



## Chemical Resistance of Filter Membrane

### PES (Vacuum Filtration “rapid”-Filtermax and Syringe Filter)

### PTFE (Filter Screw Cap and TubeSpin® Bioreactor Cap)

The following table provides a chemical resistance rating for a number of fluids that are considered either aggressive or non-aggressive to PES and PET filter membranes.

Actual chemical resistance of TPP products depends on many variables, such as:

- exposure time
- concentration of chemicals
- thermal stress (e.g., autoclaving)
- exertion of force
- exposure to UV radiation
- aging, which may be caused by the action of detergents
- other environmental factors

TPP recommendations based on technical literature and information provided by raw material manufacturers. They are a general guide for users of plastics materials and do not replace suitability testing by the user under actual working conditions.

For the list of chemical resistance, the following legend is valid:

<b>R</b> <b>Resistant</b>	<b>LR</b> <b>Limited Resistance</b>	<b>NR</b> <b>Not Resistant</b>
No significant change was observed.	Moderate changes in physical properties or dimensions of the membrane were observed. The membrane may be suitable for short term, small volume and noncritical use.	The membrane is basically unstable. In most cases, extensive shrinkage or swelling of the membrane occurs. It may gradually weaken or partially dissolve after extended exposure.



<b>ACIDS</b>	<b>PES</b>	<b>PTFE</b>
Acetic acid, 25%	R	R
Acetic acid, 100%, glacial	LR	R
Formic acid, 25%	R	R
Formic acid, 100%	LR	R
Hydrochloric acid, 25%	R	R
Hydrochloric acid 37%, Conc.	R	R
Nitric acid, 25%	NR	R
Nitric acid, 60%	NR	R
Phosphoric acid, 25%	-	R
Sulfuric acid, 25%	NR	R
Sulfuric acid, 98%, Conc.	NR	R
<b>ALCOHOLS</b>	<b>PES</b>	<b>PTFE</b>
Amyl alcohol	NR	R
Benzyl alcohol	NR	R
Ethanol 70%	LNR	R
Ethanol 98%	LNR	R
Ethylene glycol	LR	R
Glycerol	LR	R
Isopropanol	R	R
Methanol 98%	LR	R
n-Propanol	LR	R
Phenol	NR	R
Propylene glycol	LR	R
<b>BASES</b>	<b>PES</b>	<b>PTFE</b>
Ammonium hydroxide, 25%	NR	R
Ammonium hydroxide, 1 N	R	R
Potassium hydroxide , 1 N	R	R
Sodium hydroxide, 5%	R	R
Sodium hydroxide, 1 N	LNR	R
Sodium hydroxide, 6 N	LNR	R

<b>ESTERS</b>	<b>PES</b>	<b>PTFE</b>
Amyl acetate	NR	R
Butyl acetate	NR	R
Benzyl benzoate	NR	R
Ethyl acetate	NR	R
2-Ethoxyethyl acetate	R	R
Methyl acetate	NR	R
2-Methoxyethanol acetate	R	R
Propyl acetate	NR	R
<b>HYDROCARBONS ALIPHATIC</b>	<b>PES</b>	<b>PTFE</b>
Gasoline	LR	R
Hexane	NR	R
Kerosene	R	R
<b>HYDROCARBONS AROMATIC</b>	<b>PES</b>	<b>PTFE</b>
Toluene	LNR	R
Xylene	NR	R
<b>HYDROCARBONS HALOGENATED</b>	<b>PES</b>	<b>PTFE</b>
Carbon tetrachloride	R	R
Chloroform	R	R
Freon	LR	R
Methylene chloride	NR	R
Chlorobenzene	NR	R
Tetrachloroethene	LR	R
1,1,1-Trichloroethane	LR	R
1,1,2-Trichloroethane	LR	R
Trichloroethylene	R	R
<b>KETONES</b>	<b>PES</b>	<b>PTFE</b>
Acetone	NR	R
Cyclohexanone	NR	R
Butan-2-one	NR	R
<b>MISCELLANEOUS</b>	<b>PES</b>	<b>PTFE</b>
Acetonitrile	LR	R
Acrylamide	R	R
Dimethyl sulfoxide (DMSO)	NR	R
Dioxane	LR	R
Diethyl ether	R	R
Formaldehyde, 30%	R	R
Hydrogen peroxide, 30 %	-	R
2-Methoxyethanol	--	R
Pyridine	NR	R
Tetrahydrofuran	NR	R
Water	R	R