

**Membrane Solutions**

# Membrane Solutions

## Product Guidance

- Lab Filtration and Microporous Membrane



Membrane For Better Tomorrow

## SteriPure™ Sterile Syringe filter

### Introduction

Membrane Solutions SteriPure™ sterile syringe filters are made with a polypropylene housing (PP) and available with a wide variety of membranes and pore sizes. The SteriPure is also available with an optional integral glass fiber (GF) or PP microfiber pre-filter layer for particulate-laden fluids that are difficult to filter with single layer syringe filters. SteriPure's PP housing and membrane options make it suitable for low protein binding needs (e.g., PES) or broad chemical compatibility (e.g., PTFE).



### Features and Benefits

- **Various available diameters (13, 25, 30mm):** right size for the right volume or particulate load.
- **Reliable Bacterial filtration efficiency:** LRV>7 for 0.2 um filters (correlate to *Brevundimonas diminuta* ATCC 19146, ASTM bacterial challenge test)
- **Available with PES membrane:** provides >98.5% percent protein recovery.
- **Pre-sterilized:** ready to use for sterile filtration and clarification of biological fluids.

### Applications

- Tissue culture media preparation
- Sterile filtration and clarification of biological fluids
- Protein and enzyme filtrations
- Hybridization buffers
- Other aqueous solutions

### Specification

	Steripure			Bepure	Biopure
	13mm	25mm	30mm	33mm	33mm
Filtration Area(cm <sup>2</sup> ):	0.92	2.98	4.9	5	5
Housing Material:	PP			ABS	PC
Holdup-Volume(μl):	<10	<100	<100	<100	<150
Volume Throughput(ml):	<10	<50	<120	<120	<120
Connections (Inlet/Outlet):	Female Luer Lock inlet and Male Luer slip outlet				Double luer lock
Max Operating ressure(psi):	87				145
Max Operating emperature( C ):	100				
Prefilter	PP			GF	GF
Layers:	2				

### Part Number Matrix

	Membrane Material	Filter Diameter(mm)	Pore Size(μm)	Pre-Sterilized	Optiona l Pre-filter layer	Wettability	Series
SF	PES	013	022	S	G	(blank)	I
	NY(0.2~10μm)	013=13	010=0.1	S=Yes	(blank)=None	(blank)=Hydrophilic	I=Steripure
	PES(0.1~3μm)	025=25	022=0.22		P=PP microfiber	B=Hydrophobic	
	CA(0.2~8μm)	030=30	045=0.45		G=Glass fiber	L=Hydrophili	
	MCE(0.2~8μm)						
	PVDF(0.2~5μm)						
	PTFE(0.1~5μm)						
	GF(0.2~10μm)						
	PP microfiber (0.2~10μm)						

\* SFPVDF033022SL=Bepure™ Sterile hydrophilic PVDF syringe filter, 33mm,0.22μm

## Biopure™ Syringe Filter

### Introduction

membrane Solutions (MS) Biopure™ syringe filters have a polycarbonate (PC) housing with double luer-lock connections to allow for multiple filter stacking or for the use with needles or tips.



### Features and Benefits

- **Polycarbonate (PC) housing material:** best biocompatibility
- **Female Luer Lock/ Male luer lock connections:** for stacking and locking into place adapters or needles.
- **Larger EFA:** 33 mm, 5 cm<sup>2</sup> effective filtration area (EFA) provides High total throughput  
Faster flow rate (33 mm in diameter and have 20% more filter surface area than our 25 mm filters)
- **Higher flow rates:** (20% more filter surface area than 25 mm filters)
- **Reliable Bacterial filtration efficiency:** LRV>7 for 0.2 um filters (correlate to *Brevundimonas diminuta* ATCC 19146, ASTM bacterial challenge test)
- **Low Bacterial Endotoxin:** < 0.25 EU/mL using Limulus Amoebocyte Lysate (LAL) test
- Integrity testable to ensure sterile filtration.
- **Highly asymmetric PES membrane:** high flow rate and throughput and low protein binding
- **Pre-sterilization available and individually packaged:** Ensures sterility during sample preparation

### Applications

- Routine QC analysis
- HPLC sample preparation
- Dissolution testing
- Food analysis
- Environmental samples
- Air/Gas Filtration and Venting (Hydrophobic PTFE)
- Sterile filtration and clarification of biological fluids

### Part Number Matrix

	Membrane Material	Filter Diameter(mm)	Pore Size(µm)	Pre-Sterilized	Wettability	Series
SF	PES	033	022	N/S		O
	NY(0.2~10µm) PES(0.1~3µm) CA(0.2~8µm) MCE(0.2~8µm) PVDF(0.2~5µm) PTFE(0.1~5µm) GF(0.2~10µm) PP microfiber (0.2~10µm)	033=33	010=0.1 022=0.22 045=0.45 080=0.8 100=1.0 300=3 500=5	N=No S=Yes	(blank)=Standard L=Hydrophilic* * Hydrophilic PVDF and PTFE only	O=Biopure

\* SFPE033022SO=Biopure™ Sterile PES syringe filter, 33mm,0.22µm

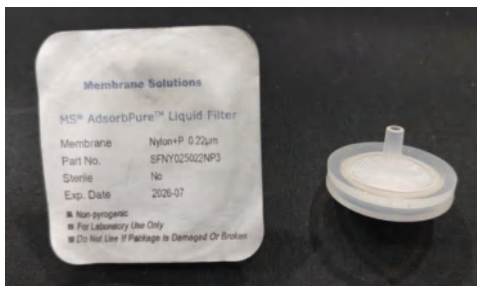
# BIOLOGICAL AND MOLECULAR

## High efficiency toxin-absorbing liquid filter

### AdsorbPure™ Nylon+P Liquid Filter

#### Introduction

MS Adsorb Pure liquid filters are designed to remove endotoxins from water, buffers and biological solutions. The filter consists of a positively charged nylon membrane and a polypropylene housing, and it has high efficiency of endotoxin removal. AdsorbPure™ liquid filters are available with diameters 25mm and 50mm, and pore sizes 0.22µm or 0.45µm.



#### Features and Benefits

- Positively charged nylon membrane gives the filter high endotoxin removal efficiency;
- Superior flow Rate and high total throughput;
- Ready to use pre-sterilized packaging is available;

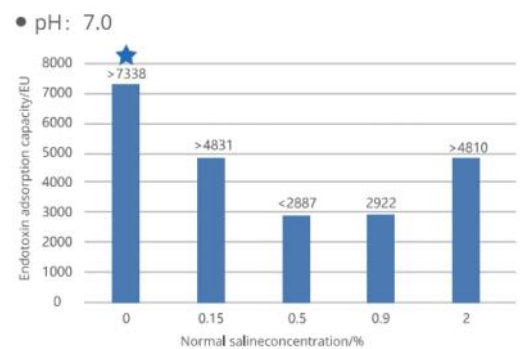
#### Applications

- Reduce the endotoxin in the water, buffer and biological solution loads;
- Prefiltration of medium.

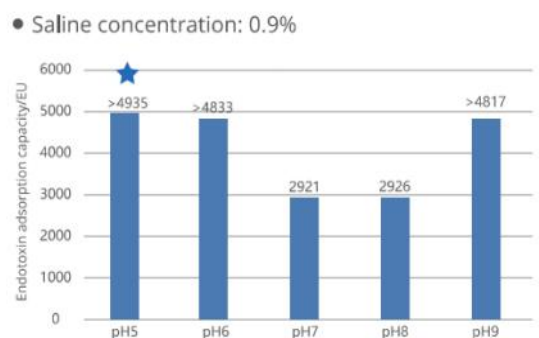
#### Performance

Filter Diameter	25mm	50mm
Housing Material	PP	
Filter Medium	Nylon-P	
Diameter (mm)	28.5	64
Height (mm)	23.5	70
EFA(cm <sup>2</sup> )	2.98	19.6
Membrane bed volume (mL)	0.1mL	0.5mL
Inlet/Outlet	Inlet: female Luer-Lok Outlet: luer slip	1/4-1/2" (7-13mm) hose barb
Pore Size(µm)	0.22/0.45	
Max Operating Pressur (20 °C)	6bar (87psi)	3.5bar (50.7psi)
sterilization method	radiation sterilization	
mean flow rate	1-4mL/min	
Endotoxin dynamic adsorption capacity	95% adsorption rate was used as the evaluation standard, Endotoxin normal saline challenge solution concentration: 50-100EU/mL, Velocity of flow: 1.34mL/min/cm <sup>2</sup> , Dynamic adsorption capacity: 980EU/cm <sup>2</sup> .	

Test results of the effect of physiological saline concentration on the ability of 25mm AdsorbPurer (0.22µm) to adsorb endotoxin



Test results of the effect of pH on the ability of 25mm Adsorb Purer(0.22µm) to adsorb endotoxin



### SteriBell50™ Filtration Device

#### Introduction

Membrane Solutions (MS) SteriBell 50™ PES devices offer a convenient and efficient way to sterile filter large volumes using a peristaltic pump or other pressurized source. SteriBell 50 is ideal for biological products when low protein binding is required and also for broad range (pH 1 – 14) of acid ad base solutions. SterifBell 50 is also available with GF (glass fiber) or PP microfiber prefilter for samples with high particulates.



#### Features and Benefits

- Superior flow rates compared to most competitive products - offers reduced filtration times.
- Optional glass fiber prefilter layer offers superior throughput for difficult to filter solutions, buffers, media and serums - fewer changeouts and fewer devices required.
- Sterile Filtration - eliminates the need for post-filtration sterilization.
- Integrity testable - to ensure sterility.
- Can be used as an inline or POU filter - offers convenient use.
- Available with detachable filling bell - helps prevent splashing and contamination.
- Tapered hose barb accepts different tubing sizes - offers connection flexibility.
- Pre-sterilized by gamma irradiation - eliminates cytotoxicity associated with ETO.
- Sterile packaged - eliminates for pre-sterilization.
- Disposable - offers convenience versus replacing discs in discs holders.
- pH range: 1-14

#### Specification

	SteriBell 50™ PES	SteriBell 50™ PES Plus
Housing	Polypropylene	
Filling bell	Polycarbonate bell with polypropylene cap	
Membrane	PES	Glass fiber prefilter+PES
Housing OD	64 mm	
Pore size	0.2 µm	
Filtration area	20 cm²	
Pre-sterilized by	Gamma irradiation	
Typical Sample Volume	Up to 5L	
Water Flow Rate	400 mL/min with water at 14.5 psi (1 bar)	
Typical Hold-Up Volume (with 10 psi air purge)	≤ 1.0 mL	≤ 1.5 mL
Recommended inlet pressure	≤43.5 psi (3.0 bar)	
Burst pressure	73 psi (5.0 bar)	
Bubble point	≥46.4 psi (3.2 bar)	
Connections	1/4-1/2" (7-13mm) stepped HB. Inlet will accept male luer slip tip. O outlet comes with detachable filling bell and cap.	
Endotoxin Level	< 0.25 EU/mL	
Protein adsorption(Filtration of BSA)	No detectable loss of protein	<80 µg/cm²
Bacterial Retention	>10 <sup>7</sup> CFU/cm² of B. diminuta	
Biosafety	USP Class VI Plastics Test	

#### Part Number Matrix

	Membrane Material	Filter Diameter(mm)	Pore Size(µm)	Pre-Sterilized	Optional Pre-filter layer	Series
SF	PES	050	022	N/S	G	B
	PES (0.1-1.0µm) CA (0.2-5.0µm) MCE (0.2-5.0µm) Nylon (0.2-5.0µm) PTFE (0.2-5.0µm)	050=50	022=0.2 045=0.45 100=1.0	N=No S=Yes	(blank)=None P=PP microfiber G=Glass fiber	(blank)=without bell B=with bell

\* SUPES050022SB= SteriBell 50™ sterile PES filter will filling bell, 1/4-1/2" (7-13mm) stepped HB inlet and outlet, 50mm,0.22µm

## STERILE FILTER DEVICE

### Vacufil™ Vacuum Filtration Units

#### Introduction

Membrane Solutions (MS) Vacufil Disposable Vacuum Filtration units are a standalone filtration unit that combines a graduated funnel-top, filter assembly and graduated reservoir. They are ideal for when a self-contained, pre-sterilized, disposable filtration unit is required. Available with PES, cellulose acetate and PVDF membranes in various pore sizes for the sterile filtration of biological and aqueous fluids, tissue culture media and buffers. Comes in two funnel sizes (250 and 500ml) and 3 reservoir bottle volumes (250, 500 and 1000ml).

Glass fiber pre-filter is available.



#### Features and Benefits

- Disposable and pre-sterilized by gamma irradiation for rapid and convenient use.
- Wide base provides stability during use.
- Sterile graded 0.2µm membrane: LRV > 7 for *Brevundimonas diminuta*, ATCC19146.
- Non-pyrogenic, low extractables and surfactant-free ensures purity of filtrate.
- Engineered support structure maximizes flow rate and throughput.
- Available with 250 and 500mL filter funnels, and 250, 500 and 1000mL receiver bottles to meet various filtered volume requirements.
- Reservoir has textured areas for improved grip when handling and opening and sealing the bottle.
- GL45 threads accepts commonly used bottle style.

#### Glass Fiber Prefilter

	Glass fiber type	Diameter (mm)	Pore Size (µm)	Receiver Volume (mL)
SP	GFB	090	100	S
	GFB	050=50mm 090=90mm	100=1.0	S=Sterile, individual wrap packed

\* SPGFB090100S= Sterilized glass fiber disc, 90mm, 1µm, individual packing

#### Part Number Matrix

	Membrane Material	Funnel Volume (mL)	Pore Size(µm)	Receiver Volume (mL)	
VF	PES	1	22	250	F
	PES (0.1-0.45µm) CA (0.2/0.45µm) PVDF (0.2/0.45µm) NYLON (0.2/0.45µm) PTFE (0.2/0.45µm)	1=250 mL 2=500 mL	10=0.1 22=0.22 45=0.45	250=250 mL 500=500 mL 1000=1000 mL	(blank)=whole set; F=Funnel only

\* VFPPES122250= Vacufil bottle top filter units, PES, 0.22µm, 250ml

\* 250ml version comes with 50mm assembly.

\* 500ml version comes with 90mm assembly.

## Ventpure™ VENTING FILTER

### Introduction

Thermally bonded Super50™ venting filter incorporates a hydrophobic PTFE membrane in a polypropylene housing. It is designed for sterile venting, gas, and non-aqueous liquid filtration. Its material of construction and design provide excellent thermal and chemical compatibility. Super50™ is available in 0.2 µm and 0.45 µm pore sizes.



### Features and Benefits

- Integrity testable
- Robust design and construction allow for multiple autoclave cycles >20
- Designed to be reusable but also offers the convenience of being disposable
- Available in pre-sterilized or non-sterilized packaging
- PTFE membrane and polypropylene housing offers broad chemical compatibility
- Optimized PTFE membrane provides superior flow rates in a compact device
- Provides ULPA filtration (>99.999% @ 0.1µm)
- Lightweight design prevents tube pinching in carboy venting applications.

### Applications

- Sterile Venting of bioreactors, fermentation tanks, media flasks, and carboys
- Sterile gas purge of cell culture vessels or filling vessels
- In-line sterilization of and particulate removal from air and gases

### Specifications (PTFE membrane type as example)

Housing material	PoPolypropylene	
Filter material	PTFE membrane with polypropylene support	
Sealing Technology	Thermally bonded	
Housing diameter	64 mm	
Filtration area	20 cm <sup>2</sup>	
Inlet/Outlet Connections	1/4-1/2" (7-13mm) stepped HB Or Inlet: 1/8 in.MNPT ; Outlet: Stepped HB	
Pore size (liquid rating)	0.2 µm	0.45 µm
Bubble point with isopropanol (60%)	0.2 µm, > 15.9psi (1.1 bar)	0.45 µm, > 13.1psi (0.9 bar)
Maximum operating pressure	43.5 psi (3.0 bar)	
Housing burst pressure	72.5 psi (5.0 bar)	
Max. autoclaving temperature	134 °C (273.2 °F)	
Autoclave cycles	≥20	
Hold-up volume	Before bubble point approx. 1.0 mL After bubble point approx. 0.5 mL	
Pre-Sterilization	ETO	
Flow rate for air at Δp =1.45 psi ( 0.1 bar)	0.2µm: 5 lpm;	0.45 µm: 8 lpm
Bacterial Retention	LRV>7 per HIMA standards in liquid	
Endotoxin Level	< 0.25 EU/mL	
Biosafety	USP Plastics Class VI @ 121 °C	
Non-Fiber Releasing	Non-fiber releasing as per CFR 21	

### Part Number Matrix

	Membrane Material	Filter Diameter(mm)	Pore Size(µm)	Pre-Sterilized	Wettability	Series
SF	PTFE	050	022	N/S	B	V
	PTFE	050=50	022=0.2 045=0.45 100=1.0 300=3.0	N=No S=Yes	B=Hydrophobic	(blank)= Inlet: 1/8 in.MNPT ; Outlet: Stepped HB; V=lightweight, Inlet: Stepped HB; Outlet: Stepped HB; H=outer ring, Inlet: Stepped HB; Outlet: Stepped HB

\* SFPTFE050022SBV=Super50 hydrophobic PTFE venting filter, 50mm,0.22µm, Inlet: Stepped Hose Barb; Outlet: Stepped Hose Barb

# BIOLOGICAL AND MOLECULAR UltraTrans™ Blotting Membrane

## UltraTrans™ BLOTTING MEMBRANE

### Introduction

Membrane Solutions PVDF transfer membranes are made of high-quality polyvinylidene uoride, which has the advantages of high strength, repeatable peeling, high chemical compatibility, and uniform and stable structure. This series of transfer membranes have high protein binding ability, which can provide excellent sensitivity and low background. Membrane Solutions PVDF transfer membranes are tailored for specic applications, detection, and blotting technology, with excellent performance.



### Features and Benefits

Not crack or break during cutting  
High chemical compatibility;  
Excellent sensitivity;  
Low background;  
Multiple regeneration detection .

### Applications

Western blot  
Immunoblotting  
Solid phase analysis  
Amino acid or protein analysis

### Specifications

Membrane Material	PVDF	Nitrocellulose
Size(mm)	300*3000 / 300*4000 / 100*100	300*3000 / 300*4000 / 100*100
Pore Size(um)	0.22/0.45	0.22/0.45
Wettability	Hydrophobic	Hydrophilic
Protein binding (ug/cm <sup>2</sup> BSA)	125-150	100-125
Thickness (um)	140-160	110-140

### Part Number Matrix

MS	Membrane Material	Pore Size(um)	Size(mm)
	PVDF	020	30301
	CN= Nitrocellulose	020=0.22	30301=300×3000
	PVDF	045=0.45	30401=300×4000
			10011=100*100
			20020=200*200

\* MSPVDF02030301= PVDF Transfer Membrane, Pore: 0.22um, Filter Size: 300\*3000mm



# BIOLOGICAL AND MOLECULAR

## Ultra Filtration Centrifugal filter

### RevoSeizer™ CENTRIFUGAL FILTER

#### Introduction

The 15ml centrifugal filter devices provide rapid and efficient concentration and purification of up to 5.0 ml of biological samples. The unique vertical design and maximum filtration area provide fast sample processing and high sample recovery rate (typically greater than 90% of dilute starting solution), while maintaining a gentle concentration environment to preserve protein activity and conformation. Solute polarization and subsequent fouling of the membrane are minimized by the vertical design, and a physical deadstop in the filter device prevents spinning to dryness and potential sample loss. The wide selection of ultrafiltration molecular weight cut-off (MWCO) devices incorporate PES membrane, which is very low in protein and nucleic acid binding.



#### Features and Benefits

- Fast filtration flow rate and high sample recovery rate
- Low biomolecular binding rate and high chemical compatibility
- Anti-filtration dry locking design to avoid excessive centrifugal damage to the sample
- Various aperture specifications to meet the requirements of different MWCOs

#### Applications

Ultrafiltration: buffer exchange, concentration and desalting of protein, desalting of nucleic acid or chromatographic component, removal of primer, linkers, or molecular labels from a reaction mix, concentration or separation of virus, and crude separation of biomolecular mixture.

Microfiltration: separate nucleic acid and protein from gel, filter and clarify samples, collect and wash treated particles or beads.



#### Specifications

Article No	Describe	Qty/pk
UTPES150005N	15ml, PES, 5KD, red	12
UTPES150010N	15ml, PES, 10KD, blue	12
UTPES150030N	15ml, PES, 30KD, yellow	12
UTPES150050N	15ml, PES, 50KD, orange	12
UTPES150100N	15ml, PES, 100KD, white	12
MTPES150010N	15ml, PES, 0.1µm, green	12
MTPES150022N	15ml, PES, 0.2µm, pink	12
MTPES150045N	15ml, PES, 0.45µm, blackish green	12

# BIOLOGICAL AND MOLECULAR

## Tangential Flow UF Cassette

### Acmebrane 50™ Tangential Flow UF Cassette

#### Introduction

Membrane Solutions provides a simpler, safer and more convenient disposable TFF ultrafiltration ( UF ) solution. Acmebrane 50 series Tangential Flow Ultrafiltration Cassettes, designed for small-scale lab or TFF filtration in R&D phases, are widely applied in variety of biological and biopharmaceutical processes, simply and efficiently meet for biologics purification or concentration processes



#### Features and Benefits

- Acmebrane 50 UF Cassette with ready-to-use design, easy to replace
- Highly integrated replacement modules design, easy to expand
- Cassette adopts modular design and can be replaced at any time
- 5 pcs of UF cassettes (100-3,000 ml) can be connected in parallel to achieve linear amplification of separation efficiency
- Innovative process design to improve material delivery efficiency
- Special internal flow channel design improves concentration and purification efficiency
- Minimal residue and high recovery rate
- High-performance PES membrane media with multiple molecular weight cut-off (MWCO) options
- Enhanced verification ensures safety and reliability
- Ultra-high air tightness, low dissolved matter and wide chemical compatibility
- The biosafety indicators have been fully verified and meet the latest biopharmaceutical safety standards



#### Applications

- Purification & concentration for monoclonal antibodies (mAb) or recombinant proteins
- Concentration & filtration for vaccines and conjugated products
- Separation & purification for blood products

#### Specifications

Product Information	Device type	TFF or Crossflow
	Three-dimensional size	115×90×22 mm
	Effective membrane area	50 cm <sup>2</sup>
Construction Materials	Flow restrictor	Polypropylene
	Housing material	Polycarbonate
	Joint washer	Silicone gel (medical grade)
	Membrane material	Polyether sulfone (PES)
Operational Condition	Maximum allowable operating Temp.	60 °C (140 °F)
	Maximum allowable(working)pressure	3 bar (44 psi)
Physical & Chemical Information	Available MWCO	3/5/10/20/30/50/100 kDa
	Cycle volume range	100-3,000 ml
	Minimum cycle volume	20 ml

## MICRODISC™ GRIDDED MEMBRANE FILTERS

### Introduction

Membrane Solutions (MS) Microdisc™ (Individual package) and Microfilm™ (Continuous package) Sterile Mixed Cellulose Ester (MCE) Gridded Membrane Filter are composed of Cellulose Acetate and Cellulose Nitrate. Because MCE membrane is –biologically inert, it's one of the most widely used membranes in analytical and research applications. MCE Membrane Filter is characterized by a smoother and more uniform surface than pure nitrocellulose filter. Also, the color contrast provided by the filter surface facilitates particle detection and minimizes eye fatigue.



### Features and Benefits

- Excellent retention and colony growth, high recovery rates of microorganisms
- Individually wrapped in easy-peel pack
- Pre-sterilized by gamma irradiation
- Calibrated Mixed Cellulose filters, which designed to maximize flow rates
- The filter type, diameter, lot number, sterilization and expiration date are printed on package
- “Multi-fit”, are designed as “one size fits all”, compatible with most dispensers
- Membrane Solutions High Performance MCE membrane uses microbiological – “friendly” ink which promotes growth on grids to maximize recovery

### Applications

- Colony counting (Microbial enumeration)
- General Microscopy
- Particulate counting and analysis

### Industries

- Bottled Water
- Food & Beverage (Beer, Wine, carbonated drinks, etc.)
- Environmental
- Cosmetics
- Pharmaceutical

### Part Number Matrix

	Filter Media	Diameter(mm)	Pore Size(µm)	Package Format	Membrane/Grid Color	Pre-Sterilized
MF	MCE	047	022	G	W	S
	CA (Cellulose Acetate)	025=25 037=37	022=0.2 045=0.45	G=Individually packed	W=White membrane black grid	S=Yes N=No
	CN (nitrocellulose)	047=47	065=0.65	C=Continuous	B= Black membrane white grid	
	MCE (Mixed Cellulose Ester)	050=50	080=0.8 100=1.0 120=1.2 500=5.0 800=8.0		G= White membrane green grid	

\*MFMC047022GWS=Microdisc™ MCE gridded membrane filter, 47mm, 0.22µm, white membrane with black grid, individual packing.

### MS<sup>®</sup>BioSet<sup>™</sup> Monitor

#### Introduction

The MS<sup>®</sup> BioSet<sup>™</sup> Monitor is a single-use filtration unit made of high-quality polystyrene with a high-performance Gridded Membrane Filter for filtration of liquid samples in microbiological analysis. After filtration, the membrane could be transferred to a petri dish for culturing or stay on the base to culture.



#### Features and Benefits

- Excellent Bacteria recovery rate meets ISO7704.
- Convenient for colony observation and counting: Top lid with 30x magnifier lens.
- Allows faster filtration: 0.45µm, 0.7bar(70kPa,10psi) : > 35mL/min/cm<sup>2</sup>
- Ergonomic design, one-hand operation ;
- Top lid to protect the sample and avoid cross contamination.
- Pre-sterilized
- Stable quality: serious QC conducted lot by lot.
- Compatible with MS Manifolds.



#### Applications

- Chemical Industry: Test micro organisms in water samples.
- Food&Beverage: Total colonies counting in beverages, drinking water, mineral water, and purified water, etc.
- Environmental Control&Disease Control: Total number count of bacteria in air conditioning condensate water, drinking water and other water quality, detect pathogenic bacteria.
- Pharmaceutical: Microbial limit test and bacteria test of purified water, water for injection, raw materials and oral liquids, tablets, capsules, biological products, and preparations.

#### Technical Specification

<b>Filter Media</b>	Mixed Cellulose Ester (MCE) or Polyether sulfone (PES)
<b>Material</b>	Filter cup: PS (100ml) /PP (300ml) Lid and base: PS
<b>Pore Size</b>	0.45µm, 0.22µm; 0.8µm 3µm, 5µm etc
<b>Diameter of Membrane</b>	47mm
<b>Volume of Filter Cup</b>	100ml, 300ml
<b>Bacteria Recovery rate, E-coli</b>	>80%, meets ISO7704
<b>Typical Water Flow Rate</b>	0.45 µ m, 0.7 bar (70 kPa, 10 psi) : > 35mL/min/cm <sup>2</sup>
<b>Sterility</b>	Irradiation sterilization for Food & Beverage grade Ethylene Oxide for medical grade

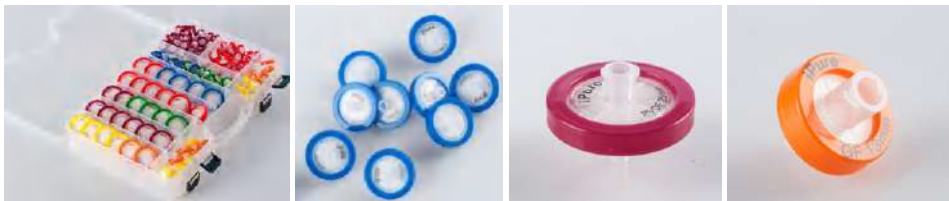
### Syringe Filters

#### Features and Benefits

- **Color coded and labeled:** Allows easy identification of membrane and filter media type. Each unit is clearly marked with an identifying code to denote pore size and membrane material
- **Bonded outer ring on housing:** Provides durability under higher working pressures (>87 psi or 6 bar)
- **Built-in prefilter:** PP prefilter
- **Specifically designed to maximize sample recovery:** Minimal sample hold-up volume
- **Pre-sterilization available and individually packaged:** Ensures sterility during sample preparation
- **Broad compatibility:** Making them suitable for many types of applications and solvents

#### Applications

- HPLC sample preparation
- Routine QC analysis
- Removal of protein precipitates
- Dissolution testing
- Food analysis
- Biofuel analysis
- Environmental samples
- DMSO compatible: Nylon, PTFE, PP and GF filtration media



#### Specification

	13mm	25mm	30mm
Filtration Area(cm <sup>2</sup> ):	0.92	2.98	4.9
Housing Material:	PP		
Holdup-Volume(μl):	<10	<100	120
Volume Throughput(ml):	10	50	100
Connections (Inlet/Outlet):	Female Luer Lock inlet and Male Luer slip outlet		
Max Operating Pressure(psi):	87		
Max Operating Temperature(°C):	100		
Layers:	1		

#### Part Number Matrix

	Filter Media	Diameter (mm)	Pore Size (μm)	Pre-Sterilized	Wettability	Optional Pre-filter layer	Series
SF	NY	013	022	N	B	G	I
	NY(0.2~10μm)	013=13	010=0.1	N=No	(blank)=Standard	(blank)=	I=Ipure
	PES(0.1~3μm)	025=25	022=0.2	S=Yes	B=Hydrophobic*	PP microfiber	
	CA(0.2~8μm)	030=30	045=0.45		L=Hydrophilic*	G=Glass fiber	
	MCE(0.2~8μm)		080=0.8		*PVDF and		
	PVDF(0.2~5μm)		100=1.0		PTFE only		
	PTFE(0.1~5μm)		300=3				
	RC (0.2/0.45μm)		500=5				
	GF(0.2~10μm)						
	PP microfiber (0.2~10μm)						

\* SFNY013022NGI=Ipure™ nylon syringe filter, 13mm, 0.45μm, glass fiber, non-sterile.

### Simplepure™ Syringe Filters

#### Features and Benefits

- **Transparent PP housing:** Allows users to observe contaminants in filtrate and filtration process
- **Ultrasonically welded:** Maximizes effective filtration area (EFA)
- **Built-in prefilter:** PP prefilter  
High working pressure (>87 psi or 6 bar)
- **Specifically designed to maximize sample recovery:** Minimal sample hold-up volume
- **Available pre-sterilized and individually packaged:** Ensures sterility during sample preparation
- **Broad compatibility:** Making them suitable for many types of applications and solvents
- **Pre-filter:** SimplePure comes standard with polypropylene microfiber pre-filter layer. Glass fiber pre-filter is available as an option.

#### Applications

- HPLC sample preparation
- Routine QC analysis
- Removal of protein precipitates
- Dissolution testing
- Food analysis
- Biofuel analysis
- Environmental samples



#### Specification

	4mm	13mm	25mm
Filtration Area(cm <sup>2</sup> ):	0.125	1.09	4.08
Housing Material:	PP		
Holdup-Volume(μl):	<1	<10	<100
Volume Throughput(ml):	5	20	100
Connections (Inlet/Outlet):	Female Luer Lock inlet and Male Luer slip outlet		
Max Operating Pressure(psi):	87		
Max Operating Temperature(°C):	100		
Layers:	2		

#### Part Number Matrix

	Filter Media	Diameter (mm)	Pore Size (μm)	Pre-Sterilized	Wettability	Optional Pre-filter layer
SF	PVDF	025	045	S	L	G
	NY(0.2~10μm)	004=4	010=0.1	N=No	(blank)=Standard	(blank)=
	PES(0.1~3μm)	013=13	022=0.2	S=Yes	B=Hydrophobic*	PP microfiber
	CA(0.2~8μm)	025=25	045=0.45		L=Hydrophilic*	G=Glass fiber
	MCE(0.2~8μm)		080=0.8		*PVDF and	
	PVDF(0.2~5μm)		100=1.0		PTFE only	
	PTFE(0.1~5μm)		300=3			
	RC (0.2/0.45μm)		500=5			
	GF(0.2~10μm)					
	PP microfiber(0.2~10μm)					

\* SFPVDF025045NLG=Simplepure™ hydrophilic PVDF syringe filter,25mm,0.45um, glass fiber prefilter, non-sterile.

## SAMPLE VIALS

### Introduction

Membrane Solutions® HPLC GC Sample Vials are made to Type 1 purity standards using either 33-Expansion Borosilicate Glass (clear) or 51-Expansion Glass (clear and amber). To ensure consistency and reliability, these vials undergo a state-of-the-art quality control regimen throughout the entire manufacturing process by utilizing a computerized camera system to precisely measure all critical dimensions.

Membrane Solutions offers a wide variety of caps, septa and sample vials to meet most laboratory needs and purity requirements.



### Features and Benefits

- Compatible with a wide range of HPLC, LC/MS and GC Instruments
- Pre-packed combo including 100 vials and caps for ease and convenience in ordering
- Vials and caps and septa also available separately

### Vial Closures Guidance

Cap Type	Seal	Comments	Temperature range
Crimp (Aluminum Cap)	Excellent seal	Require a tool	-60°C to 300°C
Snap (PP cap)	Moderate seal	Fast, no tools, some cap racking	-20°C to 100°C
Screw (PP cap)	Excellent seal	Universal	-20°C to 100°C

### Septa Selection Guidance

Septa Type	Use for multiple injections	Temperature range	Recommended for storage	Best for
PTFE	No	260°C	No	High temperature headspace application
PTFE/Silicon	Yes	-40°C to 200°C	Yes	Most HPLC/GC application, not suitable for chlorosilanes
PTFE/Silicon/PTFE	Yes	-40°C to 200°C	Yes	Wide chemical compatibility
PTFE/Rubber	No	-40°C to 90°C	No	Moderate resealability. Not recommended for holding samples for further analysis





# MICRODISC™ MEMBRANE FILTER

## Filter Media Disc

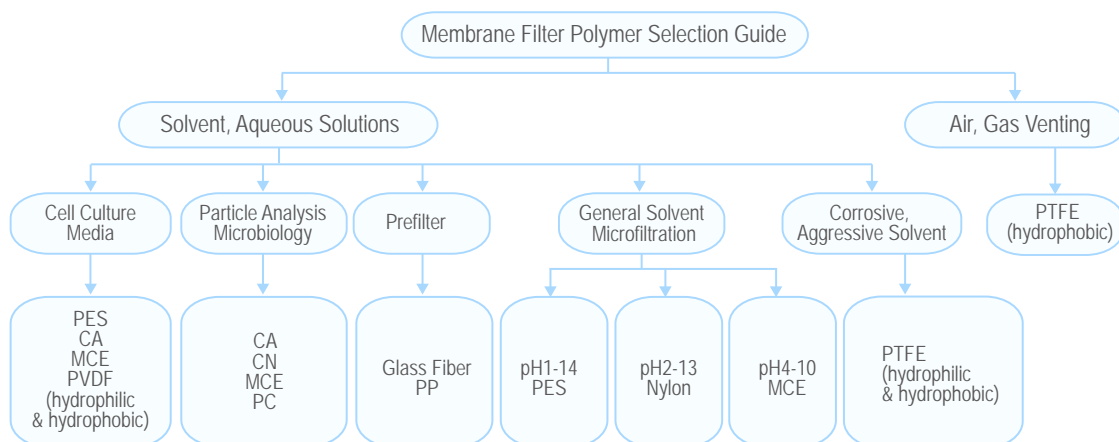
### Introduction

Micro-filtration is a size exclusion process where a contaminated fluid is passed through a microporous membrane or fibrous media to separate micro-organisms and / or suspended particles from liquids or gases. The typical pore size used for micro-filtration ranges from about 0.1 to 10 µm.

Membrane Solutions offers a full offering of membrane materials and media for all types of liquids, solvents or gases, including PES, MCE, Nylon, PVDF, PTFE, PP, GF, CA, MCE, CN and PC. Available disc diameters range from 13 mm to 293 mm (other custom shapes also available), which are manufactured in a ISO 9001 certified facility. Most membranes can be sterilized and individually packaged if required.

### Guide to Select Membrane

- What liquid or gas will be filtered?
- Check with the Chemical Resistance
- Check the maximum pore size required to achieve the results
- Check the membrane specifications for any unusual process conditions (temperature, pressure)



### Part Number Matrix

	Membrane Material	Filter Diameter*(mm)	Pore Size (µm)		Pre-Sterilized	Wettability
MF	PTFE	047	022		S	L/B
	NY(0.2~10µm)	013=13	010=0.1	100=1.0	(blank)=No	(blank)=Hydrophilic
	PES(0.1~3µm)	025=25	022=0.22	300=3	S=Yes	B=Hydrophobic
	CA(0.2~8µm)	047=47	045=0.45	500=5		L=Hydrophilic**
	MCE(0.2~8µm)	050=50	065=0.65	800=8		**PVDF and PTFE only
	PVDF(0.2~5µm)	090=90	080=0.8	1000=10		
	PTFE(0.1~5µm)	100=100				
	GF(0.2~10µm)	142=142				
	PP microfiber(0.2~10µm)	293=293*				

MFPTFE047022SB=Hydrophobic PTFE membrane filter, 47mm,0.22µm, sterile

\* Customized diameter and size available

## STERIDISC™ DISC MEMBRANE FILTER

### Introduction

Membrane Solutions offers full membrane filters for aqueous, solvents and gas filtration including PES, MCE, Nylon, PVDF, PTFE, PP and CA membranes with disc diameters from 13 mm to 293 mm. All membranes are manufactured in ISO 9001 certified facility. Most membranes can be sterilized if needed.



### Features and Benefits

- Good chemical compatibility
- Low chemical extractable level
- Fast flow rate
- Absolute filtration

### Applications

- HPLC sample preparation
- Aqueous and organic solvents filtration
- Sterile filtration or clarification of media and buffers

### Part Number Matrix

	Membrane Material	Filter Diameter*(mm)	Pore Size(μm)	Pre-sterilized	Wettability
MF	PTFE	047	022	S	L/B
	NY(0.2~10μm)	013=13	010=0.1	S=Sterile	(blank)=Standard B=Hydrophobic* L=Hydrophilic* *PVDF and PTFE only
	PES(0.1~3μm)	025=25	022=0.22		
	CA(0.2~8μm)	047=47	045=0.45		
	MCE(0.2~8μm)	050=50	065=0.65		
	PVDF(0.2~5μm)	090=90	080=0.8		
	PTFE(0.1~5μm)	100=100	100=1.0		
	GF(0.2~10μm)	142=142	300=3		
	PPmicrofiber(0.2~10μm)	293=293	500=5		
			800=8		
			1000=10		

\* Other custom diameters and sizes available