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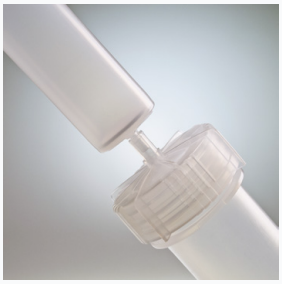
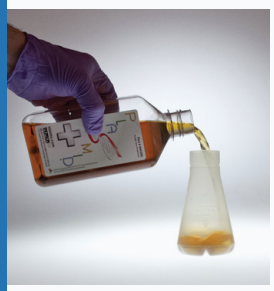
THOMSON Solutions At Work™














Thomson Product Catalog

Solutions At Work™

A Little About Thomson

SOLUTIONS AT WORK™

Thomson sells innovative single-use Solutions At Work™, our mission is to provide technical expertise while partnering with our customers to deliver practical scientific innovations enabling scientific advancements in pharmaceutical, biotech, environmental/food, toxicology/forensics, and contract manufacturing industries.

Open to Collaboration

INNOVATIVE PRODUCT LINE

Scientists around the world are discovering new ways to use Thomson Filter Vials. Whether testing pharmaceuticals, performing toxicology, or testing for drugs of abuse Thomson Filter Vials have proven to be indispensable tools for sample prep when using HPLC, GC, LC-MS, or GC-MS, methodologies.

Thomson offers a full line of shake flasks and accessories with above-average yields and higher working volumes, designed specifically for insect/mammalian, or microbial/*E. coli* cells based on an understanding and experience of lab operations.

Our well-plate catalog continues to grow and provide the highest quality plates, ready for robotics, cell culture, synthesis, or analysis.

SINGLE StEP® Empty Columns are ready for the addition of sorbents or resins depending on the application.

If you have unique needs or need a new product please reach out to us. We look forward to collaborating with you.

Thomson Product Catalog

Solutions At Work™

Solutions At Work™

Thomson's mission is to provide technical expertise while partnering with our customers to deliver practical scientific innovations. Made in the USA.

Innovative Single-Use Solutions

Thomson delivers practical scientific innovations enabling scientific advancements in pharmaceutical, biotech, environmental/food, toxicology/forensics, and contract manufacturing industries by helping to improve cell growth, purification, and analysis.

Cell Culture Solutions

Working with scientists has led to Thomson developing innovative products for cell expansion, bioprocessing and analysis

Shake Flasks
Higher working volumes and improved aeration increase efficiency for expansion of mammalian cells, insect cells, *E. coli* and microbial cells.

Specialty Shake Flasks
Multifunctional feed, transfer and sampling ports serve as mini-bioreactors reducing your media costs and saving shaker space.

Transfer Caps
For seeding larger bags and fermenters as well as for filling flasks with media from a bulk source provide time and cost savings keeping your lab operations running smoothly.

Plates
Designed for seeding suspension cell culture, bioassay and storage applications, or both biological and analytical sample preparation.

Analytical Solutions

Working with scientists has led to Thomson developing innovative products for chemical analysis

Filter Vials
Pre-analytical sample filtration that improves your signal-to-noise ratio and extends column life while minimizing plastic waste.

Plates
Designed for sample preparation and storage applications, or both small scale pilot projects and high throughput sample analysis.

Empty Columns
Low pressure FPLC, LPLC and MPLC systems come in a variety of sizes perfectly adapted to fit your purification needs.

Glassware
Synthesis and analytical work include vials for reactions and HPLC Autosamplers, caps and lid solutions, plastic and metal blocks for storage and dry down, custom glassware, barcoding or laser etching.

Photo by Berti Benbanaste

An Introduction to the Ultra Yield® System

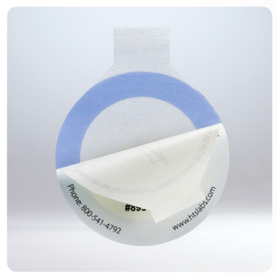
The Ultra Yield® System consists of three components: Ultra Yield® Flasks, AirOtop® Enhanced Seals and Plasmid+® Enriched Media. Superior results are achieved when all three components are used simultaneously.

Ultra Yield® Flasks

Enhance the growth of *E. coli* and other microbial cells up to 10x over traditional flasks. Available in standardized volumes of 125mL, 250mL, 500mL, 1.5L and 2.5L

Plasmid+® Media

Is animal origin free media and adds all the essential nutrients required to support the enhanced cell growth obtained by using Ultra Yield® Flasks



AirOtop® Enhanced Seals

As an alternative to foil or cotton plugs AirOtop® Seals provide a consistent and sterile gas-permeable barrier. Note that Vented Screw Caps are also available for Ultra Yield® flasks.

Ultra Yield® Flasks

Thomson's Ultra Yield® system has proven over the last decade to enhance the aeration of *E. coli* and other microbial cells.

Ultra Yield® Flasks are designed to be either single-use or autoclaved up to 3x and feature a unique geometry that enhances gas exchange.

Key Features

- 10x increased aeration over standard shake flasks
- Increased DNA & protein production
- Fully scalable results
- Replacement for glass flasks
- Fits all standard flask clamps
- Easily adaptable into microbial growth protocols
- Sterile, autoclavable flasks from 125mL – 2.5L
- Use with AirOtop® Enhanced Seals or Vented Screw Caps & Plasmid+® media

Plasmid+®

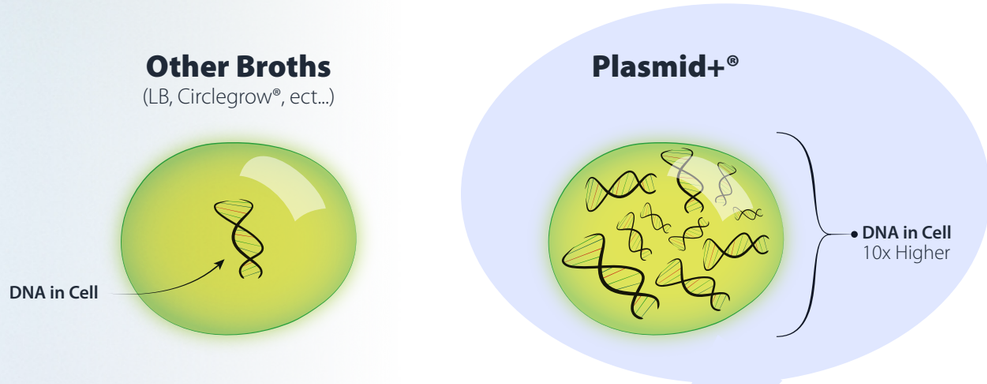
Enriched Media

As a component of the Thomson Ultra Yield® system, Plasmid+® media plays a significant role in helping to generate high microbial titers resulting in higher plasmid yields.

Key Features

- Media specifically formulated for high DNA growth
- Increased supercoiled DNA per Liter
- Consistent plasmid production for up to 22 hours
- Use with tubes, plates, flasks, and fermenters
- Sterile and ready to use. Simply add antibiotics and Grow!
- Animal Origin Free formulation
- Store Plasmid+® liquid media at room temperature for up to 12 months

CAUTION: Avoid ingestion and contact with skin. For lab use only. Not for drug, household or other uses. Certificate of Analysis, MSDS available upon request.



DNA Enriched Cell Paste

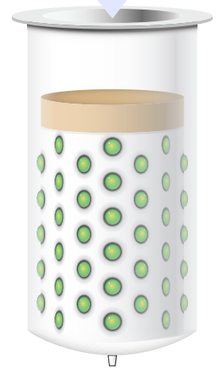
Don't Overload Your Column Binding Sites

Recommended Growth Volumes with Plasmid+®

	Recommended Volume	Recommended Vessel
MINI Prep	0.5-1mL	Thomson 96 well plate
MIDI Prep	4-5mL	Thomson 24 well plate
MAXI Prep	35-50mL	125mL Ultra Yield® Flask
MEGA Prep	75-100mL	250mL Ultra Yield® Flask
	150-200mL	500mL Ultra Yield® Flask
GIGA Prep	500-1000mL	1.5L or 2.5L Ultra Yield® Flask

Plasmid+® Media Tips

- Plasmid+® increases yield in DNA by supporting growth of a larger number of cells (higher density/OD).
- In order for this to happen ensure proper aeration by using highest shake speeds possible.
- For large scale DNA preps, use a 1mL aliquot with a MINI-prep to gauge DNA yields.



< 2g CELL PASTE
FOR MEGA PREP
< 5g CELL PASTE
FOR GIGA PREP

AirOtop®
Enhanced Seals
& Vented Screw Caps

As a component of the Thomson Ultra Yield® System, AirOtop® Enhanced Flask Seals are disposable, high gas exchange, sterile seals for all shake flasks.

AirOtop® Enhanced Seals

AirOtop® Enhanced Seals (patented) are disposable, high gas exchange, sterile seals for all shake flasks and are a component of Thomson's Ultra Yield® Solution and provide you with:

Key Features

- Sterile hydrophobic barrier with a resealable gas-permeable membrane
- Fits all Ultra Yield® Flasks as well as other brand flasks both glass and disposable
- AirOtop® Enhanced Seals help improve microbial growth and are part of the Ultra Yield System
- Resealable for up to 24 hours in culture

Ultra Yield® Vented Screw Cap

Vented Screw Caps feature a durable non-autoclavable design for use on Thomson Ultra Yield® Flasks. They also include a sterile hydrophobic barrier for high-volume gas exchange

Key Features

- Sterile hydrophobic barrier with a gas-permeable membrane
- Improve microbial growth

Disposable, Sterile, Easy to Use

Higher Gas Exchange on All Types of Shake Flasks

Sterile Membrane Barrier

AirOtop® Seals and Vented Screw Caps feature a sterile membrane barrier which provides a higher gas exchange on all types of shake flasks. AirOtop® Enhanced Seals are designed to fit on the tops of both Thomson flasks and traditional glass flasks. To determine the correct AirOtop® Seal to use with your glass or disposable flask refer to AirOtop® Enhanced Seal Compatibility below.

Resealable for Up to Approximately 24 Hours

AirOtop® Seals are disposable, sterile, easy to use, and resealable for up to approximately 24 hours. Multiple sizes are available to keep all of your flasks covered. Testing has been conducted at multiple customer sites with great results. Organisms tested include Protista (Algae), *E. coli*, and other microbes which exhibited increased cell density, a more neutral media pH and increased gas exchange rates.

An Introduction to the Optimum Growth® System

The Optimum Growth® System consists of high efficiency shake flasks, specialty shake flasks, transfer caps and the Rapid Clear® Cap for cell culture clarification prior to protein purification. The modular design of the Optimum Growth® System allows components to be used interchangeably and assures that small scale bioprocessing projects can remain GMP-compliant.

SHAKE FLASKS

Higher working volumes and improved aeration increase efficiency for expansion of mammalian cells, insect cells, *E. coli* and other microbial cells

TRANSFER CAPS

For seeding larger bags and fermenters, as well as filling flasks with media from a bulk source, providing time and cost savings to keep your lab operations running smoothly

SPECIALTY SHAKE FLASKS

Feed / transfer and sampling ports enable our speciality flasks to serve as an aseptic system and mini-bioreactor, while also increasing working volume, aeration and mixing rates

RAPID CLEAR® CAP

Quickly and efficiently clarify cell culture media directly from the Thomson 5L Optimum Growth® shaker flask without the need for centrifugation

Optimum Growth® Flasks

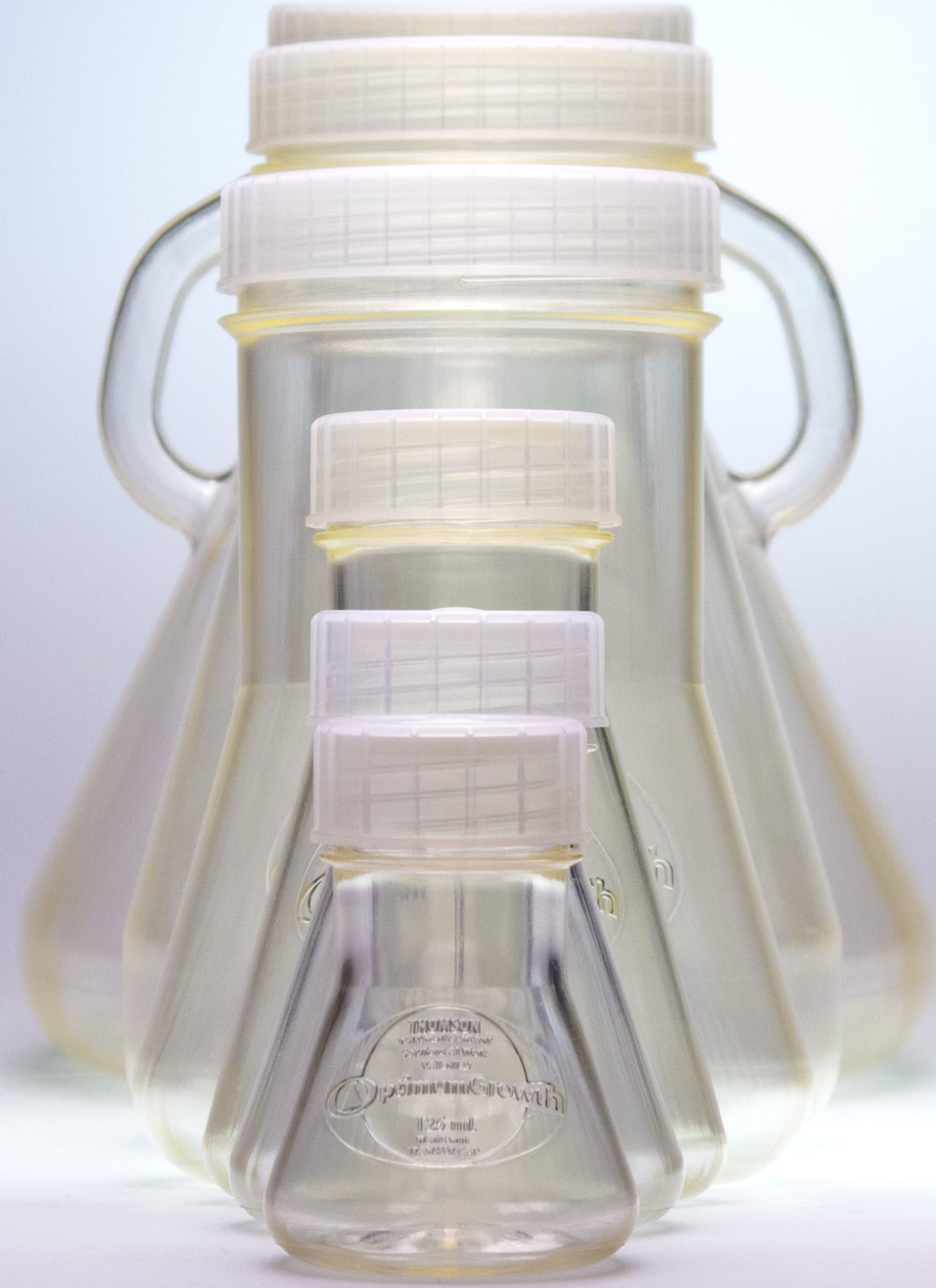
Thomson Optimum Growth® Flasks are designed for mammalian and insect cell culture, available in 125mL, 250mL, 500mL, 1.6L, 2.8L and our popular 5L volumes.

They are superior to traditional shake flasks due in part to the fact that they support a 50-60% fill volume, versus traditional flasks fill volume of 33%.

By holding up to 2x more media Optimum Growth® Flasks greatly increase shaker cabinet efficiency.

Key Features

- Baffles designed for high aeration and low shear to maintain cell viability
- Same footprint as comparable Fernbach flask but with a 50-60% fill volume
- Less foaming than disposable Fernbach potentially eliminates additives
- 0.2µm Vented Cap simultaneously maintains high gas exchange and sterility
- Transfer Cap option connects directly to cell bags or bioreactors with multiple connection options
- Scalable flask line allows more flask sizes to be shaken on the same shaker, improving efficiency and flexibility versus other products
- Individually packaged and sterilized for immediate use



Optimum Growth® Special Flasks

Components For Closed Systems

Thomson Optimum Growth® Special Flasks were designed for the unique needs of small-to-medium-scale bioprocessing applications.

Sampling Flasks

Optimum Growth® Sample Flasks with one-way sampling valves that help reduce viable cell count sampling times

Key Feature

- Eliminate the need to remove flask caps & allow aseptic sampling on the benchtop

Multiport Flasks

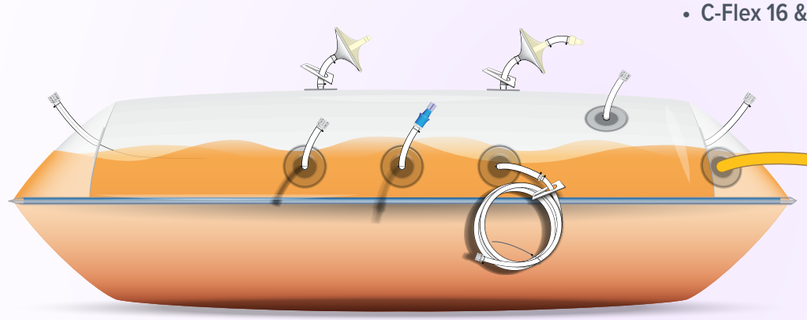
Optimum Growth® Multiport Flasks serve as closed systems with feed/transfer and sampling ports

Key Features

- Feature feed/transfer ports for seeding larger bioreactors or for batch feeding medium sized cultures
- Both aseptic sampling valves & feed/transfer ports make the 1.6L, 2.8L and 5L flasks a closed system that does not need to be opened

An Introduction to Transfer Caps & How They Work

Thomson Transfer Caps are used with our Optimum Growth® 1.6L, 2.8L & 5L flasks for aseptic transfer of cells or media into any vessel. Transfer Caps eliminate the need to move cells to an intermediate vessel for scale-up or to seed cultures. Transfer caps enable reagent addition, seeding of larger bioreactors or cell bags, and media transfer.

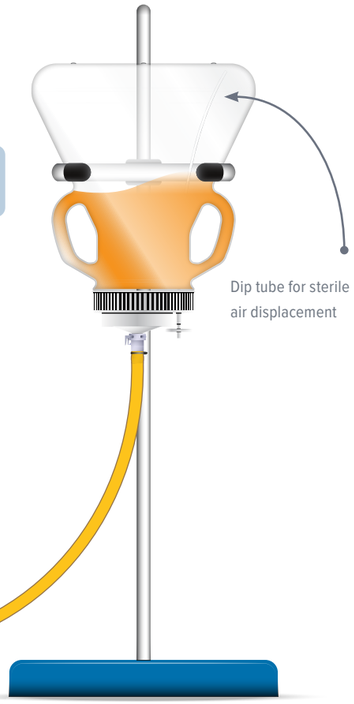


Inversion Transfer Caps

Utilize Gravity Feed for Simple Aseptic Transfer of Media or Cells

Key Features

- Gravity feed keeps cells stress free
- Dip tube attached to 0.2µm syringe filter provides aseptic air displacement
- Configurations include with & without attached tubing to accommodate a variety of vessel connections
- C-Flex 16 & 24 tubing sizes available for tube fusing



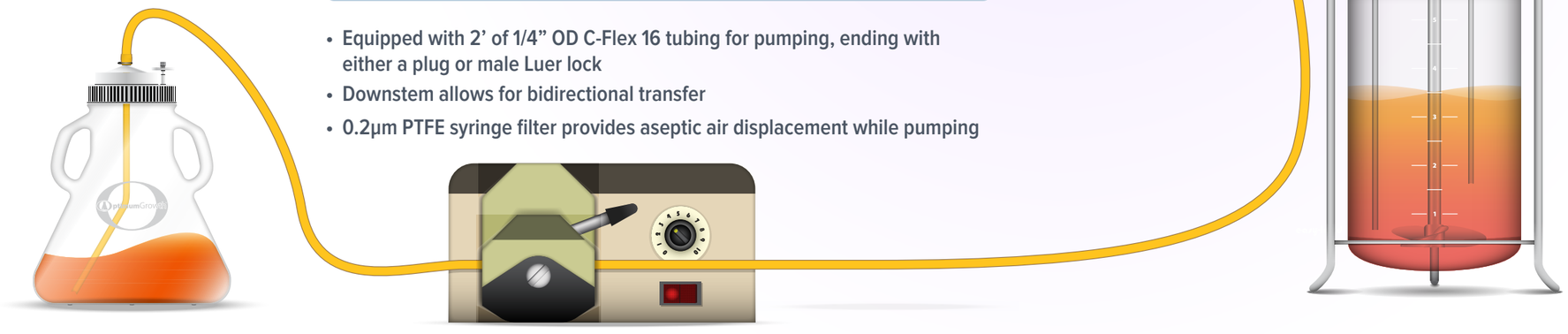
Stand & ring sold separately

Bidirectional Transfer Caps

Utilize a Peristaltic Pump for Easy Aseptic Bidirectional Transfer of Media or Cells

Key Features

- Equipped with 2’ of 1/4” OD C-Flex 16 tubing for pumping, ending with either a plug or male Luer lock
- Downstem allows for bidirectional transfer
- 0.2µm PTFE syringe filter provides aseptic air displacement while pumping



C-Flex® 16 ID: 1/8” (3.1mm), OD: 1/4” (6.35mm)

C-Flex® 24 ID: 3/16” (4.76mm), OD: 7/16” (11.1mm)

Rapid Clear® Cap

Revolutionary Technology in Downstream Processing

The Thomson Optimum Growth® System of products expanded into downstream processing with a revolutionary new technology that allows high speed clarification of cellular material. Thomson developed the Rapid Clear® Cap to address the needs of scientists to quickly and efficiently clarify cell culture media directly from the Thomson 5L Optimum Growth® shaker flask without the need for centrifugation.

Clarify 3L of Cell Culture In < 35 Minutes with No Centrifugation Required

Key Features

- Depth filtration with a 0.2µm final pore size eliminates multiple filtration steps and in most cases centrifugation
- Significant time savings versus traditional spin down technique
- Cell culture clarification of low or high density cultures of CHO stable, CHO transient, HEK293, hybridoma, and other mammalian cell lines
- Eliminates transfer steps: The Rapid Clear® Cap screws directly onto the Optimum Growth® Flask
- Secondary cap attaches to a new Optimum Growth® Flask or to a storage container with a Luer lock
- Solid Caps are also available for long-term storage of clarified media in the 2.8L or 5L receiving flask

Key Benefits

- Save time, clarify 3L of cell culture in less than 35 minutes – with no centrifugation required!
- Reduce consumables used by up to 90%
- Walk away convenience and safety – minimize endotoxin exposure

An Introduction to Filter Vials

Thomson Filter Vials are a single system which replaces HPLC Vials, HPLC Caps, Syringes, & Syringe Filters for the filtration of samples. In 15 seconds, Thomson Filter Vials filter samples in an autosampler-ready vial.

Key Features

- Same Size as a standard HPLC Vial and will fit easily into any standard HPLC vial machine or tray
- PTFE, PVDF, PES and Nylon membranes are available depending on the percentage of organic solvent in the sample and the amount of protein binding
- Pore sizes of either 0.2µm or 0.45µm will provide the perfect degree of filtration needed from viscous to clarified samples
- Versatility is built into Thomson's line of Filter Vials. Whether your samples are low volume or viscous or particulate-laden or contain a high volatility organic solvent Thomson has a Filter Vial to fit your needs

Syringe Filter Built In

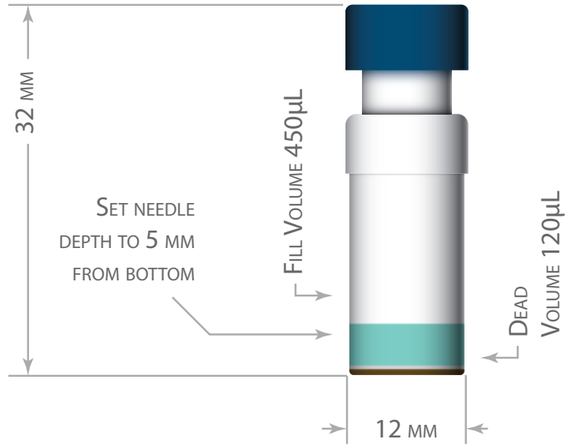
Equivalent to A Syringe Filter Built Into Your HPLC Vial

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

How Filter Vials Work

Similar to How A French Press Works...

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.



Easy As 1, 2, ... Done!

In Two Steps

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

15 Seconds

In two steps and 15 seconds you can have filtered sample for analysis. If you need to filter more than one sample, the Toggle Press (up to 5) or Multi-Use Press (up to 48) can be used.

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

Filter Vial Membrane

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 0.2µm pore size membrane is recommended to maintain system sterility.

Which to use?

- **0.2µm Pore Size**
  - Cells or Cell Debris in Sample
  - Chromatography Column Particle Size <3µm
- **0.45µm Pore Size**
  - Chromatography Column Particle Size >3µm

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.

Compatibility

For chemical or compound compatibility with our Filter Vials & membranes see the Chemical Compatibility Index & Compound Compatibility Index in our Technical Library.

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

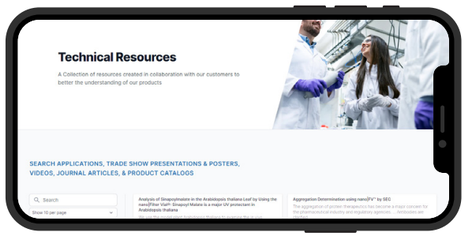
What Applications Can the Filter Vial be Used For?

With Thomson's family of Filter Vials and membranes available to you, finding ways to replace cumbersome and expensive syringe filters in the lab is easy. Here are just some of the documented applications you can use Filter Vials for in your lab today. See our Technical Library at htslabs.com to see a full list of applications. We work hard with small and large companies to produce proven protocols and methods for our products. If you find a use for Filter Vials in your workflow we would love to hear about it.

	nanoFilter Vial®	StandardFilter Vial	Low EvapFilter Vial	eXtremeFV®
10µL-250µL	●			
450µL		●	●	●
UPLC Compatible	●	●	●	●
GCMS Compatible	●		●	
30% Particulates				●
Viscous				●
Replacement for SPE				●
General Liquids < 10% particulates	●	●	●	●
Cell Fermentation	●			●
Particulate Removal	●	●	●	●
Automation Compatible	●	●	●	●
Small Molecules	●	●	●	●
Food & Supplements		●	●	●
Toxicology	●	●	●	●
Pesticides	●			●
Environmental	●	●	●	●

Thomson's Technical Library

You can find application notes, videos and more information on our products by visiting our website at **htslabs.com.**

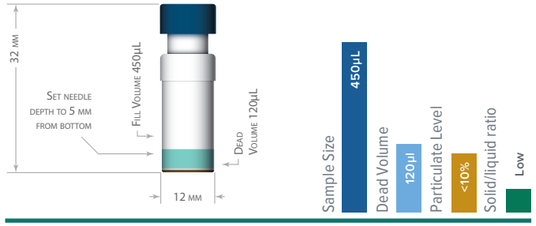


A Comparison of the Filter Vial Types

Filter Vial

Standard For Most Samples

Max Fill Vol. **450µL**
Dead Vol. **120µL**



Key Features

- General purpose filtration
- <10% particulates
- Pre-slit septum

Replaces in the lab

- Syringe Filters
- Syringes
- HPLC Vials/Caps

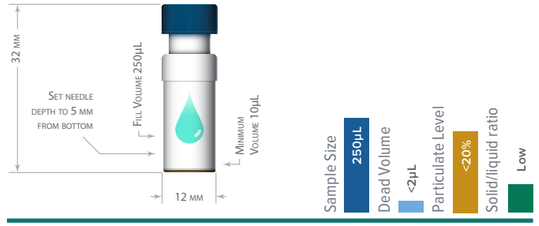
Applications

- 120µL-450µL
- General Liquids < 10% particulates
- Particulate Removal
- Automation Compatible
- Small Molecules
- Food & Supplements
- Toxicology
- Environmental

nano|Filter Vial

When Every µL Counts

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



Key Features

- 10µL sample for 2µL injection
- Available with pre-slit or non-slit septum

Replaces in the lab

- Centrifugation & Spin Filters
- Small Volume Syringe Filters
- Syringes
- High Recovery Vials/Caps
- Inserts with HPLC Vials/Caps

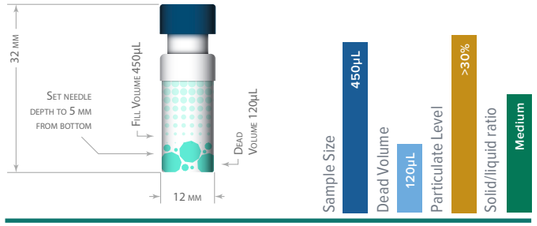
Applications

- 10µL-250µL
- General Liquids < 10% particulates
- Cell Fermentation
- Particulate Removal
- Automation Compatible
- Small Molecules
- Toxicology
- Pesticides
- Environmental

eXtreme|FV

Multi-Layered Filtration

Max Fill Vol. **450µL**
Dead Vol. **120µL**



Key Features

- Used for Particulate Laden Samples
- Contains a Depth Pre-Filter
- Pre-slit septum

Replaces in the lab

- Syringe Filters
- Syringes
- HPLC Vials/Caps

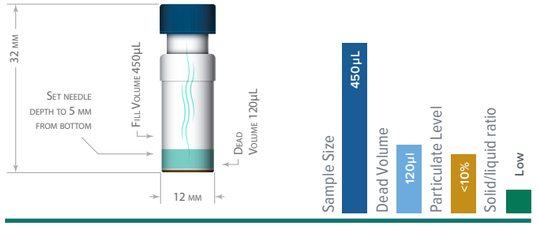
Applications

- 120µL-450µL
- ≤ 30% Particulates
- Viscous
- Replacement for SPE
- Cell Fermentation
- Particulate Removal
- Automation Compatible
- Small Molecules
- Food & Supplements
- Toxicology
- Pesticides
- Environmental

Low Evap|Filter Vial

Standard For Most Samples

Max Fill Vol. **450µL**
Dead Vol. **120µL**



Key Features

- General purpose filtration
- Non-split septum
- <10% particulates
- Evaporation rate <0.4% over 24-hour

Replaces in the lab

- Syringe Filters
- Syringes
- HPLC Vials/Caps

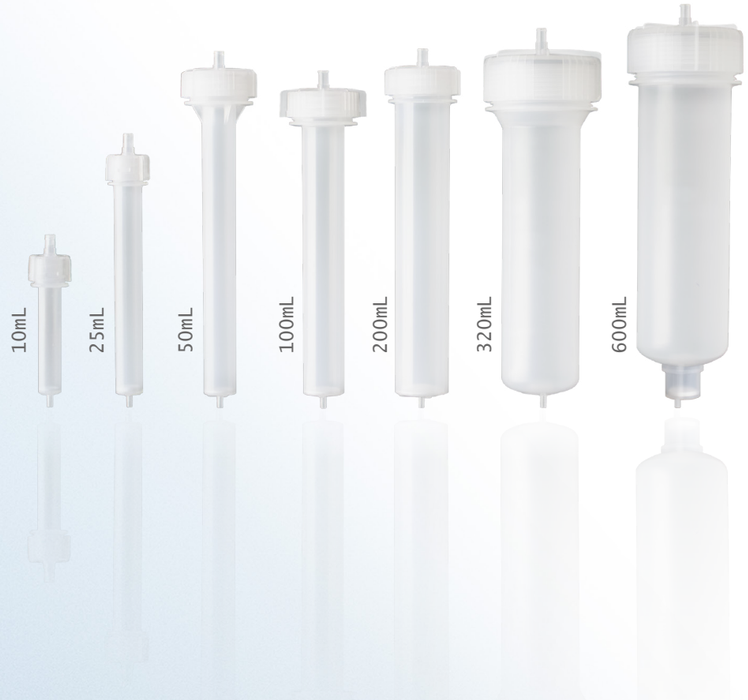
Applications

- 120µL-450µL
- General Liquids < 10% particulates
- Particulate Removal
- Automation Compatible
- Small Molecules
- Food & Supplements
- Toxicology
- Environmental

SINGLE STEP®

Empty Columns

Fill different sized columns with a variety of sorbents & resins for purification application.



Easy to Use

Don’t be Limited with Your Column Size

At Thomson, we are aware of the need to customize available apparatus to the individual experiments. Our SINGLE StEP® Empty Columns (patented) provide you the opportunity to fill different sized columns with a variety of sorbents and resins for purification applications. The wide range in which we offer these columns means you are not limited by column size. SINGLE StEP® Empty Columns allow for the simple connection to FPLC/LPLC/MPLC systems.

Key Features

- Acceptable for use with Gravity or FPLC/LPLC/MPLC
- Multiple sizes for scales from 10mL-600mL (4g – 300g)
- Durable design for pressures up to 200psi
- Top & bottom connections are standard Luer sizing

Collection Plates

Thomson Well Plates in both 24- and 96-well configurations are ideal for sample preparation or concentration and feature various well and well bottom shapes to suit your analytical needs. To compliment Thomson well plates we also offer various sealing options including capmats, airporous seals, foil seals and plastic lids.

- **Well Shape –** Square or Round to fit your cell type and culture condition requirements
- **Well Bottom Shape –** Pyramid, Round and V-bottom to fit your applications
- **Well Plate Orientation –** Fixed for Robotic Liquid-Handling Systems

Filter Plates

Thomson Filter Plates in both 24- and 96-well configurations are designed for analytical sample preparation. Depending on your application we may recommend using a positive pressure manifold, centrifugation or a Thomson Vacuum Manifold.

- **Versatility –** solid phase extraction and affinity phase adsorption applications involving high throughput robotic Liquid Handling Systems
- **Solvent Compatibility –** PVDF and PTFE Filter Plates are similar in principle to Thomson Filter Vials but in a 96-well plate
- **Long funnel design –** Eliminates cross-contamination between sample collection wells by fully inserting below the top of the collection plate

Part Numbers

Ultra Yield® Flasks

Flask Size	125mL	250mL	500mL	1.5L	2.5L
Part #	931147	931144	931141	931138	931136-B
Avantor Part #	**76808-404**	**76808-406**	**76808-408**	**76808-402**	**76808-410**
Seal Compatibility	AirOtop® (899421)*	AirOtop® (899423)*	AirOtop® (899424)*	AirOtop® (899425)*	AirOtop® (899425)*
Flask Material	PP (polypropylene)	PP (polypropylene)	PP (polypropylene)	PP (polypropylene)	PP (polypropylene)
Top Style	threaded	threaded	threaded	threaded	threaded
Top	sold separately	sold separately	sold separately	sold separately	sold separately
Working Volume	40 - 50mL	75 - 110mL	125 - 200mL	250-350mL	500mL - 1L
Shake Speed	300-350 RPM	300-350 RPM	300-350 RPM	300-350 RPM	300-400 RPM
Baffles	Yes	Yes	Yes	Yes	Yes
Sterility (SAL)	10^{-6}	10^{-6}	10^{-6}	10^{-6}	10^{-6}
Qty/Case	50	50	25	12	6

AirOtop® Enhanced Seal

Flask Compatibility	125mL	250mL	500mL	1.5L & 2.5L
Part #	899421	899423	899424	899425
Avantor Part #	**76808-534**	**76808-528**	**76808-532**	**76808-530**
Membrane	Sterile hydrophobic barrier	Sterile hydrophobic barrier	Sterile hydrophobic barrier	Sterile hydrophobic barrier
Sterility (SAL)	10^{-6}	10^{-6}	10^{-6}	10^{-6}
Qty/Case	100	100	100	100

Vent Cap

Flask Compatibility	125mL	250mL	500mL	1.5L & 2.5L
Part #	899109	899110	899111	899566
Avantor Part #	**76808-552**	**76808-544**	**76808-546**	**76808-550**
Membrane	PTFE	PTFE	PTFE	PTFE
Porre Size	0.2µm	0.2µm	0.2µm	0.2µm
Sterility (SAL)	10^{-6}	10^{-6}	10^{-6}	10^{-6}
Qty/Case	50	50	25	24

Plasmid+® Media

Part #	446300
Avantor Part #	**76808-460**
Final Product	Liquid Medium
Preparation Method	ready to use
Target Organism	*E. coli*
Size	1L
Sterility (SAL)	10^{-6}
Qty/Case	6

Ultra Yield® Bidirectional Transfer Cap

Flask Compatibility	1.5L & 2.5L
Part #	899136
Avantor Part #	**76808-318**
Tubing Connection	Tube Fuse/Female Luer Lock
Tubing Diameter	C-flex 16 ID: 1/8" (3.1mm), OD: 1/4" (6.35mm)
Tubing Length	24" (609.6mm)
Style	Threaded
Material	PP (polypropylene)
Sterility (SAL)	10^{-6}
Air Filter Ventilation	0.2µm PTFE vent filter
Qty/Case	6

* Sold separately

Optimum Growth® Flask

Flask Size	125mL	250mL	500mL	1.6L	2.8L	5L
Part #	931110	931111	931112	931113	931114	931116
Avantor Part #	**76808-390**	**76808-392**	**76808-394**	**76808-396**	**76808-398**	**76808-400**
Top Style	threaded	threaded	threaded	threaded	threaded	threaded
Top	vent cap	vent cap	vent cap	vent cap	vent cap	vent cap
Working Vol.	24-75mL	100-150mL	175-250mL	0.4-1.1L	0.9-1.6L	1.7-3.2L
Sterility (SAL)	10^{-6}	10^{-6}	10^{-6}	10^{-6}	10^{-6}	10^{-6}
Qty/Case	50	50	25	12	6	4

Optimum Growth® Sampling Flasks

Flask Size	125mL	250mL	500mL	5L
Part #	931110-SP	931111-SP	931112-SP	931116-PORT-E
Avantor Part #	**76808-424**	**76808-426**	**76808-428**	**76808-436**
Working Vol.	24-75mL	100-150mL	175-250mL	1.7-3.2L
Sample Connection	Male Luer Lock	Male Luer Lock	Male Luer Lock	Male Luer Lock
Top Style	Threaded	Threaded	Threaded	Threaded
Top	Sampling Vent Cap	Sampling Vent Cap	Sampling Vent Cap	Vent Cap
Sample Tubing Vol.	163µL	218µL	313µL	381µL
Air Filter Ventilation	0.2µm PTFE*	0.2µm PTFE*	0.2µm PTFE*	0.2µm PTFE*
Sterility (SAL)	10^{-6}	10^{-6}	10^{-6}	10^{-6}
Qty/Case	50	50	25	4

*For cultivation & pressure relief

Optimum Growth® Multiport Flasks

Flask Size	125mL	250mL	500mL	1.6L	5L
Part #	931110-DP	931111-DP	931112-DP	931113-PORT-TRT	931116-PORT-TRT-F
Avantor Part #	**76808-430**	**76808-432**	**76808-434**	**76808-438**	**76808-440**
Working Vol.	24-75mL	100-150mL	175-250mL	0.4-1.1L	1.7-3.2L
Top Style	Threaded	Threaded	Threaded	Threaded	Threaded
Top	dual port vent cap	dual port vent cap	dual port vent cap	vent cap	vent cap
Sample Connection	Male Luer Lock	Male Luer Lock	Male Luer Lock	Male Luer Lock	Male Luer Lock
Sample Tubing Volume	163µL	218µL	313µL	326µL	381µL
Transfer Tubing	Chemically resistant, heat sealable	Chemically resistant, heat sealable	Chemically resistant, heat sealable	Chemically resistant, heat sealable	Chemically resistant, heat sealable
Transfer Connection	Tube Fuse	Tube Fuse	Tube Fuse	Tube Fuse	Tube Fuse
Tubing Diameter	C-Flex® 16	C-Flex® 16	C-Flex® 16	C-Flex® 16	C-Flex® 16
Tubing Length	24" (609.6mm)	24" (609.6mm)	24" (609.6mm)	24" (609.6mm)	24" (609.6mm)
Air Filter Ventilation	0.2µm PTFE vent filter	0.2µm PTFE vent filter	0.2µm PTFE vent filter	0.2µm PTFE vent filter	0.2µm PTFE vent filter
Sterility (SAL)	10^{-6}	10^{-6}	10^{-6}	10^{-6}	10^{-6}
Qty/Case	30	40	15	12	4

C-Flex® 16 ID: 1/8" (3.1mm), OD: 1/4" (6.35mm)

Inversion Transfer Caps

Flask Compatibility	1.6L & 2.8L Optimum Growth®	1.6L & 2.8L Optimum Growth®	1.6L & 2.8L Optimum Growth®	1.6L & 2.8L Optimum Growth®
Part #	931706-4	931710-4	931705-4	931708-4
Avantor Part #	**76808-334**	**76808-346**	**76808-338**	**76808-342**
Tubing Included	no	yes	yes	yes
Connection	7/16" (11.1mm) Male Quick Connect	Male Luer Lock	Tube Fuse (plug on terminus)	Tube Fuse (plug on terminus)
Tubing Diameter	n/a	C-Flex® 16	C-Flex® 16	C-Flex® 24
Tubing	n/a	Chemically resistant, heat sealable	Chemically resistant, heat sealable	Chemically resistant, heat sealable
Tubing Length	n/a	24" (609.6mm)	24" (609.6mm)	24" (609.6mm)
Style	Threaded	Threaded	Threaded	Threaded
Material	PP (polypropylene)	PP (polypropylene)	PP (polypropylene)	PP (polypropylene)
Air Filter Ventilation	0.2µm PTFE vent filter	0.2µm PTFE vent filter	0.2µm PTFE vent filter	0.2µm PTFE vent filter
Sterility (SAL)	10^{-6}	10^{-6}	10^{-6}	10^{-6}
Qty/Case	4	4	4	4

Inversion Transfer Caps

Flask Compatibility	5L Optimum Growth®	5L Optimum Growth®	5L Optimum Growth®	5L Optimum Growth®	5L Optimum Growth®
Part #	931594-4	931596-4	931616-4	931595-4	931598-4
Avantor Part #	**76808-332**	**76808-336**	**76808-348**	**76808-340**	**76808-344**
Tubing Included	no	no	yes	yes	yes
Tubing Connection	1/4" (6.35mm) Barb	7/16" (11.1mm) Quick Connect	Male Luer Lock	Tube Fuse (plug on terminus)	Tube Fuse (plug on terminus)
Tubing Diameter	n/a	n/a	C-Flex® 16	C-Flex® 16	C-Flex® 24
Tubing	n/a	n/a	Chemically resistant, heat sealable	Chemically resistant, heat sealable	Chemically resistant, heat sealable
Tubing Length	n/a	n/a	24" (609.6mm)	24" (609.6mm)	24" (609.6mm)
Style	Threaded	Threaded	Threaded	Threaded	Threaded
Material	PP (polypropylene)	PP (polypropylene)	PP (polypropylene)	PP (polypropylene)	PP (polypropylene)
Air Filter Ventilation	0.2µm PTFE vent filter	0.2µm PTFE vent filter	0.2µm PTFE vent filter	0.2µm PTFE vent filter	0.2µm PTFE vent filter
Sterility (SAL)	10^{-6}	10^{-6}	10^{-6}	10^{-6}	10^{-6}
Qty/Case	4	4	4	4	4

Bidirectional Transfer Caps

Flask Compatibility	1.6L Optimum Growth®	1.6L Optimum Growth®	2.8L Optimum Growth®	5L Optimum Growth®	5L Optimum Growth®
Part #	931702-8	931704-8	931804-8	931618-8	931614-8
Avantor Part #	**76808-324**	**76808-322**	**76808-326**	**76808-328**	**76808-320**
Tubing Included	yes	yes	yes	yes	yes
Tubing Connection	Male Luer Lock	Tube Fuse (plug on terminus)	Male Luer Lock	Male Luer Lock	Tube Fuse (plug on terminus)
Tubing Diameter	C-Flex® 16	C-Flex® 16	C-Flex® 16	C-Flex® 16	C-Flex® 16
Tubing	Chemically resistant, heat sealable	Chemically resistant, heat sealable	Chemically resistant, heat sealable	Chemically resistant, heat sealable	Chemically resistant, heat sealable
Tubing Length	24" (609.6mm)	24" (609.6mm)	24" (609.6mm)	24" (609.6mm)	24" (609.6mm)
Style	Threaded	Threaded	Threaded	Threaded	Threaded
Material	PP (polypropylene)	PP (polypropylene)	PP (polypropylene)	PP (polypropylene)	PP (polypropylene)
Air Filter Ventilation	0.2µm PTFE vent filter	0.2µm PTFE vent filter	0.2µm PTFE vent filter	0.2µm PTFE vent filter	0.2µm PTFE vent filter
Sterility (SAL)	10^{-6}	10^{-6}	10^{-6}	10^{-6}	10^{-6}
Qty/Case	8	8	8	8	8

C-Flex® 16 ID: 1/8" (3.1mm), OD: 1/4" (6.35mm)
C-Flex® 24 ID: 3/16" (4.76mm), OD: 7/16" (11.1mm)

Rapid Clear® Cap

Flask Compatibility	2.8L & 5L
Part #	788116
Avantor Part #	**76808-350**
Tubing Connection	Transfer Cap
Tubing Diameter	Size 15 silicone tubing, ID: 3/16" (4.76mm), OD: 7/16" (11.1mm)
Tubing	Chemically resistant, flexible
Tubing Length	48" (1219.2mm)
Material	PP (polypropylene)
Sterility (SAL)	10^{-6}
Qty/Case	4

Inversion Transfer Cap Accessories-Ring & Stands

Flask Compatibility	1.6L & 2.8L Optimum Growth®	1.6L & 2.8L Optimum Growth®	5L Optimum Growth®	5L Optimum Growth®
Part #	931609	931700	931606	931607
Avantor Part #	**76808-514**	**76808-516**	**76808-510**	**76808-512**
Stand Height	22"	n/a ring only	22"	n/a ring only
Ring Diameter	5"	5"	7"	7"
Qty/Case	1	1	1	1

Optimum Growth® Flask Carriers

Flask Compatibility	125mL	250mL
Part #	1212900	1212905
Avantor Part #	**76808-360**	**76808-362**
Flask Capacity	8	8
Dimensions	10.75" x 5"	13.4" x 6"
Qty/Case	1	1

Optimum Growth® Vent Caps

Flask Compatibility	125mL	250mL	500mL	1.6L, 2.8L & 5L
Part #	899110	899111	899112	899116
Avantor Part #	**76808-544**	**76808-546**	**76808-548**	**76808-554**
Membrane	PTFE	PTFE	PTFE	PTFE
Pore Size	0.2µm PTFE	0.2µm PTFE	0.2µm PTFE	0.2µm PTFE
Sterility (SAL)	10^{-6}	10^{-6}	10^{-6}	10^{-6}
Qty/Case	50	50	25	24

Optimum Growth® Solid Caps

Flask Compatibility	1.6L, 2.8L & 5L
Part #	899600-B
Avantor Part #	**76808-354**
Sterility (SAL)	10^{-6}
Qty/Case	24

Standard|Filter Vial

Membrane	PTFE	PTFE	PVDF	PVDF	NYLON	NYLON	PES	PTFE	PTFE
Pore Size	0.2µm	0.45µm	0.2µm	0.45µm	0.2µm	0.45µm	0.2µm	0.2µm	0.45µm
Cap Color	green	blue	red	yellow	black	pink	grey	green	blue
Cap Style	snap-cap	snap-cap	snap-cap	snap-cap	snap-cap	snap-cap	snap-cap	screw-cap	screw-cap
Septum	pre-slit	pre-slit	pre-slit	pre-slit	pre-slit	pre-slit	pre-slit	pre-slit	pre-slit
Fill Vol.	450µL	450µL	450µL	450µL	450µL	450µL	450µL	450µL	450µL
Dead Vol.	120µL	120µL	120µL	120µL	120µL	120µL	120µL	120µL	120µL
Part #	35530	35540	35531	35541	35538	35539	35535	34430	34440
Qty/Case	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500	100	100
Avantor Part # (Qty 200)	**76808-610**	**76808-620**	**76808-612**	**76808-622**	**76808-616**	**76808-618**	**76808-614**	**76808-608 (Qty 100)**	**76808-606 (Qty 100)**
Avantor Part # (Qty 500)	**76808-624**	**76808-634**	**76808-626**	**76808-636**	**76808-630**	**76808-632**	**76808-628**	**n/a**	**n/a**

eXtreme|FV®

Membrane	PTFE	PTFE	PVDF	PVDF	NYLON	NYLON	PES
Pore Size	0.2µm	0.45µm	0.2µm	0.45µm	0.2µm	0.45µm	0.2µm
Cap Color	green	blue	red	yellow	black	pink	grey
Cap Style	snap-cap	snap-cap	snap-cap	snap-cap	snap-cap	snap-cap	snap-cap
Septum	pre-slit	pre-slit	pre-slit	pre-slit	pre-slit	pre-slit	pre-slit
Fill Vol.	450µL	450µL	450µL	450µL	450µL	450µL	450µL
Dead Vol.	120µL	120µL	120µL	120µL	120µL	120µL	120µL
Part #	85530	85540	85531	85541	85538	85539	85535
Qty/Case	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500
Avantor Part # (Qty 200)	**76808-652**	**76808-662**	**76808-654**	**76808-664**	**76808-658**	**76808-660**	**76808-656**
Avantor Part # (Qty 500)	**76808-666**	**76808-676**	**76808-668**	**76808-678**	**76808-672**	**76808-674**	**76808-670**

Low Evap|Filter Vial

Membrane	PTFE	PTFE	PVDF	PVDF	NYLON	NYLON	PES
Pore Size	0.2µm	0.45µm	0.2µm	0.45µm	0.2µm	0.45µm	0.2µm
Cap Color	green	blue	red	yellow	black	pink	grey
Cap Style	screw cap	screw cap	screw cap	screw cap	screw cap	screw cap	screw-cap
Septum	non-slit	non-slit	non-slit	non-slit	non-slit	non-slit	non-slit
Fill Vol.	450µL	450µL	450µL	450µL	450µL	450µL	450µL
Dead Vol.	120µL	120µL	120µL	120µL	120µL	120µL	120µL
Part #	64430	64440	64431	64441	64438	64439	64435
Avantor Part #	**76808-638**	**76808-648**	**76808-640**	**76808-650**	**76808-644**	**76808-646**	**76808-642**
Qty/Case	100	100	100	100	100	100	100

nano|Filter Vial®

Membrane	PTFE	PTFE	PVDF	PVDF	NYLON	PES
Pore Size	0.2µm	0.45µm	0.2µm	0.45µm	0.2µm	0.2µm
Cap Color	green	blue	red	yellow	black	grey
Cap Style	screw cap	screw cap	screw cap	screw cap	screw cap	screw cap
Septum	non-slit	non-slit	non-slit	non-slit	non-slit	non-slit
Fill Vol.	250µL	250µL	250µL	250µL	250µL	250µL
Dead Vol.	8µL	8µL	8µL	8µL	8µL	8µL
Part #	15530	15540	15531	15541	15538	15535
Qty/Case	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500
Avantor Part # (Qty 200)	**76808-558**	**76808-574**	**76808-562**	**76808-578**	**76808-570**	**76808-566**
Avantor Part # (Qty 500)	**76808-560**	**76808-576**	**76808-564**	**76808-580**	**76808-572**	**76808-568**

nano|Filter Vial®

Membrane	PTFE	PTFE	PVDF	PVDF	NYLON	PES
Pore Size	0.2µm	0.45µm	0.2µm	0.45µm	0.2µm	0.2µm
Cap Color	green	blue	red	yellow	black	grey
Cap Style	screw cap	screw cap	screw cap	screw cap	screw cap	screw cap
Septum	pre-slit	pre-slit	pre-slit	pre-slit	pre-slit	pre-slit
Fill Vol.	250µL	250µL	250µL	250µL	250µL	250µL
Dead Vol.	8µL	8µL	8µL	8µL	8µL	8µL
Part #	25530	25540	25531	25541	25538	25535
Qty/Case	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500	200 & 500
Avantor Part # (Qty 200)	**76808-582**	**76808-598**	**76808-586**	**76808-602**	**76808-594**	**76808-590**
Avantor Part # (Qty 500)	**76808-584**	**76808-600**	**76808-588**	**76808-604**	**76808-596**	**76808-592**

High Viscosity Filter Vial Presses

Press	Description	Capacity	Qty	Part #	Avantor Part #
Toggle Press	5 Position for Autosampler Ready Filter Vials	5	1	35005	**76808-504**
Multi-Use Press	48 Position for Autosampler Ready Filter Vials	48	1	35015	**76808-506**

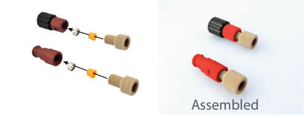
Empty Columns

Description	Case/Qty	Part #	Avantor Part #
Empty SINGLE StEP® Fritted column w/10 each size: 10mL, 25mL, 50mL, 100mL, 200mL	50	94520-10	**76808-364**
Empty SINGLE StEP® Column 10mL or 4g Reservoir with Frit	10	9452086-10	**76808-370**
	100	9452086-100	**76808-372**
Empty SINGLE StEP® Column 25mL or 12g Reservoir with Frit.	10	9452088-10	**76808-378**
	100	9452088-100	**76808-380**
Empty SINGLE StEP® Column 50mL or 25g Reservoir with Frit.	10	9452090-10	**76808-384**
	100	9452090-100	**76808-386**
Empty SINGLE StEP® Column 100mL or 40g Reservoir with Frit.	10	9452092-10	**76808-366**
	100	9452092-100	**76808-368**
Empty SINGLE StEP® Column 200mL or 80g Reservoir with Frit.	10	9452094-10	**76808-374**
	100	9452094-100	**76808-376**
Empty SINGLE StEP® Column 320mL or 160g Reservoir with Frit.	10	9452099-10	**76808-382**
Empty SINGLE StEP™ Column 600mL or 300g Reservoir w/5mL Bottom Resin Reservoir w/Frit	10	9452097-B	**76808-388**

Frits

Head Space Frits for 4g SINGLE StEP® Column	100	491250	**76808-452**
Head Space Frits for 12g SINGLE StEP® Column	100	491252	**76808-444**
Head Space Frits for 25g SINGLE StEP® Column	100	491253	**76808-448**
Head Space Frits for 40g SINGLE StEP® Column	100	491254	**76808-450**
Head Space Frits for 80g or 90g SINGLE StEP® Column	100	491256	**76808-454**
Head Space Frits for 110g or 160g SINGLE StEP® Column	100	491258	**76808-442**
Head Space Frits for 240g or 300g SINGLE StEP® Column	100	491260	**76808-446**

Accessories not sold by Thomson

Tubing Size to Adapt SINGLE StEP® Column to FPLC, AKTA	Upchurch PN#*	Cole-Parmer PN#*
1/8th line (obsolete p/n 295821) 	LT-215 P-359 P-658 P-655	EW-02022-43 EW-02023-15 EW-02014-14 EW-02014-12
1/16th line (obsolete p/n 295823) 	P-656 P-659	P-656 P-659

Not all parts may be needed for your set up.

*Thomson Instrument Company is not affiliated with Upchurch, Cole-Parmer or their products

Collection Plates

Vol. Well	Well Shape	Sterility (SAL)	ANSI-SLAS	Ind. Wrap	Compatible with Capmat/Seal	Case/Qty	Part#	Avantor Part #
24-Well								
10.4mL		10^{-6}	Yes	Yes	899410, 899405-1, 899403, 899406	20	931565-G-1X	**76808-494**
10.4mL		10^{-6}	Yes	Yes	Lid Included	20	931568	**76808-482**
10.8mL		10^{-6}	Yes	Yes	899410, 899405-1, 899403, 899406	20	931569-G-1X	**76808-496**
10.8mL		10^{-6}	Yes	Yes	Lid Included	20	931571	**76808-484**
96-Well								
500µL		non-sterile	*Yes	No	899410, 899403, 899406, 359747, 899405-1	50	9356045	**76808-488**
650µL		non-sterile	Yes	No	899410, 899405-1, 899403, 899406	50	931512B	**76808-492**
2mL		non-sterile	*Yes	No	899410, 899405-1, 899403, 899406, 359747	50	951657	**76808-486**
2mL		10^{-6}	*Yes	Yes	899410, 899405-1, 899403, 899406, 359747	20	951657-S20	**76808-502**
2mL		non-sterile	†Yes	No	899410, 899405-1, 899403, 899406, A210100	20	931130	**76808-476**
2mL		10^{-6}	†Yes	No	899410, 899405-1, 899403, 899406, A210100	20	931130-S	**76808-490**
2mL		10^{-6}	Yes	Yes	899410, 899405-1, 899403 899406, A210100	20	931133	**76808-478**
2mL		10^{-6}	Yes	Yes	Lid Included	20	931137	**76808-480**

Filter Plates

Vol. Well	Well Shape	Sterility (SAL)	ANSI-SLAS	Ind. Wrap	Filter Membrane	Collection Plate	Case/Qty	Part#	Avantor Part #
24-Well Filter Plates									
10.8mL		non-sterile	Yes	No	25µm Polypropylene	931565-G-1X, 931568, 931569-G-1X, 931571	20	921550	**76808-466**
~9mL		10^{-6}	Yes	No	0.2µm Rapid Clear®	931565-G-1X, 931568, 931569-G-1X, 931571	20	921546	**76808-462**
96-Well Filter Plates									
2mL		10^{-6}	Yes	No	0.2µm Rapid Clear®	931130	20	921746	**76808-464**
2mL		non-sterile	Yes	No	25µm Polypropylene	931130	25	931919	**76808-468**
2mL		non-sterile	Yes	No	0.2µm PTFE	931130	20	921730	**76808-470**
2mL		non-sterile	Yes	No	0.45µm PTFE	931130	20	921740	**76808-474**
2mL		non-sterile	Yes	No	0.2µm PVDF	931130	20	921731	**76808-472**

* Meets ANSI-SLAS plate dimensions

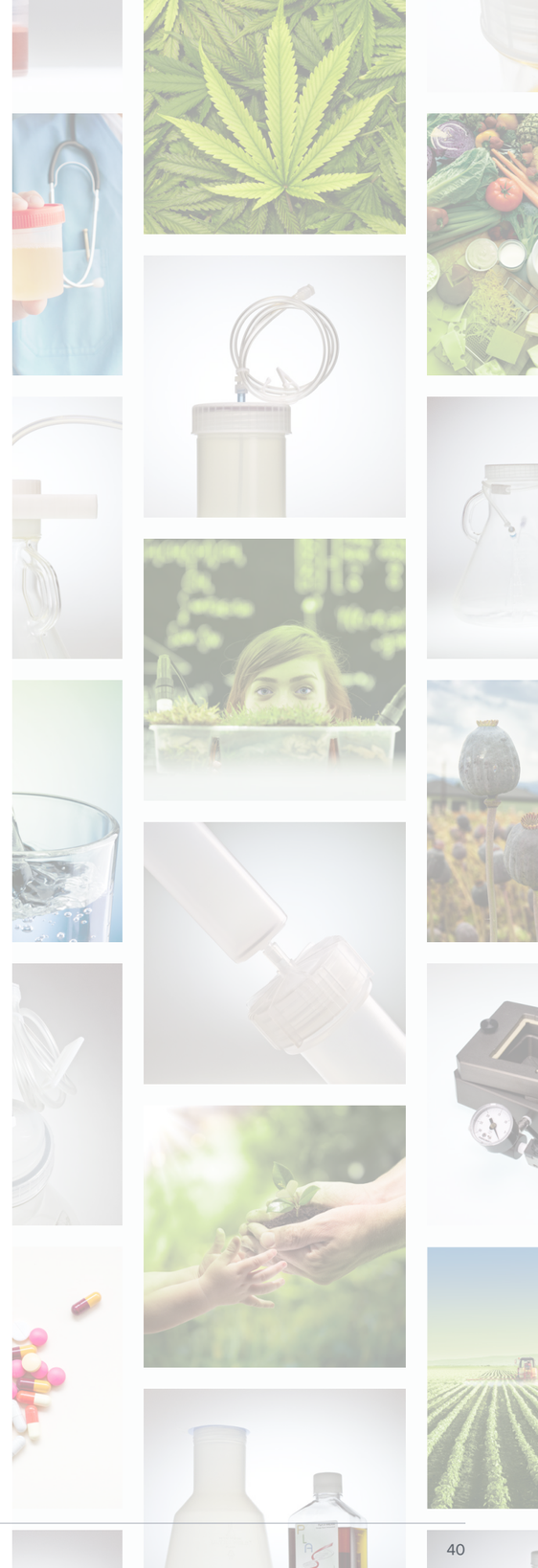
† Irreversible Plate

Seals & Capmats

Description	Sterile	Plate Compatibility	Case/Qty	Part#	Avantor Part #
96-Well Capmat, For Wide Round Wells	No	951657, 9356045, 951657-S20, 931512B	50	359747	**76808-356**
96-Well Capmat, For Square Wells	No	931130, 931130-S, 931133, 931137	100	A210100	**76808-358**
Adhesive Foil Plate Seal	No	All Plates	100	899405-1	**76808-526**
Pierceable Foil Heat Seal I PCR compatible	No	All Plates	100	899403	**76808-538**
Long-Term Storage Foil Heat Seal	No	All Plates	100	899406	**76808-540**
Airporous Plate Seal For Growing Cultures	Yes	All Plates	100	899410	**76808-536**
Well Plate Lid for use with 96- & 24-Well Plates	No	All Plates	100	981945	**76808-458**
Well Plate Lid for use with 96- & 24-Well Plates	Yes	All Plates	100	981948	**76808-456**

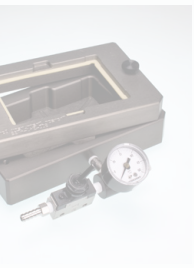
Vacuum Manifold

Sterile	ANSI-SLAS	Filter Membrane	Case/Qty	Part#	Avantor Part #
No	Yes	n/a	1	981802	**76808-542**









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