

Standard Vial Specification

**What do Filter Vials Replace in the Lab?**

Thomson Filter Vials simplify general filtration by replacing syringes & syringe filters, microcentrifuge spin columns, and/or liquid-liquid extractions.

Applications for Thomson Filter Vials include all sample types to be analyzed by HPLC, UHPLC, LC-MS, and GC-MS

**Filter Vials Can Optimize your SPE, D-SPE or QuEChERS Workflow**

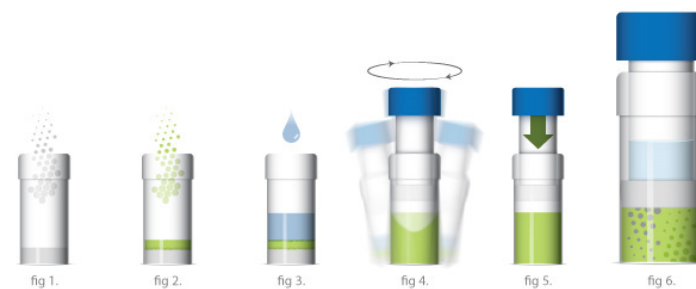
Thomson eXtractor3D|FV® has a shorter plunger allowing the addition of salts such as MgSO4 and or sorbents like C-18 to the shell vial eliminating the need for SPE columns and dispersive spin columns.

This makes the eXtractor3D|FV® extremely versatile in any dispersive or SPE process.

**Using eXtractor3D|FV® in Dispersive SPE**

See figures to right

- Prepare Shell Vial
- Add Dispersive Salts (MgSO4) and/or Column Sorbents (C-18)
- Add Homogenised Sample
- Add Solvent / Buffer & Water to bring up to volume
- Vortex
- Depress Plunger completely to filter
- Prepared clean samples are now ready for LC/MS with separated salts, sorbents & sample debris



**Same Size as HPLC Vial**

Thomson Filter Vials are the same size as standard HPLC vials and will fit easily into any machine or tray available for standard HPLC vials.



**Easy & Fast to Use**

1. Deposit 450 ul of sample into shell vial
2. Insert plunger into the outer shell & press

No Multiple Steps Transfers Needed. Pre-slit caps for all filter vials, with the exception of the low evaporation caps, ensure a no-hassle clean aliquot withdrawal. No more breakage of expensive needles or coring problems on the HPLC or Mass Spectrometer. THOMSON Filter Vials are compatible with most autosamplers.

**TECH TIP: THOMSON FILTER VIAL AND PROTEIN CRASH**

Protein samples need to be crashed out before injecting them into the HPLC system. Many users have traditionally done off-line procedures. The THOMSON PTFE Filter Vials can do this easily by mixing the Acetonitrile and Aqueous solution in the bottom chamber, and then allowing the filter to push down, trapping the protein, and letting the clean sample come through for analysis.

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## Filter Vial

120 ul Dead Volume  
Max Fill Vol. 450 ul  
Dead Vol. 120 ul

Thomson Standard Filter Vials can be used for samples containing less than 10% particulates. The filter vial consists of two parts: a filter vial shell and a plunger which includes a single layer filter on one end and a vial cap on the other end. Applications for Standard Filter Vials include filtration of catalysts from organic and medicinal chemistry synthesis reactions, saccharide analysis in corn syrup, and in-vial protein precipitation.

## nano|Filter Vial

Max Fill Vol. 250 ul  
Min Fill Vol. 10 ul (for 2 ul injection)

Thomson nano|Filter Vials® offer a very low dead volume, allowing one to filter as little as 10 ul of sample with enough remaining filtrate to make a 2 ul injection.

Applications include all low volume samples: analysis of enzymes, peptides, DNA, RNA, synthesis reaction intermediates, finished products, saliva.

## eXtreme|FV

Thomson eXtreme|FV® offer multi-layer filtration for viscous samples and samples containing up to 30% particulates.

eXtreme|FV® allows for compounds to be separated from the matrix, which results in both a higher signal-to-noise ratio and peaks that are more differentiated.

Prior to the introduction of the eXtreme|FV®, many samples containing high levels of particulates were “filtered” by using an SPE step in the method. This method is easily amendable: simply replace the SPE step with a rapid and lower cost eXtreme|FV® step.

Applications for Thomson eXtreme|FV® include filtration of cell and cell debris from cell culture; pesticide analysis in food, tissue, soil, and water; and toxicology analysis.

## eXTRACTOR3D|FV

Max Fill Vol. 630 ul  
Dead Vol. 420 ul

Thomson eXtractor3D|FV® Filter Vials offer filtration with increased volume enabling multiple extraction techniques with different resins/sorbents or particulates (greater than 35%) to autosampler ready vials. eXtractor3D|FV® is a product uniquely designed for the addition of resins/sorbents, QuEChERS dispersive salts, pills, or special resins in the standard autosampler ready vial.

Large particulates can be placed within the eXtractor 3D® where multiple extraction techniques occur. Prior to the introduction of the eXtractor3D|FV®, samples required multiple steps using SPE, or other methods to remove interfering analytes and co-eluting compounds. SPE or Quechers can now be completed with multi-depth filtration without risk of particulates compromising the autosampler. Pills and other large solids can be broken down for complete testing using the eXtractor3D|FV®. eXtractor3D|FV® allows for compounds to be separated from the matrix with the addition of resins/sorbents, resulting in both a higher signal-to-noise ratio and greater peak differentiation.

### What do Filter Vials Replace in the Lab?

Thomson Filter Vials simplify general filtration by replacing syringes & syringe filters, microcentrifuge spin columns, and/or liquid-liquid extractions.

Applications for Thomson Filter Vials include all sample types to be analyzed by HPLC, UHPLC, LC-MS, and GC-MS.

## Syringe Filter Built In

Filter Vials are equivalent to a syringe filter built into your HPLC vial. Even a sample that appear clear to the eye potentially have particulates that can clog the machine and cause down time and costly maintenance. Filter Vials increase productivity by eliminating a transfer step required when using a syringe filter.



Filter Vials are like HPLC vials with a syringe filter built in.

### Easy & Fast to Use

- Deposit 450 ul of sample into shell vial
- Insert plunger into the outer shell & press
- In two steps and 15 seconds you can have a safe and secure sample for analysis. If you need to filter more than one sample the use of a Toggle Press (up to 5) or Multi-Use Press (up to 48) can be used.

*You can prepare a safe particulate free sample in less time than it takes to in the time it takes to open the syringe packaging and add the syringe filter.*

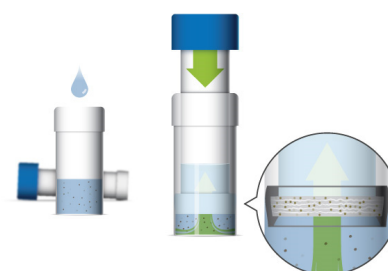


Diagram showing the Thomson Filter Vial in action

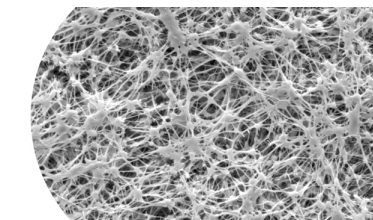
### How Filter Vials Work

Similar to how a french press (cafetière à piston) works, Filter Vials filter particulates out of the sample with similar membranes used in syringe filters. The pressing of the plunger into the shell vial forces the sample up through a filter to separate the particulates from the sample to be analyzed. Thomson has several filter membranes and pore sizes to choose from making the Filter Vial a versatile tool in the lab.

### Membrane Pore Size

The recommended membrane pore size for sample filtration is based on the cell or cell debris content of the sample and the particle size of the packing material in the chromatography column used to analyze the sample. If the sample contains cells or cellular debris, then a 0.2 um pore size membrane is recommended to maintain system sterility.

Which to use?  
0.2 um Pore Size  
Cells or Cell Debris in Sample  
Chromatography Column Particle Size <3 um  
0.45 um Pore Size  
Chromatography Column Particle Size >3 um



### Membrane Material

The recommended membrane for sample filtration is based on the percentage of organic solvent in the sample and the amount of protein binding.

For chemical or compound compatibility with our Filter Vials & membranes see the Chemical Compatibility Index & Compound Compatibility Index in Thomson's Technical Library available on their website.

	Aqueous	>50% Organic	Low Protein Binding
PTFE		✓	
PVDF	✓		✗
Nylon	✓	✓	
PES	✓		✗