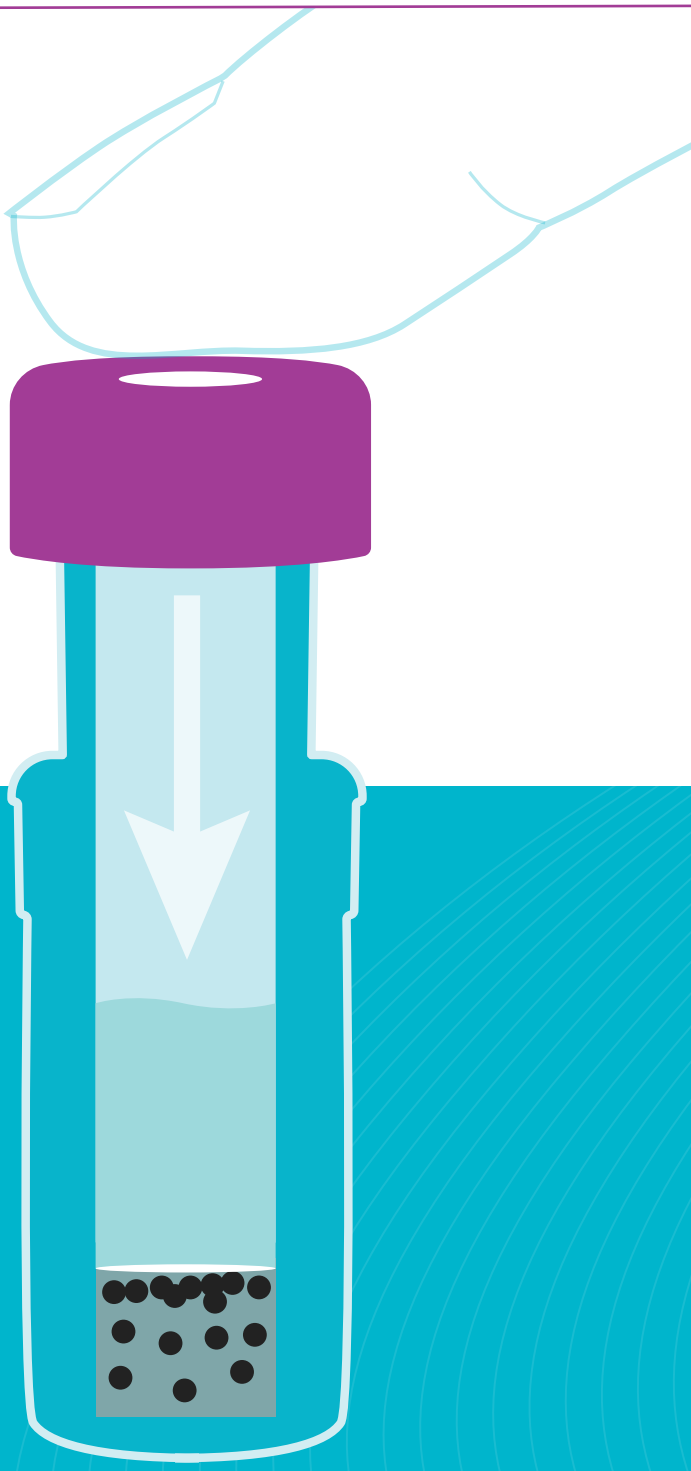
VEREX™
Certified Filter Vials

NEW

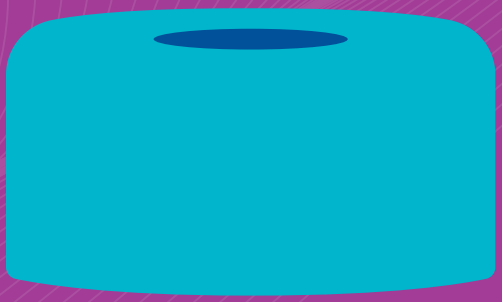
Push to Filter

Ready to Inject



www.phenomenex.com/VerexFV

phenomenex®

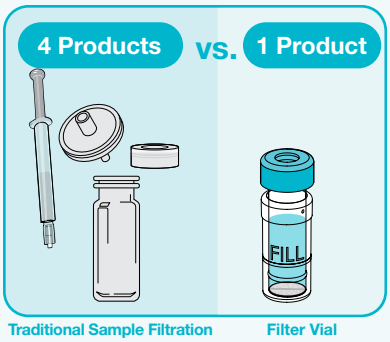


Verex Filter Vials Two-Step Vials for Filtration and Analysis

Table of Contents

The Most Innovative 4-in-1 Technology

Verex Filter Vials combines syringe filter and vial technology, eliminating the need for separate syringes, syringe filters, vials, and cap/septa, allowing you to reduce lab waste and simplify your workflow.



Reduce Sample Loss and Contamination

Eliminate multiple transfers with this all-in-one filtration device

Internal Plunger

External Vial

Particulate-Free Sample

The filter membrane is attached to the internal plunger to ensure removal of particulates

Save Your Sample

With a low dead-volume of 30 µL, more of your sample can be analyzed

Verex Filter Vial Specifications

- Dimensions: 12 x 32 mm
- Vial material: Polypropylene
- Septa: PTFE/Silicone preSlit
- Filtering capacity: 450 µL
- Dead-volume: 30 µL
- Cap: 11 mm snap-top cap

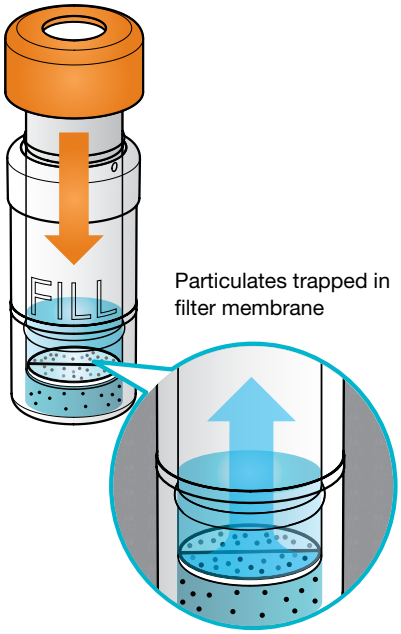
Sample Preparation in Two Steps

Verex Filter Vials are an easy two-step sample preparation device that consists of two parts: an external vial to be filled with sample, and an internal plunger with a filtration membrane and cap with a pre-slit septa.

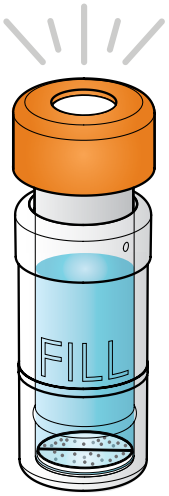
Filter Vials

1 The sample is placed in the external vial using a pipette or syringe.

2 By compressing the internal plunger, the sample is pushed through the membrane and filtered.



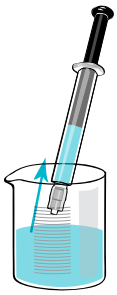
Now the Verex Filter Vial is ready to be placed into the autosampler!



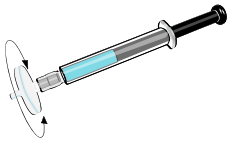
Simply dispense your sample and filter!

Traditional Syringe Filtration

1 Load sample into syringe barrel



2 Attach syringe filter



3 Retrieve vial and filter sample

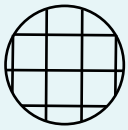
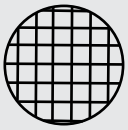
4 Attach cap

Compared to the traditional syringe filtration, Verex Filter Vials requires less steps and saves you time!

Find Your Filter Vial with Two EASY Selections

Verex Filter Vials are offered in a variety of chemically compatible membranes suitable for any application. Proper membrane and pore size selection are the keys to choosing the best product to maintain the integrity of your sample components as well as to protect your system from particulate contamination.

1 Select Your HPLC/UHPLC Column Particle Size

≥ 3 µm	< 3 µm
0.45 µm 	0.20 µm 

2 Choose Your Sample Type

Aqueous			Solvents	
Biological Samples / Protein Analysis	Tissue, Media, Buffers	Solvent Mixtures	Aqueous Mixtures, Hydrophilic	Non-Aqueous, Hydrophobic / Strong Acids
PES / PVDF	PES	NY	RC / NY	PTFE

Membrane Options for Your Unique Sample

RC (Regenerated Cellulose) **Hydrophilic**

Compound Classes: Aqueous and organic solutions

Benefits: Compatible with a broad range of solvents; fast-flow and ultra-low protein, and non-specific binding characteristics

Typical Applications: Broadly recommended as an excellent general purpose/high-performance samples filter for most applications; filtration of aqueous and organic solutions; protein chemistry; and clarification

PTFE (Polytetrafluoroethylene) **Hydrophobic**

Compound Classes: Organic solvents, acids, alcohols, bases, aromatics

Benefits: Compatible with organic solvents, strong acids and bases; chemically and biologically inert; gases or aggressive organic solvents

Typical Applications: Filtration of organic-based, highly acidic or basic samples and solvents; drug metabolite studies; clarification of aqueous and organic solvent solutions

NY (Nylon) **Hydrophilic**

Compound Classes: Bases, solvents, alcohols, aromatic hydrocarbons

Benefits: Compatible with organic solvents; not recommended when maximum protein recovery is important

Typical Applications: Clarification of aqueous and organic solvent solutions; general filtration or medical assays

PES (Polyethersulfone) **Hydrophilic**

Compound Classes: Critical biological samples, tissue culture media, additives, and buffers

Benefits: Fast-flow and ultra-low protein binding characteristics; removal of particulate matter

Typical Applications: Biological studies; dissolution testing; ICP sample preparation

PVDF (Polyvinylidene Fluoride) **Hydrophilic**

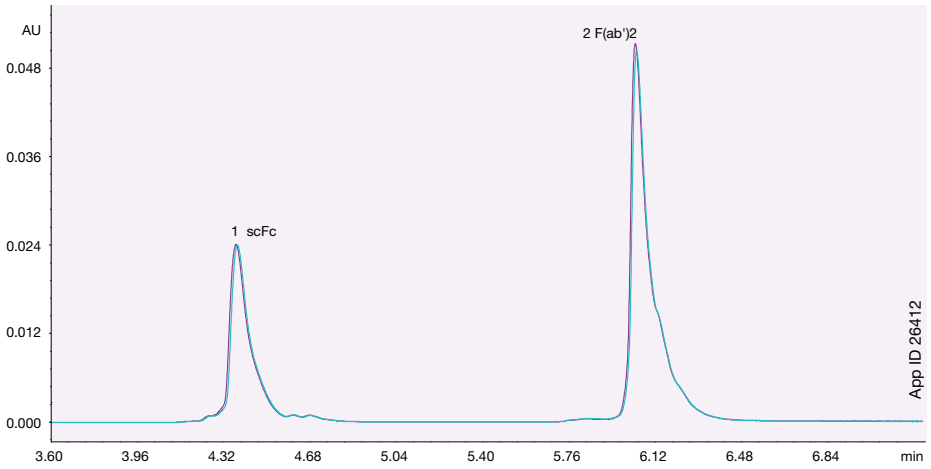
Compound Classes: Alcohols, biomolecules

Benefits: Binds less protein than Nylon or PTFE membranes; high flow rates and throughput; low extractables

Typical Applications: Biological studies; clarification studies; dissolution testing

Filtration of Samples

Monoclonal Antibody (mAbs) Fragments



Unfiltered Sample
Filtered Sample

HPLC Conditions

Column: Synergi™ 4 µm Hydro-RP
Dimension: 150 x 4.6 mm
Part No.: 00F-4375-E0
Pressure (bar): 142
Mobile Phase: A: 0.1 % TFA in Water
B: 0.1 % TFA in Acetonitrile

Gradient:

Time (min)	% B
0	25
10	45
11	80
13	80
13.1	25
17.1	25

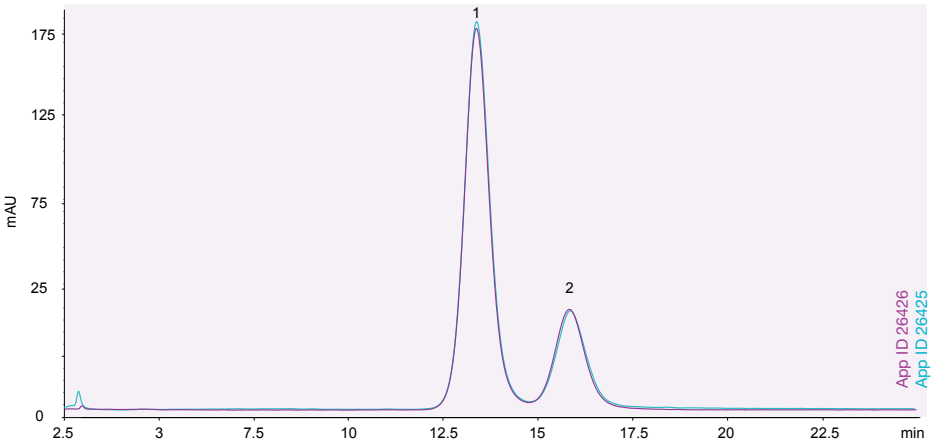
Flow Rate: 0.8 mL/min
Detector: UV-Vis @ 280 nm
Sample: Nivolumab, IdeZ Digested

Sample Preparation

Reconstitute: FabRICATOR® Z in 50 µL ddH_2O to a concentration of 40 units/µL
Add: 1 unit FabRICATOR Z / 1 µg IgG. Final Concentration should be 0.5-10 mg/mL
Digest: Incubate mixture for 16 hrs at 37 °C
Load: Sample into **Verex Filter Vial 0.45 µm, PES** (AR0-F208-12)
Inject: 2 µL final eluate onto HPLC-UV

Minimize sample loss and keep consistent method performance

Separation of Chiral Atorvastatin



Unfiltered Sample
Filtered Sample

LC-UV Conditions

Column: Lux® 5 µm Cellulose-2
Dimension: 100 x 4.6 mm
Part No.: 00D-4457-E0
Pressure (bar): 108
Mobile Phase: A: 0.1 % TFA in Water
B: 0.1 % TFA in Acetonitrile

Gradient:

Time (min)	% B
25	35

Flow Rate: 1000 µL/min
Temperature: Ambient

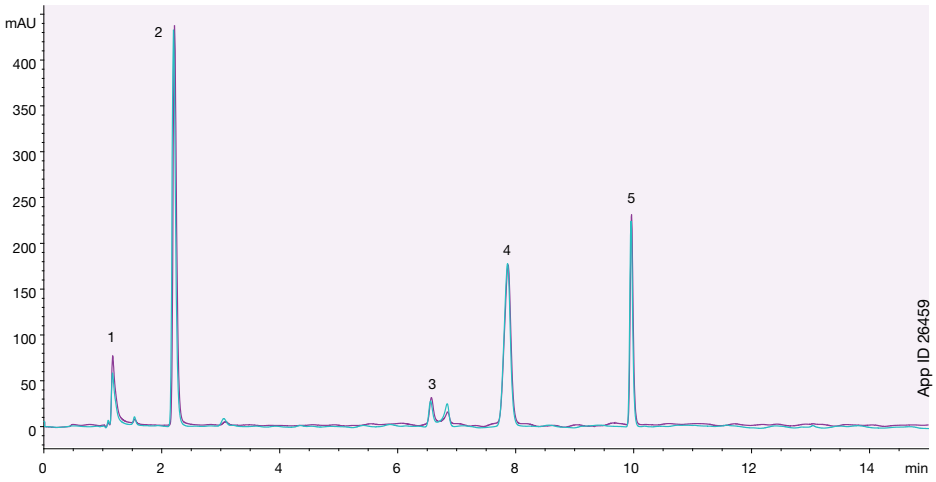
Detection: UV @ 210 nm
Injection Volume: 3 µL
Instrument: Agilent® 1100 HPLC with Quaternary Pump
Sample: 1. Atorvastatin Calcium
2. Impurity E

Sample Preparation

Make: 1 mg/mL concentrations of each Atorvastatin Calcium Trihydrate CRS and Atorvastatin Impurity E using methanol
Mix: Standards at a ratio of 1:1 or 5:1, CRS:Impurity E
Load: 400 µL of standard mixes into **Verex Filter Vial 0.45 µm, NY** (AR0-F207-12)
Inject: 3 µL final eluate onto HPLC-UV

Filtration of Samples

Multivitamin Tablet Analysis by HPLC-UV



Unfiltered Multivitamin Tablet

Filtered Multivitamin Tablet

LC-UV Conditions

Column: Synergi™ 4 µm Hydro-RP
Dimension: 150 x 4.6 mm
Part No.: 00F-4375-E0
Pressure (bar): 142
Mobile Phase: A: 20 mM Potassium phosphate + 0.1 % Hexane sulfonate, pH 3.0
B: Acetonitrile

Gradient:

Time (min)	% B
0	3
3	3
18	50
18.1	3
20	3

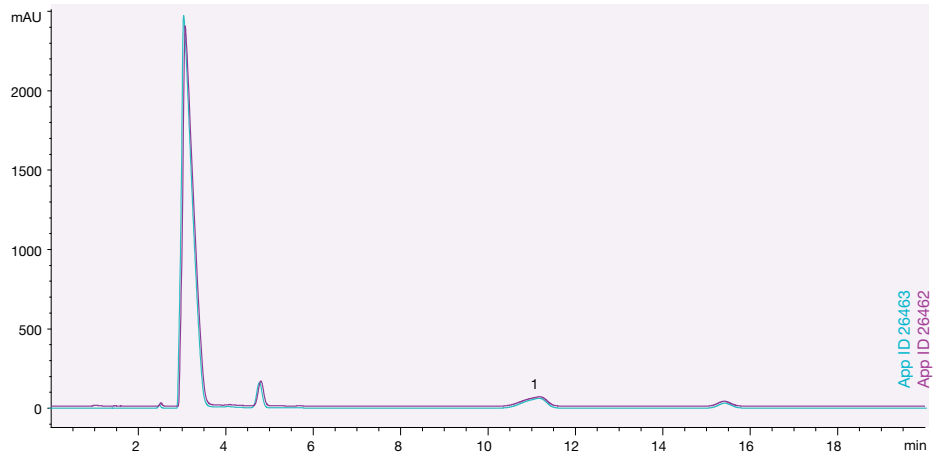
Flow Rate: 1.5 mL/min
Temperature: 30 ˚C
Detection: UV @ 210 nm
Injection Volume: 3 µL
Instrument: Agilent® 1100 HPLC with Quaternary Pump
Sample: 1. Thiamine
2. Pyridoxine
3. Pantothenic Acid
4. P-Aminobenzoic Acid
5. Riboflavin

Sample Preparation

Make: 1 mg/mL concentrations of each sample with water from the tablet matrix. For Riboflavin, add 1-2 drops of Ammonium Hydroxide to help dissolve
Mix 50 µL of each sample into a mastermix
Load: 250 µL of mastermix into **Verex Filter Vial 0.45 µm, NY** (AR0-F207-12)
Inject: 3 µL final eluate onto HPLC-UV

No change in peaks with complex tablet and cream formulations!

Topical Cream Analysis of a Hydrocortisone Extraction by HPLC-UV



Unfiltered Extraction

Filtered Extraction

LC-UV Conditions

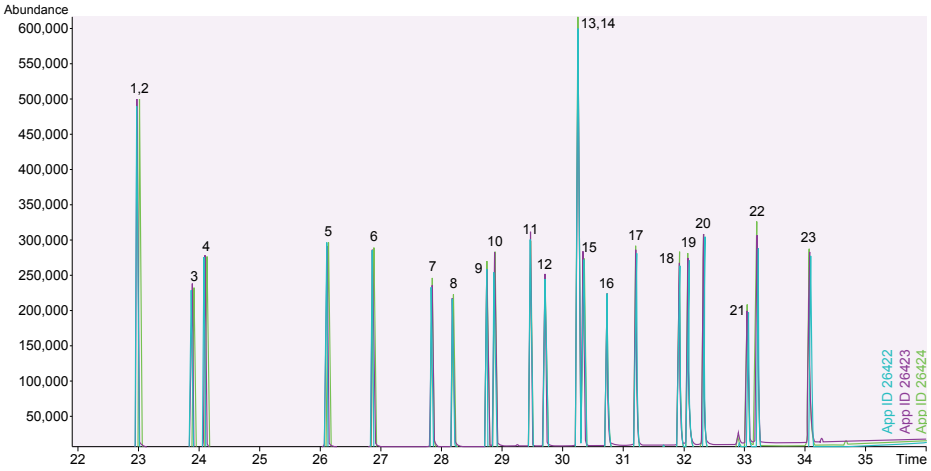
Column: Luna® 5 µm C18
Dimension: 150 x 4.6 µm
Part No.: 00F-4252-E0
Pressure (bar): 284
Mobile Phase: Methanol:Water (50:50)
Flow Rate: 1 mL/min
Temperature: 35 ˚C
Detection: UV @ 220 nm
Injection Volume: 10 µL
Instrument: Agilent® 1290 with DAD
Sample: 1. Hydrocortisone

Sample Preparation

Pre-treatment: Dissolve 1 g of hydrocortisone cream in 10 mL ethyl acetate
Dilute: 2 mL of pre-treated sample with 8 mL methanol:water (1:1)
Load: 400 µL of diluted cream sample into the **Verex Filter Vial 0.45 µm, RC** (AR0-F203-12)
Inject: 10 µL final eluate onto HPLC-UV

Filtration of Samples

Separation of 23 PCBs by GC-MS



GC-MS Conditions

Column: Zebron™ ZB-Dioxin
Dimension: 60 meter x 0.25 mm x 0.20 µm
Part No.: 7KG-G045-10
Injection: Splitless @ 280 °C, 1 µL
Recommended Liner: Zebron PLUS Single Taper Z-Liner™
Liner Part No.: AG2-0A13-05 (for Agilent systems)
Carrier Gas: Helium @ 2.0 mL/min (constant flow)
Oven Program: 100 °C for 2 mins, 300 °C @ 6 °C/min for 5 min
Detector: GC-MS
Sample: 23 PCBs.
Find the full sample list online at
www.phenomenex.com/AN1005

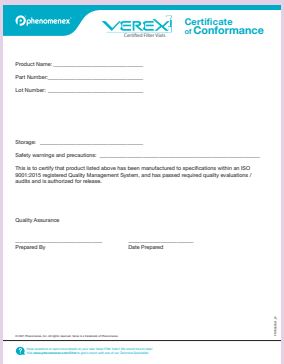
Sample Preparation

Dilute: 1 mL or 0.5 mL (Verex) of 0.4 µg/mL of PCB in Isooctane
Load: Diluted sample into **Verex Filter Vial 0.45 µm, PTFE (**AR0-F202-12**)**
Inject: 1 µL filter eluate onto GC-MS

Particulate-free samples ensures no changes in chromatography

See the Ease of Use Firsthand!

Certificate of Conformance available upon request



Filter Vial Chemical Compatibility

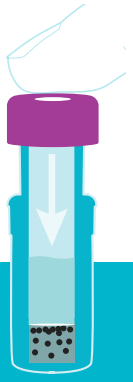
		Filter Media					Housing
		Regenerated Cellulose	Polytetra-fluoroethylene	Nylon	Polyether-sulfone	Polyvinylidene Fluoride	Polypropylene
Chemical		**RC**	**PTFE**	**NY**	**PES**	**PVDF**	**PP**
ACIDS	Acetic Acid, 5 %	R	R	R	R	R	R
	Acetic Acid, 10 %	R	R	L	R	R	R
	Acetic Acid, Glacial	R	R	N	R	R	L
	Boric Acid	T	R	L	T	T	R
	Hydrochloric, 6N	N	R	N	R	L	T
	Hydrochloric, Conc.	N	R	N	R	R	T
	Hydrofluoric, 10 %	L	R	N	T	R	R
	Hydrofluoric, 35 %	N	T	N	T	R	T
	Nitric Acid, 6N	N	L	N	N	T	T
	Nitric Acid, Conc.	N	N	N	N	R	T
	Sulfuric Acid, 6N	L	L	N	T	R	T
	Sulfuric Acid, Conc.	N	N	N	N	T	T
ALCOHOLS	Amyl Alcohol	R	R	R	N	R	R
	Benzyl Alcohol	R	R	L	N	R	R
	Butyl Alcohol	T	R	R	R	R	R
	Butyl Cellosolve	T	R	R	T	T	T
	Ethyl Alcohol	T	R	R	R	R	T
	Ethylene Glycol	R	R	R	R	R	R
	Glycerin	R	R	R	R	R	R
	Isobutyl Alcohol	T	R	R	T	R	T
	Isopropanol	R	R	R	R	R	T
	Methanol	R	R	T	R	R	T
	Methyl Cellosolve	T	R	R	T	R	T
	Propanol	R	R	R	T	R	R
BASES	Ammonium Hydroxide, 6N	L	R	N	R	R	T
	Potassium Hydroxide, 6N	L	R	R	T	R	T
	Sodium Hydroxide, 6N	L	R	N	R	R	T
SOLVENTS	Acetone	R	R	R	N	N	R
	Acetonitrile	R	R	T	R	R	R
	Amyl Acetate	R	R	R	L	R	L
	Aniline	R	R	R	R	T	L
	Benzene	R	L	T	R	R	L
	Bromoform	T	R	R	T	T	T
	Butyl Acetate	R	R	R	L	T	L
	Carbon Tetrachloride	R	L	R	R	R	N
	Cellosolve	R	R	R	T	T	T
	Chloroform	R	L	NR	N	R	L
	Cyclohexane	R	R	R	T	T	R
	Cyclohexanone	R	R	T	N	N	R
	Diethyl Acetamide	R	N	R	T	T	T
	Dimethyl Formamide	L	R	R	N	N	R
	Dimethyl Sulfoxide (DMSO)	R	R	R	N	N	T
	Dioxane	R	R	R	L	R	R
	Ethyl Ether	R	R	R	R	R	N
	Ethylene Dichloride	T	R	R	T	T	T
	Formaldehyde	T	R	R	R	R	R
	Freon TF	T	R	R	R	R	T
	Gasoline	R	R	R	T	R	N
	Hexane	R	R	R	T	R	T
	Isopropyl Acetate	R	R	R	T	N	R
	Kerosene	R	R	R	T	R	T
	Methyl Acetate	R	R	R	T	R	R
	Methyl Ethyl Ketone (MEK)	R	R	R	N	NR	T
	Methyl Isobutyl Ketone	R	R	R	T	N	T
	Methylene Chloride	NR	R	T	N	R	N
	Nitrobenzene	NR	R	T	N	R	R
	Pentane	NR	L	R	R	R	T
	Perchloroethylene	R	R	R	N	T	L
	Pyridine	R	R	T	N	N	L
	Tetrahydrofuran	R	L	T	N	N	L
	Toluene	R	L	R	N	R	L
	Trichloroethane	NR	R	T	L	T	T
	Trichlorethylene	R	L	T	R	R	N
	Triethylamine	R	R	R	T	T	T
	Xylene	R	L	T	L	R	R
MISCELLANEOUS	Cottonseed Oil	T	R	R	T	T	R
	Hydrogen Peroxide (30 %)	R	R	R	T	R	R
	Kodak KMER FTFR	T	R	R	T	T	T
	Peanut Oil	T	R	R	T	T	T
	Petroleum Oils	R	T	T	L	R	R
	Sesame Oil	T	R	R	T	T	T
	Shipley (AS-111,340,1350)	T	R	R	T	T	T
	Silicone Oils	R	R	R	R	R	R
	Turpentine	T	R	R	T	T	T
	Waycoat 59	T	R	R	T	T	T

Key	
R	Recommended
L	Limited Resistance (testing before use is recommended)
N	Not Recommended
T	Testing Recommended
NR	Not Resistant

Verex Filter Vials Ordering Information

Description		Pore Size	Part No.	Unit
Verex Filter Vial-RC (Regenerated Cellulose)		0.20 µm	AR0-F103-12	100/pk
		0.45 µm	AR0-F203-12	100/pk
Verex Filter Vial-PTFE (Polytetrafluoroethylene)		0.20 µm	AR0-F102-12	100/pk
		0.45 µm	AR0-F202-12	100/pk
Verex Filter Vial-NY (Nylon)		0.20 µm	AR0-F107-12	100/pk
		0.45 µm	AR0-F207-12	100/pk
Verex Filter Vial-PES (Polyethersulfone)		0.20 µm	AR0-F108-12	100/pk
		0.45 µm	AR0-F208-12	100/pk
Verex Filter Vial-PVDF (Polyvinylidene Fluoride)		0.20 µm	AR0-F106-12	100/pk
		0.45 µm	AR0-F206-12	100/pk

VEREX
Certified Filter Vials



NEW Push to Filter Ready to Inject

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