CHEMICAL RESISTANCE CHART - LIQUID PUMPS

This charts serves to assess the resistance of materials used in KNF liquid pumps to various fluids. The values listed are to be regarded as guide values from which no warranty claims can be derived. The resistance data correspond to the information of the raw material manufacturers and apply at room temperature and the corresponding concentration of the solution. These values can be influenced accordingly by co-determining factors such as elevated temperatures, maximum concentrations, mixing of individual media, etc.

There are different material compositions of standard plastics and elastomers, which therefore have different chemical properties. To ensure that the material is resistant to the medium to be pumped, we recommend carrying out a soaking test using the in critical cases.

For further questions, please contact your local KNF representative.

RATING SYSTEM

A	resistant
B	limited
C	not resistant
-	no data available

ABBREVIATION	CHEMICAL NAME
ELASTOMERS	
EPDM	Ethylen-Propylen-Dien-Elastomer
FKM	Fluor-Polymer
FFKM	Perfluor-Polymer
THERMOPLASTICS	
PVDF	Polyvinylidenfluorid
PTFE	Polytetraflourethylene
PP	Polypropylene
PPS	Polyphenylensulfide
PK	Polyketone
PEEK	Polyetheretherketone

MEDIUM / MEDIA	FORMEL / FORMULA	PP	PPS	PK	PVDF	PEEK	EPDM	PTFE	FKM	FFKM	Edelstahl / Stainless steel
Acetaldehyde	CH3CHO	B	A	-	C	A	B	A	C	B	A
Acetic acid 100%	CH3COOH	A	B	-	A	A	B	A	C	A	C
Acetic acid 65%	CH3COOH	A	-	-	A	A	B	A	C	A	B
Acetone	CH3COCH3	A	A	A	C	A	A	A	C	A	B
Acetonitrile	C3H3N	A	A	-	B	A	B	A	A	A	B
Acidity of wine	C4H6O6	A	-	-	A		A	A	A	A	B
Acrylonitrile	C3H3N	A	-	-	B	A	C	A	C	A	-
Alcohol	-	A	A	-	A	A	A	A	B	A	A
Aluminium potassium sulfate	Al2(SO4)3	A	A	-	A	A	A	A	A	A	B
Amber acid	C4H6O4	A	-	-	-	-	A	A	A	A	-
Ammonia	NH3	A	A	-	A	A	A	A	C	A	A
Ammoniumcarbonate	(NH4)2CO3	A	A	-	A	A	A	A	C	A	-
Ammoniumchloride	NH4Cl	A	A	-	A	A	A	A	A	A	B
Ammonium fluoride	NH4F	A	-	-	A	A	A	A	A	A	B
Ammoniumnitrate	NH4NO3	A	A	-	A	A	A	A	B	A	A
Ammoniumphosphate	(NH4)3PO4	A	-	-	A	-	A	A	C	A	A
Ammoniumsulfate	(NH4)2SO4	A	A	-	A	A	A	A	B	A	B
Ammoniumsulfide	-	A	-	-	A	A	A	A	A	A	-
Amylacetate	-	B	A	-	A	A	A	A	C	A	A
Amylalcohol	C5H11OH	A	A	-	A	-	A	A	C	A	A
Aniline	C6H5NH2	A	A	-	A	A	C	A	C	A	B
Antimonytrichloride	SbCl3	A	-	-	A	A	A	A	C	A	-
Aqua regia	3HCl+HNO3	C	C	-	B	C	C	A	C	A	C
Arsenic acid	H3AsO4	A	-	-	A	-	A	A	A	A	-
Bariumhydroxide	Ba(OH)2	A	A	-	A	A	A	A	A	A	B
Beer	-	A	-	-	A	A	A	A	A	A	A
Benzaldehyde	C6H5CHO	A	B	-	A	A	B	A	A	A	B
Benzoic acid	C6H5COOH	A	-	-	A	A	A	A	A	A	A
Borax (Sodiumbarate)	NaB4O7	A	A	-	A	A	A	A	A	A	A
Boric acid	H3BO3	A	A	-	A	A	A	A	A	A	A
Brake fluid (Glycol basis)	-	A	-	-	A	-	A	A	C	-	-
Bromic acid	HBr	A	-	-	A	-	A	A	B	B	C
Bromine	Br2	C	C	-	A	A	C	A	B	B	C
Bromine water	-	C	C	-	A	A	B	A	B	B	-
Butanol	C4H9OH	A	A	-	A	-	A	A	B	A	A
Butter	-	A	-	-	A	A	C	A	A	-	-
Butter acid	C3H7COOH	A	-	-	A	-	C	A	A	B	B
Butylacetate	CH3COOC4H9	B	B	A	A	A	B	A	C	A	-
Butylene	C4H8	C	A	-	A	A	C	A	A	A	-
Butylphenol	-	A	-	-	-	A	C	A	B	A	-
Calciumbisulfate	-	A	A	-	A	-	A	A	A	A	-
Calciumchloride	CaCl2	A	A	A	A	A	A	A	A	A	C

MEDIUM / MEDIA	FORMEL / FORMULA	PP	PPS	PK	PVDF	PEEK	EPDM	PTFE	FKM	FFKM	Edelstahl / Stainless steel
Calciumhydroxide	Ca(OH)2	A	-	-	B	A	A	A	A	A	B
Calciumhypochlorite	Ca(OCl)2	A	-	-	A	A	A	A	B	A	C
Calciumnitrate	-	A	A	-	A	A	A	A	A	A	B
Carbonic acid	H2CO3	A	A	-	A	A	A	A	A	A	A
Chlorine (Atomic)	Cl	C	C	-	A	-	B	A	A	A	C
Chlorine water	-	C	-	-	A	-	A	A	A	A	C
Chloroaceticacid	C2H3ClO2	A	-	-	A	-	A	A	C	A	C
Chlorobenzene	C6H5Cl	B	A	-	A	A	C	A	B	A	-
Chlorobromomethane	-	D	-	-	B	A	B	A	B	A	-
Chloroform	CHCl3	B	C	-	A	A	C	A	B	B	B
Chromic acide 50%	H2Cr04	B	B	-	A	A	C	A	A	A	C
Citric acid	C6H8O7	A	-	-	A	-	A	A	A	A	B
Cod-liver oil	-	A	A	-	A	-	B	A	A	A	-
Copperchloride	CuCl2	A	A	-	A	A	A	A	A	A	C
Copperfluoride	CuF2	A	-	-	A	A	A	A	A	-	-
Coppernitrate	Cu(NO3)2	A	A	-	A	A	A	A	A	A	A
Coppersulfate	CuSO4	A	A	-	A	A	A	A	A	A	B
Cottonseed oil	-	A	A	-	A	A	B	A	A	-	A
Cresol	C6H4CH3OH	A	A	-	A	C	C	A	A	A	-
Crotonaldehyde	C4H6O	A	-	-	A	A	A	A	C	A	-
Crude oil	-	B	-	-	A	A	C	A	A	A	A
Cyclohexane	C6H12	B	A	-	A	A	C	A	A	A	-
Cyclohexanol	C6H11OH	A	A	-	A	A	C	A	C	A	-
Cyclohexanone	C6H10O	A	A	-	A	A	C	A	C	A	-
Developing fluids	-	A	-	-	A	-	A	A	A	-	A
Dextrine (Decane)	-	A	A	-	A	A	A	A	A	A	-
Dibenzylether	(C6H5CH2)2O	-	-	-	A	-	B	A	C	A	-
Dibutylphtalate	-	A	-	-	A	-	C	A	A	A	-
Dichlorethylene	C2H2Cl2	B	C	-	A	A	C	A	B	A	C
Dichloroaceticacid	C2H2Cl2O2	A	-	-	-	A	A	A	C	A	-
Dichlorobenzene	C6H4Cl2	B	-	-	A	A	C	A	A	A	-
Dichloromethane	CH2Cl2	C	C	-	A	A	C	A	C	A	-
Diesel fuel, oil	-	A	-	-	A	-	C	A	A	A	A
Diethylenglycol	C4H10O3	A	-	-	A	-	A	A	A	A	-
Diethylether	C2H5)2O	B	A	-	A	A	C	A	C	A	-
Diisobutylketone	((CH3)2C2H3)2CO	A	-	-	A	-	A	A	C	A	-
Dimethylamine	CH3)2NH	A	B	-	B	-	A	A	C	A	-
Dimethylether	CH3OCH3	-	-	-	A	A	A	A	C	A	-
Dimethylformamide DMF	CH3)2NOCH	A	A	B	C	A	B	A	C	A	-
Dioxane	-	C	A	-	B	A	B	A	C	A	-
Ethanol	C2H5OH	A	A	B	A	A	A	A	C	A	A
Ethylacetate	C4H8O2	A	A	-	C	A	B	A	C	A	B

MEDIUM / MEDIA	FORMEL / FORMULA	PP	PPS	PK	PVDF	PEEK	EPDM	PTFE	FKM	FFKM	Edelstahl / Stainless steel
Ethylacrylate	C5H8O2	-	-	-	B	A	C	A	C	A	-
Ethylbenzene	C6H5C2H5	B	-	-	-	-	C	A	B	A	B
Ethylchloride	C2H5Cl	B	A	-	A	A	B	A	B	A	C
Ethylenchloride	CH3CHCl2	B	A	-	A	A	B	A	B	A	C
Ethylendiamine	C2H8N2	A	A	-	B	A	A	A	C	A	B
Ethylenechlorohydrine	CH2ClCH2OH	A	B	-	A	A	B	A	C	A	C
Ethylenglycol	C2H4(OH)2	A	A	B	A	A	A	A	A	A	A
Ethylether	C2H5OC2H5	B	A	-	A	-	B	A	C	A	A
Fatty acids	-	A	A	-	A	A	C	A	A	A	B
Ferric III-chloride	FeCl3	A	A	-	A	A	A	A	A	A	B
Ferricsulfate	FeSO4	A	-	-	A	A	A	A	A	A	A
Fertilizer	-	A	-	-	-	A	A	A	A	A	-
Fluorosilicacid	H2SiF6	A	A	-	-	A	A	A	A	A	-
Formaldehyde	CH2O	A	A	-	A	A	A	A	B	B	B
Formamide	HCONH3	A	A	-	A	-	A	A	B	A	-
Formic acid	HCOOH	A	A	-	A	A	B	A	C	C	B
Freon 11	-	C	A	-	A	A	C	A	B	B	A
Freon 113	-	C	A	-	A	A	C	A	B	B	A
Freon 12	-	C	A	-	A	A	B	A	B	B	A
Freon 22	-	C	A	-	A	A	A	A	C	B	A
Fruit juice	-	A	-	-	A	A	A	A	A	A	A
Fuel oils	-	A	-	-	A	A	C	A	A	A	A
Furfurylalcohol	C5H6O2	A	A	-	A	-	C	A	C	A	-
Gasoline	-	B	A	-	A	A	C	A	A	A	A
Glucose	-	A	A	-	A	A	A	A	A	A	A
Glycerin/Glycerol	C3H3(OH)3	A	A	-	A	A	A	A	A	A	A
Glycol	C2H4(OH)2	A	A	-	A	A	A	A	A	A	A
Glycolic acid	CH2OHCOOH	A	A	-	A	A	A	A	A	A	-
Heptane	C7H16	B	A	-	A	A	C	A	A	A	A
Hexane	C6H14	A	A	-	A	A	C	A	A	A	-
Hydraulic oils	-	-	A	-	A	A	C	A	A	A	-
Hydrazinhydrate	N2H4H2O	A	-	-	-	-	A	A	C	A	-
Hydrogen sulfide	H2S	A	-	-	A	A	A	A	A	A	B
Hydrogenchloride 10%	HCl	A	A	-	A	-	A	A	A	A	C
Hydrogenchloride 30%	HCl	A	B	-	A	-	A	A	C	A	C
Hydrogenperoxide	H2O2	A	A	-	A	A	A	A	C	A	A
Hyrdogen fluoride 65%	H2F2	A	B	-	A	-	B	A	B	A	C
Isobutylalcohol	(CH3)CHCH2OH	A	-	-	A	A	A	A	A	A	-
Isooctane	-	A	-	-	A	A	C	A	A	A	-
Isoproylalcohol	(CH3)2CHOH	A	A	-	A	A	A	A	A	A	-
Kerosene	-	B	B	A	A	A	C	A	A	A	A
Lead acetate	Pb(CH3COO)2	A	-	-	A	A	A	A	A	A	-

MEDIUM / MEDIA	FORMEL / FORMULA	PP	PPS	PK	PVDF	PEEK	EPDM	PTFE	FKM	FFKM	Edelstahl / Stainless steel
Linssed oil	-	A	-	-	A	A	B	A	A	A	A
Liqueur	-	A	A	-	A	-	A	A	A	A	A
Magnesiumchloride	MgCL2	A	A	-	A	B	A	A	A	A	C
Magnesiumsulfate	MgSO4	A	-	-	A	A	A	A	A	A	B
Margarine	-	A	-	-	A	-	C	A	A	A	-
Melasses	-	A	-	-	-	-	B	A	A	-	-
Menthol	-	A	-	-	-	-	C	A	B	-	-
Mercury	Hg	A	-	-	A	A	A	A	A	A	B
Mercurychloride	HgCl2	-	-	-	A	A	A	A	A	A	-
Methylalcohol	CH3OH	A	A	-	A	A	A	A	C	A	A
Methylchloride	CH3Cl	C	C	-	A	A	C	A	A	A	C
Methylethylisopropylketone	-	A	A	-	A	-	B	A	C	A	-
Methylethylketone (MEK, Butanon)	C4H8O	A	B	A	C	A	B	A	C	A	B
Milk	-	A	-	-	A	A	B	A	A	A	A
Mineral oils	-	A	-	-	A	-	C	A	A	A	-
Motor oils	-	A	A	A	A	A	C	A	A	A	-
Naphtalene	C10H8	A	A	-	A	A	C	A	A	A	A
Nickelchloride	NiCl2	A	-	-	A	-	A	A	A	A	B
Nickelnitrate	Ni(NO3)2	A	-	-	A	A	A	A	A	A	B
Nicotine	-	-	-	-	A	-	A	A	A	A	-
Nitric acid 10%	HNO3	A	C	-	A	A	B	A	A	A	A
Nitric acid 65%	HNO3	C	C	-	A	B	C	A	C	A	A
Nitrobenzene	C6H5NO2	A	B	-	A	A	C	A	C	A	-
Nitroglycerine	-	-	-	-	A	-	A	A	A	A	-
Nitromethane	CH3NO2	-	B	-	A	A	B	A	C	A	-
Octylalcohol	-	A	-	-	-	-	A	A	A	A	-
Oil vegetable	-	A	-	-	A	-	C	A	A	A	-
Oleic acid	-	A	A	-	A	-	C	A	A	A	B
Olive oil	-	A	-	-	A	A	B	A	A	A	-
Oxalic acid	(COOH)2	A	-	-	A	A	A	A	A	A	C
Paraffins	-	A	A	-	A	-	C	A	A	A	A
Peanut oil	-	A	-	-	A	-	B	A	A	A	-
Perchloric acid 20%	HClO4	A	A	-	A	A	A	A	A	A	-
Petroleum	-	A	B	-	A	A	C	A	A	A	A
Phenol (Carbolic acid)	C6H5OH	A	A	-	A	C	C	A	B	A	B
Phosphoric acid 80%	H3PO4	A	A	-	A	A	A	A	A	A	C
Phosphorusoxychloride	POCl3	A	-	-	-	-	C	A	C	A	-
Phosphorustrichloride	PCl3	A	A	-	A	A	B	A	A	A	-
Phtalic acid	-	A	-	-	A	A	A	A	A	A	B
Picric acid	C6H2(NO3)3OH	A	-	-	A	A	B	A	A	A	B
Potassiumacetate	KOOCCH3	A	-	-	-	A	A	A	A	A	A
Potassiumborate	-	A	-	-	-	-	A	A	A	A	-

MEDIUM / MEDIA	FORMEL / FORMULA	PP	PPS	PK	PVDF	PEEK	EPDM	PTFE	FKM	FFKM	Edelstahl / Stainless steel
Potassiumbromate	-	A	-	-	A	A	A	A	A	A	-
Potassiumbromide	KBr	A	-	-	A	A	A	A	A	A	B
Potassiumcarbonate	K2CO3	A	A	-	A	A	A	A	A	A	A
Potassiumchlorate	KClO3	A	-	-	B	A	A	A	A	A	A
Potassiumchloride	KCl	A	A	-	A	A	A	A	A	A	B
Potassiumchromates	-	A	-	-	A	A	A	A	A	A	B
Potassiumcyanide	KCN	A	-	-	A	A	A	A	A	A	B
Potassiumdichromate	K2Cr2O7	A	-	-	-	A	A	A	A	A	A
Potassiumhydroxide	KOH	A	A	-	C	A	A	A	C	A	B
Potassiumiodide	-	A	-	-	A	A	A	A	A	A	B
Potassiumnitrate	KNO3	A	-	-	A	A	A	A	A	A	B
Potassiumpermanganate	KMnO4	A	C	-	A	A	A	A	A	A	B
Potassiumpersulfate	K2S2O8	A	-	-	B	A	A	A	A	A	-
Potassiumsulfate	K2SO4	A	-	-	A	A	A	A	A	A	B
Propionic acid	C3H6O2	A	-	-	A	-	C	A	A	A	-
Propylalcohol	C3H7OH	A	-	-	A	A	A	A	B	A	-
Propyleneglycol	C3H8O2	A	A	-	A	A	A	A	A	A	-
Prussic acid	HCN	A	-	-	A	-	A	A	A	A	B
Pyridine	C6H5N	B	A	-	A	A	C	A	C	A	B
Rape oil	-	-	A	-	A	-	A	A	A	A	-
Sea water	-	A	A	-	A	A	A	A	A	A	C
Silicone oils/greases	-	A	-	-	A	A	A	A	A	A	-
Silvernitrate	AgNO3	A	-	-	A	A	A	A	A	A	B
Soap solutions	-	A	A	-	A	A	A	A	A	A	A
Soda	Na2CO3	A	A	-	A	-	A	A	A	A	A
Sodiumbenzoate	C6H5COONa	A	-	-	A	-	A	A	A	A	-
Sodiumbicarbonate	-	A	A	-	A	A	A	A	A	A	A
Sodiumbisulfate	-	A	-	-	A	A	A	A	A	A	B
Sodiumbisulfite	-	A	A	-	A	A	A	A	A	A	B
Sodiumchlorate	NaClO3	A	-	-	B	A	A	A	A	A	B
Sodiumchloride	NaCl	A	A	-	A	A	A	A	A	A	B
Sodiumchlorite	NaClO2	A	-	-	A	-	A	A	A	A	C
Sodiumhydroxide	NaOH	A	A	-	C	A	A	A	C	A	B
Sodiumhypochlorite	NaOCl	B	A	-	B	A	A	A	A	A	C
Sodiumnitrate	NaNO3	A	A	-	A	A	A	A	A	A	A
Sodiumphosphate	Na3PO4	A	-	-	A	A	A	A	A	A	A
Sodiumsilikate	Na2SiO3	A	-	-	A	A	A	A	A	A	A
Sodiumsulfate	Na2SO4	A	A	-	A	A	A	A	A	A	B
Sodiumsulfide	Na2S	A	A	-	A	A	A	A	A	A	B
Sodiumthiosulfate	Na2S2O3	A	A	-	A	A	A	A	A	A	B
Stearic acid	C17H35COOH	A	-	-	A	A	A	A	A	A	B
Sulfochromicacid	-	C	-	-	A	-	C	A	A	A	-

MEDIUM / MEDIA	FORMEL / FORMULA	PP	PPS	PK	PVDF	PEEK	EPDM	PTFE	FKM	FFKM	Edelstahl / Stainless steel
Sulfurdioxide	-	A	-	-	A	A	A	A	A	A	C
Sulfuric acid 10%	H2SO4	A	A	-	A	A	A	A	A	A	C
Sulfuric acid 60%	H2SO4	A	B	-	A	C	A	A	A	A	C
Sulfuric acid 95%	H2SO4	B	B	-	A	C	A	A	A	A	A
Tallow	-	A	-	-	-	-	C	A	A	A	-
Tannic acid	-	A	-	-	A	A	A	A	A	-	B
Tetrachloroethane	C2H2Cl4	B	-	-	A	-	C	A	B	A	-
Tetrachloroethylene	Cl2CCl2	B	A	B	A	A	C	A	B	A	-
Tetrachloromethane	CCl4	C	B	-	A	-	C	A	A	A	B
Tinchloride	SnCl2	A	-	-	A	-	A	A	A	A	-
Tincture of iodine	-	A	-	-	A	-	A	A	A	A	-
Toluene	C6H5CH3	B	C	B	A	-	C	A	B	A	A
Tributylphosphate	-	A	A	-	A	-	C	A	B	A	-
Trichloroacetic acid	CCl3COOH	A	A	-	A	B	B	A	C	A	C
Trichloroethane	Cl3CCH3	B	B	A	A	-	C	A	B	A	C
Trichloroethylene	C2HCl3	B	C	-	A	A	C	A	B	B	C
Triethanolamine	N(C2H4OH)3	A	-	-	-	A	B	A	C	A	-
Trioctylphosphate	-	A	-	-	A	-	B	A	B	-	-
Turpentine	-	C	A	-	A	A	C	A	A	A	A
Uric acid	CO(NH2)2	A	-	-	A	-	A	A	A	A	A
Urine	-	A	-	-	A	A	A	A	A	A	-
Vinegar	CH3COOH	A	B	-	A	A	A	A	C	A	A
Vinylacetate	C4H6O2	A	-	-	-	A	A	A	A	A	-
Wine/Brandy	-	A	-	-	A	A	A	A	B	A	A
Xylol	C6H4(CH3)	C	A	A	A	-	C	A	B	A	A
Zincchloride	ZnCl2	A	A	-	A	A	A	A	A	A	B
Zincsulfate	ZnSO4	A	-	-	A	A	A	A	A	A	B