ESC
ENGINEERED SEALS & COMPONENTS, LLC.

POLT-trel™
ESC-lon™
ESC-thane™

FLUID COMPATIBILITY

ENGINEERED SEALS & COMPONENTS, LLC.

Fluid Compatibility Guide

Explanation of abbreviations	
PVC	= Polyvinyl chloride, soft
HY	= Hytrel (TPC-ET) POLY-trel
PU	=Polyurethane (ester/ether) ESC-thane
CPR	=Cloroprene rubber (Neoprene®)
SI	= Silicone Rubber
PA	=Polyamin 6/6 (Nylon) ESC_lon
TPR	=Thermoplastic Rubber (Santoprene)
PTFE	=Teflon
CSM	=Hypalon
Viton	Fluoric Rubber
A	= Very resistant
B	=Moderately Resistant
C	=Not Suitable
-	=Not Tested

The information is a guide only and will vary depending on a variety of factors. e.g. the type and strength of chemicals in contact with the components and varying temperatures and pressures to which it is exposed. The factors may affect the appropriateness and service life of materials in different applications.
The table is to be used only for assistance in identifying a possibly compatible solution and the end user should test in actual condition if possible before putting components into use.

CHEMICAL	HY	PU	SI	PA	PTFE	Viton
A						
Acetaldehyde	–	C	C	B	A	C
Acetic acid	A	C	A	C	A	C
Acetic acid anhydride	B	C	C	–	A	C
Acetone	B	C	B	A	A	C
Acetylene	A	B	–	–	A	A
Aluminium chloride solution	B	–	B	A	A	A
Aluminium sulphate solution	B	A	A	A	A	A
Ammonia (anhydrous)	–	C	A	–	A	C
Ammonium chloride solution	A	C	–	–	A	A
Ammonium hydroxide solution	B	–	–	–	A	A
Ammonium sulphate solution	A	–	A	–	A	A
Amylacetate	B	C	C	–	A	C
Amylalcohol	A	C	C	–	A	A
Aniline	C	C	–	B	A	A
Asphalt	B	C	C	–	A	A
ASTM Oil No. 1	A	A	B	–	A	A
ASTM Oil No. 3	A	B	C	–	A	A
ASTM Reference Fuel A	A	A	–	–	A	A
ASTM Reference Fuel B	A	C	–	–	A	A
ASTM Reference Fuel C	A	C	–	–	A	A
B						
Barium hydroxide	B	C	A	–	A	A
Beer	A	A	A	–	A	A
Benzaldehyde	–	C	C	C	A	C
Benzene	A	A	C	A	A	A
Benzene chloride	–	–	–	–	A	B
Benzol	B	C	C	A	A	B
Borax solution	A	C	–	–	A	A
Boric acid solution	A	C	A	B	A	A
Bromine liquid (anhydrous)	C	C	C	–	A	B
Butane	A	A	–	–	A	A

CHEMICAL	HY	PU	SI	PA	PTFE	Viton
Butyl acetate	B	C	C	A	A	C
Butyraldehyde	–	C	–	–	A	C
Butyric acid	B	–	–	–	A	–
C						
Calcium bisulphite solution	–	A	A	–	A	A
Calcium chloride solution	A	C	A	A	A	A
Calcium hydroxide solution	B	C	A	–	A	A
Calcium hypochlorite solution (20%)	–	C	B	–	A	B
Calcium hypochlorite solution (5%)	A	C	B	–	A	A
Carbon dioxide	A	B	A	–	A	A
Carbon disulphide	–	C	–	A	A	–
Carbon monoxide	A	–	A	–	A	–
Carbon tetrachloride	B	C	C	A	A	–
Caustic potash (see potassium hydroxide)						
Caustic soda (see sodium hydroxide)						
Chlorine gas (dry)	C	B	–	C	A	A
Chlorine gas (moist)	C	C	–	C	A	B
Chloroacetic acid	C	C	C	–	A	C
Chlorobenzene	C	B	C	A	A	A
Chloroform	C	C	C	C	A	A
Chlorosulphonic acid	C	C	–	–	A	C
Chromic acid (10 – 50%)	C	C	C	B	A	A
Citric acid solution	A	C	A	–	A	A
Cotton seed oil	A	A	A	–	A	A
Creosote	–	–	–	–	A	A
Cupric chloride solution	A	A	A	–	A	A
Cupric sulphate solution	A	C	A	B	A	A
Cyclohexane	A	A	C	–	A	A
D						
Dibutyl phthalate	A	A	–	A	A	B
Diethyl ether	–	C	–	A	A	–
Diethyl sebacate	A	C	–	–	A	B
Dioctyl phthalate	A	C	C	A	A	B
Dowtherm A	–	C	–	–	A	A

ENGINEERED SEALS & COMPONENTS, LLC.

CHEMICAL	HY	PU	SI	PA	PTFE	Viton
E						
Epichlorohydrin	C	C	–	–	A	C
Ethanol	A	B	A	A	A	A
Ether	–	C	–	A	A	–
Ethyl alcohol	A	B	A	A	A	A
Ethyl chloride	C	B	C	–	A	A
E						
Ethylacetate	B	C	B	A	A	C
Ethylene dichloride	C	C	B	–	A	A
Ehtylene glycol	A	–	A	–	A	A
Ethylene oxide	A	–	–	–	A	C
Exxon 2380 lubricating oil	B	–	–	–	A	A
F						
Ferric chloride solution	B	–	A	A	A	A
Fluorosilicic acid	B	C	C	–	A	–
Formaldehyde (40%)	B	C	–	A	A	A
Formic acid	B	C	B	C	A	C
FREON 11	A	–	C	–	A	A - B
FREON 12	A	–	C	A	A	A - B
FREON 22	–	–	C	–	A	C
FREON 113	A	–	–	–	A	A
FREON 114	A	–	–	–	A	B
Furfurol	–	C	–	B	A	C
Fyrquel 220 (hydraulic fluid)	B	–	–	–	A	A
G						
Glue	A	A	–	–	A	A
Glycerine (90%)	A	C	A	A	A	A
Grease	A	–	C	–	A	A
H						
n-hexane	A	A	C	A	A	A
Hydrazine (diamide)	C	–	C	–	A	C
Hydrochloric acid (20%)	B	C	B	C	A	A
Hydrochloric acid (37%)	C	C	B	C	A	A
Hydrofluoric acid (48%)	C	C	–	C	A	A

CHEMICAL	HY	PU	SI	PA	PTFE	Viton
Hydrofluoric acid (75%)	C	C	–	C	A	B
Hydrofluoric acid (anhydrous)	C	C	–	C	A	A
Hydrogen	A	C	A	–	A	A
Hydrogen cyanide	B	–	–	–	A	–
Hydrogen peroxide (90%)	–	C	–	C	A	A
Hydrogen sulphide	A	B	–	A	A	–
J						
JP-4	A	–	–	–	A	A
JP-5	–	–	–	–	A	A
J						
JP-6	–	–	–	–	A	A
K						
Kerosene	B	A	C	–	A	A
L						
Lactic acid	B	A	A	B	A	A
Linseed oil	B	B	–	–	A	A
M						
Magnesium chloride solution	B	C	A	A	A	A
Magnesium hydroxide solution	B	–	–	–	A	A
Mercuric chloride solution	B	B	A	C	A	A
Mercury	A	A	A	A	A	A
Methanol	A	C	A	A	A	B
Methyl alcohol	A	C	A	A	A	B
Methylene chloride	C	C	–	B	A	B
Methylethyl ketone (MEK)	A	C	–	A	A	C
Mineral oil	A	B	A	A	A	A
Mobil XRM 206A	B	–	–	–	A	A
N						
Naphthalene	B	C	C	–	A	A
Naptha	A	C	C	–	A	A
Nitric acid (10%)	B	C	B	C	A	A
Nitric acid (30%)	C	C	B	C	A	A
Nitric acid (60%)	C	C	C	C	A	A
Nitric acid (70%)	C	C	C	C	A	A

CHEMICAL	HY	PU	SI	PA	PTFE	Viton
Nitric acid (fuming)	C	C	C	C	A	B
Nitrobenzene	C	C	C	–	A	B
O						
Iso-octane	A	B	C	–	A	–
Oleic acid	A	–	–	–	A	B
Oleum (20 – 25%)	C	C	C	C	A	A
P						
Palmitic acid	A	B	–	–	A	A
Perchloroethylene	C	C	B	–	A	A
Phenol	C	C	C	C	A	A
Phosphoric acid (20%)	–	C	–	C	A	A
Phosphoric acid (60%)	C	C	C	C	A	A
P						
Phosphoric acid (70%)	C	C	C	C	A	A
Phosphoric acid (85%)	C	C	C	C	A	A
Pickling solution 17% Nitric acid 4% Hydrofluoric acid	C	–	–	–	A	A
Pickling solution 20% Nitric acid 4% Hydrofluoric acid	C	–	–	–	A	A
Picrinic acid	B	B	C	–	A	A
Potassium dichromate solution	B	C	C	–	A	–
Potassium hydroxide solution (dilute)	A	–	–	–	A	–
Iso-propyl alcohol	A	C	A	A	A	A
Iso-propyl ether	–	C	–	–	A	C
Pydraul 312C	A	C	–	–	A	A
Pyridine	C	C	C	A	A	C
Q						
QFI-2023 (Silicone brake fluid)	B	–	A	–	A	A
Quick silver (mercury)	A	A	A	A	A	A
R						
Ricinol (Ricinus oil)	B	–	A	–	A	A
S						
SAE Oil No. 10	A	–	–	–	A	A
Sea water	A	–	–	A	A	A
Shell Turbine Oil 307	B	–	–	–	A	B

CHEMICAL	HY	PU	SI	PA	PTFE	Viton
Silicone grease	A	A	C	–	A	A
Skydrol 500	A	C	B	–	A	C
Skylube 450	–	–	–	–	A	C
Soap solution	A	A	A	A	A	A
Sodium chloride solution	A	C	A	A	A	A
Sodium dichromate (20%)	B	–	–	–	A	A
Sodium hydroxide (20%)	A	–	B	–	A	A
Sodium hydroxide (46.5%)	B	–	B	–	A	A
Sodium hydroxide (50%)	–	–	B	–	A	C
Sodium hydroxide (73%)	A	–	B	–	A	C
Sodium hypochlorite (5%)	A	C	B	–	A	A
Sodium hypochlorite (20%)	B	C	B	–	A	B
Sodium peroxide solution	A	–	C	–	A	A
Soya bean oil	B	–	A	–	A	A
Stannic chloride	–	C	–	–	A	A
Stannic chloride (15%)	B	C	–	–	A	A
S						
Steam	B	C	C	–	A	B
Stearic acid	B	A	A	–	A	–
Styrene	C	C	C	A	A	A
Sulphur (molten)	B	B	A	–	A	A
Sulphur dioxide gas	B	C	A	–	A	–
Sulphur dioxide liquid	B	C	–	–	A	–
Sulphur trioxide	C	C	B	–	A	–
Sulphuric acid (< 5%)	A	C	A	C	A	A
Sulphuric acid (5 – 10%)	B	C	A	C	A	A
Sulphuric acid (10 – 50%)	C	C	–	C	A	A
Sulphuric acid (50 – 80%)	C	C	–	C	A	A
Sulphuric acid (60%)	C	C	–	C	A	A
Sulphuric acid (90%)	C	C	–	C	A	A
Sulphuric acid (95%)	C	C	–	C	A	A
Sulphuric acid (fuming, 20% oleum)	C	C	C	C	A	A
Sulphurous acid	B	–	C	–	A	C
Sunoco XS-820 (EP Grease)	B	–	–	–	A	A

CHEMICAL	HY	PU	SI	PA	PTFE	Viton
T						
Tannic acid	A	A	B	–	A	A
Tartaric acid	B	–	A	–	A	A
Tetrahydrofuran	–	C	C	A	A	C
Toluene	B	C	C	A	A	B
Tributylphosphate	–	–	–	–	A	C
Trichloroethylene	C	C	B	B	A	A
Tricresylphosphate	–	B	C	–	A	A
Triethanolamine	C	C	–	–	A	C
Trisodium phosphate solution	A	B	A	–	A	A
Tung oil	B	–	–	–	A	A
Turpentine	–	C	C	–	A	A
V						
Varnish	B	–	–	–	A	C
W						
Water >150F	A	C	A	A	A	A
X						
Xylene	A	C	C	A	A	A
Z						
Zinc chloride solution	A	C	–	B	A	A

The information is a guide only and will vary depending on a variety of factors. e.g. the type and strength of chemicals in contact with the components and varying temperatures and pressures to which it is exposed. The factors may affect the appropriateness and service life of materials in different applications.
The table is to be used only for assistance in identifying a possibly compatible solution and the end user should test in actual condition if possible before putting components into use.

For Fluids or Material not listed
contact sales@engseals.com
or 712-580-3990

ESC

ENGINEERED SEALS & COMPONENTS, LLC.

ENGINEERED SEALS & COMPONENTS

"Let's Make it Happen"

www.engseals.com • 712-580-3990