Chemical resistance of high density polyethylene
Extracted from CP 312 : Part 1 : 1973

Chemical	Conc.	20° C	60° C	Chemical	Conc.	20° C	60° C
Acetaldehyde		S	D	Castor oil		D	D
Acetic Acid		S	S	Chloral hydrate			
Acetic Anhydride		S	D	Clorine gas	100%		
Acetone		S	S	Chlorine solution	sat	S	
Aluminium chloride		S	S	Chloroacetic acid		S	S
Aluminium hydroxide		S	S	Chlorobenzene		D	U
Aluminium nitrate		S	S	Chromic acid		S	S
Aluminium sulphate		S	S	Chrome alum		S	S
Ammonia	gas	S	S	Cider		S	S
Ammonia solution	35%	S	S	Citric acid		S	S
Ammonium carbonate		S	S	Copper fluoride		S	S
Ammonium chloride		S	S	Copper sulphate	20%	S	S
Ammon. metaphosphate		S	S	Copper nitrate	20 %	S	S
Ammonium nitrate		S	S	Creosote		S	S
Ammonium orthophosphate		S	S	Cresol		S	S
Ammonium persulphate		S	S	Cyclo hexanol		S	S
Ammonium sulphate		S	S	Cyclo hexanone		S	D
Ammonium Sulphide		S	S	Decalin		D	U
Ammonium thiocynate		S	S	Detergents (synthetic)		S E	S E
Amyl acetate		D	D	Dextrin		S	S
Amyl chloride		D	D	Dextrose	sat.sol	S	S
Aniline		D	D	Diazo salts		S*	S*
Antimony chloride		S	S	Dibutyl phthalate		D	D
Aromatic hydrocarbon		D	U	Dichloro benzene		D	U
Arsenic acid	75%	S	S	Dichloroethane			
Barium carbonate		S	S	Diethyl ether		D	
Barium Cloride		S	S	Diethyl ketone		S*	
Barium sulphate		S	S	Diethylene glycol		S*	
Barium sulphide		S	S	Dioxan		S	D
Benzaldehyde	100%	S	D	Emulsions(photograhic)		S	S*
Benzene		D	U	Ethanediol		S	D
Benzoic acid		S	S	Ethers		S	D
Bismuth carbonate		S	S	Fatty acids,higher		S	S
Borax		S	S	Ferric chloride		S	S
Boric Acid		S	S	Ferric nitrate		S	S
Brine		S	S	Ferric sulphate		S	S
Bromine	Gas	U	U	Ferrous chloride		S	S
	liquid	U	U	Ferrous sulphate		S	S
Butane				Florosilic acid		S	S
Butanols		S	S	Formaldehyde		S	S
Butyl acetate		D	U	Formic acid	10 %	S	S
Butyl phenols					100%	S	S
Butyric acid	conc.	S	D	Fuel oil		S	S
Calcium carbonate		S	S	Furfuryl		S	D
Calcium chlorate		S	S	Glycerol		S	S
Calcium chloride		S	S	Glycollic acid	30%	S	S
Calcium bisulphite		S	S	Heptane		S	U
Calcium hydroxide		S	S	Hexanol		S	
Calcium hypochloride		S	S	Hydrazine hydrate		S	S
Calcium nitrate		S	S	Hydrobromic acid	50%	S	S
Calcium Sulphate		S	S		100%	S	S
Calcium sulphide		U	U	Hydrochloric acid	10%	S	S
Carbon dioxide	gas	S	S		22%	S	S
Carbon monoxide		S	S		36%	S	S
Carbon tetrachloride		U	U	Hydrocyanic acid	10%	S	S

Chemical	Conc.	20° C	60° C	Chemical	Conc.	20° C	60° C
Hydroflouric acid	4%	S	S	Nitrous fumes	Moist	S	S
	40%	S	S	Octanol		S	
	60%	S	S	Oleic acid		S	D
Hydrogen bromide		S*	S*	Orthophosphoric acid	20%	S	S
Hydrogen chloride		S	S		30%	S	S
Hydrogen fluoride		S*	S*		50%	S	S
Hydrogen peroxide	3%	S	S*		95%	S	U
	12%	S	S*	Oxalic acid		S	S
	30%	S	S	Ozone		U	U
	90%	S	U	Palmitic acid	10%	S	S
Hydrogen sulphide		S	S		70%	S	
Iso-octane		S	D	Paraffin		D	D
Lactic acid	10%	S	S	Paraffin wax		S	S
	100%	S	S	Petrol		D	D
Lanolin		S*		Petroleum spirit		S	D
Latex		S	S	Phenol		S	S
Lead acetate		S	S	Phosgene	gas	S	
Lead arsenate		S		Phosphine		S*	S*
Lead nitrate		S	S	Phosphoric acid	50%	S	S
Linoleic acid				Phosphorus		S	S
Linseed oil		S	D	Phosphorous trichloride		S	D
Mgnesium carbonate		S	S	Phthalic anhydride		S*	S*
Magnesium chloride		S	S	Picric acid	1%	S	S*
Magnesium hydroxide		S	S	Plating solutions:			
Magnesium nitrate		S	S	brass		S*	S*
Maleic acid	25%	S	S	cadmium		S*	S*
	50%	S	S	chromium			
	Conc.	S	S	copper		S*	S*
Malic acid		S	S	gold			
Maganese sulphate		S	S	indium			
Mercuric chloride		S	S	lead			
Mercuric cyanide		S	S	nickel			
Mercuric nitrate		S	S	rhodium			
Mercury		S	S	silver			
Metallic soap (solution)		S	S	tin			
Methanol	100%	S	S	zinc			
	6%	S	S	Polyglycol ethers		S	S
Methyl glycol		S	S	Potassium antimonite		S	S
Methyl hydro sulphate	90%			Potassium bromate		S	S
Monochlorobenzene		S	S	Potassium bromide		S	S
Naphtha		S	U	Potassium carbonate		S	S
Naphthalene		S	D	Potassium chlorate		S	S
Nickel chloride		S	S	Potassium chloride		S	S
Nickel nitrate		S	S	Potassium chromate		S	S
Nickel sulphate		S	S	Potassium cuprocynide		S	S
Nicotine		S	S	Potassium cyanide		S	S
Nicotinic acid		S	S	Potassium dichromate		S	S
Nitric acid	5%	S*	S*	Potassium ferricyanide		S	S
	10%	S*	S*	Potassium fluoride		S	S
	25%	S	S	Potassium bicarbonate		S	S
	50%	D	U	Potas. acid sulphate		S	S
Nitropropane		D	D	Potassium bisulphite		S	S

Chemical	Conc.	20° C	60° C	Chemical	Conc.	20° C	60° C
Potassium hydroxide	1%	S	S	Sodium hydroxide	conc.	S	S
	10%	S	S	Sodium hypochloride		S	S
	conc	S	S	Sod. metaphosphate			
Potassium hypochloride		S	S	Sodium nitrate		S	S
Potassium nitrate		S	S	Sodium nitrite		S	S
Potassium orthophosphate		S	S	Sodium perborate		S	
Potassium perborate		S	S	Sodium peroxide		S	S
Potassium perchlorate	10%	S	S	Sodium silicate		S	S
Potassium permanganate	20%	S	S	Sodium sulphate		S	S
Potassium persulphate	5%	S	S	Sodium sulphide		S	S
Potassium sulphate		S	S	Stannic chloride		S	S
Potassium sulphide		S	S	Stannous chloride		S	S
Potassium thiosulphate		S	S	Starch		S	S
Propane				Stearic acid		S	S
Propargyl alcohol		S*	S*	Sulphur (colloidal)		S	S
Propionic acid	50%	S	S	Sulphur dioxide	dry	S	S
	100%	S	D		moist	S	S
Isopropanol		S	S		liquid		
Pyridine		S	U	Sulphur trioxide		U	U
Salicylic acid		S	S	Sulphuric acid	10%	S	S
Sea water		S	S		20%	S	S
Selenic acid		S*	S*		50%	S	S
Silicic acid		S*	S*		60%	S	S
Silver acetate		S*	S*		80%	S	
Silver cyanide		S	S		90%	S	
Silver nitrate		S	S		98%	S	U
Soap solutions		S E	S E	Sulphurous acid	10%	S	S
Sodium acetate		S	S		30%	S	S
Sodium aluminate		S	S	Tallow		S	
Sodium antimonite		S	S	Tannic acid		S	S
Sodium benzoate		S	S	Tanning extract		S	S
Sodium bromide		S	S	Tetraethyl lead		S	
Sodium carbonate		S	S	Transformer oil		D	D
Sodium chlorate		S	S	Tricloroacetic acid		D	U
Sodium chloride		S	S	Triethanolamine		D	D
Sodium cyanide		S	S	Turpentine		D	U
Sodium ferricyanide		S	S	Urea		S	S
Sodium ferrocyanide		S	S	Urine		S*	S*
Sodium fluoride		S	S	Vegetable oils		S E	S E
Sodium bicarbonate		S	S	Yeast		S	S
Sodium orthophospate		S	S*	Zinc carbonate		S*	S*
Sodium bisulphate		S	S	Zinc chloride		S	S
Sodium bisulphite		S	S	Zinc oxide		S	S
Sodium hydroxide	1%	S	S				
	10%	S	S	Zinc sulphate		S	S
	40%	S	S				

S	Satisfactory
U	Unsatisfactory. So rated because of decomposition, solution, swelling, loss of ductility, etc of samples tested.
D	Some attack or absorbtion. The material may be considered for use when alternative materials are unsatisfactory, and where limited life is acceptable.
E	Potential environental stress cracking hazard. Some polyethylenes are subject to this phenomenon if used with certain chemicals, which although chemically inactive can produce stress cracks. The correct choice of high density poly ethylene resin will eliminate environmental stress cracking.
*	Predicted results.