

## CHEMICAL RESISTANCE OF JAGUAR MATS, PVC AND PVC/NBR

The resistance of Jaguar mats (both PVC and PVC/NBR material) 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 condition are particularly necessary.

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

In order to give guidance, the resistance of PVC to some chemicals has been predicted from its resistance to other chemicals which have similar composition. Such predictions are shown using an asterisk (\*) with the symbols listed above.

It may be safely assumed that chemical resistance decreases with both increasing temperature and with increasing concentration of reagent, and that the reverse is also true. No valid assumptions can be made, however, if the temperature and concentration move in compensating directions. The rating "some attack or absorption" (symbol ?) should not be assumed to apply at conditions different from those shown.

Chemical	Concentration	PVC		PVC / NBR	
		20°C	60°C	20°C	60°C
		68°F	140°F	68°F	140°F
acetaldehyde	40% aq. solution	√	†*		†*
	100 %	†	†	†*	†*
acetic acid	10% aq. solution	√	√	√	
	60% aq. Solution	√	√	√	?
	Glacial	?	†	†	†
acetic anhydride		†	†	†*	†*
acetone	Traces	†	†	†	†
	100 %	†	†	†	†
acetonitrile			†*		†*
acetophenone		†*	†*	†*	†*
acetophenetidine		√*	√*	√*	√*
adipic acid		√	?		
alcohol, allyl		?	†	†*	†*
alcohol, amyl		√*		√	
alcohol, benzyl		†*	†*	†*	†*
alcohol, butyl		√	?	√	

Chemical	Concentration	PVC		PVC / NBR	
		20°C	60°C	20°C	60°C
		68°F	140°F	68°F	140°F
alcohol, cetyl		√*	√*	√*	√*
alcohol, dodecyl		√*	√*	√*	√*
alcohol, ethyl	40 % w/w water	√	?	√	
	100 %	√	?	√*	
alcohol, furfuryl		†*		†*	
alcohol, hexyl		√	√	√*	
alcohol, isopropyl		√	√	√	
alcohol, lauryl		√*	√*	√*	√
alcohol, methyl	6 % aq.solution	√	√*	√	√
	100 %	√	?	?	
alcohol, nonyl		√*		√*	
alcohol, octyl		√*		√*	
alcohol, propargyl		√	√	√	
aliphatic hydrocarbons		√	√		
allyl chloride		†	†	†*	†*
alum		√	√	√	√
aluminium acetate		√*	√*	√*	
aluminium chloride		√	√	√	√
aluminium fluoride		√*	√*	√*	
aluminium hydroxide		√*	√*	√*	
aluminium nitrate		√	√	√*	√*
aluminium oxalate		√*	√*	√*	√*
aluminium oxychloride		√	√	√*	
aluminium potassium sulphate		√*	√*	√	√
aluminium sulphate		√	√	√*	√*
	0.68 S.G				
ammonia	aq.solution	√	√		
	Anhydrous gas	†	†		
	Anhydrous liquid	†	†*	†*	†*
ammonium bicarbonate		√*	√*	√*	√*
ammonium bifluoride		√	√	√*	√*
ammonium carbonate		√	√	√*	√*
ammonium chloride		√	√	√	√
ammonium fluoride		√	?	√*	
ammonium hydrosulphide		√	√	√*	
ammonium hydroxide		√	√	√	
ammonium metaphosphate		√	√	√*	√*

Chemical	Concentration	PVC		PVC / NBR	
		20°C	60°C	20°C	60°C
		68°F	140°F	68°F	140°F
ammonium nitrate		√	√	√*	√*
ammonium oxalate		√*	√*	√*	√*
ammonium persulphate		√	√	√*	√*
ammonium phosphate		√*	√*	√*	√*
ammonium sulphate		√	√	√	√
ammonium sulphide		√	√	√	†
ammonium thiocyanate		√	√	√*	√*
amyl acetate		†	†	†*	†*
amyl chloride		†	†	†*	†*
aniline		†	†	†	†
aniline hydrochloride		†	†	†*	†*
aniline sulphate		√*	√*	√*	
animal oils		√*	√*	√*	
anthraquinone		√			
anthraquinone sulphonic acid		√	√		
antimony chloride		√	√*	√*	√*
antimony trichloride		√	√	√*	√*
aqua regia	Dilute	√	√		
	Concentrated	√	†		
arsenic acid	Concentrated	√	?	√	?
arysulphonic acid		√	†		†*
barium carbonate		√*	√*	√*	√*
barium chloride		√*	√*	√*	√*
barium hydroxide		√	√	√*	
barium sulphate		√*	√*	√*	√*
barium sulphide		√	√	√	√
beer		√		√	
benzaldehyd	Traces	†	†	†*	†*
	100 %	†*	†	†*	†*
benzene		†	†	†	†
benzoic acid		?	†		†*
benzoyl chloride		†*	†*	†*	†*
benzyl acetate			†*		†*
bismuth carbonate		√	√	√*	√*
borax		√	√	√*	

Chemical	Concentration	PVC		PVC / NBR	
		20°C	60°C	20°C	60°C
		68°F	140°F	68°F	140°F
boric acid		√	√	√*	
boron trifluoride		√			
brine		√	√	√*	√*
bromine	Traces, gas	?	†*	†*	†*
	100% (dry gas)	†*	†*	†*	†*
	Liquid	†	†	†*	†*
butadiene		√	√		
butane		√	√		
butanediol		†	†	†*	†*
butyl acetate		†	†	†*	†*
butyl chloride		†*	†*	†*	†*
butyl phenol		√	†		
butyraldehyde		†*	†*	†*	†*
butyric acid	20% aq. Solution	√	√*	√*	
	Concentrated	†	†	†*	†*
calcium bisulphite		√*	√*	√	√
calcium carbonate		√	√	√*	√*
calcium chlorate		√	√	√*	√*
calcium chloride	Aq. solution	√	√	√	√
	20% in methyl alcohol	√			†*
calcium hydroxide		√	√	√*	
calcium hypochlorite		√	√	√	
calcium nitrate		√	√	√*	√*
calcium phosphate		√*	√*	√*	√*
calcium sulphate		√	√	√*	√*
carbon dioxide		√	√	√*	√*
carbon disulphide		?	†*	†	†
carbonic acid		√	√	√	√*
carbon monoxide		√	√	√*	√*
carbon tetrachloride		?	†	†	†
casein		√*	√*	√	√*
castor oil		√*		√	
chloroacetic acid		√	?		†*
chloral hydrate				†*	†*
chloric acid		√			

Chemical	Concentration	PVC		PVC / NBR	
		20°C	60°C	20°C	60°C
		68°F	140°F	68°F	140°F
chlorine	10% (dry gas)	√			
	100% (dry gas)	√	?		
	10% (moist gas)	?			
chlorine trifluoride		†*	†*	†*	†*
chlorine water	Sat. solution	?	†*	?	†*
chlorobenzene		†	†	†	†
chloroform		†	†	†*	†*
chlorosulphonic acid		?		†*	†*
chrome alum		√	√	√*	√*
chromic acid	Plating solution	√	√	†	†
cider		√*		√*	
citric acid		√	√	√	
copper chloride		√*	√*	√*	√*
copper cyanide		√*	√*	√	√
copper fluoride		√	√	√*	√*
copper nitrate		√*	√*	√*	√*
copper sulphate		√	√	√*	√*
creosote				†	†
cresols		?	†	†	†
cresylic acids			†*	†*	†*
crotonaldehyde		†	†	†*	†*
cupric chloride		√	√	√	√
cupric fluoride		√	√	√*	
cupric nitrate		√*	√*	√*	√*
cupric sulphate		√	√	√	√
cyclohexanol		†	†	†*	†*
cyclohexanone		†	†	†*	†*
detergent, synthetic	All concentrations	√*	√*	√*	
developers, photographic		√	√	√*	√*
dextrin		√	√	√*	√*
dextrose		√	√	√*	√*
diamyl ether		†*	†*	†*	†*
diazo salts		√	√		
dibutyl phthalate		†*	†*	†*	†*
dichlorodifluoromethane		√			

Chemical	Concentration	PVC		PVC / NBR	
		20°C	60°C	20°C	60°C
		68°F	140°F	68°F	140°F
dichlorethylene		†*	†*	†*	†*
dichlorobenzene		†*	†*	†*	†*
diethylene glycol		√*	√*	√*	
diethyl ether		†	†	†	†
diethyl ketone		†*	†*	†*	†*
dimethylamine		√	√		
dimethylcarbinol		√	√	√	
dioctyl phthalate		†*	†*	†*	†*
dioxane		†*	†*	†	†
disodium phosphate		√*	√*	√	√
emulsifiers	All concentrations	√*	√*	√*	√*
emulsions, photographic		√	√	√*	√*
ethane		√*			
ethyl acetate		†	†	†*	†*
ethyl acrylate		†	†	†*	†*
ethyl butyrate		†*	†*	†*	†*
ethyl chloride		†	†	†*	†*
ethyl formate		†*	†*	†*	†*
ethyl lactate		†*	†*	†*	†*
ethyl sulphate		√*			
ethylene bromide		†	†	†*	†*
ethylene chlorhydrin		†	†		
ethylene chloride		†	†	†*	†*
ethylene dibromide		†*	†*	†*	†*
ethylene dichloride		†	†	†*	†*
ethylene glycol		√	√	√	
ethylene oxide		†	†	†*	†*
fatty acids		√	√		
ferric chloride		√	√	√	√
ferric nitrate		√	√	√*	√*
ferric sulphate		√	√	√	√
ferrous ammonium citrate		√*	√*	√*	√*
ferrous chloride		√*	√*	√*	√*
ferrous sulphate		√*	√*	√*	√*

Chemical	Concentration	PVC		PVC / NBR	
		20°C	60°C	20°C	60°C
		68°F	140°F	68°F	140°F
fixing solution, photographic		√	√	√*	√*
fluorine		†	†	†*	†*
fluosilicic acid		√	√		
formaldehyde	40% w/w in water	√	√	√	
formic acid	3% aq. Solution	√			
	10% aq. Solution	√			
	25% aq. Solution	√			
	50% aq. Solution	√	?		†*
	100 %	√	†	†*	†*
fructose		√	√	√*	√*
fruit pulp		√	√	√	√*
furfural		†	†	†*	†*
gallic acid		√*	√*	√	
glacial acetic acid		?	†	†	†
glucose		√	√	√	√*
glycerine		√	√	√*	
glycerol		√	√	√*	
glycerol monobenzyl ether		†*	†*	†*	†*
glycolic acid		√	√		
grape sugar		√	√	√*	√*
heptane		√	√		
hexadecanol		√*	√*	√*	√*
hexane		√*			
hydrobromic acid	50% aq. solution	√	√	√	√
	100 %	√	√*	√*	√*
hydrochloric acid	10% aq. solution	√	√	√	√
	22% aq. solution	√	√	√	√
	Concentrated	√	√	√	?
hydrocyanic acid		√	√		
hydrofluoric acid	4% aq. solution	√		√	√
	40% aq. solution	√	?	√	
	60% aq. solution	?	†*	†	†
	Concentrated	†*	†*	†	†

Chemical	Concentration	PVC		PVC / NBR	
		20°C	60°C	20°C	60°C
		68°F	140°F	68°F	140°F
hydrogen		√	√	√*	√*
hydrogen bromide	Anhydrous	√*	√*	√*	
hydrogen chloride	Anhydrous	√*	√*	√*	
hydrogen fluoride	Anhydrous	√*	√*	√*	
hydrogen peroxide	3% (10 vol.)	√	√	√	
	12% (40 vol.)	√	√	√	
	30% (100 vol.)	√	√	√	
	90% and above	√		√	
hydrogen phosphide		√	√	√*	√*
hydrogen sulphide		√	√	√	
hydroquinone		√*	√*	√	
hydroxylamine sulphate		√	√		
hypochlorous acid		?	†*	?	†*
iodine	Solution in potassium iodide	†	†	†*	†*
isophorone		†	†	†*	†*
lactic acid	10% aq. solution	√	√	√	
	100 %	†	†	†*	†*
lanoline		√*	√*	√*	
lauric acid		√	√	√*	
lauryl chloride		√			
lead acetate		√	√	√*	√*
lead arsenate		√*	√	√*	√*
lead nitrate		√*	√*	√*	√
lead tetraethyl		√	√	√*	
linoleic acid		√	√		
linseed oil		√	√		
magnesium carbonate		√	√	√*	√*
magnesium chloride		√	√	√*	√*
magnesium hydroxide		√	√	√*	√*
magnesium nitrate		√	√	√*	√*
magnesium sulphate		√	√	√*	√*

Chemical	Concentration	PVC		PVC / NBR	
		20°C	60°C	20°C	60°C
		68°F	140°F	68°F	140°F
maleic acid	25% aq. solution	√			
	50% aq. solution	√			
	Concentrated	√	?		†*
malic acid		√		√	
manganese sulphate		√*	√*	√*	√*
mercuric chloride		†	†	†*	†*
mercuric cyanide		√	√	√*	√*
mercurous nitrate		√	√	√*	√*
mercury		√	√	√*	√*
mesityl oxide		†	†	†*	†*
metallic soaps (water soluble)		√*	√*	√*	
methyl acetate		†*	†*	†	†
methyl bromide		†*	†*	†*	†*
methyl chloride		†	†	†*	†*
methyl cyclohexanone		†	†	†*	†*
methyl ethyl ketone		†	†	†*	†*
methyl isobutyl ketone		†*	†*	†*	†*
methyl methacrylate		†	†	†*	†*
methyl sulphate		√	?		†*
methyl sulphonic acid		√	?		
methyl sulphuric acid	50% aq. solution	√	√		
	60% aq. solution	√	√		
	75% aq. solution	√	√		
	90% aq. solution	√	√		
methylated spirit		√*			
methylene chloride		†	†	†	†
milk		√*	√*	√	
mineral oils		√	√	√	†
	Various				
mixed acids (sulphuric/nitric)	proportions	?	†		†*
molasses		√	√	√	√*
monochlorbenzene		†*	†*	†	†
naphtha		√	√		
naphthalene		†	†	†*	†*
nickel chloride		√	√	√*	√*

Chemical	Concentration	PVC		PVC / NBR	
		20°C	60°C	20°C	60°C
		68°F	140°F	68°F	140°F
nickel nitrate		√	√	√*	√*
nickel sulphate		√	√	√*	√*
nicotine		√	√		
nicotinic acid		√	√		
nitric acid	5% aq. solution	√		√	√
	10% aq. solution	√	?	√	
	25% aq. solution	√	?	√	?
	70% aq. solution		?	?	†*
	95% aq. solution	†	†	†*	†*
nitrobenzene		†	†	†	†
nitropropane				†	†
nitrous fumes	Moist	?	†		†*
octane		√*			
oleic acid		√	√	√	
oxalic acid		√	√	√	
oxygen		√	√	√*	√*
ozone		√	√	√*	
palmitic acid		√	√	√*	
paraffin		√	√	?	
pentane		√*			
perchloric acid		√	?		†*
petrol		√	√		
petrol/benzene mixture	80:20 ratio	†	†	†*	†*
petroleum ether				†	†
phenol		√	?		†*
phenylcarbinol		†*	†*	†	†*
phenylhydrazine		†	†	†*	†*
phenylhydrazine hydrochloride		?	†		†
phosgene	Gas	√			
	Liquid	?			
phosphates		√*	√*	√*	√*

Chemical	Concentration	PVC		PVC / NBR	
		20°C	60°C	20°C	60°C
		68°F	140°F	68°F	140°F
phosphoric acid	20% aq. solution	√	√	√	√
	30% aq. solution	√	√	√	√
	50% aq. solution	√	√		
	95% aq. solution	√	√		
phosphoric anhydride		√	√*	√*	
phosphorus		√	?		
phosphorus pentoxide		√	√*	√*	
phosphorus trichloride		†	†	†*	†*
photographic developers		√	√	√*	√*
photographic emulsions		√	√	√*	√*
photographic fixing solutions		√*	√*	√*	√*
phthalic anhydride		√*	√*	√*	√*
picric acid	1% w/w in water	√	√*	√*	√*
	10% w/w in alcohol	√*	√*	√*	
polyglycol ethers		†*	†*	†*	†*
potassium acid sulphate		√*	√*	√	√
potassium antimonate		√*	√*	√	√
potassium bicarbonate		√	√	√*	√*
potassium bichromate		√	√	√*	
potassium bisulphate		√*	√*	√	√*
potassium borate		√	√	√*	√*
potassium bromate		√	√	√*	√*
potassium bromide		√	√	√*	√*
potassium carbonate		√	√	√*	√*
potassium chlorate		√	√	√*	√*
potassium chloride		√	√	√	√
potassium chromate		√	√	√*	√*
potassium cuprocyanide		√*	√*	√	√
potassium cyanide		√	√	√	√
potassium dichromate		√	√	√	√
potassium ferricyanide		√	√	√*	√*
potassium ferrocyanide		√	√	√*	√*
potassium fluoride		√	√	√*	√*

Chemical	Concentration	PVC		PVC / NBR	
		20°C	60°C	20°C	60°C
		68°F	140°F	68°F	140°F
potassium hydroxide	1% aq. solution	√	√	√	√
	10% aq. solution	√	√	√	√
	Concentrated	√	√	√	†
potassium hypochlorite		√*	√*	√	
potassium nitrate		√	√	√*	√*
potassium perborate		√	√	√*	√*
potassium perchlorite		√	√	√*	
potassium permanganate		√	√	√*	
potassium persulphate		√	√	√*	√*
potassium phosphate		√*	√*	√*	√*
potassium sulphate		√	√	√*	√*
potassium sulphide		√*	√*	√	√
potassium thiosulphate		√*	√*	√	√
propane		√			
propylene dichloride		†	†	†*	†*
propylene glycol		√*	√*	√*	
propylene oxide		†*	†*	†*	†*
saccharose		√*	√*	√*	√*
salicylic acid		√	√		
sea water		√	√	√*	√*
selenic acid		†	†		
silver acetate		√*	√*	√*	√*
silver cyanide		√	√	√*	√*
silver nitrate		√	√		
soap solution		√	√	√	
sodium acetate		√	√	√*	
sodium acid sulphate		√*	√*	√	√
sodium aluminate		√*	√*	√*	√*
sodium antimonate		√*	√*	√	√
sodium benzoate		√	?	√*	†*
sodium bicarbonate		√	√	√*	
sodium bisulphate		√	√	√*	√*
sodium bisulphite		√	√	√	

Chemical	Concentration	PVC		PVC / NBR	
		20°C	60°C	20°C	60°C
		68°F	140°F	68°F	140°F
sodium borate		√*	√*	√*	
sodium bromide		√	√	√*	√*
sodium carbonate		√	√	√*	
sodium chlorate		√	√	√*	√*
sodium chloride		√	√	√	√
sodium cyanide		√*	√*	√	√
sodium ferricyanide		√	√	√*	√*
sodium ferrocyanide		√	√	√*	√*
sodium fluoride		√	√	√*	
sodium hydroxide	1% aq. solution	√	√	√	
	10% aq. solution	√	√	√	?
	40% aq. solution	√	√	√	†
	Concentrated	√	√	√	†
sodium hypochlorite	15% Cl	√	√	√	?
sodium hyposulphate		√*	√*	√*	√*
sodium metaphosphate		√*	√*	√*	√*
sodium nitrate		√	√	√*	√*
sodium nitrite		√	√	√*	√*
sodium perborate		√*	√*	√*	
sodium phosphate		√*	√*	√*	√*
sodium silicate		√*	√*	√*	√*
sodium sulphate		√	√	√*	√*
sodium sulphide	25% aq. solution	√	√	√	√
	Concentrated	√	√	√	√
sodium sulphite		√	√		
sodium tetraborate		√	√	√*	
sodium thiosulphate		√*	√*	√	√
soft soap		√*	√*	√	
surface active agents (emulsifiers, synthetic detergents and wetting agents)	All concentrations	√*	√*	√*	√*
stannic chloride		√	√	√	√
stannous chloride		√	√	√	√
starch		√	√	√*	√*
stearic acid		√	√	√*	√*
sucrose		√*	√*	√*	√*

Chemical	Concentration	PVC		PVC / NBR	
		20°C	60°C	20°C	60°C
		68°F	140°F	68°F	140°F
sulphur	Colloidal	√	√		
sulphur dioxide	Dry	√	√	√*	†*
	Moist	√	?		†*
	Liquid	?	†		†*
sulphuric acid	10% aq. solution	√	√	√	√
	20% aq. solution	√	√	√	√
	30% aq. solution	√	√	√	√
	40% aq. solution	√	√	√	√
	45% aq. solution	√	√	√	√
	50% aq. solution	√	√	√	?
	55% aq. solution	√	√		?
	60% aq. solution	√	√	?	?
	70% aq. solution	√	√	?	
	80% aq. solution	√	√	?	
	90% aq. solution	√	?		
	95% aq. solution	√	?		
	98% aq. solution	?	?	†	†
	Fuming	†*	†*	†	†
sulphurous acid	10% aq. solution	√	√	√	
	30% aq. solution	√	√	√	
sulphur trioxide		√	√		
synthetic detergents	All concentrations	√*	√*	√*	
tallow		√*	√*	√*	
tannic acid		√	√	√	
tanning extracts		√	√*	√*	
tartaric acid		√	√	√	
tetra ethyl lead		√	√	√*	
tetrahydrofuran		†	†	†*	†*
tetrahydronaphthalene			†	†	†
tetralin			†	†	†
thionyl chloride		†			
toluene		†	†	†*	†*
transformer oil		√*	√*	√	†*
tributyl phosphate		†	†	†*	†*
trichloroacetic acid					†*

Chemical	Concentration	PVC		PVC / NBR	
		20°C	60°C	20°C	60°C
		68°F	140°F	68°F	140°F
trichloroethane		†*	†*	†*	†*
trichloroethylene		†	†	†	†
trichlorobenzene		†*	†*	†*	†*
tricresyl phosphate		†*	†*	†*	†*
triethanolamine		√	√	√	√
triethylene glycol		√*	√*	√*	
trimethylamine		√	√		
trimethylpropane		√	?		
trisodium phosphate		√	√	√	√
turpentine		√	√		
urea		√	√	√*	
vegetable oils		√	√	√	
vinegar		√	√	√*	
vinyl acetate		†	†	†*	†*
water		√	√	√	√
wetting agents	All concentrations	√*	√*	√*	√*
wines and spirits		√			
xylene		†*	†*	†*	†*
xlenol			†*	†*	†*
yeast		√		√*	
zinc ammonium carbonate		√*	√*	√*	√*
zinc carbonate		√*	√*	√*	√*
zinc chloride		√	√	√*	√*
zinc oxide		√*	√*	√*	√*
zinc sulphide		√	√	√	√