

PVC-U Chemical Resistance

The resistance of unplasticised PVC-U to a wide range of chemicals is listed in the following table.

The symbols used to denote performance are as follows:

✓ Satisfactory

Some attack or absorption: the material may be considered for use when alternative materials are unsatisfactory and where limited life is acceptable. When PVC is to be used with such chemicals, full scale trials under realistic conditions are necessary.

≈ Unsatisfactory: so rated because of decomposition, solution, swelling loss of ductility etc, of the samples tested.

For clarification and for details of resistance to other chemicals please call our Technical Team on +44 (0)1424 856688.

Note: To determine the suitability of PVC-U for external applications we strongly recommend you contact our Technical Team on +44 (0)1424 856688.

Chemical	Concentration	Unplasticised PVC	
		20°C	60°C
acetaldehyde	40% aq. solution	✓	≈
acetic acid	60% aq. solution	✓	✓
acetic anhydride		≈	≈
acetone	Traces	≈	≈
alcohol, ethyl	40% w/w water	✓	#
alcohol, isopropyl		✓	✓
alcohol, menthyl	6% aq. solution	✓	✓
	100%	✓	#
aliphatic hydrocarbons		✓	✓
aluminium chloride		✓	✓
aluminium hydroxide		✓	✓
ammonia	0,88S.G., aq solution	✓	✓
	Anhydrous gas	≈	≈
	Anhydrous liquid	≈	≈
ammonium chloride		✓	✓
ammonium hydroxide		✓	✓
aniline		≈	≈
animal oils		✓	✓
aqua regia	Dilute	✓	✓
	Concentrated	✓	≈
barium sulphate		✓	✓
beer		✓	
benzene		≈	≈
benzoyl chloride		≈	≈
borax		✓	✓
boric acid		✓	✓
brine		✓	✓
bromide	Traces, gas	#	≈
	100% (dry gas)	≈	≈
	Liquid	≈	≈
calcium chloride	Aq. solution	✓	✓
	20% in methyl alcohol	✓	

Chemical	Concentration	Unplasticised PVC	
		20°C	60°C
calcium hydroxide		✓	✓
calcium hypochlorite		✓	✓
carbon dioxide		✓	✓
carbonic acid		✓	✓
carbon monoxide		✓	✓
carbon tetrachloride		#	≈
castor oil		✓	
chloric acid		✓	
chlorine	100% (dry gas)	✓	#
	10% (moist gas)	#	
chlorine water	Sat. solution	#	#
chloroform		≈	≈
chrome alum		✓	✓
chromic acid	Plating solution	✓	✓
cider		✓	
citric acid		✓	✓
copper chloride		✓	✓
copper cyanide		✓	✓
copper nitrate		✓	✓
copper sulphate		✓	✓
cyclohexanone		≈	≈
detergent, synthetic	All concentrations	✓	✓
developers, photographic		✓	✓
dextrin		✓	✓
dextrose		✓	✓
diazo salts		✓	✓
dichlorodifluoromethane		✓	
diethyl ether		≈	≈
emulsifiers	All concentrations	✓	✓
emulsions, photographic		✓	✓
ethyl acetate		≈	≈
ethylene glycol		✓	✓
ethylene oxide		≈	≈
fatty acids		✓	✓
ferric chloride		✓	✓
ferric nitrate		✓	✓
ferric sulphate		✓	✓
ferric ammonium citrate		✓	✓
ferrous chloride		✓	✓
ferrous sulphate		✓	✓
fixing solution, photographic		✓	✓
fluorine		#	#
formaldehyde	40% w/w water	✓	✓
formic acid	50% solution	✓	#
	100% solution	✓	≈
fructose		✓	✓
fruit pulp		✓	✓
glucose		✓	✓
glycerol		✓	✓
grape sugar		✓	✓
heptane		✓	✓
hydrobromic acid	100%	✓	✓
hydrochloric acid	22% aq. solution	✓	✓
	concentrated	✓	✓
hydrochloric acid	40% aq. solution	✓	#
	60% aq. solution	#	≈
	concentrated	≈	≈

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Chemical	Concentration	Unplasticised PVC		Chemical	Concentration	Unplasticised PVC	
		20°C	60°C			20°C	60°C
hydrogen bromide	anhydrous	✓	✓	propylene glycol		✓	✓
hydrogen chloride	anhydrous	✓	✓	propylene oxide		≈	≈
hydrogen fluoride	anhydrous	✓	✓	saccharose		✓	✓
hydrogen peroxide	3% (10 vol)	✓	✓	sea water		✓	✓
	12% (40 vol)	✓	✓	silver nitrate		✓	✓
	30% (100 vol)	✓	✓	soap solution		✓	✓
	90% and above	✓	✓	sodium bicarbonate		✓	✓
hydrogen sulphide		✓	✓	sodium bisulphite		✓	✓
iodine	solution in potassium iodide	≈	≈	sodium borate		✓	✓
lactic acid	10% aq. solution	✓	✓	sodium bromide		✓	✓
	100%	≈	≈	sodium carbonate		✓	✓
lanoline		✓	✓	sodium chlorate		✓	✓
linoleic acid		✓	✓	sodium chloride		✓	✓
linseed oil		✓	✓	sodium cyanide		✓	✓
magnesium hydroxide		✓	✓	sodium ferricyanide		✓	✓
maleric acid	50% aq. solution	✓		sodium ferrocyanide		✓	✓
	concentrated	✓	#	sodium fluoride		✓	✓
metallic soaps (water soluble)		✓	✓	sodium hydroxide	40% aq. solution	✓	✓
methyl bromide		≈	≈		concentrated	✓	✓
methyl chloride		≈	≈	sodium hypochlorite 15%Cl		✓	✓
methyl cyclohexanone		≈	≈	sodium hyposulphate		✓	✓
methyl ethyl ketone		≈	≈	sodium nitrate		✓	✓
methyl isobutyl ketone		≈	≈	sodium peroxide		✓	✓
methylated spirit		✓	✓	sodium silicate		✓	✓
methylene chloride		≈	≈	sodium sulphate		✓	✓
milk		✓	✓	sodium sulphide	25% aq. solution	✓	✓
mineral oil		✓	✓		concentration	✓	✓
mixed acids	(sulphic/nitric various proportions)	#	≈	sodium sulphite		✓	✓
molasses		✓	✓	soft soap		✓	✓
naptha		✓	✓	surface active agents All concentrations (emulsifiers, synthetic detergents and wetting agents)		✓	✓
napthalene		≈	≈	starch		✓	✓
nicotine		✓	✓	stearic acid		✓	✓
nitric acid	5% aq. solution	✓		sucrose		✓	✓
	50% aq. solution	✓	#	sulphur	Colloidal	✓	✓
nitrobenzene		≈	≈	sulphur dioxide	Dry	✓	✓
oleic acid		✓	✓		Liquid	#	≈
oxalic acid		✓	✓	sulphuric acid	80% aq. solution	✓	✓
oxygen		✓	✓		90% aq. solution	✓	#
ozone		✓	✓		Fuming	≈	≈
paraffin		✓	✓	sulphurous acid	10% aq. solution	✓	✓
pentane		✓		tallow		✓	✓
petrol		✓	✓	tanning extracts		✓	✓
phosphoric acid	30% aq. solution	✓	✓	tartaric acid		✓	✓
	95% aq. solution	✓	✓	transformer oil		✓	✓
photographic developers		✓	✓	trichloroethane		≈	≈
potassium bromide		✓	✓	trichloroethylene		≈	≈
potassium carbonate		✓	✓	turpentine		✓	✓
potassium cyanide		✓	✓	vegetable oils		✓	✓
potassium ferricyanide		✓	✓	vinegar		✓	✓
potassium hydroxide	10% aq. solution	✓	✓	water		✓	✓
	concentrated	✓	✓	wetting agents	All concentrations	✓	✓
potassium hypochlorite		✓	✓	wines and spirits		✓	
potassium permanganate		✓	✓	xylene		≈	≈
propane		✓		zinc carbonate		✓	✓
				zinc chloride		✓	✓
				zinc sulphide		✓	✓