

# Chemical Compatibility – Filter Materials of Construction

This table shows the chemical compatibility of materials used in the manufacturing of Critical Process Filtration devices according to online sources (see list on next page). This information is based on laboratory tests. Critical Process Filtration recommends testing under actual operating conditions to assure the compatibility of filters under expected concentration, pressure, flow and temperature conditions.

Refer to the “Materials of Construction” lists on product data sheets for materials used to manufacture specific devices.

	Filter Materials of Construction	Filter Support Materials	Membrane					Depth Media		Elastomers (O-rings/Gaskets)				
		Polypropylene	Polyethersulfone (PES)*	Polyvinylidene fluoride (PVDF)*	Nylon 6,6	Polytetrafluoroethylene (PTFE)	Polypropylene (PP)	Fiberglass	Silicone	Buna	Viton® (or FKM)	FEP Encapsulated Viton (or FKM)	EPDM	FEP Encapsulated Silicone
Acids	Acetic Acid (5%)	C	C	C	NC	C	C	C	C	LC	NC	C	C	C
	Acetic Acid (glacial)	C	C	C	NC	C	C	C	C	LC	NC	C	C	C
	Acetic Acid, 10%	C	C	C	NC	C	C	C	C	LC	NC	C	C	C
	Boric Acid	C	C	C	C	C	C	C	C	C	C	C	C	C
	Formic Acid (5%)	C	C	C	NC	C	C	C	C	LC	NC	C	C	C
	Formic Acid (70%)	C	C	C	NC	C	C	C	C	LC	NC	C	C	C
	Hydrochloric (>1 N)	LC	C	C	NC	C	C	C	NC	LC	C	C	LC	C
	Hydrochloric (0.1 N)	C	C	C	NC	C	C	C	NC	LC	C	C	C	C
	Hydrochloric (1 N)	C	C	C	NC	C	C	C	NC	LC	C	C	LC	C
	Hydrofluoric	LC	LC	C	NC	C	LC	LC	NC	NC	C	C	NC	C
	Lactic Acid (50%)	C	C	C	NC	C	C	C	C	C	C	C	C	C
	Nitric (conc)	NC	NC	C	NC	C	C	C	NC	NC	C	C	NC	C
	Nitric Acid (10%)	LC	LC	C	NC	C	C	C	NC	NC	C	C	C	C
	Phosphoric Acid (5%)	LC	LC	C	C	C	C	C	NC	NC	NC	C	C	C
	Sulfuric (conc)	NC	NC	C	NC	C	LC	C	NC	NC	C	C	LC	C
Sulfuric Acid (3%)	C	C	C	LC	C	C	C	LC	C	C	C	C	C	
Trichloroacetic	C	NC	C	LC	C	C	C	NC	NC	NC	C	LC	C	
Bases	Ammonium Hydroxide (5%)	C	C	C	C	C	C	LC	C	NC	C	C	C	C
	Ammonium Hydroxide (6N)	LC	C	C	C	C	C	LC	C	NC	C	C	C	C
	Sodium Hydroxide (0.1 N)	C	C	C	C	C	C	LC	C	C	NC	C	C	C
	Sodium Hydroxide (2.5 N)	C	C	C	C	C	C	LC	C	LC	NC	C	C	C
	Urea	C	C	C	C	C	C	C	C	C	C	C	C	C
Alcohols	Amyl	C	LC	C	C	C	C	C	NC	C	C	C	C	C
	Benzyl (1%)	C	LC	C	C	C	C	C	NC	C	C	C	C	C
	Butyl	C	C	C	NC	C	C	C	NC	C	C	C	C	C
	Ethanol (≥50%)	C	C	C	C	C	C	C	C	LC	C	C	C	C
	Ethanol (40%)	C	C	C	C	C	C	C	C	LC	C	C	C	C
	Isobutyl	C	LC	C	C	C	C	C	NC	C	C	C	C	C
	Isopropyl	C	C	C	NC	C	C	C	C	C	C	C	C	C
Methanol	C	C	C	C	C	C	C	C	C	LC	C	C	C	

\* The “High Capacity” versions of PES and PVDF membranes are made using a substrate (PET polyester) that is encapsulated in the membrane material. Users may wish to perform added tests with the High Capacity PES or PVDF membranes.

The compatibility codes are defined below. Testing in actual fluid under expected operating conditions is recommended to assure best results.

**C** = Generally Compatible - No effects after extended exposure

**LC** = Limited Compatibility, Testing Recommended - some effects after extended exposure

**NC** = Not Compatible - significant changes after limited exposure, use not recommended.

**blank** = No Data Presently Available

	Filter Materials of Construction	Polypropylene	Polyethersulfone (PES)*	Polyvinylidene fluoride (PVDF)*	Nylon 6,6	Polytetrafluoroethylene (PTFE)	Polypropylene (PP)	Fiberglass	Silicone	Buna	Viton® (or FKM)	FEP Encapsulated Viton (or FKM)	EPDM	FEP Encapsulated Silicone	
Solvents	Acetone	NC	NC	NC	C	C	C	C	NC	NC	NC	C	C	C	
	Acetonitrile	C	NC	C	C	C	C	C	NC	NC	NC	C	C	C	
	Dimethylacetamide	C	NC						C	NC	NC	C		C	
	Dimethylformamide	C	NC	NC	C	C	C	C	LC	NC	NC	C	C	C	
	Dioxane	C	LC					C	NC	NC	NC	C		C	
	DMSO	C	NC	C	C	C	C		NC	NC	NC	C	NC	C	
	DMSO (10%)	C	NC	C	C	C	C		NC	NC	NC	C	NC	C	
	Ethylene Glycol	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	Ethylene Glycol (10%)	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	Formaldehyde (5%)	C	C	C	C	C	C	C	LC	LC	C	C	C	C	C
	Glycerine (Glycerol)	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	Hydrogen Peroxide (30%)	C	C	C	NC	C	C	C	C	C	NC	C	C	C	C
	Phenol (5%)	C	NC	C	NC	C	C		NC	NC	C	C	C	C	C
	Propanol	C	C	C	NC	C	C	C	C	C	C	C	C	C	C
	Propanol (10%)	C	C	C	NC	C	C	C	C	C	C	C	C	C	C
	Sodium Carbonate (20%)	C		C	C	C	C		C	C	C	C	C	C	C
	Sodium Chloride (2 M)	C	C	C	C	C	C	C	C	C	C	C	C	C	C
	Tetrahydrofuran	LC	LC	C	C	C	C	LC	C	NC	NC	NC	C	NC	C

## Information Sources

The compatibility ratings are based on testing performed by materials suppliers and manufacturers. The sources listed below tested materials under laboratory conditions and determined the compatibility of listed materials under those conditions. Your operating conditions may differ substantially from the laboratory test conditions. Therefore, the information in this document is only a guide. Critical Process Filtration recommends testing filters under actual operating conditions to assure compatibility and best results.

1. <https://www.coleparmer.com/Chemical-Resistance> (media/membrane and elastomer materials compatibility)
2. <http://www.pspglobal.com/nfmaterials.html> (elastomer compatibility)
3. <https://www.customadvanced.com/chemical-resistance-chart.html> (elastomer compatibility)
4. <http://www.polyfluor.nl/en/chemical-resistance/fep/> (FEP elastomer compatibility)

Visit our [website](#) or [contact us](#) for more information.



One Chestnut Street  
Nashua, NH 03060  
603.880.4420  
FAX: 603.880.4536

[CriticalProcess.com](http://CriticalProcess.com)

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