Chemical Restistance List

The information in this list based on specifications given by the material manufacturers and on experiences from Lutz-Jesco GmbH handling with the materials.
Because the resistance of materials is dependent on many factors, the list is to be used only as a guide in selecting equipment for chemical compatibility testing.
Always test the equipment with the specific chemicals and under the specific conditions of your application.

Lutz-Jesco does not warrant the accuracy or completeness of this list.
There is no claim for any guarantees by using the list.
Variations in temperature, pressure and concentration can cause equipment to fail, even though it passed an initial test. Serious injury may result. Use suitable guards and/or personal protection when handling chemicals.
The corrosiveness of chemical compounds can't be deducted by the sum of the single chemical components.

The list doesn't replace the safety data sheets.
Subject to technical changes.

A special adhesive for PVC (Tangit Dytex) has to be taken by using the following chemicals:
- Sulphuric acid, H_2SO_4, > 70% concentration
- Hydrochloric acid, HCl, > 25% concentration
- Nitric acid, HNO_3, > 20% concentration
- Hydrofluoric acid, HF, in each concentration

Legende
GL = saturated solution
+ = resistant
o = limited resistant
- = not resistant

Short term	**Description**
1.4401	X 5 CrNiMo 17 12 2
1.4571	V4A, X 6 CrNiMoTi 17 12 2
AF	Asbest-free
Aramid	Aramid
ASA	Acrylonitrile Styrene Acrylate
CSM	chlorinesulfonated polyethylene
EPDM	ethylene propylene caoutchouc
FPM	fluorine caoutchouc
Hastelloy C-4	NiMo 16Cr 16 Ti
PE	polyethylene
PMMA	Polymethylmethacrylate
PP	polypropylene
PTFE	polyterafluor ethylene
PVC	polyvinyl chloride
PVDF	polyvinylidene fluoride

Chemical Resistance List

Name	Chemical formular	Concentration	Temperature (°C)	PVC-U	PE	PP	PVDF	Acryl glass / PMMA	1.4571 / 1.4401	ASA	PVC tube	PTFE	Hastelloy C	EPDM	FPM	CSM	Norprene	Glass, borosilicate	Ceramic F 99,7	Aramid	AF (Asbest-free)
Acetic acid	$C_2H_4O_2$	10%	20	+	+	+	+	-	+	+	+	+	+	+	-	o	+	+	+	+	+
			40	+	+	+	+		+	+		+	+	o	-	-		+	+		+
			60	o	+	+	+		+		o	+	+	o		-		+	+		+
		50%	20	+	+	+	+	-	+	+	o	+	+	+	-	o	+	+	+	+	+
			40	+	+	+	+		+	o		+	+					+	+		+
			60		+	+	+		+		-	+	+					+	+		+
		70%	20	+	+	+	+	-	+			+	+	-	-	-	+	+	+	+	+
			40	o	+	+	+		+			+	+					+	+		+
			60				+					+	+					+	+		+
		100%	20	o	+	+	+	-	+	-	-	+	+	o	-	o	+	+	+	+	+
			40	-	+	+	+		+	-	-	+	+					+	+		+
			60	-	o	o	o				-	+	+					+	+		+
Acetone	CH_3-CO-CH_3	10%	20	-	+	+	o		+	-		+	+	+	o	o	-	+	+		+
			40	-	+	+	o		+	-		+	+	+	o	o		+			
			60	-	+	+	o		+			+		+	-	o		+			
		100%	20	-	+	+	-	-	+	-	-	+	+	+	-	o	-	+	+		+
			40	-	+	+	-	-	+	-	-	+	+	+	-	o		+			
			60	-	+	+	-	-	+		-	+		+	-	o		+			
Acid sulphur (see sulfuric acid)																					
Aluminium chloride	$AlCl_3$	GL	20	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+		
			40	+	+	+	+		-	+	+	+	+	+	+	+		+	+		
			60	+	+	+	+		-		+	+	+	+	+	+		+	+		
Aluminium nitrate	$Al(NO_3)_3$	GL	20	+	+	+	+	+	+		+	+	+	+	+	+	+	+			
			40	+	+	+	+				+	+			+	+		+			
			60	+	+	+	+				+	+			+	+		+			
Aluminium potassium sulphate	$KAl(SO_4)_2$	GL	20	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
			40	+	+	+	+	+	+		+	+	+	+	+	+		+	+		
			60	+	+	+	+	+	+		+	+	+	+	+	+		+	+		
Aluminium sulphate	$Al_2(SO_4)_3$	GL	20	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
			40	+	+	+	+		+	+	+	+	+	+	+	+		+	+		
			60	+	+	+	+		+		+	+	+	+	+	o		+	+		
Ammonium hydroxide	NH_3+H_2O	25%	20	+	+	+	o	+	+	+	+	+	+	+	o	+	+	+	+	-	o
			40	+	+	+	o		+	+		+	+	+	o	+		+	+		o
			60	o	+	+	o		+		-	+	+	+	-	o		+	+		o
Azotic acid (see nitric acid)																					
Benzoic acid	$C_7H_6O_2$	100%	20	+	+	+	+	+	+	+	+	+	+	-	+	-	+	+	+		+
			40	+	+	+	+		+	+		+	+	-	+	-		+			
			60	o	+	+	+		+		-	+	+	-	+	-		+			
Brine (see salt water)																					
Calcium carbonate	$CaCO_3$	GL	20	+	+	+	+	+	+			+	+	+	+		+	+			+
			40	+	+	+	+		+			+	+	+	+			+			
			60	+	+	+	+		+			+	+	+	+			+			
Calcium hydroxide	$Ca(OH)_2$	GL	20	+	+	+	+	+	+			+	+	+	+	+	+	+			+
			40	+	+	+	o		+			+		+	+	+		+			
			60	+	+	+	o		+			+		+	+	+		+			
Calcium hypochlorite	$Ca(OCl)_2$	GL	20	+	+	+	+	+	o	+		+	+	+	+	+	+	+	+		
			40	+	+	+	+		o	+		+	+	+	o	+		+	+		
			60		+	+	o					+		+	-	o		+			
Calcium nitrate	$Ca(NO3)_2$	GL	20	-	+	-	+	+	+		+	+	+	+	+		+	+	+		
			60								+	+						+			
		50%	20	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+		
			40	+	+	+	+		o		+	+	+	+	+	+		+			
			60		+	+	+				+	+		+	+	+		+			
Calcium sulphate	$CaSO_4$	GL	20	+	+	+	+	+	+			+	+	+	+		+	+	+		
			40	+	+	+	+					+						+	+		
			60		+	+	+					+						+	+		
Carbonate of lime (see calcium carbonate)																					
Caustic potash (see potassium hydroxide)																					
Caustic soda (see sodium hydroxide)																					
Chlorinated lime (see calcium hypochlorite)																					
Chlorine dioxide dilution	ClO_2 + H_2O	0,50%	20	+	o	o	+	o	-			+	+	-	o			+			
Citric Acid	$C_6H_8O_7$	GL	20	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
			40	+	+	+	+		+	+		+	+	+	+	+		+	+		
			60	o	+	+	+		+			+	+	+	+	+		+	+		

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Name	Chemical formular	Concentration	Temperature (°C)	PVC-U	PE	PP	PVDF	Acryl glass / PMMA	1.4571 / 1.4401	ASA	PVC tube	PTFE	Hastelloy C	EPDM	FPM	CSM	Norprene	Glass, borosilicate	Ceramic F 99,7	Aramid	AF (Asbest-free)
Ethyl alcohol	CH_3-CH_2-OH	100%	20	+	+	+	+	-	+	+		+	+	+	o	+		+			+
			40	+	+	+	+		+	o		+	+	+	o	+		+			
			60	+	+	+	+		+			+	+	+	-	+		+			
Ferric chloride	$FeCl_2$	GL	20	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	-	
			40	+	+	+	+		-	+	+	+		+	+	+		+	+		
			60	+	+	+	+		-		+	+		+	+	+		+	+		
Ferric sulphate	$FeSO_4$	GL	20	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
			40	+	+	+	+		+	+	+	+		+	+	+		+	+		
			60	+	+	+	+		+		+	+		+	+	+		+	+		
Ferrous chloride	$FeCl_3$	GL	20	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	-	
			40	+	+	+	+		-	+	+	+		+	+	+		+	+		
			60	+	+	+	+		-		+	+		+	+	+		+	+		
Ferrous sulphate	$Fe_2(SO4)_3$	GL	20	+	+	+	+	+	o		+	+	+	+	+	+	+	+	+		
			40	+	+	+	+				+	+		+	+	+		+	+		
			60	+	+	+	+				+	+		+	+	+		+	+		
Formic acid	CH_2O_2	50%	20	+	+	+	+	-	+	+	-	+	+	+	+	+	+	+	+		-
			40	+	+	+	+	-	+	o	-	+	+	+	+	-		+	+		
			60	o	+	o	+	-	+		-	+	+	o	o	-		+	+		
		100%	20	+	+	+	+	-	+	o	-	+	+	+	-	+	+	+	+		-
			40	o	+	o	+	-	+	o	-	+		+	-	+		+	+		
			60	-	+	-	o	-	+		-	+		+		+		+	+		
Glauber's salt (see sodium sulphate)																					
Gypsum (see calcium sulphate)																					
Hydrated lime (see calcium hydroxide)																					
Hydrazine hydrate	N_2H_4	GL	20	+	+	+	+	+	+			+	+	+	+	+	o	+			+
			40		+	+	+					+		+	+	+		+			
			60		+	+	o					+		+	+	+		+			
Hydrochloric acid	HCl	10%	20	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	-	o
			40	+	+	+	+			o	+	+	o	+	+	o		+	+		
			60	o	+	o	+				+	+	o	+	+	-		+	+		
		38%	20	+	+	+	+	-	-	+	+	+	+	+	+	o	+	+	+	-	
			40	+	+	o	+			o		+	o	o	o	-		+	+		
			60	o	+	-	+				o	+	o	-	-	-		+	+		
Hydrogen peroxide	H_2O_2	10%	20	+	+	+	+		+	+	+	+	+	+	+	+	+	+	+		+
			40	+	+	+	+		+			+	+	o	o	+		+	+		
			60	o	+	+	+		+		o	+	+	-	-	o		+	+		
		90%	20	+	+	-	+		+	-	+	+	+	o	o	o	+	+	+		
			40			-			+	-		+						+	+		
			60		-	-			+		o	+						+	+		
Iron chloride sulphate	$FeClSO_4$	40%	20	+	+	+	+		+			+		+	+			+			
			40	+	+	+	+					+						+			
			60		+	+	+					+						+			
Methyl alkocol	CH3-OH	100%	20	+	+	+	+	-	+	+		+	+	+	o	+	+	+	+	+	+
			40	+	+	+	+		+	o		+		+	o	+		+	+		
			60		+	+	+		+			+		+	o	+		+			
Methylbenzene (see toluene)																					
Mineral oil		100%	20	+	+	+	+	-	+	+		+	+	-	+	o	-	+	+		+
			40	+	+	+	+		+	+		+			+	-		+	+		
			60	+	o	o	+		+			+			+			+			
Muriate of soda (see sodium chloride)																					
Muriatic acid (see hydrochloric acid)																					
Nitric acid	HNO_3	10%	20	+	+	+	+	+	+	+	+	+	+	+	+		+	+	+	-	+
			40	+	+	+	+		+	o		+	o		+			+	+		+
			60	+	+	o	+		+		o	+	o		o			+	+		+
		50%	20	+	o	o	+	-	+	-	-	+	+	-	+		+	+	+	-	-
			40	+	o	-	+		+	-	-	+	o		+			+	+		
			60	o	-		+		+		-	+	o		o			+	+		
		65%	20	o	o	-	+	-	+	-		+	+	-	+	o	-	+	+	-	-
			40	o	-		+		o	-		+	-		o	-		+	+		
			60	-			+					+	-		-			+	+		
Peracetic acid	$C_2H_4O_3$	5%	20	+	+	+	+	o	-			+		+	+			+			
Phenylmethane (see toluene)																					

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Name	Chemical formular	Concentration	Temperature (°C)	PVC-U	PE	PP	PVDF	Acryl glass / PMMA	1.4571 / 1.4401	ASA	PVC tube	PTFE	Hastelloy C	EPDM	FPM	CSM	Norprene	Glass, borosilicate	Ceramic F 99,7	Aramid	AF (Asbest-free)
Phosphoric acid	H_3PO_4	50%	20	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+
			40	+	+	+	+			+		+	+	+	+	+		+	+		
			60		+	+	+		o		+	+	+	+	+	+		+	+		
		85%	20	+	+	+	+	-	o	+	+	+	+	+	+	+	+	+	+		+
			40	+	+	+	+			+		+	+	+	+	o		+	+		
			60		+	+	+		-		o	+	+	+	+	-		+	o		
Polyacrylamide	C_3H_5NO	GL	20	+	+	+	+		+			+	+	+	+			+			
		GL	20	+					+			+	+	+	+	+		+			
Potash (see potassium carbonate)																					
Potassium alum (see aluminium potassium sulphate)																					
Potassium carbonate	K_2CO_3	GL	20	+	+	+	+	+	+		+	+	+	+	+	+		+			
			40	+	+	+	o		+		+	+	+	+	+	+		+			
			60	+	+	+	o		+		+	+	+	+	+	+		+			
Potassium hydroxide	KOH	10%	20	+	+	+	o	+	+	+	+	+	+	+	+	+	+	+	+		
			40	+	+	+			+	+		+	+	+	+	+		+	+		
			60		+	+			+		o	+	+	+	o	+		+	+		
		50%	20	+	+	+	o	+	+	+	o	+	+	+	-	+	+	+	+		
			40	+	+	+	o		+	+		+	+	+		o		+	+		
			60	o	+	+	o		+		-	+	+	+		o		+	o		
Potassium permanganate	$KMnO_4$	GL	20	+	+	+	+	+	+	+	o	+	+	+	+	+	+	+	+		
			40	+	+	+	+		+	o		+		+	+	+		+	+		
			60		+	+	+		+			+		+	+	+		+	+		
Potassium sulphate	K_2SO_4	GL	20	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+
			40	+	+	+	+		+	+	+	+	+	+	+	+		+	+		
			60		+	+	+		+		+	+	+	+	+	+		+			
Propionic acid	$C_3H_6O_2$	100%	20	+	+	+	+	o	+			+	+	+	+	-		+			o
			40	o	o	o	+					+	+	+	+	-		+			
			60		o	o	+					+		o	+	-		+			
Salt acid (see hydrochloric acid)																					
Salt water		3,50%	20	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
			40	+	+	+	+		o	+	+	+	+	+	+	+		+	+		
			60		+	+	+		o		+	+	+					+	+		
Silicic acid	SiO_2	GL	20	+	+	+	+	+	+			+	+	+	+			+			
			40	+	+	+	+		+			+		+	+			+			
			60		+	+	+		+			+		+	+			+			
Slaked lime (see calcium hydroxide)																					
Soda (see sodium carbonate)																					
Sodium aluminate	$Na_2Al_2O_2$		20	+	+	+	+		+			+			+	+		+			o
			40		+	+	+					+			+	+		+			
			60		+	+	+					+			+	+		+			
Sodium bisulfite	$NaHSO_3$	GL	20	+	+	+	+	+	+			+	+	+	o	+		+	+		o
			40	o	+	+	+		+			+	+	+	-	o		+	+		
			60	-	+	+	+		+			+	+	o				+	+		
Sodium carbonate	Na_2CO_3	GL	20	+	+	+	+	+	+		+	+	+	+	+	+	+	+	+		o
			40	+	+	+	+					+		+	+	+		+	+		
			60	+	+	+	+				o	+		+	+	+		+	+		
Sodium chloride	NaCl	GL	20	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
			40	+	+	+	+		o	+	+	+	+	+	+	+		+	+		
			60		+	+	+		o		+	+	+	+	+	+		+	+		
Sodium chlorite	$NaClO_2$	10%	20	o	+	+	+	+	-	+		+	+	+	+	+		+	+		
			40			+	+		-	+		+		+	+	+		+	+		
			60			o	+		-			+		+	+	+		+	+		
Sodium hydroxide	NaOH	10%	20	+	+	+	o	+	-	+	+	+	+	+	-	+	+	+	+	-	+
			40	+	+	+	o		o	+		+	o	+	-	o		+	+		o
			60	o	+	+	o		o		+	+	o	o	-	-		+	+		o
		50%	20	+	+	+	o	+	-	+	-	+	+	+	-	+	+	+	+	-	
			40	+	+	+	o			+		+	o	+	-	+		+	o		
			60	o	+	+	o				-	+	o	o	-	+		+	o		
Sodium hypochloride	NaClO	12,5%	20	+	o	o	o	+	-	+	+	+	+	+	+	+	+	+	+		+
			40	+	-	-	o			+		+			+	o		+	+		
			60	o			-					+				-		+	+		
Sodium phosphate	Na_3PO_4	GL	20	+	+	+	+	+	+	+	+	+	+	+	+	+		+			+
			40	+	+	+	+		+	+	+	+	+	+	+	+		+			
			60	o	+	+	+		+		+	+	+	+	+	+		+			

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Sodium sulphate	Na_3SO_4	GL	20	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
			40	+	+	+	+		+	+	+	+	+	+	+	+		+	+		
			60	o	+	+	+		+		+	+	+	o	+	+		+	+		
Sodium thiosulphate	$Na_2S_2O_3$	GL	20	+	+	+	+	+	+	+	+	+	+	+	+	+		+	+		+
			40	+	+	+	+		+	+		+	+	+	+	+		+	+		
			60	o	+	+	+		+			+	+	+	+	o		+	+		
		25%	20	+	+	+	+	+	+	+	+	+	+	+	+			+	+		+
Sulfuric acid	H_2SO_4	10%	20	+	+	+	+		o	+	+	+	+	+	+	+	+	+	+	-	o
			40	+	+	+	+		-	+		+	+	+	+	+		+	+		
			60	o	+	+	+		-		+	+	+	+	+	o		+	+		
		50%	20	+	+	+	+		-	+	+	+	+	+	+	+	+	+	+	-	o
			40	+	+	+	+		-	+		+	o	+	+	o		+	+		
			60	o	+	+	+		-			+	o	o	+	o		+	+		
		< 96%	20	+	-	-	+		+	-	-	+	+	-	+	-	+	+	+	-	-
			40	+			+			-	-	+	o					+	o		
			60	o			+				-	+	o					+	o		
		98%	20	o	o	o	+		+	-	-	+	+	-	-	-	-	+	+	-	-
			40	o	-	-	+		-	-	-	+	+					+	o		
			60	o	-	-	+		-		-	+	+					+	o		
Toluene	C_7H_8	100%	20	-	o	o	+	-	+	-	-	+	+	-	o	o	-	+		+	+
			40		o	-	+		+	-		+	+		-			+			
			60		-		+		+		-	+	+					+			
Urea	CH_4N_2O	GL	20	+	+	+	+	+	+	+	o	+	+	+	+	+	+	+			+
			40	+	+	+	+			+		+		+	+	+		+			
			60	o	+	+	+					+		+	+	+		+			