

CHEMICAL RESISTANCE

Techno Plas Products are made from the following high quality materials:

Polystyrene (PS): Transparent, high clarity with excellent light permeability. Its thermal stability is good to approximately 70 degrees Celsius. Not suitable for high centrifugal forces or autoclaving. Not recommended for application in temperature ranges below zero.

Polypropylene (PP): Translucent, durable and impact resistant. Has good thermal stability to 121 degrees Celsius. Suitable for autoclaving and centrifugation. Particularly suited to sample transport due to impact resistance of material.

Polyethylene (PE): Used mainly for caps and closures on PS and PP containers in non thermal applications.

Polycarbonate (PC): Excellent physical properties. Outstanding clarity, physical strength and is thermally stable to 138 degrees Celsius. Suits autoclaving applications. Chemical stability may be suspect.

Polyethylene Terephthalate (PET): Transparent, high clarity with excellent light permeability. Chemical stability may be suspect. Low permeation gas rate compared to other thermoplastics. Has good barrier properties to oxygen, carbon dioxide and water vapour.

	Polystyrene (Styrene)	High Impact Polystyrene	Polyethylene (High Density)	Polyethylene (Low Density)	Polypropylene	Polycarbonate	Polyethylene Terephthalate (PET)
Properties	Biologically inert, hard, excellent optical qualities	Rubber Content gives improved strength to styrene	Biologically inert, high chemical resistance	Biologically inert, high chemical resistance	Biologically inert, high chemical resistance, exceptional toughness	Clear, very tough, inert, high temperature resistance	Highly resistant to most organic & inorganic compounds, excellent optical qualities
Clarity	Clear	Opaque	Opaque	Opaque	Translucent	Clear	Clear
Autoclave Results	Melts	Melts	Not Recommended	Melts	Withstands one cycle	OK	Melts
Operational Temperature Range	-10 to 80°C	-10 to 90°C	-40 to 80°C	-40 to 75°C	0 to 121°C	-100 to 143°C	-15 to 70°C
Burning Rate	Slow	Slow	Slow	Slow	Slow	Self Extinguishing	Slow
Weak Acids	None	None	None	None	None	None	None
Strong Acids	Oxidising Acids Attack	Oxidising Acids Attack	Oxidising Acids Attack	Oxidising Acids Attack	Oxidising Acids Attack	None	None
Weak Alkalies	None	None	None	None	None	None	None
Strong Alkalies	None	None	None	None	None	Slowly Attacked	Slowly Attacked
Organic Solvents	Soluble-aromatic chlorinated hydrocarbons	Soluble-aromatic chlorinated hydrocarbons	Resistance below 80°C	Resistance below 60°C	Resistance below 79°C	Soluble in chlorinated hydrocarbons - Part soluble in aromatics	Resistance below 70°C
O₂	Low	-	High	High	High	Very Low	Low
N₂	Very Low	-	Low	Low	Low	Very Low	Low
CO₂	High	-	Very High	Very High	Very High	Low	Low
The Information above is provided as a guide only.							



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Chemical resistance at fixed temperatures is shown on a sliding scale where 1 equals highest resistance and 5 poor resistance:

The data below is provided as a guide only. We recommend that our customers perform their own trials.

Material Abbreviations

Polycarbonate (PC)
Polyethylene (PE)

Polypropylene (PP)
Polystyrene (PS)

Polyethylene Terephthalate (PET)

Material	PC 20°C	PE 50°C	PP 50°C	PS 50°C	PET 50°C		PC 20°C	PE 50°C	PP 50°C	PS 50°C	PET 50°C
Acetic Acid	2	1	2	3	4	Hexane	4	5	3	5	4
Acetone	5	1	3	5	5	Hydrochloric acid 20%	3	1	1	1	2
Acetophenone	5	3	3	5	5	Hydrofluoric acid 48%	5	1	1	5	5
Acetaldehyde	5	3	3	5	5	Hydrogen peroxide 30%	1	1	1	1	2
Aqua Regia (HNO ₃)(HCL)	5	4	4	4	5						
Allyl Alcohol	3	1	1	4	4	Lead acetate	1	1	5	1	5
Aluminium Chloride	1	1	1	1	1	Lead acetate aqueous	1	1	5	1	5
Ammonia 25% aqueous	5	1	1	2	5						
Ammonia	5	1	1	4	5	Magnesium chloride aqueous	1	1	1	1	2
Ammonium Chloride aqueous	1	1	1	1	5	Mercury	1	1	1	1	3
Amyl acetate	5	2	2	5	3	Mercuric chloride	1	1	1	3	5
Amyl alcohol	2	1	1	3	2	Methyl alcohol	3	1	1	3	1
Aniline	5	2	3	5	5	Methylene chloride	5	5	5	5	5
Arsenic acid	1	2	1	1	1						
						Nitric acid 20%	5	3	3	5	2
Benzaldehyde	4	4	1	5	5						
Benzene	5	5	5	5	5	Oxalic acid 10% aqueous	1	1	1	1	3
Boric acid	1	1	1	2	5						
Butyl acetate	5	3	3	5	5	Perchloroethylene	1	4	3	2	3
						Petroleum	5	4	4	5	3
Calcium chloride aqueous	2	1	1	1	2	Phenol 100%	5	5	5	4	5
Calcium hypochlorite aqueous	1	1	1	2	2	Phosphoric acid	2	2	2	2	4
Carbon tetrachloride	5	4	3	5	5	Potassium chloride aqueous	1	1	1	1	3
Chlorine	3	5	5	5	5	Potassium hydroxide 30%	5	1	1	1	5
Chlorine water	3	4	4	4	4	Potassium permanganate	1	1	1	3	3
Chlorobenzene	5	5	5	5	5	Pyridine	5	5	5	5	5
Chloroform	5	5	5	5	5						
Chromic acid 20%	1	5	4	2	5	Silver nitrate	1	1	1	2	3
Chromic Sulphuric acid con.	4	5	5	4	5	Sodium carbonate	2	1	1	2	1
Copper sulphate aqueous	1	1	1	1	1	Sodium dichromate	1	1	1	1	1
						Sodium hydroxide 10%	5	1	1	1	3
Decahydronaphthelene	1	5	5	5	5	Sulphuric acid 30%	5	2	2	4	2
Dibutylphthalate	2	5	5	5	2						
Diethyl Ether	5	5	5	5	5	Tetrahydrofuran	5	4	4	5	5
						Tincture of Iodine	5	2	2	3	3
Ethyl acetate	5	1	5	5	5	Toluene	5	4	4	5	5
Ethyl alcohol 96%	1	1	1	3	2	Trichloroethylene	5	5	4	5	3
Ethylene chloride	5	4	4	5	5	Trisodium phosphate	3	1	1	1	3
Ethylene Glycol	3	1	1	1	1						
						Urea	5	1	1	2	2
Fluorine	4	5	5	5	5						
Fluorinated hydrocarbon	5	5	4	5	5	Xylene	5	5	4	5	2
Fomaldehyde 10%	1	1	1	4	3						
Formic acid 85%	3	1	2	4	2	Zinc chloride 10% aqueous	1	1	1	3	2
						Zinc sulphate 10% aqueous	1	1	1	1	2
Glycerine	1	1	1	1	1						