



CHEMICAL RESISTANCE TABLE

The data given in the extensive Table below is the current 'best state of information' as known to Nylacast. Polymer compatibility with solvents other than those in this chart may arise: the General Principles to approach this issue are:

- if a 'new solvent' is, say, a ketone then look for a similar solvent, e.g. look at the polymer compatibility of other ketones of higher or lower molecular weight.
- the data given is for 'room', ~23°C, and 50°C temperatures. Solvents at higher temperatures, say >100°C, are usually more aggressive towards polymers and cause premature failure when compared to the lower temperatures for which data is given. Always test for higher temperature exposure.
- Prolonged exposure, i.e., months or years, to solvents at room temperatures can denature polymer surfaces, causing surface stress cracking leading to physical failure.
- do not expose 'condensation polymers' such as the nylons, PET/PBT and POM's, to solutions with a pH of <2 or >12. Exposure of these polymers outside of these defined limits, such as to strong acids or alkalis, will begin to depolymerise and degrade the polymers which will lose strength and integrity.
- some organic solvents will attack and ultimately dissolve polymers. Hot m-cresol, an unpleasant solvent, will dissolve nylons after prolonged exposure by refluxing. Some binary combinations of ionic liquids are good solvents of PVC or nylon polymers at room temperature or slightly above. Always test polymers for compatibility with 'unusual' solvents.
- for a 'new solvent' not listed below, an unusual solvent or for listed solvents used at higher temperatures, always test the polymer under consideration for compatibility.
- a blank box in the chemical/resistance table means that no information is available for that combination.

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CHEMICAL RESISTANCE TABLE

Chemical name	Concentration (%)	Temperature (°C)	Polyamides (PA6 and PA66)	Nylon 12 (PA12)	Polyacetal (POM-C)	Polyacetal (POM-H)	Polyethylene terephthalate (PET)	Polyethylene (HDPE)
Acetaldehyde, CH ₃ CHO	undiluted and at any conc.	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Acetamide, CH ₃ CONH ₂	50	25	Resistant	Resistant	Resistant	Resistant	-	Resistant
Acetic acid, CH ₃ COOH	5	25	Resistant	Resistant	Resistant	Resistant		Resistant
	10	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
	10	50	Partially resistant	Partially resistant	Partially resistant	Partially resistant	Resistant	Resistant
	95	90	Non resistant	Partially resistant	Non resistant	Non resistant	Partially resistant	Resistant

CHEMICAL RESISTANCE TABLE

Chemical name	%	°C	PA6 /PA66	PA 12	POM-C	POM-H	PET	HDPE
Acetone, CH ₃ COCH ₃	50	25	Resistant	Resistant	Resistant	Resistant	Resistant	50
	undiluted	25	Resistant	Resistant	Resistant	Resistant	Partially resistant	undiluted
Acetylene, HC≡CH	undiluted	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Aluminium sulphate, Al ₂ (SO ₄) ₃	5	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
	saturated	25		Resistant	Partially resistant	Good resistance		Good resistance
Ammonia, NH ₃	20	25	Partially resistant	Resistant	Resistant		Resistant	Resistant
Ammonium hydroxide, NH ₄ OH	20	25	Resistant	Resistant	Resistant	Non resistant	Non resistant	Resistant
Ammonium chloride, NH ₄ Cl	10	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Ammonium nitrate, NH ₄ NO ₃	10	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Ammonium phosphate, (NH ₄) ₂ HPO ₄	10	25	Resistant		Resistant	Resistant	Resistant	Resistant
Ammonium sulphate, (NH ₄) ₂ SO ₄	10	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Aniline, C ₆ H ₅ NH ₂	undiluted	25	Partially resistant	Partially resistant	Partially resistant	Partially resistant	Resistant	Resistant
Aromatic hydrocarbons	undiluted	80	Resistant	Resistant	Resistant		Partially resistant	Aromatic hydrocarbons
Benzene, C ₆ H ₆	undiluted	25	Resistant	Resistant	Resistant	Resistant	Resistant	Poor resistance
	undiluted	60	Resistant	Resistant	Resistant	Resistant	Non resistant	Non resistant

CHEMICAL RESISTANCE TABLE

Chemical name	%	°C	PA6 /PA66	PA 12	POM-C	POM-H	PET	HDPE
Benzoic acid, C ₆ H ₅ COOH	20	25	Partially resistant	Partially resistant	Partially resistant		Resistant	Resistant
	saturated	25	Non resistant	Partially resistant	Non resistant		Resistant	Resistant
Benzyl alcohol, C ₆ H ₅ CH ₂ OH	undiluted	25	Partially resistant	Non resistant	Resistant		Resistant	Non resistant
Bleaching liquor, 12.5% Cl ₂ NaOCl	as available	25	Resistant		Resistant		Resistant	Non resistant
Borax Na ₂ B ₄ O ₇	10	25	Resistant	Resistant	Resistant		Resistant	Resistant
Boric acid, H ₃ BO ₃	10	25	Partially resistant		Partially resistant		Resistant	Resistant
Brake fluid, DIN 53521	as available	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Bromine, Br ₂	undiluted	25	Non resistant	Non resistant	Non resistant		Non resistant	Non resistant
Butadiene, CH ₂ CH=CHCH ₂	undiluted	25	Resistant		Resistant		Resistant	Non resistant
Butane, C ₄ H ₁₀	undiluted	25	Resistant	Resistant	Resistant		Resistant	Partially resistant
Butene, C ₄ H ₈	undiluted	25	Resistant		Resistant		Resistant	Partially resistant
Butylamine, C ₄ H ₉ OH	undiluted	25	Resistant		Resistant		Resistant	Resistant
Calcium chloride, CaCl ₂	5	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
	saturated	25	Partially resistant	Resistant	Resistant		Resistant	Resistant

CHEMICAL RESISTANCE TABLE

Chemical name	%	°C	PA6 /PA66	PA 12	POM-C	POM-H	PET	HDPE
Calcium chloride, CaCl ₂ in alcohol	20	25	Dissolves	Non resistant	Resistant			Resistant
Calcium hypochlorite, Ca(ClO) ₂	saturated	25	Non resistant		Non resistant		Partially resistant	Resistant
Carbon dioxide, CO ₂	undiluted	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Carbon disulphide, CS ₂	undiluted	25	Resistant	Resistant	Resistant		Resistant	Resistant
Carbon tetrachloride, CCl ₄	undiluted	25	Resistant	Partially resistant	Partially resistant	Resistant	Resistant	Non resistant
Chloride of Lime/Water	undiluted	25	Non resistant		Non resistant			Non resistant
Chlorine water, Cl ₂ /H ₂ O	saturated	25	Non resistant	Non resistant	Non resistant		Non resistant	Resistant
Chloroacetic acid, ClCH ₂ COOH	10	25	Non resistant	Non resistant	Non resistant	Non resistant	Non resistant	Resistant
Chlorobenzene, C ₆ H ₅ Cl	undiluted	25	Resistant	Non resistant	Resistant		Resistant	Partially resistant
Chlorofluorocarbons, CFC's	undiluted	25	Resistant		Resistant		Resistant	Partially resistant
Chloroform, CHCl ₃	undiluted	25	Non resistant	Non resistant	Non resistant		Non resistant	Non resistant
Chromic acid, H ₂ CrO ₄	1	25	Partially resistant	Partially resistant	Partially resistant		Resistant	Resistant
Crude Oil	as available	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant

CHEMICAL RESISTANCE TABLE

Chemical name	%	°C	PA6 /PA66	PA 12	POM-C	POM-H	PET	HDPE
Detergent solutions	undiluted	25	Resistant	Resistant	Resistant	Resistant	Resistant	
Diethylene glycol, (HOCH ₂ CH ₂) ₂ O	undiluted	25	Resistant		Resistant		Resistant	Resistant
Dimethyl ether, CH ₃ OCH ₃	undiluted	25	Resistant		Resistant		Resistant	Resistant
Ether, C ₂ H ₅ OC ₂ H ₅	undiluted	25	Resistant	Resistant	Resistant		Resistant	Partially resistant
Ethyl acetate, CH ₃ COOC ₂ H ₅	undiluted	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Ethyl alcohol, C ₂ H ₅ OH	40	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Ethylene glycol, HOCH ₂ H ₄ OH	undiluted	25	Resistant	Resistant	Resistant	Partially resistant	Resistant	Resistant
Fatty acids, R-COOH	5	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Fluorine, F ₂	undiluted	25	Non resistant	Non resistant	Non resistant		Non resistant	Non resistant
Fluorosilicic acid, H ₂ SiF ₆	30	25	Non resistant		Non resistant		Non resistant	Resistant
Formaldehyde, HCHO aqueous	30	25	Partially resistant	Partially resistant	Resistant	Resistant	Resistant	Resistant
Formic acid, HCOOH	2	25	Partially resistant	Partially resistant	Resistant		Resistant	Resistant
Glycerine, CHO(CH ₂ OH) ₂	undiluted	25	Resistant	Resistant	Resistant		Resistant	Resistant
Hydraulic Oils	as available	25	Resistant	Resistant	Resistant		Resistant	Resistant
		80	Resistant		Resistant		Resistant	Partially resistant

CHEMICAL RESISTANCE TABLE

Chemical name	%	°C	PA6 /PA66	PA 12	POM-C	POM-H	PET	HDPE
Hydrobromic acid, HBr	10	25	Non resistant		Non resistant		Non resistant	Resistant
Hydrochloric acid, HCl	1	25	Partially resistant					Resistant
	10	25	Non resistant		Non resistant	Non resistant	Resistant	Resistant
Hydrofluoric acid, HF	5	25	Non resistant		Non resistant		Resistant	Resistant
	5	60	Non resistant		Non resistant		Partially resistant	
	50	25	Non resistant		Non resistant		Non resistant	Resistant
Hydrogen, H ₂	undiluted	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Hydrogen chloride, (gas), HCl	undiluted	25	Non resistant		Non resistant		Non resistant	Resistant
Hydrogen peroxide, H ₂ O ₂	1	25	Non resistant	Partially resistant	Resistant	Resistant	Resistant	Resistant
Hydrogen sulphide (aq.), H ₂ S	10	25	Resistant	Resistant	Resistant		Resistant	Resistant
Iron(III)-chloride, FeCl ₃	5	25	Partially resistant		Partially resistant	Resistant	Resistant	Resistant
	10	25	Partially resistant		Partially resistant			Resistant
Isopropyl alcohol, (CH ₃) ₂ CHOH	undiluted	25	Resistant	Partially resistant	Resistant		Partially resistant	Resistant

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Chemical name	%	°C	PA6 /PA66	PA 12	POM-C	POM-H	PET	HDPE
Isopropyl ether, $(\text{CH}_3)_2\text{CH}_2\text{O}$	undiluted	25	Resistant		Resistant		Resistant	Partially resistant
Kerosene	as available	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Ketones (aliphatic), RCOR	undiluted	25	Partially resistant		Resistant		Non resistant	Partially resistant
Lactic acid, $\text{CH}_3\text{CHOHCOOH}$	10	25	Resistant	Resistant	Resistant		Resistant	Resistant
Lubricating greases	as available	25	Resistant		Resistant	Resistant	Resistant	Resistant
Maleic acid, $\text{HOOCCH}_2=\text{CH}_2\text{COOH}$	10	25	Partially resistant		Non resistant			Resistant
Malic acid, $\text{HOOC CH(OH)CH}_2\text{COOH}$	saturated	25	Resistant		Partially resistant		Resistant	Resistant
Mercury, Hg	undiluted	25	Resistant	Resistant	Resistant		Resistant	Resistant
Methyl acetate, $\text{CH}_3\text{COOCH}_3$	undiluted	25	Resistant	Resistant	Resistant		Partially resistant	Resistant
Methyl alcohol, CH_3OH	50	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Methyl bromide, CH_3Br	undiluted	25	Partially resistant	Partially resistant	Partially resistant			Partially resistant
Methyl chloride, CH_3Cl	undiluted	25	Partially resistant	Partially resistant	Partially resistant	Resistant	Non resistant	Partially resistant
Methyl ethyl ketone, $\text{CH}_3\text{COC}_2\text{H}_5$	20	25	Resistant			Resistant	Resistant	Resistant
	undiluted	25	Resistant		Partially resistant	Resistant	Resistant	Resistant

CHEMICAL RESISTANCE TABLE

Chemical name	%	°C	PA6 / PA66	PA 12	POM-C	POM-H	PET	HDPE
Methylene chloride, CH ₂ Cl ₂	undiluted	25	Non resistant		Non resistant		Non resistant	Partially resistant
Milk	as available	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Mineral oils	as available	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Naphtha	as available	25	Resistant	Resistant	Resistant		Resistant	Resistant
Naphthalene, C ₁₀ H ₈	undiluted	25	Resistant	Resistant	Resistant		Resistant	Resistant
Nitric acid, HNO ₃	1	25	Partially resistant	Non resistant			Resistant	Resistant
	10	25	Non resistant	Non resistant	Non resistant	Non resistant	Resistant	Resistant
Nitrobenzene, C ₆ H ₅ NO ₂	undiluted	25	Partially resistant	Partially resistant	Partially resistant		Partially resistant	Resistant
Nitrogen oxides, NO/NO ₂	undiluted	25	Partially resistant		Non resistant		Resistant	Resistant
Oxalic acid, HOOCOOH	10	25	Partially resistant	Resistant	Non resistant		Resistant	Resistant
Oxygen, O ₂	undiluted	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Oxygen under pressure, O ₂	undiluted	25	Non resistant		Non resistant	Non resistant	Non resistant	
Ozone, O ₃	undiluted	25	Non resistant	Non resistant	Non resistant		Partially resistant	Partially resistant

CHEMICAL RESISTANCE TABLE

Chemical name	%	°C	PA6 / PA66	PA 12	POM-C	POM-H	PET	HDPE
Ozone diluted in air, O ₃ , 20ppm		25	Partially resistant		Partially resistant		Resistant	Resistant
Paraffin oil	as available	25	Resistant	resistant	Resistant	Resistant	Resistant	Resistant
Petrol, normal, DIN 53521	as available	85	Resistant	Resistant	Resistant		Resistant	Partially resistant
Phenol, C ₆ H ₅ OH	undiluted	40	Dissolves	Non resistant	Non resistant	Non resistant	Non resistant	Resistant
Phosphoric acid, H ₃ PO ₄	1	25	Partially resistant					Resistant
	10	25	Non resistant	Partially resistant	Resistant	Non resistant	Resistant	Resistant
	50	25	Non resistant	Non resistant	Non resistant	Non resistant	Resistant	Resistant
Phthalic acid, C ₆ H ₄ (COOH) ₂	saturated	25	Partially resistant		Resistant		Resistant	Resistant
Potassium bromide, KBr	10	25	Partially resistant	Resistant	Resistant		Resistant	Resistant
Potassium carbonate, K ₂ CO ₃	50	25	Resistant	Resistant	Resistant		Resistant	Resistant
Potassium chloride, KCl	10	25	Resistant		Resistant		Resistant	Resistant
Potassium dichromate, K ₂ Cr ₂ O ₇	5	25	Partially resistant		Resistant		Resistant	Resistant

CHEMICAL RESISTANCE TABLE

Chemical name	%	°C	PA6 / PA66	PA 12	POM-C	POM-H	PET	HDPE
Potassium hydroxide, KOH	1	25	Resistant	Resistant	Resistant		Resistant	Resistant
	10	25	Resistant	Resistant	Resistant		Non resistant	Resistant
	50	25	Partially resistant	Resistant	Resistant		Non resistant	Resistant
Potassium nitrate, KNO ₃	10	25	Resistant	Resistant	Resistant		Resistant	Resistant
Potassium permanganate, KMnO ₄	1	25	Non resistant		Resistant	Resistant	Resistant	Resistant
Propyl alcohol, n-C ₃ H ₇ OH	undiluted	25	Resistant		Resistant		Resistant	Resistant
Pyridine, C ₅ H ₅ N	undiluted	25	Resistant	Resistant	Partially resistant	Partially resistant		Resistant
Salicylic acid, HO-C ₆ H ₄ -COOH	saturated	25	Resistant		Non resistant		Partially resistant	Resistant
Sodium acetate, CH ₃ COONa	10	25	Resistant		Resistant		Resistant	Resistant
Sodium bisulphite, NaHSO ₃	5	25			Resistant	Resistant	Resistant	Resistant
Sodium bisulphite, NaHSO ₃	10	25	Resistant		Non resistant	Non resistant	Resistant	Resistant
Sodium carbonate, Na ₂ CO ₃	10	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Sodium chloride, NaCl	10	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Sodium cyanide, NaCN	10	25	Resistant		Resistant		Resistant	Resistant
Sodium dichromate, Na ₂ Cr ₂ O ₇	10	25	Resistant		Resistant		Partially resistant	Resistant

CHEMICAL RESISTANCE TABLE

Chemical name	%	°C	PA6 / PA66	PA 12	POM-C	POM-H	PET	HDPE
Sodium hydroxide, NaOH	1	25	Resistant	Resistant	Resistant	Partially resistant	Resistant	Resistant
	10	25	Resistant	Resistant	Resistant	Non resistant	Partially resistant	Resistant
	10	80	Non resistant		Resistant	Non resistant	Non resistant	
Sodium hypochlorite, (12.5% act. Cl), NaOCl	5	25	Partially resistant	Partially resistant			Resistant	Resistant
	10	25	Non resistant		Non resistant	Non resistant	Partially resistant	Resistant
Sodium nitrite, NaNO ₂	10	25	Resistant		Resistant		Resistant	Resistant
Sodium phosphate, Na ₃ PO ₄	10	25	Resistant	Resistant	Resistant		Resistant	Resistant
Sodium silicate, Na ₂ SiO ₃	10	25	Resistant		Resistant		Resistant	Resistant
Sodium sulphate, Na ₂ SO ₄	10	25	Resistant	Resistant	Resistant		Resistant	Resistant
Sodium sulphide, Na ₂ S	5	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Sodium sulphite, Na ₂ SO ₃	5	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Sodium thiosulphate, Na ₂ S ₂ O ₃	10	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Steam, H ₂ O	undiluted	>100	Partially resistant		Partially resistant		Non resistant	
Stearic acid, C ₁₇ H ₃₅ COOH	undiluted	25	Resistant	Resistant	Resistant		Resistant	Resistant
Styrene, C ₆ H ₅ CH=CH ₂	undiluted	80	Resistant	Resistant	Resistant		Partially resistant	Partially resistant
Sulphur, S	undiluted	25	Resistant	Resistant	Resistant		Resistant	Resistant

CHEMICAL RESISTANCE TABLE

Chemical name	%	°C	PA6 / PA66	PA 12	POM-C	POM-H	PET	HDPE
Sulphur dioxide, dry, SO ₂	undiluted	25	Partially resistant		Non resistant			Resistant
Sulphur dioxide, wet, SO ₂	undiluted	25	Partially resistant		Non resistant			Resistant
Sulphuric acid, H ₂ SO ₄	1	25	Poor resistance		Resistant	Non resistant	Resistant	Resistant
	2	25	Non resistant	Non resistant	Resistant	Non resistant	Resistant	Resistant
	10	25	Non resistant	Non resistant	Partially resistant	Non resistant	Resistant	Resistant
	20	25	Non resistant	Non resistant		Non resistant	Resistant	Resistant
	80	25	Dissolves		Non resistant	Non resistant	Non resistant	Resistant
Sulphurous acid, H ₂ SO ₃	saturated	25	Partially resistant		Non resistant		Resistant	Resistant
Tartaric acid, HOOC(CHOH) ₂ COOH	5	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Tetrachloroethylene, Cl ₂ CCl ₂	undiluted	25	Partially resistant		Resistant	Resistant	Partially resistant	Partially resistant
Tetrahydrofuran, C ₄ H ₈ O	undiluted	25	Resistant	Resistant	Partially resistant	Partially resistant	Partially resistant	Partially resistant
Toluene, C ₆ H ₅ CH ₃	undiluted	25	Resistant	Resistant	Resistant	Partially resistant	Resistant	Partially resistant

CHEMICAL RESISTANCE TABLE

Chemical name	%	°C	PA6 / PA66	PA 12	POM-C	POM-H	PET	HDPE
Trichloroacetic acid, CCl ₃ COOH	50	25	Non resistant		Non resistant		Non resistant	Resistant
Trichloroethylene, ClCHCCl ₂	undiluted	25	Partially resistant					
Trichlorofluoromethane, R-11, CCl ₃ F	undiluted	25	Resistant		Resistant	Resistant	Resistant	Resistant
Turpentine Oil	as available	25	Resistant	Resistant	Resistant	Resistant	Resistant	Partially resistant
Urea, Co(NH ₂) ₂	5	25	Resistant	Resistant	Resistant	Resistant	Resistant	Resistant
Vinegar	as available	25	Non resistant	Resistant	Resistant		Resistant	Resistant
Zinc chloride, ZnCl ₂	10	25	Partially resistant	Resistant	Resistant	Non resistant	Resistant	Resistant

NOTE: While the information above is believed to be accurate and represents the best information currently available to us, Nylacast Materials make no warranty, expressed or implied, with respect to such information and assume no liability resulting from its use.