



Chemical Resistance

CAST Block, Sheet, Rod & Tube - Clear Only

The following table gives an indication of the chemical resistance of clear cast ALT acrylic as judged by visual observation of small samples immersed in various liquids at 20°C, 23°C and 60°C.

Cast tube isn't as highly polymerised as cast block, sheet & rod; and as such has a slightly lower resistance.

The symbols below have been used in this table:

- R** = Resistant **N** = Not resistant **O** = Restricted resistance
S = Satisfactory (no effect, except possibly staining of the 'Perspex').
A = Some attack by, or absorption of the liquid (slight crazing or swelling of the 'Perspex' may have occurred but the material has retained most of its strength)
U = Unsatisfactory (the 'Perspex' has decomposed, dissolved, swollen, lost its strength, etc).

Chemical	Concentration	Resistance at			Exposure	Notes
		20°C	23°C	60°C		
Acetaldehyde	100% sol.	U		U		
Acetic Acid	10% sol.	S			5 Years	
	100% sol.	U			1 Day	Badly Swollen
	Glacial	U			3 Days	Dissolved
Acetic Anhydride		A				
Acetone	100% sol.	U	N		1 Day	Dissolved
Acetonitrile		U				
Acetophenone		U			28 Days	Crazed, swollen and dissolved
Alcohol, allyl		U			1 Day	Crazed and dissolved
Alcohol, amyl		U				
Alcohol, benzyl		U				
Alcohol, n-butyl		U			1 Year	Crazing and disintegration
Alcohol, ethyl	10% sol.	A			1 Year	Slight attack
	50% sol.	A			1 Year	Slight attack
	100% sol.	U			1 Year	Slight attack, swollen and softened
Alcohol, isopropyl	10% sol.	A			1 Year	Crazing
	50% sol.	A			1 Year	Crazing
	100% sol.	A			1 Year	Cloudy and slight attack
Alcohol, methyl	10% sol.	A			1 Year	Slight attack
	50% sol.	A			168 Days	Swollen
	100% sol.	U			168 Days	Swollen and increased 20% in weight
Alum			R			
Aluminium oxalate sol.			R			
Aluminium potassium	Saturated sol.	S			5 Years	
Aluminium trichloride sol.			R			
Aluminium sulphate			R			
Ammonia	100% sol.		R			
	0.88 solution	S		A		
	Liquid	U		U		
Ammonium chloride	Saturated sol.	S			5 Years	
Ammonium hydroxide			R			
Ammonium sulphate			R			
Amyl acetate		U			28 Days	Crazed and dissolved
Amyl alcohol			N			

Chemical	Concentration	Resistance at			Exposure	Notes
		20°C	23°C	60°C		
Aniline		U			7 Days	Crazed and dissolved
Anise			R			
Anthracene	Sol. in parafin	S			1 Year	
Arsenic			R			
Arsenic acid			R			
Battery acid			R			
Beer			R			
Bee's honey			R			
Benzaldehyde		U			7 Days	Dissolved
Benzene		U	N		1 Day	Dissolved
Benzine			R			
Benzoyl chloride		U			7 Days	Dissolved
Boric acid			R			
Butanol						
Butirric acid	5% sol.		R			
n-Butyric acid	Concentrated	U			7 Days	Dissolved
Butyl acetate		U			10 Days	Dissolved
Butylaldehyde		U			7 Days	Dissolved
Butyl acetyl ricinoleate		A		A	2 Years	Slight attack at edges
n-Butyl chloride		U			7 Days	Dissolved
Butyl stearate		A			5 Years	Slight attack on crazing
Calcium chloride	Powder		R			
	2% sol.		R			
	Saturated sol.	S			3 Years	Slight attack on edges
Calcium hypochlorite			R			
Caprinic acid	1% sol.		R			
Carbon disulphide		U			84 Days	Crazed, softened and swollen
Carbon dioxide			R			
Carbon monoxide			R			
Carbon tetrachloride		U			84 Days	Crazed, dissolving
Caustic soda	100% sol.		R			
Chinosol	1% sol.		R			
Chlorine		A			5 Years	Crazing and surface attack
Chloroform		U	R		1 Day	Dissolved
Chlorohexane			R			
Chromic acid	10% sol.	S			5 Years	Staining
	Saturated sol.	U		S	6 Months	
Citric acid	Saturated sol.				3 Years	Dissolves slowly: 1/3 weight loss
	100% sol.		R			
	20% sol.		R			
	Saturated sol.	S			5 Years	
Coffee						
			R			
Concrete			R			
Copper sulphate sol.						
meta-Cresol		U			7 Days	Crazed and dissolved
Cyclo-hexane		U			2 Years	No attack up to 168 days
						Dissolved after 2 years
Cyclo-hexanol		U		U	7 Days	Dissolved and swollen
Cyclo-hexanone		U		U	7 Days	Dissolved and swollen
Cyclo-hexene		U			84 Days	Softened, swollen and crazed
Decahydronaphtalene		U			7 Days	Crazed and softened
Di-alkylphalate		A		U	2 Days	Slight disintegration
Di-butylphalate			N			
		A			2 Years	Surface crazed
Di-nonylphthalate				U	8 Days	Dissolved
		A		A	2 Years	Slight disintegration
Di-octylphthalate			N			
Di-alkyl sebacate		A		A	2 Years	Slight disintegration
		A		A	2 Years	Slight disintegration
Di-butyl sebacate		A		A	2 Years	Slight crazing and disintegration
Di-octyl sebacate		A		A	2 Years	Slight disintegration

Chemical	Concentration	Resistance at			Exposure	Notes
		20°C	23°C	60°C		
Di-ethyl ether		U			168 Days	Soft and swollen
Ethanol			O			
Ethylacetate			N			
Ethylene di-bromide		U			1 Day	Dissolved
Ethylene glycol		S			5 Years	
Ethylene di-chloride		U			1 Day	Dissolved
Ethyl acetate		U			3 Days	Dissolved
Epichlorhydrin		U			1 Day	Dissolved
Exhaust gases cont.	Hydrochloric acid		R			
Fats - animal			R			
Fats - mineral			R			
Ferric chloride	10% aq	S			1 Year	
Formaldehyde	40% aq	S			5 Years	
Formic acid	2% sol.		R			
	10% aq	S			5 Years	
	10% aq			U	168 Days	
	90% aq	U			7 Days	
Galvanometric solutions			R			
Glycerine			R			
Glycerol		S			5 Years	
Glycol			R			
Heptane			R			
Hexane			R			
		S			168 Days	Very slight crazing
Hydrochloric acid	10% sol.		R			
	10% sol.	S		S	168 Days	Slight crazing
	Concentrated	S		S	168 Days	Slight crazing
Hydrocyanic acid		U			1 Day	Dissolved
Hydrofluoric acid	20% sol.		R			
	Concentrated	U			1 Day	Swollen and soft
Hydrofluoboric acid		A			1 Year	
Hydrogen chloride		S				
Hydrogen peroxide	10% sol.	S				
	40% sol.		R			
	90% sol.	U				
Hydrosulphuric acid	5% sol.		R			
Iodium			R			
Iron chorate			R			
Iron trichloride			R			
Iron perchloride		A			3 Years	Slight attack on edges
Isopropanol			O			
Ketone			N			
Lactic acid	10% sol.		R			
	100% sol.	S			3 Years	Slight crazing
Lanoline		S			5 Years	
Magnesium chloride			R			
Magnesium sulphate			R			
Meat - Fish			R			
Mercury		S			2 Years	
Methane			R			
Methylamine		S			5 Years	Crazing and cloudy
Methyl benzoate		U			7 Days	Dissolved
Methyl chloride			N			
Methyl cyclohexanol		U			7 Days	Crazed after a few hours
Methylene dichloride		U			1 Day	Dissolved
Methyl naphthaline		U			84 Days	Dissolved
Metol quinone				U	1 Day	
Methyl salicylate		U			7 Days	Dissolved
Metol quinone		S				
Mineral oils			R			
Monobromo naphthaline			R			
Monochlorobenzene		U			7 Days	Dissolved

Chemical	Concentration	Resistance at			Exposure	Notes
		20°C	23°C	60°C		
Naphtha		U			168 Days	Softened and crazed
Naphthalene	Chrystals	A			28 Days	
	Saturated	A			28 Days	
	sol. in paraffin					
Nickel sulphate sol.			R			
Nitric acid	20% sol.		R			
	10% sol.	S			5 Years	
	10% sol.			S	168 Days	
	100% sol.	U			24 Hours	Swollen
Nitrobenzene		U			7 Days	Dissolved and crazed
Nitrocellulose			N			
Nitrogen oxide - gas			R			
n-Octane		A			168 Days	Slight crazing
100-octane aviation fuel		A			168 Days	Slight crazing
Oil - transformer		S			5 Years	Staining
Oil - diesel		S			2 Years	Clouding of surface
Oil - olive		S			5 Years	Slight crazing
Oil-Silicon F110(ICI grade)		A			1 Year	
Oxalic acid	Saturated sol.		R			
	Saturated sol.	S			5 Years	
	Saturated sol.			S	168 Days	
Oxygen - gas			R			
Ozone			R			
Paraffin			R			
Paraffin, medicinal		S			5 Years	
Pepper (caspicum)			R			
Perchloroethylene		U			5 Years	Bad crazing
Petroleum			R			
Petroleum ether			R			
Petroleum ether 100 - 120		S			5 Years	Slight crazing
Phenol		U			7 Days	Dissolved
Phosphates			R			
Phosphoric acid	30% sol.		R			
	10% sol.	S			5 Years	
	10% sol.				168 Days	
	95% sol.	U			7 Days	Badly crazed
Piperidine		U			1 Day	
Potassium alkali			R			
Potassium bichromate sol.			R			
Potassium Chlorate	Saturated sol.	S			5 Years	
Potassium chloride sol.			R			
Potassium cyanide sol.						
Potassium dichromate	10% sol.	S			5 Years	Stained slightly
Potassium hydroxide	50% sol.		R			
	Saturated sol.	S		S	168 Days	
Potassium nitrate sol.						
Potassium permanganate			R			
	0.1 N sol.	S			5 Years	Heavy staining
Polypropylene adipate		S		A	2 Years	Slight attack
Polypropylene laurate		S		A	2 Years	Slight attack
Polypropylene sebacate		S		A	2 Years	
Propylene			R			
Rubber			R			
Sebacic acid		S			2 Years	
Silver nitrate			R			
Soap sol.			R			
Soda			R			
Sodium bisulphite sol.			R			
Sodium carbonate			R			
	Saturated sol.	S			5 Years	
				S	168 Days	

Chemical	Concentration	Resistance at			Exposure	Notes
		20°C	23°C	60°C		
Sodium chlorate			R			
	Saturated sol.	S			5 Years	
Sodium chloride			R			
Sodium hydroxide	Saturated sol.	S			5 Years	
				S	168 Days	
Sodium hypochlorite			R			
	(10% chlorine)	S			5 Years	
Sodium sulphate sol.			R			
Sodium thiosulphate	40% sol.	S			5 Years	
Stearic acid			R			
Sulphur			R			
Sulphur dioxide - dry			R			
Sulphuric acid	30% sol.		R			
	10% sol.	S			5 Years	
	10% sol.			S	168 Days	
	30% sol.	S		S	1 Year	Slight attack
	98% sol.	U		U	1 Day	Swollen
Sulphuril chloride			R			
Tartaric acid			R			
	Saturated sol.	S			5 Years	
	Saturated sol.			S	168 Days	
Tea			R			
Tetra-hydrofuran		U			1 Day	Dissolved
Thinners			N			
Trichloroethane		U			1 Day	Dissolved
Trichloroethylene		U			1 Day	Dissolved
Tricresyl phosphate			R			
		U			2 Years	Crazing and attacked surface
				U	28 Days	
Triethylamine			R			
Tin chloride			R			
Trixylenyl phosphate		U			2 Years	Crazed and softened
				U	28 Days	
Toluene		U			7 Days	Dissolved
Toluol			N			
Turpentine			R			
Uric acid	20% sol.		R			
Vinegar essence			N			
Water			R			
		S			5 Years	
Water - mineral			R			
Wax			R			
White spirit		S			5 Years	Slight crazing
Xylene		U			7 Days	Dissolved
Xylol			N			
Zinc sulphate			R			
Zinc sulphate sol.			R			

NOTE: All data is given as guidance only and should not be applied to profiles without reservation. Alternative Plastics accept no responsibility whatsoever for results or application due to their use, or which are in opposition to existing patents..

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