.21^{15}_{4}	20	–	–	+	+	+	+	+	+	+
					40			+	+	0	+	+	+	+
					60			0	+	–	–	+	+	+
					80							+	+	+
					100							+	+	+
					120							+	+	+
					150							+	+	+
Nitrotoluene (3-) "(o-, m-, p-)"	$C_6H_4CH_3NO_2$	222–238	technically pure	1.16^{20}_{4}	20	–		+	+	+	+		+	+
					40			+	+	+	+		+	+
					60			0	0	+	0		+	+
					80					+			+	+
					100					0			+	+
					120								+	+
					150									

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Nitrous gases	NOx		"diluted, moist," anhydrous		20	+		+	+	+	+		+	+
					40			+	0	+	+		+	+
					60	0		+	–	+	+		+	+
					80					+	+		+	+
					100					+	+		+	+
					120								+	+
					150									
Oleic acid	$C_{17}H_{33}COOH$	16*	technically pure	0.85^{79}	20	+		+	+	+	+	+	+	+
					40	+		+	+	+	+	+	+	+
					60	+		0	0	+	+	+	+	+
					80					+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150								+	+
Oleum	$H_2SO_4+SO_3$		10% SO 3	1.83^{20}	20	–	–	–	–	–	+	+	+	+
				2.72	40						–	+	+	+
				.g/L^{20}	60								+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Oleum vapours			traces		20	+		–	–	–	+		+	+
					40						–		+	+
					60								+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Olive oil					20	+	0	+	+	+	+		+	+
					40	+		+	+	+	+		+	+
					60	+		0	+	+	+		+	+
					80				+	+	+		+	+
					100						+		+	+
					120								+	+
					150								+	+
Oxalic acid	$(COOH)_2$		"cold saturated, aqueous	"1.90^{17}_{4}	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+		+	+
					60	+	+	+	+	0	–		+	+
					80		0						+	+
					100								+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Oxygen	O_2		technically pure		20	+	+	+	+	+	+	+	+	+
					40	+	+	+		+	+	+	+	+
					60	+	+	0	0	+	+	+	+	+
					80		+			+	+	+	+	+
					100					0	+	+	+	+
					120					0		+	+	+
					150							+	+	+
Ozone (for ultra high purity applications contact factory)	O_3		"cold saturated," aqueous		20	+		0	0	+			+	+
					40	+		–	–	+			+	+
					60					+			+	+
					80					0			+	+
					100								+	+
					120								+	+
					150								+	+
Palmitic acid	$C_{15}H_{31}COOH$	390	technically pure	0.85 (62/4)	20	+		0	0	+	+	+	+	+
					40					+	+	+	+	+
					60				–	+	+	+	+	+
					80					+		+	+	+
					100					+		+	+	+
					120					+		+	+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
"Palm oil, palm nut oil"					20	+	0	+	+	+	+		+	+
					40	–		+	+	+	+		+	+
					60			0	0	+	+		+	+
					80					+	+		+	+
					100					+	+		+	+
					120								+	+
					150								+	+
Parafin emulsions			usual "commercial," aqueous		20	+	+	+	+	+	+		+	+
					40	+	+	+	+	+	+		+	+
					60			0	0	+	+		+	+
					80		0			+	+		+	+
					100					+	+		+	+
					120								+	+
					150									
Paraffin oil					20	+		+	+	+	+		+	+
					40	+		+	+	+	+		+	+
					60	0		+	0	+	+		+	+
					80					+	+		+	+
					100					+	+		+	+
					120					+			+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Perchloric acid	$HClO_4$		"10% aqueous"	1.67	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0		+	+	+	0	+	+	+
					80		–			+		+	+	+
					100					+		+	+	+
					120								+	+
					150									
			% aqueous"		20	0		+	0	+	+	+	+	+
					40			0	–	+		+	+	+
					60			–		+		+	+	+
					80					+			+	+
					100					+			+	+
					120								+	+
					150									
Perchloroethylene (tetrachloroethylene)	$C_{12}C=CC_{12}$	121	technically pure	1.62^{20}_4	20	–		0	0	+	+	+	+	+
					40					+	+	+	+	+
					60					+	+	+	+	+
					80					0		+	+	+
					100					0		+	+	+
					120							+	+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Petroleum			technically pure		20	+		+	+	+	+	+	+	+
					40			+	0	+	+	+	+	+
					60			0	0	+	+	+	+	+
					80					+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
Petroleum ether		40–70	technically pure	0.64	20	+		+	+	+	+	+	+	+
					40	+		0	+	+	+	+	+	+
					60	+		0	0	+	+	+	+	+
					80					+	+	+	+	+
					100					+	+	+	+	+
					120								+	+
					150								+	+
Petroleum jelly			technically pure		20	0		0	+	+				
					40	–				+				
					60			–	0	+				
					80					+				
					100					+				
					120					+				
					150									

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Phenol	C_6H_5OH	182	"up to 10%" aqueous	1.06^{41}_{4}	20	+			+	+	+	+	+	+
					40	0			+	+	+	+	+	+
					60				0	+	+		+	+
					80						+		+	+
					100						+		+	+
					120								+	+
					150								+	+
			"up to 90%" aqueous		20	0			+	+	+	+	+	+
					40				+	+	+	+	+	+
					60				0	+	0	+	+	+
					80							+	+	+
					100							+	+	+
					120								+	+
					150								+	+
Phenylhydrazine	$C_6H_5NH–NH_2$	243	technically pure	1.10^{20}_{4}	20	–	–		0	0	+		+	+	+
					40						+		+	+	+
					60								+	+	+
					80								+	+	+
					100								+	+	+
					120									+	+
					150									+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Phenylhydrazine hydrochloride	$C_6H_5NH–NH_3+Cl–$		aqueous		20	0			+	+		+	+	+
					40				0	+		+	+	+
					60				0	+		+	+	+
					80							+	+	+
					100							+	+	+
					120									
					150									
Phosgene	$COCl_2$	8	"liquid," technically pure	1.39	20	–			0		+	+	+	+
					40							+	+	+
					60									
			"gaseous," technically pure		20	+		0	0	+	+	+	+	+
					40	0				+		+	+	+
					60	0								
Phosphoric acid	H_3PO_4		"up to 30%" aqueous	1.7	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Phosphoric acid (continued)			"50% aqueous"		20	+	+	+	+	+	+		+	+
					40	+	+	+	+	+	+		+	+
					60	+	+	+	+	+	+		+	+
					80		+			+	+		+	+
					100					+	+		+	+
					120					+	+		+	+
					150						0		+	+
			"85% aqueous"		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	+	+	0	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100				+	+	+	+	+	+
					120					+	+	+	+	+
					150						0		+	+
Phosphorous chlorides:														
phosphorous trichloride	PCl_3	75	technically pure	1.57	20	–	–	+	+	–		+	+	+
					40							+	+	+
phosphorous pentachloride	PCl_5	162			60			0	0			+	+	+
					80							+	+	+
phosphorous oxychloride	$POCl_3$	105			100							+	+	+
					120									
					150									

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
								Sygef						
Phosphorous pentoxide	P_2O_5		technically pure		20	+		+	+	+	+	+	+	+
					40	+		+		+	+	+	+	+
					60					+	+	+	+	+
					80					+		+	+	+
					100					+		+	+	+
					120									
					150									
Photographic emulsion					20	+		+	+	+	+		+	+
					40	+		+	+	+			+	+
					60					+			+	+
					80									
					100									
					120									
					150									
Photographic developer			usual		20	+		+	+	+	+		+	+
			commercial		40	+		+	+	+			+	+
					60	0		0		+			+	+
					80									
					100									
					120									
					150									

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Photographic fixer			usual commercial		20	+		+	+	+	+		+	+
					40	+		+	+	+			+	+
					60	0				+			+	+
					80									
					100									
					120									
					150									
Phthalic acid	$C_6H_4(COOH)_2$	208*	"satura aqueous"	1.59^{20}_{4}	20	+		+	+	+	+	+	+	+
					40	0		+	+	+	+	+	+	+
					60	–		+	+	+		+	+	+
					80					+		+	+	+
					100					+		+	+	+
					120								+	+
					150								+	+
Picric acid	$C_6H_2(NO_2)_3OH$	122*	"1% aqueous"	1.77^{20}_{4}	20	+	–	+	+	+		+	+	+
					40					+		+	+	+
					60					+			+	+
					80					+			+	+
					100					+			+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	Sygef PVDF	ECTFE	ETFE	FEP	PFA
Plating Solutions	Brass				20	+	+	+	+	+	+	+		
					40	+	+	+	+	+	+	+		
					60	+	+	+	+	+	+	+		
					80		+		+	+	+	+		
					100					+	+	+		
					120					+	+	+		
	Plating Solutions	Cadmium			20	+	+	+	–	+		+		
(continued)					40	+	+	+		+		+		
					60	+	+	+		+		+		
					80		+			+		+		
					100		+			+		+		
					120							+		
	Chrome				20	+	+	+	–	+		+		
					40	+	+	+		+		+		
					60	+	+	+		+		+		
					80		+			+		+		
					100					+		+		
					120					+		+		

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Plating Solutions (continued)	Copper				20	+	+	+	+	+		+		
					40	+	+	+	+	+		+		
					60	+	+	+	+	+		+		
					80		+		+	+		+		
					100					+		+		
					120							+		
	Gold				20	+	+	+	–	+		+		
					40	+	+	+		+		+		
					60	+	+	+		+		+		
					80		+			+		+		
					100					+		+		
					120					+		+		
Potash (potassium carbonate)	K_2CO_3		"cold saturated," aqueous	2.4	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	0	+	+	+	+
					60		+		+	0	+	+	+	+
					80		+				+	+	+	+
					100						+	+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Potassium /aluminium sulphates (alum)	$Al_2(SO_4)_3K_2SO_4$	106	"50% aqueous"		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120					+	+	+	+	+
					150							+	+	+
Potassium bichromate	$K_2Cr_2O_7$	107	"saturated," aqueous	2.7	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+		+	+	+
					80		+		+	+		+	+	+
					100				+	+		+	+	+
					120					+		+	+	+
					150							+	+	+
Potassium borate	K_3BO_3		"10% aqueous"		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+		+	+	+	+
					60	0	+	+	+		0	+	+	+
					80		+					+	+	+
					100							+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Potassium bromate	$KBrO_3$		"cold saturated," aqueous	3.27^{17}	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	0	+	+		+	+	+
					80		+		+	+		+	+	+
					100				+	+		+	+	+
					120					+		+	+	+
					150							+	+	+
Potassium bromide	KBr		"all, aqueous"	2.75	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
Potassium carbonate	see Potash													
Potassium chlorate	$KClO_3$		"cold saturated," aqueous	2.33^{20}	20	+	+	+	+	0	+	+	+	+
					40	+	+	+	+	–	+	+	+	+
					60	+	+	+	+		+	+	+	+
					80		+				+	+	+	+
					100						+	+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
								Sygef						
Potassium chloride	KCl		"all, aqueous"	1.99	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	+	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100				+	+	+	+	+	+
					120					+	+	+	+	+
					150							+	+	+
Potassium chromate	K_2CrO_4		"cold saturated," aqueous	2.73^{20}	20	+	+	+	+	+	+	+	+	+
					40	+	+		+	+	+	+	+	+
					60	+	+		+	+		+	+	+
					80		+			+		+	+	+
					100					+		+	+	+
					120							+	+	+
					150							+	+	+
Potassium cyanide	KCN		"cold saturated," aqueous	1.52^{16}	20	+	+	+	+	+		+	+	+
					40	+	+	+	+	+		+	+	+
					60	+	+	+	+	0		+	+	+
					80		+					+	+	+
					100							+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Potassium hydroxide	see Caustic potash solution													
Potassium iodide	KI		"cold saturated aqueous	," 3.12	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	+	+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120							+	+	+
					150							+	+	+
Potassium nitrate	KNO_3		"50% aqueous"	2.1	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	+	+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120							+	+	+
					150							+	+	+
Potassium perchlorate	$KClO_4$		"cold saturated, aqueous	" 2.5	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+		+	+	+
					80		+			+		+	+	+
					100							+	+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Potassium permanganate	$KMnO_4$		aqueous "cold saturated,"	2.7	40	+	+	+	+	+	+	+	+	+
					20	+	+	+	+	+	+	+	+	+
					60	0	+	0	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120							+	+	+
					150							+	+	+
Potassium persulphate	$K_2S_2O_8$		"all, aqueous"	`2.5	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0		+	+	+	+	+	+	+
					80		–			+			+	+
					100								+	+
					120								+	+
					150								+	+
Potassium phosphates	KH_2PO_4 and K_2HPO_4		"all, aqueous"		20	+	+	+	+	+	+		+	+
					40	+	+	+	+	+	+		+	+
					60	0	+	+	+	+	+		+	+
					80		+		+	+			+	+
					100								+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Potassium sulphate	K_2SO_4		"all, aqueous"	2.7	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120							+	+	+
					150							+	+	+
Propane	C_3H_8	–42	"technically pure," liquid		20	+			+	+	+	+	+	+
					40						+	+	+	+
					60						+			
					80									
					100									
					120									
					150									
	C_3H_8		"technically pure," gaseous		20	+			+	+	+	+	+	+
					40						+	+	+	+
					60						+		+	+
					80								+	+
					100								+	+
					120								+	+
					150									+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
"Propanol, n - and iso-"	C_3H_7OH	97 and 82 resp.	technically pure	0.80 $^{20}_{4}$	20	+	0	+	+	+	+		+	+
				0.79 $^{20}_{4}$	40	0		+	+	+	+		+	+
					60	0		+	+	+	+		+	+
					80					0			+	+
					100								+	+
					120								+	+
					150								+	+
Propargyl alcohol	$CH{:}CCH_2{-}OH$	114	"7% aqueous"	0.97 $^{20}_{4}$	20	+	0	+	+	+	+		+	+
					40	+		+	+	0	+		+	+
					60	+		+	+	0			+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Propionic acid	CH_3CH_2COOH	141	"50% aqueous"		20	+	0	+	+	+	+	+	+	+
					40	+		+	+	+	+	+	+	+
					60	0		+	+	+		+	+	+
					80							+	+	+
					100							+	+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Propionic acid (continued)			technically pure	0.99 $^{26}_{4}$	20	+	0	+	+	+	+	+	+	+
					40	0		0	0	+	+	+	+	+
					60			0	0	+		+	+	+
					80							+	+	+
					100							+	+	+
					120								+	+
					150								+	+
Propylene glycol	$CH_3CHOHCH_2OH$	188	technically pure	1.04 $^{20}_{4}$	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	+	+	+	+	+	+	+	+	+
					80		+				+	+	+	+
					100						+	+	+	+
					120		<25%				+		+	+
					150								+	+
Propylene oxide	$CH_2–CH–CH_3$ O	35	technically pure	0.86 $^{0}_{4}$	20	0	–	+	+	+	+	+	+	+
					40					0	+	+	+	+
					60							+	+	+
					80								+	+
					100								+	+
					120								+	+
					150									

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Prussic acid	see Hydrocyanic acid													
Pyridine	$N(CH)_4$	115	technically pure	0.98^{25}_{4}	20	–	–	+	0	+	-	+	+	+
					40			0	0	–	-	+	+	+
	CH				60			0	0			+	+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Ramasit fabric water-proofing	agents		usual commercial		20	+				+				
					40	+				+				
					60	+				+				
					80									
					100									
					120									
					150									
Salpetre	see Potassium nitrate													
Silico fluoric acid	see Fluosilicic acic													

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
								Sygef						
Silicone oil					20	+	+	+	+		+		+	+
					40	0		+	+		+		+	+
					60	–		+	+		+		+	+
					80		–		+				+	+
					100				+				+	+
					120								+	+
					150								+	+
Silver salts			"cold saturated,"		20	+	+	+	+	+	+	+	+	+
			aqueous		40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120							+	+	+
					150							+	+	+
Soap solution			"all, aqueous"		20	+	+	+	+	+				
					40	+	+	+	+	+				
					60	0	+	+	+	+				
					80		+			+				
					100					+				
					120									
					150									

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Soda	see Sodium carbonate													
Sodium acetate	CH_3COONa		"all, aqueous"	1.53	20	+	+	+	+	+	+	+	+	+
					40		+	+	+	+	+	+	+	+
					60		+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100				+	0	+	+	+	+
					120							+	+	+
					150							+	+	+
Sodium benzoate	C_6H_5COONa		"cold saturated," aqueous		20	+	+	+	+	+		+		
					40	+	+	+	+	+		+		
					60	0	+	+	+	+		+		
					80		+			+		+		
					100					0		+		
					120							+		
					150							+		
Sodium bicarbonate	$NaHCO_3$		"cold saturated," aqueous	2.2	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	+	+	+	+	+	+	+	+	+
					80		+		+	0	+	+	+	+
					100						+	+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
								Sygef						
Sodium bisulphate	$NaHSO_4$		"10% aqueous"	2.4	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+			+		+	+	+
					100					+		+	+	+
					120					+		+	+	+
					150							+	+	+
Sodium bisulphite	$NaHSO_3$		"all, aqueous"	1.5	20	+	+	+	+	+	+	+	+	+
					40	0	+	+	+	+	+	+	+	+
					60	–	+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120							+	+	+
					150							+	+	+
Sodium bromate	$NaBrO_3$		"all, aqueous"	3.34	20	+		+	+	+	+	+	+	+
					40	0		0	0	+	+	+	+	+
					60					+	+	+	+	+
					80					+		+	+	+
					100					+		+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
								Sygef						
Sodium bromide	NaBr		"all, aqueous"	3.2	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80				+	+	+	+	+	
					100					+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
Sodium carbonate (soda)	Na_2CO_3		"cold saturated," aqueous	1.55	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	0	+	+	+	+
					60	+	+	+	+	0	+	+	+	+
					80		+		+		+	+	+	+
					100				+		+	+	+	+
					120							+	+	+
					150							+	+	+
Sodium chlorate	$NaClO_3$		"all, aqueous"	2.5	20	+	+	+	+	0	+	+	+	+
					40	+	+	+	+		+	+	+	+
					60	0	+	+	+		+	+	+	+
					80		+					+	+	+
					100							+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Sodium chloride (cooking salt)	NaCl		"all, aqueous"	2.2	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100					+	+	+	+	+
					120					+	+	+	+	+
					150							+	+	+
Sodium chlorite	$NaClO_2$		"diluted, aqueous"	2.47	20	0	+	+	+	+	+	+	+	+
					40		+		+	+	+	+	+	+
					60		+		0	+		+	+	+
					80		+			+		+	+	+
					100					0		+	+	+
					120							+	+	+
					150							+	+	+
Sodium chromate	Na_2CrO_4		"diluted," aqueous	2.72	20	+	+	+	+	+	+	+	+	+
					40	+	+		+	+	+	+	+	+
					60	0	+			+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Sodium disulphite	$Na_2S_2O_5$		"all, aqueous"		20	+		+	+	+				
					40	+				+				
					60	0				+				
					80					+				
					100					+				
					120									
					150									
Sodium dithionite (hyposulphite)	$Na_2S_2O_4$		"up to 10%" aqueous		20	+		+	+	+	+	+	+	+
					40	+		+	+	+	+	+	+	+
					60	0		+	+	0	+	+	+	+
					80						+	+	+	+
					100						+	+	+	+
					120							+	+	+
					150							+	+	+
Sodium fluoride	NaF		"cold saturated," aqueous	2.78	20	+	+	+	+	+	+	+	+	+
					40	+	+			+	+	+	+	+
					60		+			+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA	Sygef
Sodium hydroxide	see Caustic soda solution														
Sodium hypochlorite	Na O Cl		12.5% active		20	+	+	0	0	0	+	+	+	+	
			"chlorine,"		40	+	+	–	–		+	+	+	+	
			aqueous		60	0	+				+	+	+	+	
					80		+					+	+	+	
					100							+	+	+	
					120							+	+	+	
					150							+	+	+	
Sodium iodide	Na I		"all, aqueous"	3.67^{25}_{4}	20	+	+	+	+	+	+	+	+	+	+
					40	+	+			+	+	+	+	+	
					60	0	+			0	+	+	+	+	
					80		+				+	+	+	+	
					100						+	+	+	+	
					120							+	+	+	
					150							+	+	+	

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
								Sygef						
Sodium nitrate	$NaNO_3$		"cold saturated," aqueous	2.26	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
Sodium nitrite	$NaNO_2$		"cold saturated," aqueous	2.17	20	+	+	+	+	+	+	+	+	
					40		+			+	+	+	+	
					60		+			+	+	+	+	
					80		+			+	+	+	+	
					100					+	+	+	+	
					120					+		+	+	
					150							+	+	
Sodium oxalate	$Na_2C_2O_4$		"cold saturated," aqueous	2.27	20	+		+	+	+	+		+	
					40	+				+	+		+	
					60	0				0	+		+	
					80						+		+	
					100						+		+	
					120								+	
					150								+	

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Sodium persulphate	$Na_2S_2O_8$		"cold saturated," aqueous		20	+		+	+	+	+	+	+	+
					40	+		+	+	+	+	+	+	+
					60	0		+	+	+	+	+	+	+
					80							+	+	+
					100								+	+
					120								+	+
					150								+	+
Sodium phosphate	Na_3PO_4		"cold saturated," aqueous	2.54[18]	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+		+	0	+	+	+	+
					100				+	–	+	+	+	+
					120							+	+	+
					150							+	+	+
Sodium silicate	Na_2SiO_3		"all, aqueous"	2.61	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	0	+	+	+	+
					80		+			–	+	+	+	+
					100						+	+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Sodium sulphate	Na_2SO_4		"cold saturated," aqueous	2.66	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
Sodium sulphide	Na_2S		"cold saturated," aqueous	1.86^{14}_{4}	20	+	+	+	+	0	+	+	+	+
					40	+	+	+	+	0	+	+	+	+
					60	0	+	+	+	0	+	+	+	+
					80		+				+	+	+	+
					100						+	+	+	+
					120							+	+	+
					150							+	+	+
Sodium sulphite	Na_2SO_3		"cold saturated," aqueous	2.63^{15}_{4}	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Sodium thiosulphate	$Na_2S_2O_3$		"cold saturated," aquoeus	2.35	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120							+	+	+
					150							+	+	+
Spindle oil					20	0		0	+	+	+		+	+
					40				0	+	+		+	+
					60			0	–	+	+		+	+
					80					+	+		+	+
					100						+		+	+
					120								+	+
					150								+	+
Spinning bath acids containing carbon disulphide			100mg CS2/l		20	+		+	+	+				
					40	+				+				
					60									
					80									
					100									
					120									
					150									

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Spinning bath acids containing carbon disulphide (continued)			200mg CS2/l		20			+	+	+				
					40	0				+				
					60									
					80									
					100									
					120									
					150									
			700mg CS2/l		20			+	+	+				
					40	–				+				
					60									
					80									
					100									
					120									
					150									
Spirits – Brandy			usual commercial		20	+		+	+	+	+		+	+
					40	+		+	+	+	+		+	+
					60	+		+	+	+	+		+	+
					80					+	+		+	+
					100					+	+		+	+
					120									
					150									

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Stannous chloride	$SnCl_2$		"cold saturated," aqueous		20	+	+	+	+	+		+		
					40	0	+	+	+	+		+		
					60	0	+	+	+	+		+		
					80		+			+		+		
					100					+		+		
					120							+		
					150							+		
Starch solution			"all, aqueous"		20	+	+	+	+	+	+		+	+
					40	+	+	+	+	+	+		+	+
					60	+	+	+	+	+	+		+	+
					80		+			+	+		+	+
					100					+	+		+	+
					120								+	+
					150									
Starch syrup			usual commercial		20	+	+	+	+	+	+		+	+
					40	+	+	+	+	+	+		+	+
					60	+	+	+	+	+	+		+	+
					80		+			+	+		+	+
					100					+	+		+	+
					120								+	+
					150									

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Stearic acid	$C_{17}H_{35}COOH$	69*	technically pure	0.84 70	20	+	+	+	+	+	+	+	+	+
					40	+	+			+	+	+	+	+
					60	+		0	0	+	+	+	+	+
					80		–			+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
Succinic acid	$HOOC–CH_2–CH_2–COOH$	185*	"aqueous, all"	1.55	20	+		+	+	+	+	+	+	+
					40	+		+	+	+	+	+	+	+
					60	+		+	+	+	+	+	+	+
					80							+	+	+
					100							+	+	+
					120							+	+	+
					150								+	+
Sugar syrup			usual commercial		20	+	+	+	+	+	+		+	+
					40	+	+	+	+	+	+		+	+
					60	0	+	+	+	+	+		+	+
					80		+		+	+	+		+	+
					100				+	+	+		+	+
					120					+			+	+
					150									

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
								Sygef						
Sulfur	S	119	*technically pure	1.92	20	0	+	+	+	+	+	+	+	+
					40	–		+	+	+	+	+	+	+
					60			+	+	+	+	+	+	+
					80		–		+	+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150								+	+
Sulfur dioxide	SO 2	–10	"technically pure," anhydrous	2.72 .g/L^{20}	20	+			+	+	0	+	+	+
					40	+			+	+	0	+	+	+
					60	+			+	+	–	0	+	+
					80								+	+
					100								+	+
					120									+
					150									+
			"all, moist"		20	+			+	+	+	+	+	+
					40	+			+	+	0	+	+	+
					60	0			+	+	–	+	+	+
					80								+	+
					100								+	+
					120									+
					150									+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Sulfur dioxide (continued)			"technically pure," liquid		20	–		–	–	–	+	+	+	+
					40						+	+	+	+
					60						0	+	+	+
					80							+	+	+
					100							+	+	+
					120								+	+
					150								+	+
Sulfur trioxide	SO_3		moist	1.92 ^{20}	20	–		–	–	0	+	+	+	+
					40						+		+	+
					60								+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Sulfuric acid "(see note on joining," page 2.2)	H_2SO_4		"up to 40%" aqueous	1.84	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120					+	0	+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
Sulfuric acid (conti.)			"up to 60%" aqueous		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	+	+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120					+	0	+		+
					150							+		+
			"up to 80%" aqueous		20	+	+	+	+	+	+		+	+
					40	+	+	+	+	+	+		+	+
					60	+	+	0	0	+	+		+	+
					80		+			+	+			+
					100					+	+			+
					120					0	0			+
					150									+
			"90% aqueous"		20	+	+	0	0	+	+		+	+
					40	+	+			+	+		+	+
					60		+			+	+		+	+
					80					+	+			+
					100					0	+			+
					120					0				+
					150									+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Sulfuric acid (conti.)			"96%, aqueous"		20	+	+	–	–	+	+		+	+
					40	+	+			0	+		+	+
					60	0					+		+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
			97%		20		+			0				
					40		+			–				
					60									
					80									
					100									
					120									
					150									
			98%	1.84	20		+			–	+	+	+	+
					40		+				+	+	+	+
					60						–	+	+	+
					80							+	+	+
					100							+	+	+
					120							+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Sulfurous acid	H_2SO_3		"saturated," aqueous	1.03	20	+		+	+	+	+	+	+	+
					40	+		+	+	+	+	+	+	+
					60	0		+	+	+	+	+	+	+
					80					+	+	+	+	+
					100					+	+	+	+	+
					120								+	+
					150								+	+
Sulfuryl chloride	SO_2Cl_2	69	technically pure	1.87	20	–		–	–	0	+		+	+
					40						+		+	+
					60								+	+
					80								+	+
					100								+	+
					120								+	+
					150									
Tallow			technically pure	0.86	20	+		+	+	+				
					40	+		+	+	+				
					60	+		+	+	+				
					80					+				
					100					+				
					120									
					150									

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Tannic acid	$C_{14}H_{10}O_9$		"all, aqueous"		20	+	+	+	+		+	+	+	+
					40			+	+		+	+	+	+
					60			+	+		+	+	+	+
					80						+	+	+	+
					100						+	+	+	+
					120							+	+	+
					150								+	+
Tanning extracts from plants			usual		20	+		+	+		+		+	+
					40						+		+	+
					60						+		+	+
					80						+		+	+
					100						+		+	+
					120								+	+
					150								+	+
Tartaric acid	$HOOC(CHOH)_2COOH$	170*	"all, aqueous"	1.76	20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0		+	+	+	+	+	+	+
					80		–			+		+	+	+
					100					+		+	+	+
					120					+		+	+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Tetrachloroethane	$Cl_2CH–CHCl_2$	146	technically pure	1.59^{25}_{4}	20	–		0	0	+	+		+	+
					40					+	+		+	+
					60					+	+		+	+
					80					0			+	+
					100					–			+	+
					120								+	+
					150								+	+
Tetrachloroethylene	see Perchloroethylene													
Tetraethyl lead	$(CH_3CH_2)_4Pb$		technically pure	1.65^{20}_{4}	20	+		+	+	+	+	+	+	+
					40					+		+	+	+
					60					+		+	+	+
					80					+		+	+	+
					100					+		+	+	+
					120					+		+	+	+
					150							+	+	+
Tetrahydrofurane	C_4H_8O	66	technically pure	0.89^{20}_{4}	20	–	–	0	–	0	+	+	+	+
					40					0		+	+	+
					60					0		+	+	+
					80							+	+	+
					100							+	+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Tetrahydronaphthalene (teralin)	$C_{10}H_{12}$	207	technically pure	0.97^{20}_{4}	20	–		0	–	+	+		+	+
					40						+		+	+
					60						+		+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Thionyl chloride	$SOCl_2$	79	technically pure	1.64^{20}_{4}	20	–	–	–	–	0	+		+	+
					40					–	+		+	+
					60								+	+
					80								+	+
					100								+	+
					120								+	+
					150									
Tin dichloride	see Stannous chloride													
Toluene	$C_6H_5CH_3$	111	technically pure	0.87^{20}_{4}	20	–	–	0	0	+	+	+	+	+
					40				–	+	+	+	+	+
					60			–		0	+	+	+	+
					80					–		+	+	+
					100							+	+	+
					120							+	+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Tributylphosphate	$(C_4H_9)_3PO_4$	289	technically pure	0.93^{20}_4	20	–	–	+	+	+	+		+	+
					40			+	+		+		+	+
					60			+	+				+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Trichlorethylene	$Cl_2C = CHCl$	87	technically pure	1.46^{20}_4	20	–	–	–	0	+	+	+	+	+
					40					+	+	+	+	+
					60					+	+	+	+	+
					80					+		+	+	+
					100							+	+	+
					120							+	+	+
					150								+	+
Trichloroacetic acid	$Cl_3C–COOH$	196	technically pure	1.63^{61}_4	20	0		+	+	0	+		+	+
					40			0	+		+		+	+
					60			–	+		–		+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Trichloroacetic acid (continued)			"50%, aqueous"		20	+		+	+	+	+		+	+
					40	0		+	+	+	+		+	+
					60			+	+	0	–		+	+
					80					–			+	+
													+	+
					120								+	+
					150								+	+
Trichloroethane (methylchloroform)	$Cl_3–C–CH_3$	74	technically pure	1.34^{20}	20	–		0	0	+	+		+	+
					40					+	+		+	+
					60					+	+		+	+
					80					0			+	+
					100					–			+	+
					120								+	+
					150								+	
+Trichloromethane	see Chloroform													
"1,1,2-Trichloro-" "1,2,2,-Trifluoroethane" (Freon 113)	$FCl_2C–CClF_2$	47	technically pure	1.56^{25}	20	+				+	+		+	+
					40	+					+		+	+
					60								+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Tricresyl phosphate	$(CH_3C_6H_4O)_3PO_4$		technically pure	1.14	20	–		+	+		+		+	+
					40			+			+		+	+
					60			+	0		+		+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Triethanolamine	$N(CH_2–CH_2–OH)_3$	21*	technically pure	1.12^{20}_4	20	0		+	+	+			+	+
					40			+					+	+
					60			+					+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Triethylamine	$N(CH_2–CH_3)_3$	89	technically pure	0.73^{25}_4	20					0		+	+	+
					40					–		+	+	+
					60							+	+	+
					80							+	+	+
					100							+	+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Trioctyl phosphate	$(C_8H_{17})_3PO_4$		technically pure	0.92	20	–		0	+		+		+	+
					40						+		+	+
					60								+	+
					80								+	+
					100								+	+
					120								+	+
					150								+	+
Turpentine oil			technically pure	0.9	20	+	–	0	–	+		+		
					40	0		0				+		
					60			0				+		
					80							+		
					100							+		
					120							+		
					150									
Urea	$H_2N–CO–NH_2$	133*	"up to 30%" aqueous	1.3^{18}_{4}	20	+		+	+	+		+	+	+
					40	+		+	+	+		+	+	+
					60	0		+	+	+		+	+	+
					80					+		+	+	+
					100					0		+	+	+
					120							+	+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
								Sygef						
Urine					20	+	+	+	+	+	+		+	+
					40	+	+	+	+	+	+		+	+
					60	0	+	+	+	+	+		+	+
					80		+			+			+	+
					100					+			+	+
					120								+	+
					150								+	+
Vegetable oils and fats					20	+	0	+	+	+				
					40	0		0	+	+				
					60				0	+				
					80					+				
					100					+				
					120									
					150									
Vinegar			usual commercial		20	+	+	+	+	+	+		+	+
					40	+	+	+	+	+	+		+	+
					60	+	+	+	+	+	+		+	+
					80		+		+	+	+		+	+
					100					+	+		+	+
					120								+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
								Sygef						
Vinyl acetate	$CH_2 = CHOOCCH_3$	73	technically pure	0.93 $^{20}_{4}$	20	–	–		+	0	+	+	+	+
					40					–	+	+	+	+
					60				0		+	+	+	+
					80							+	+	+
					100							+	+	+
					120							+	+	+
					150								+	+
Vinyl chloride	$CH_2 = CHCl$	–14	technically pure	0.97 $^{-14}$	20	–				+	+	+	+	+
					40					+		+	+	+
					60					+		+	+	+
					80					+			+	+
					100								+	+
					120								+	+
					150								+	+
Viscose spinning solution					20	+		+	+	+				
					40	+		+	+	+				
					60	+		+	+	+				
					80									
					100									
					120									
					150									

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
								Sygef						
Waste gases – Alkaline					20	+		+	+	+	+		+	+
					40	+		+	+	0	+		+	+
					60	+		+	+	–			+	+
					80				+				+	+
					100								+	+
					120								+	+
					150								+	+
Waste gases containing – Carbon oxides			all		20	+		+	+	+	+		+	+
					40	+		+	+	+			+	+
					60	+		+	+	+			+	+
					80				+	+			+	+
					100					+			+	+
					120					+			+	+
					150								+	+
Waste gases containing – Hydrochloric acid			all		20	+		+	+	+	+		+	+
					40	+		+	+	+	+		+	+
					60	+		+	+	+	+		+	+
					80				0	+			+	+
					100					+			+	+
					120					+			+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	Sygef PVDF	ECTFE	ETFE	FEP	PFA
Waste Gases – Hydrogen fluoride			traces		20	+		+	+	+	+		+	+
					40	+		+	+	+	+		+	+
					60	+		+	+	+	+		+	+
					80					+				
					100					+				
					120									
					150									
Waste Gases – Nitrous gases			traces		20	+		+	+	+	+		+	+
					40	+		+	+	+	+		+	+
					60	+		+	0	+	+		+	+
					80					+	+		+	+
					100					+	+		+	+
					120								+	+
					150								+	+
Waste Gases – Sulphur dioxide			traces		40	+		+	+	+	+		+	+
					60	+		+	+	+			+	+
					20	+		+	+	+	+		+	+
					80				+	+			+	+
					100					+			+	+
					120								+	+
					150									

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	Sygef PVDF	ECTFE	ETFE	FEP	PFA
Waste Gases														
– Sulphur trioxide			traces		20	+		+	+	+	+		+	+
					40	+		+	+	+	+		+	+
					60	+		+	0	+	+		+	+
					80				0	+	+		+	+
					100					+	+		+	+
					120								+	+
					150								+	+
Waste Gases														
– Sulphuric acid			all		20	+		+	+	+	+		+	+
					40	+		+	+	+	+		+	+
					60	+		+	0	+	+		+	+
					80					+	+		+	+
					100					+	+		+	+
					120								+	+
					150								+	+
"Water, condensed"					20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150							+	+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	PP	PVDF	ECTFE	ETFE	FEP	PFA
"Water distilled," deionized	H_2O	100			20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	+	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100				+	+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
"Water, drinking"					20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	+	+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100				+	+	+	+	+	+
					120					+		+	+	+
					150							+	+	+
"Water, waste water" without organic solvent					20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60		+	+	+	+	+	+	+	+
					80		+		+	+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150								+	+

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Wax alcohol	$C_{31}H_{63}OH$		technically pure		20	+		0	0	+	+		+	+
					40	+				+	+		+	+
					60	+		–	–	+	+		+	+
					80						+		+	+
					100						+		+	+
					120								+	+
					150								+	+
Wetting agents			"up to 5%" aqueous		20	+	0	+	+	+				
					40	+			+	+				
					60	0			+	+				
					80					+				
					100									
					120									
					150									
"Wines, red and white"			usual commercial		20	+		+	+	+	+		+	+
					40			+	+	+	+		+	+
					60			+	+	+	+		+	+
					80					+	+		+	+
					100					+	+		+	+
					120								+	+
					150									

Medium	Formula	Boiling point °C	Concentration	Density @ 100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Wine vinegar			usual commercial		20	+		+	+	+	+		+	+
					40	+		+	+	+	+		+	+
					60	+		+	+	+	+		+	+
					80				+	+	+		+	+
					100					+	+		+	+
					120								+	+
					150								+	+
Xylene	$C_6H_4(H_3)_2$	138–144	technically pure	0.88^{20}_4	20	–		–	–	+	+	+	+	+
					40					+	+	+	+	+
					60					0	+	+	+	+
					80					–		+	+	+
					100							+	+	+
					120							+	+	+
					150								+	+
Yeast			"all, aqueous"		20	+		+	+	+	+		+	+
					40	+		+	+	+	+		+	+
					60			+	+	+	+		+	+
					80					+	+		+	+
					100						+		+	+
					120								+	+
					150									

Medium	Formula	Boiling point °C	Concentration	Density @100% Concentration	Temperature °C	PVC	CPVC	PE	Sygef PP	PVDF	ECTFE	ETFE	FEP	PFA
Zinc salts			"all, aqueous"		20	+	+	+	+	+	+	+	+	+
					40	+	+	+	+	+	+	+	+	+
					60	0	+	+	+	+	+	+	+	+
					80		+			+	+	+	+	+
					100					+	+	+	+	+
					120					+		+	+	+
					150								+	+

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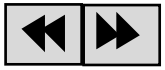

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