



CHEMICAL RESISTANCE OF PLASTIC TUBING & HOSE

	Flexible PVC-Vinyl (Plasticized Polyvinyl Chloride)	Chemfluor® Fluoropolymer (TFE)	Polyethylene (PE)	Polypropylene (PP)	Polyurethane (PU)	Nylon II	Acetal
	(Temp°F) 70/140	(Temp°F) 70/140	(Temp°F) 70/140	(Temp°F) 70/140	(Temp°F) 70	(Temp°F) 70	(Temp°F) 73/180
G-Good							
F-Fair, some effect							
—No information							
N-Not recommended							
*Predicted							
(S) Stress cracking possible with							
Polyethylene only							
† Alkaline or neutral, N for acid							
Acetaldehyde	N/N	G/G	F/N(S)	F/F	N	—	G/G
Acetic acid 10%	G/—	G/G	G/F	G/G	—	G	N/N
60%	G/F	G/G	G/G	G/F	N	G	N/N
Glacial	N/N	G/G	F/N	—	—	F	N/N
Acetone	N/N	G/G	G/N(S)	G/F	N	G	G/G
Alcohol, amyl	G/—	G/G	G/—(S)	G/F	F	—	G/G
butyl	G/—	G/G	G/—(S)	G/—	G	G	G/G
ethyl	G*/—	G/G	G/—(S)	G/G	F	—	G/G
furfuryl	N*/—	G/G	G/—(S)	N/N	—	—	—
Alcohol, methyl 6%	G/G	G/G	F/—	—	—	—	—
100%	F/—	G/G	G/—	G/G	G	—	G/G
Alum	G/G	G/G	G/G	G/G	—	—	G/G
Aluminum chloride	G/G	G/G	G/G	G/G	G	—	G/G
hydroxide	G*/—	G/G	G/G	—	—	—	G/N
Aluminum sulphate	G*/G*	G/G	G/G	G/G	—	G	G/G
Ammonia, dry gas	—	G/G	G/G	G/G	G	G	G/G
Ammonium carbonate	G*/G*	G/G	G/G	G/G	G	—	G/G
chloride	G/G	G/G	G/G	G/G	—	—	G/G
hydroxide	G/—	G/G	G/G	—	G	G	G/G
nitrate	G*/G*	G/G	G/G	G/G	G	—	G/G
persulphate	G*/G*	G/G	G/G	G/G	G	—	G/G
phosphate	G*/G*	G/G	G/G	—	—	—	G/G
sulphate	G/G	G/G	G/G	G/G	G	—	G/G
sulphide	G/N	G/G	G/G	G/G	G	—	G/G
thiocyanate	G*/G*	G/G	G/G(S)	G/G	G	—	G/G
Amyl acetate	N*/N*	G/G	N/—	F/N	N	G	G/G
Aniline	N/N	G/G	N/—	G/G	N	F	G/G
Animal oils	G*/—	G/G	F/N(S)	—	G	—	—
Antimony trichloride	G*/G*	G/G	G/G	—	G	—	G/G
Barium carbonate	G*/G*	G/G	G/G	G/G	G	G	G/G
chloride	G*/G*	G/G	G/G	G/G	—	G	G/G
hydroxide	G*/—	G/G	G/G	G/G	G	G	G/G
sulphate	G*/G*	G/G	G/G	G/G	—	G	G/G
Beer	G/—	G/G	G/G(S)	G/G	G	G	G/G
Benzene	N/N	G/G	N/—	F/N	N	G	G/G
Benzene sulphonic acid	—	G/G	N/—	N/N	—	—	N/N
Bismuth carbonate	G*/G*	G/G	G/G	G/G	—	—	G/G
Borax	G*/—	G/G	G/G	G/G	—	—	G/G
Boric acid	G*/—	G/G	G/G	G/G	G	—	N/N
Boron trifluoride	—	G/G	G/—	—	—	—	—
Brine	G*/G*	G/G	G/G	G/G	G	G	N/N
Bromine, dry gas	N*/N*	G/G	N/—	N/N	F	—	—
Calcium bisulphite	G/G	G/G	G/G	G/G	—	G	G/G
carbonate	G*/G*	G/G	G/G	G/G	G	G	G/G
chlorate	G*/G*	G/G	G/G	G/G	G	G	G/G
hydroxide	G*/—	G/G	G/G	G/G	G	G	G/G
hypochlorite	G/—	G/G	G/G	G/G	—	G	N/N
sulphate	G*/G*	G/G	G/—	G/G	G	G	G/G
Camphor oil	—	G/G	N/—(S)	N/N	—	—	G/G
Carbon dioxide	G*/G*	G/G	G/—	G/G	G	—	G/G
monoxide	G*/G*	G/G	G/—	G/G	—	—	G/G
Carbon tetrachloride	N/N	G/G	N/—	N/N	F	F	N/N
Castor oil	G/—	G/G	N/—(S)	G/G	—	—	G/G
Chloral hydrate	N*/N*	G/G	N/—	—	—	—	G/G
Chlorine, dry gas	—	G/G	F/N	N/N	F	N	N/N
liquid	—	G/G	N/—	N/N	—	—	N/N
Chlorine water 2%	—	G/G	G/G	—	—	—	N/N
saturated sol.	F/N*	G/G	G/F	G/F+	—	—	N/N

	Flexible PVC-Vinyl (Plasticized Polyvinyl Chloride)	Chemfluor® Fluoropolymer (TFE)	Polyethylene (PE)	Polypropylene (PP)	Polyurethane (PU)	Nylon II	Acetal
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Chloroform	N*/N*	G/G	N/—(S)	N/N	N	F	G/G
Chlorosulphonic acid	N*/N*	G/G	N/N	N/N	—	—	N/N
Chrome alum	G*/G*	G/G	G/G	G/G	—	—	—
Chromic acid							
(plating solution)	—	G/G	G/G	F/F	N	G	N/N
Cider	G*/—	G/G	G/—	G/G	—	—	—
Citric Acid	G/—	G/G	G/G	G/G	G	G	N/N
Copper chloride	G*/G*	G/G	G/G	G/G	G	—	G/G
cyanide	G/G	G/G	G/G	G/G	—	—	G/G
nitrate	G*/G*	G/G	G/G	G/G	G	—	G/G
sulfate	G*/G*	G/G	G/G	G/G	G	—	G/G
Creosote	N/N	G/G	N/—(S)	—	—	G	—
Cyclohexanol	N*/N*	G/G	N/—	F/F	—	—	G/G
Cyclohexanone	N*/N*	G/G	N/—	F/N	N	G	G/G
Detergents, synthetic	G*/—	G/G	G/G(S)	G/G	—	—	G/G
Developers, photographic	G*/G*	G/G	G/G	G/G	—	—	G/G
Dextrose	G*/G*	G/G	G/G	G/G	—	—	G/G
Dibutyl phthalate	N*/N*	G/G	F/N(S)	G/F	N	—	G/G
Disodium phosphate	G/G	G/G	G/N(S)	G/G	—	—	G/G
Emulsifiers	G*/G*	G/G	G/G	G/G	—	—	G/G
Emulsions, photographic	G*/G*	G/G	G/—(S)	—	—	—	G/G
Ether	N/N	G/G	N/—	—	F	G	G/G
Ethyl acetate	N*/N*	G/G	F/N	F/F	N	G	G/G
Ethylene dichloride	N*/N*	G/G	N/—(S)	—	—	—	G/G
Ethylene glycol	G/—	G/G	G/—	G/G	G	G	G/G
Ferric chloride	G/G	G/G	G/—	G/G	G	—	G/G
sulphate	G/G	G/G	G/N	G/G	G	—	G/G
Fixing solution,							
photographic	G*/G*	G/G	G/G	—	—	—	G/G
Fluorine	N*/N*	G/G	F/N	—	—	—	N/N
Fluosilicic acid	—	G/G	G/—	G/G	—	—	N/N
Formaldehyde, 40%	G/—	G/G	G/G	G/G	G	G	G/G
Formic acid 50%	—	G/G	G/G	G/G	—	—	N/N
100%	N*/N*	G/G	G/G	G/G	N	G	N/N
Gasoline	G/G	G/G	N/N	F/N	G	G	G/G
Glucose	G*/G*	G/G	G/—	G/G	G	G	G/G
Glycerine	G*/—	G/G	G/—	G/G	G	G	G/G
Hydrobromic acid 50%	G/G	G/G	G/G	—	—	—	N/N
100%	G*/G*	G/G	G/G	G/G	G	—	N/N
Hydrochloric acid 10%	G/G	G/G	G/G	G/G	—	—	—
22%	G/G	G/G	G/G	G/G	—	F	N/N
Conc.	G/F	G/G	G/G	G/F	G	—	—
Hydrofluoric acid 4%	G/G	G/G	G/G	—	—	G	N/N
40%	G/—	G/G	G/G	G/—	—	—	N/N
60%	N/N	G/G	G/G	G/G	—	—	N/N
Conc.	N/N	G/G	G/F	G/—	F	—	N/N
Hydrogen	G*/G*	G/G	G/G	G/G	G	G	G/G
Hydrogen peroxide 3%	G/—	G/G	G/—	G/G	—	—	N/N
90% & up	G/—	G/G	G/—	—	G	G	N/N
Hydrogen sulphide	G/—	G/G	G/—	G/G	N	—	G/G
Hydroquinone	G/—	G/G	G/—	G/G	—	—	G/G
Hypochlorous acid	F/N*	G/G	F/N	—	—	—	N/N
Lactic acid 10%	G/—	G/G	G/G	G/G	—	—	G/G
100%	N*/N*	G/G	G/G	—	G	G	G/G
Lead acetate	G*/G*	G/G	G/—	G/G	G	—	G/G
Lead tetraethyl	G*/—	G/G	G/—	—	—	—	—
Linseed oil	—	G/G	F/N(S)	G/F	G	—	G/G

CAUTION

Ryan Herco Flow Solutions has compiled this information from the manufacturers of the various resins as a guide for users of plastic tubing and hose for chemical service. It may be considered as a basis for recommendation, but RYAN HERCO MAKES NO WARRANTY AS TO FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ANY MATERIALS PURCHASED. Materials should be tested under actual service conditions to determine their suitability for a particular purpose.



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	(Temp°F) 70/140	(Temp°F) 70/140	(Temp°F) 70/140	(Temp°F) 70/140	(Temp°F) 70	(Temp°F) 70	(Temp°F) 73/180
Magnesium carbonate	G*/G*	G/G	G/G	G/G	G	—	G/G
chloride	G*/G*	G/G	G/G	G/G	G	G	G/G
hydroxide	G*/G*	G/G	G/G	G/G	G	—	G/G
nitrate	G*/G*	G/G	G/G	G/G	G	—	G/G
sulphate	G*/G*	G/G	G/G	G/G	N	—	G/G
Maleic acid	—/N*	G/G	G/G	G/G	G	—	N/N
Mercuric chloride	N*/N*	G/G	G/G	G/G	—	—	G/G
Mercuric cyanide	G*/G*	G/G	G/G	G/G	—	—	G/G
Metallic soaps	G*/—	G/G	G/—(S)	—/—	—	—	—/—
Methyl acetate	N/N	G/G	N/N	—/—	—	—	—/—
chloride	N*/N*	G/G	N/N	N/N	N	G	G/G
Methyl ethyl ketone	N*/N*	G/G	F/N(S)	G/N	N	—	G/G
Milk	G/—	G/G	G/—	G/G	G	G	G/G
Mineral oils	G/N	G/G	F/N(S)	G/F	G	—	G/G
Nickel chloride	G*/G*	G/G	G/G	G/G	F	—	G/G
Nickel sulphate	G*/G*	G/G	G/G	G/G	—	G	G/G
Nitric acid 25%	G/—	G/G	F/N	N/N	—	G	N/N
50%	G/F	G/G	F/N	N/N	—	F	N/N
75%	F/N*	G/G	F/N	N/N	—	F	N/N
90%	N*/N*	G/G	N/N	N/N	N	F	N/N
Oxalic acid	G/—	G/G	G/G	G/N	G	G	N/N
Oxygen	G*/G*	G/G	G/—	—/—	G	G	G/G
Petroleum (lubricating oil)	—/—	G/G	—/—	G/N	G	—	G/G
Phenol	—/N*	G/G	N/—	G/G	N	N	G/G
Phosphoric acid 30%	G/G	G/G	G/G	G/G	F	G	N/N
50%	—/—	G/G	G/G	G/G	F	G	N/N
95%	—/—	G/G	F/N	—/—	—	—	N/N
Phosphorus trichloride	—/—	G/G	N/N	—/—	—	—	G/G
Phosphorus pentoxide	G*/—	G/G	G/—	—/—	—	—	G/G
Photographic developers	G*/G*	G/G	G/G	—/—	—	—	G/G
emulsions	G*/G*	G/G	G/—	—/—	—	—	G/G
fixing solutions	G*/G*	G/G	G/G	—/—	—	F	N/N
Picric acid	G*/—	G/G	—/—	—/—	—	—	G/G
Potassium bicarbonate	G*/G*	G/G	G/G	G/G	G	—	G/G
bisulphite	G*/G*	G/G	G/G	—/—	G	—	G/G
bromate	G*/G*	G/G	G/G	G/G	G	—	G/G
carbonate	G*/G*	G/G	G/G	G/G	G	—	G/G
chloride	G/G	G/G	G/G	G/G	G	G	G/G
chromate	G*/G*	G/G	G/G	G/G	G	—	G/G
cuprocyanide	G/G	G/G	G/G	—/—	G	—	—
ferrocyanide	G*/G*	G/G	G/G	—/—	G	—	G/G
fluoride	G*/G*	G/G	G/G	—/—	G	—	G/G
hydroxide 10% conc.	G/G	G/G	G/G	G/G	G	—	—/—
nitrate	G*/G*	G/G	G/G	G/G	G	—	G/G
permanganate	G*/—	G/G	G/G	G/F	G	—	N/N
persulphate	G*/G*	G/G	G/G	G/G	G	—	G/G
phosphate	G*/G*	G/G	G/G	—/—	G	—	—/—
sulphide	G/G	G/G	G/G	G/G	G	G	G/G
thiosulphate	G/G	G/G	G/G	—/—	G	—	—/—
Sea water	G*/G*	G/G	G/G	G/G	G	G	—/—
Silver cyanide	G*/G*	G/G	G/G	—/—	—	—	G/G
Silver nitrate	—/—	G/G	G/G	G/G	G	—	G/G
Soap solution	G/—	G/G	G/G	G/G	F	—	G/G
Sodium acetate	G*/—	G/G	G/G	G/G	G	—	G/G
benzoate	G*/N*	G/G	G/G	G/G	—	—	G/G

G-Good F-Fair, some effect —No information N-Not recommended *Predicted (S) Stress cracking possible with Polyethylene only † Alkaline or neutral, N for acid	Flexible PVC-Vinyl (Plasticized Polyvinyl Chloride)	Chemfluor® Fluoropolymer (TFE)	Polyethylene (PE)	Polypropylene (PP)	Polyurethane (PU)	Nylon II	Acetal
	(Temp°F) 70/140	(Temp°F) 70/140	(Temp°F) 70/140	(Temp°F) 70/140	(Temp°F) 70	(Temp°F) 70	(Temp°F) 73/180
Sodium bicarbonate	G*/—	G/G	G/G	G/G	G	—	G/G
bisulphite	G/—	G/G	G/G	G/G	G	G	G/G
bromide	G*/G*	G/G	G/G	G/G	—	—	G/G
chlorate	G*/G*	G/G	G/G	G/G	—	—	G/G
chloride	G/G	G/G	G/G	G/G	G	G	G/G
cyanide	G/G	G/G	G/G	G/G	G	—	G/G
ferrocyanide	G*/G*	G/G	G/G	G/G	—	—	G/G
ferrocyanide	G*/G*	G/G	G/G	G/G	G	—	G/G
fluoride	G*/—	G/G	G/G	G/G	G	—	G/N
hydroxide 10% 40% Conc.	G/F	G/G	G/G	G/G	—	—	G/G
	G/N	G/G	G/G	G/G	—	—	G/G
	G/N	G/G	G/G(S)	—/—	G	G	G/G
hypochlorite	G/F	G/G	G/G	F/N	—	G	N/N
hyposulphate	G*/G*	G/G	G/G	—/—	—	—	—/—
metaphosphate	G*/G*	G/G	G/G	—/—	—	—	G/G
nitrate	G*/G*	G/G	G/G	G/G	G	G	G/G
peroxide	G*/G*	G/G	G/G	—/—	—	—	G/N
phosphate	G*/G*	G/G	G/G	G/G	—	—	G/G†
sulphate	G*/G*	G/G	G/G	G/N	G	G	G/G
sulphide, cond. thiosulphate	G/G	G/G	G/G	—/—	—	—	G/G
Soft soap	G/—	G/G	G/G(S)	—/—	—	—	G/G
Stannic chloride	G/G	G/G	G/G	G/G	G	—	G/G
Stannous chloride	G/G	G/G	G/G	G/G	—	—	G/G
Starch	G*/G*	G/G	G/G	G/G	—	—	G/G
Stearic acid	G*/G*	G/G	G/G	G/—	—	G	N/N
Sucrose	G*/G*	G/G	G/G	G/G	—	—	—/—
Sulphur, colloidal	—/—	G/G	G/—	G/G	—	G	G/G
Sulphur dioxide, dry gas	G*/G*	G/G	G/—	G/G	G	—	G/G
moist	—/N*	G/G	G/—	—/—	—	—	G/G
Sulphuric acid 10%	G/G	G/G	G/G	G/G	—	F	N/N
40%	G/G	G/G	G/G	G/—	—	N	N/N
50%	G/F	G/G	G/G	N/N	—	N	N/N
60%	F/F	G/G	G/G	—/—	—	N	N/N
70%	F/—	G/G	G/F	—/—	—	N	N/N
95%	—/—	G/G	F/N	—/—	—	N	N/N
98%	N/N	G/G	F/N	N/N	N	N	N/N
Fuming	N/N	G/G	N/N	N/N	—	N	N/N
Tallow	G*/—	G/G	G/—	G/G	—	—	—/—
Tannic acid	G/—	G/G	G/—	G/G	F	—	N/N
Tanning extracts	G*/—	G/G	G/G	G/G	—	—	G/G
Toluene	N*/N*	G/G	N/N	F/N	N	G	G/G
Transformer oil	G/N	G/G	F/N	G/N	F	—	G/G
Trichloroethylene	N/N	G/G	N/N(S)	N/N	N	F	G/G
Tricresyl phosphate	N*/N*	G/G	N/N(S)	—/—	N	—	—/—
Triethanolamine	G/G	G/G	F/N(S)	F/F	G	—	G/G
Trisodium phosphate	G/G	G/G	G/G(S)	G/G	G	—	G/G
Turpentine	—/—	G/G	F/N(S)	N/N	G	G	G/G
Vegetable oils	G/—	G/G	F/N	—/—	G	—	—/—
Vinegar	G*/—	G/G	G/G	G/G	G	—	G/G
Water	G/G	G/G	G/G	G/G	G	G	G/G
Wetting agents	G*/G*	G/G	G/G(S)	—/—	—	G	—/—
Xylene	N*/N*	G/G	N/N(S)	N/N	F	G	G/G
Yeast	G*/—	G/G	G/N	G/G	—	—	—/—
Zinc chloride	G*/G*	G/G	G/G	G/G	G	—	N/N
oxide	G*/G*	G/G	G/G	G/G	—	—	G/G
sulphate	G/G	G/G	G/G	G/G	G	—	G/G

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