










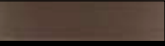






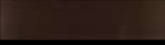



### Color Code ID System

*Titan 2's color-code ID System permits easy identification of membrane type and porosity. Our unique sealing ring is coded for membrane type (i.e., Nylon, PTFE, PVDF, etc.) and porosity (i.e., 0.45µm, 0.2µm, 5.0µm, etc.) for instant visual verification. The Titan System goes beyond the filter itself and includes our re-usable, rigid, transparent, color-coded containers. Now maintain a proper inventory of the filter you need at a moments glance.*



	Light Green Cellulose Acetate 0.20µm
	Transp. Orange Cellulose Acetate 0.45µm
	Orange Glass Microfiber 1.2µm
	Amber Glass Microfiber 0.7µm
	Dark Purple Glass Microfiber 3.1µm
	Light Purple Nylon 0.20µm
	Transp. Green Nylon 0.45µm
	White Nylon 0.45µm no prefilter
	Opaque Med. Yellow Nylon 1.5µm
	Pink Nylon 5.0µm
	Royal Blue Polypropylene 0.20µm
	Dk. Gray PolyEther Sulfone 0.20µm
	Orange-Yellow PolyEther Sulfone 0.45µm
	Transp. Blue PTFE 0.20µm
	Transp. Yellow PTFE 0.45µm
	Navy Blue PTFE 1.0µm
	Red PVDF 0.45µm
	Granite Reg. Cellulose 0.20µm
	BLACK PVDF 0.2µm
	Light Brown Reg. Cellulose 0.45µm

### Titan<sup>2</sup> FILTERS ARE QUALITY MONITORED FOR:

- Low UV Extractable for Superior Results in Spectrophotometric or HPLC Procedures
- All Critical Filter Specifications are Tested and Confirmed for Bubble Point, Burst Pressure, Membrane Retention/Exclusion, Flow Rate, UV Extractables
- Retention Samples Kept for Six Months on All Lot Production Permits SUN-SRI to Validate and Assist in Solving YOUR Problem
- Actual HPLC Performance and Reproducibility Validation by a Standard Test Mixture Run



**HPLC Syringe Filters**

**Titan2 Syringe Filters**

- **Standard 1µm Prefilter in Our 30mm Filters Ensure Increased Sample Handling Capacity**
- **Sample Distribution Rings Maximize Filtration Area Uniformity and Speed**
- **Low Extractable Levels Generate Interference Free Data**
- **Unequivocal Reproducibility, Filter to Filter, Lot to Lot**

**CONSISTENT RESULTS, CONSISTENT VALUE**

Filtration is a critical and valuable strategy to ensure consistent and reliable experimental procedures. From method development investigation to validated quality control techniques, the superior quality of *TITAN Filtration Products* from *SUN-SRi*, secures your results.

**DESIGNED FOR RESULTS, ENGINEERED FOR PERFORMANCE**

Not just concerned with results, *Titan2* Filters are designed and produced with exceptional features that assure un-interrupted performance. SUN-SRi has addressed the most common problems experienced with syringe filters and not only solved these issues, but guarantees *Titan2* performance, without exception.

- **Pressure Rated to 90 psi for Unsurpassed Integrity**
- **Sealing Ring Minimizes Bursting and Leakage**
- **Chemically Resistant Polypropylene Housings**

**TITAN2 ...The Logical Step in Obtaining Superior Results.**

Unique Female Luer-Lok Design Produces Secure Connections and Eliminates Filter "Blow-Off"

Sample Distribution Rings direct sample for uniform filtration across membrane and speeds flow rates.

Minimized Extractables and Effective Chemical Resistance From Virgin Polypropylene Housing

Color-Coded Sealing Ring Prevents Housing Bursts and Permits Instant Identification of Membrane Type and Porosity.

Membrane type and porosity imprinted on each filter.

Standard 1µm Borosilicate Glass Prefilter for Hard to Filter Samples (30mm filter only)

Double Ultrasonic Weld Ensures Housing Integrity and Prevents Leakage.



## Nylon Syringe Filters

Membrane of Choice for Analytical Applications

- Magnesia-loaded silica gel
- Naturally hydrophilic with broad chemical resistance
- Excellent flow rates and high throughput loading
- Standard 1 $\mu$ m prefilter (30mm) for optimal performance with particulate-laden analytes
- Certified for chromatographic performance with an actual HPLC analytical standards run

Titan2 Nylon Syringe Filters offer universal application for analytical procedures. Hydrophilic Nylon is extremely well suited for aqueous or organic sample prep and HPLC, GC or dissolution sample analysis. Due to its excellent flow characteristics and mechanical stability, Nylon offers the best combination of physical parameters to meet the most stringent analytical needs.



### Specifications:

Membrane: HPLC Certified Nylon	Max. Operating Temp.	100°C
Housing: Medical Grade, Virgin Polypropylene	Max. Operating Pressure:	4mm - 75 psi
Prefilter: Binder Free Glass Microfiber		17mm - 115 psi
		30mm - 90 psi
Connections: Enhanced Female Luer-Lok Inlet	Retention Volumes:	4mm - <15 $\mu$ L
Male Slip Outlet		17mm - <29 $\mu$ L
		30mm - <137 $\mu$ L
Autoclave: Sterilize by dry heat at 121°C for 15 min.		

### Applications:

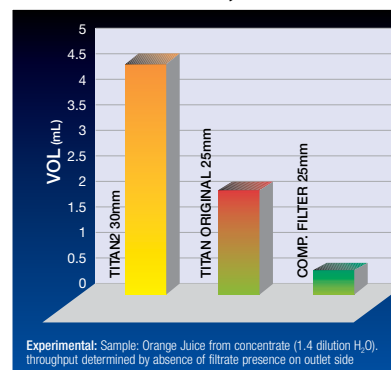
HPLC and GC Sample Prep and clean up  
Dissolution Sample Analysis  
General Sample Prep prior to Analytical Analysis  
Mixed sample matrix of aqueous or organic dissolved analytes.

### Chemical Incompatibilities:

Acids >1N  
Halogenated solvents  
Proteinous Samples with high non-specific binding affinities

Identifying Color Code	Catalog Number	Porosity	Std 1 $\mu$ m Prefilter	Recommended Sample Vol.	Qty
<b>4mm</b>					
LT. PURPLE	42204-NN	0.20 $\mu$ m	N	<2mL	100/PKG
	42204-NNE	0.20 $\mu$ m	N	<2mL	5000/CS
TRANSP. GREEN	44504-NN	0.45 $\mu$ m	N	<2mL	100/PKG
	44504-NNE	0.45 $\mu$ m	N	<2mL	5000/CS
<b>17mm</b>					
LT. PURPLE	42213-NN	0.20 $\mu$ m	N	<30mL	200/PKG
TRANSP. GREEN	44513-NN	0.45 $\mu$ m	N	<30mL	200/PKG
<b>30mm</b>					
LT. PURPLE	42225-NN	0.20 $\mu$ m	Y	<150mL	100/PKG
	42225-NC	0.20 $\mu$ m	Y	<150mL	500/CS
	42225-NBX	0.20 $\mu$ m	Y	<150mL	5000/CS
TRANSP. GREEN	44525-NN	0.45 $\mu$ m	Y	<150mL	100/PKG
	44525-NC	0.45 $\mu$ m	Y	<150mL	500/CS
	44525-NBX	0.45 $\mu$ m	Y	<150mL	5000/CS
WHITE	44526-NN	0.45 $\mu$ m	N	<100mL	100/PKG
OPAQUE MED YELLOW	41225-NN	1.5 $\mu$ m	N	<100mL	100/PKG
PINK	45025-NN	5.0 $\mu$ m	N	<100mL	100/PKG

Throughput Volume Comparison-Titan & Titan2 Nylon Filters



Titan2 offers a considerable enhancement to throughput volume with our new filter improvements compared to our first generation Titan syringe filters. Although our original, pre-filtered Titan Syringe Filters were already an optimal choice over competitive filters, our new Titan2 Syringe Filters bring throughput value differences to an even greater level.



**PTFE Syringe Filters**

*Excellent chemical resistance for use with organic matrices*

- Standard 1µm prefilter (30mm) for optimal performance with particulate-laden samples
- Naturally hydrophobic membrane provides excellent flow rates and high loading
- Certified for chromatographic performance with an actual HPLC analytical standards run
- Exceptional temperature stability provides extended sampling range over other membranes



Titan2 PTFE Syringe Filters are indicated for filtration of gaseous or organic solvent based samples. The natural hydrophobic membrane exhibits broad chemical resistance and unsurpassed temperature stability to address aggressive sample matrixes and extreme temperature situations. Due to the membranes hydrophobic nature, PTFE filters can be utilized as a moisture barrier in venting applications.

**Specifications:**

Membrane: HPLC Certified PTFE, w/polypropylene support	Max. Operating Temp.	100°C
Housing: Medical Grade, Virgin Polypropylene	Max. Operating Pressure:	4mm - 75 psi 30mm - 90 psi
Prefilter: Binder Free Glass Microfiber Prefilter	Retention Volumes:	4mm - <15µL 17mm - <29µL 30mm - <137µL
Connections: Enhanced Female Luer-Lok Inlet Male Luer Slip Outlet		
Autoclave: Sterilize by dry heat at 121°C for 15 min.		

**Applications:**

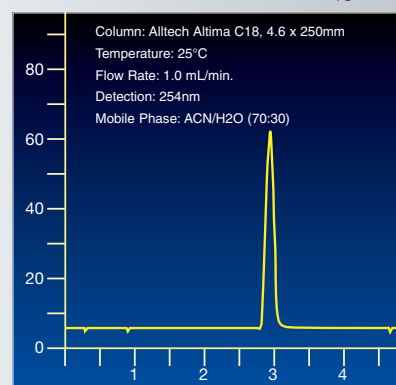
HPLC and GC Sample Prep and clean up  
Dissolution Sample Analysis-HCl media based  
General Sample Prep prior to Analytical Analysis  
Elevated temperature samples, caustic or acidic solutions

**Chemical Incompatibilities:**

Perchloric Acid  
Methylene Chloride (limited exposure)  
Dioxane, DMF, Formic Acid >50%  
Aqueous based sample matrix (unless filter is pre-wetted with an alcohol)

Identifying Color Code	Catalog Number	Porosity	Std 1µm Prefilter	Recommended Sample Vol.	Qty
<b>4mm</b>					
TRANSP. BLUE	42204-NP	0.20µm	N	<2mL	100/PKG
	42204-NPE	0.20µm	N	<2mL	5000/CS
TRANSP. YELLOW	44504-NP	0.45µm	N	<2mL	100/PKG
	44504-NPE	0.45µm	N	<2mL	5000/CS
<b>17mm</b>					
TRANSP. BLUE	42213-NP	0.20µm	N	<30mL	200/PKG
TRANSP. YELLOW	44513-NP	0.45µm	N	<30mL	200/PKG
<b>30mm</b>					
TRANSP. BLUE	42225-NP	0.20µm	Y	<150mL	100/PKG
	42225-PC	0.20µm	Y	<150mL	500/CS
	42225-PBX	0.20µm	Y	<150mL	5000/CS
TRANSP. YELLOW	44525-NP	0.45µm	Y	<150mL	100/PKG
	44525-PC	0.45µm	Y	<150mL	500/CS
ROYAL BLUE	41025-NP	1.0µm	N	<100mL	100/PKG

**Validated HPLC Performance- Caffeine (4µg/mL)**



Only Titan2 Filters are validated for HPLC performance and reproducibility by an actual HPLC standards run. Each lot is quality monitored for retention time, peak area, and peak shape of our NIST traceable, caffeine standard. This assures you of outstanding performance, reproducibility and zero extractable run conditions. No other filter is scrutinized under actual run conditions like Titan2.



### PVDF Syringe Filters

Low non-specific binding with exceptional chemical resistance

- Standard 1µm prefilter (30mm) for optimal performance with particulate-laden samples
- Hydrophilic membrane provides excellent flow rates and low binding coefficients
- Certified for chromatographic performance with an actual HPLC analytical standards run
- Compatible with a wide range of aqueous and organic based sample environments



#### Specifications:

Membrane: HPLC Certified PVDF	Max. Operating Temp.	100°C
Housing: Medical Grade, Virgin Polypropylene	Max. Operating Pressure:	4mm - 75 psi
Prefilter: Binder-Free Glass Microfiber Prefilter		17mm - 115 psi
		30mm - 90 psi
Connections: Enhanced Female Luer-Lok Inlet	Retention Volumes:	4mm - <15µL
Male Luer Slip Outlet		17mm - <29µL
		30mm - <137µL

Autoclave: Sterilize by dry heat at 121°C for 15 min.

#### Applications:

HPLC and GC Sample Prep and clean up  
Protein based samples with high non-specific binding

#### Chemical Incompatibilities:

DMF, DMSO, MEK, Acetone and most caustic solutions >6N

Identifying Color Code	Catalog Number	Porosity	Std 1µm Prefilter	Recommended Sample Vol.	Qty
<b>4mm</b>					
BLACK	42204-PV	0.20µm	N	<2mL	100/PKG
	42204-PVE	0.20µm	N	<2mL	5000/CS
RED	44504-PV	0.45µm	N	<2mL	100/PKG
	44504-PVE	0.45µm	N	<2mL	5000/CS
<b>17mm</b>					
BLACK	42213-PV	0.20µm	Y	<30mL	200/PKG
RED	44513-PV	0.45µm	N	<30mL	200/PKG
<b>30mm</b>					
BLACK	42225-PV	0.20µm	Y	<150mL	100/PKG
RED	44525-PV	0.45µm	N	<150mL	100/PKG



**Glass Microfiber (GMF) Syringe Filters**

Low extractable, 100% binder-free, borosilicate glass filter for dissolution analysis

- Increased sample throughput with 1.2µm and 3.1µm porosity filters
- Excellent for use with viscous or particle laden samples coupled with broad range chemical compatibility

<b>Specifications:</b>			<b>Applications:</b>	
Membrane: Binder-free glass microfiber	Max. Operating Temp.	110°C	Viscous or particle laden samples, Dissolution testing	
Housing: Medical Grade, Virgin Polypropylene	Max. Operating Pressure:	30mm - 90 psi		
Connections: Enhanced Female Luer-Lok Inlet Male Luer Slip Outlet	Retention Volumes:	30mm - <137µL	<b>Chemical Incompatibilities:</b>	
			Limited resistance with Ammonium, Potassium, and Sodium Hydroxide Solutions	

Identifying Color Code	Catalog Number	Porosity	Std 1µm Prefilter	Recommended Sample Vol.	Qty
<b>30mm</b>					
AMBER	40725-GM	0.70µm		<150mL	100/PKG
ORANGE	41225-GM	1.20µm		<175mL	100/PKG
DK PURPLE	42725-GM	3.10µm		<175mL	100/PKG

**PES Syringe Filters - Ion Chromatography Certified**

Precise results in sensitive analysis of ionic analytes

- Certified for low level IC interference by ICP analysis
- Hydrophilic membrane provides excellent flow rates and low binding coefficients
- Low affinity for binding drugs; has benefits for dissolution test procedures



<b>Specifications:</b>			<b>Applications</b>	
Membrane: ICP Certified PES (PolyEtherSulfone)	Max. Operating Temp.	100°C	IC (ion chromatography) sample prep & analysis	
Housing: Medical Grade, Virgin Polypropylene	Max. Operating Pressure:	17mm - 115 psi 30mm - 90 psi	Dissolution testing	
Connections: Enhanced Female Luer-Lok Inlet Male Slip Outlet	Retention Volumes:	17mm - <29µL 30mm - <137µL	Protein based sample in aqueous solutions	
Autoclave: Sterilize by dry heat at 121°C for 15 min.			<b>Chemical Incompatibilities:</b>	
			Concentrated Acids, MeCl, Chloroform, Hexane, Acetone, MEK, THF, DMSO	

Identifying Color Code	Catalog Number	Porosity	Std 1µm Prefilter	Recommended Sample Vol.	Qty
<b>17mm</b>					
DARK GRAY	42213-PS	0.20µm	N	<2mL	200/PKG
ORANGE-YELLOW	44513-PS	0.45µm	N	<2mL	200/PKG
<b>30mm</b>					
DARK GRAY	42225-PS	0.20µm	Y	<30mL	100/PKG
ORANGE-YELLOW	44525-PS	0.45µm	N	<30mL	100/PKG

Analyte	Method Detection Level (ppb)	Analysis Results (ppb)	
		0.2µ PES	0.45µ PES
Bromide	<100	< MDL	< MDL
Chloride	20	< MDL	< MDL
Fluoride	20	< MDL	< MDL
Nitrate as N	50	< MDL	< MDL
Orthophosphate as P	<100	< MDL	< MDL
Sulfate	<100	< MDL	< MDL
Barium	2	< MDL	< MDL
Calcium	10	39.9	58.9
Potassium	50	80	70
Magnesium	20	< MDL	< MDL
Sodium	20	80.6	63



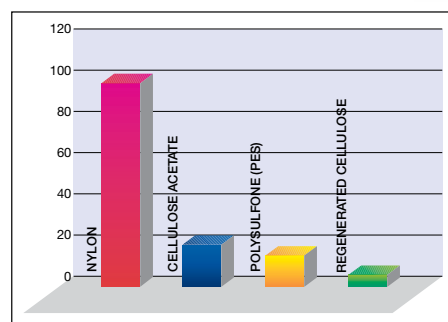
### Regenerated Cellulose Syringe Filters

Superior chemical resistance optimized for biological sample recoveries

- Hydrophilic membrane provides excellent flow rates and extremely, low binding coefficients
- Superior choice for biological assays, gel capsule dissolution testing, protein sample matrices
- Compatible with a wide range of aqueous and organic based sample environments
- Certified for chromatographic performance with an actual HPLC analytical standards run



Titan2 Regenerated Cellulose Syringe Filters are ideally suited for almost any laboratory procedure from HPLC sample prep to dissolution sample validation. Regenerated Cellulose possesses superior chemical resistance in either aqueous or organic sample environments. Its extremely low biological based binding coefficient is ideally suited for maximum sample recoveries of biological based assays. Regenerated Cellulose contains no binders, surfactants or wetting agents to assure zero extractables in analytical procedures.



#### Specifications:

Membrane: HPLC Certified Regenerated Cellulose	Max. Operating Temp.	100°C
Housing: Medical Grade, Virgin Polypropylene	Max. Operating Pressure:	4mm - 75 psi 17mm - 115 psi 30mm - 90 psi
Protein Binding: <5µg/cm <sup>2</sup>	Retention Volumes:	4mm - <15µL 17mm - <29µL 30mm - <137µL
Connections: Enhanced Female Luer-Lok Inlet Male Luer Slip Outlet		
Autoclave: Sterilize by dry heat at 121°C for 15 min		

#### Applications:

HPLC and GC Sample Prep and clean up  
Dissolution sample assays, especially high binding tablets or capsules  
Protein based samples with high non-specific binding  
Sample analysis with required maximum recoveries  
Analysis requiring low non specific binding over a wide pH range

#### Chemical Incompatibilities:

Sulfuric Acid, Hydrochloric Acid, Phosphoric Acid or Nitric Acid >25%, DMF, Phenol

Identifying Color Code	Catalog Number	Porosity	Std 1µm Prefilter	Recommended Sample Vol.	Qty
<b>4mm</b>					
GRANITE	52204-RC	0.20µm	N	<2mL	100/PKG
LIGHT BROWN	54504-RC	0.45µm	N	<2mL	100/PKG
<b>17mm</b>					
GRANITE	52213-RC	0.20µm	Y	<30mL	200/PKG
LIGHT BROWN	54513-RC	0.45µm	N	<30mL	200/PKG
<b>30mm</b>					
GRANITE	52225-RC	0.20µm	Y	<150mL	100/PKG
LIGHT BROWN	54525-RC	0.45µm	N	<150mL	100/PKG



**Cellulose Acetate Syringe Filters**

For filtering of aqueous solutions or biological samples

- Hydrophilic membrane provides excellent flow rates and extremely low testing, protein binding coefficients
- Superior choice for biological assays, gel capsule dissolution testing, protein sample matrices
- Certified for chromatographic performance with an actual HPLC analytical standards run



**Specifications:**

Membrane: HPLC Certified Cellulose Acetate	Max. Operating Temp.	110°C
Housing: Medical Grade, Virgin Polypropylene	Max. Operating Pressure:	4mm - 75 psi 17mm - 115 psi 30mm - 90 psi
Protein Binding: <24µg/cm <sup>2</sup>	Retention Volumes:	4mm - <15µL 17mm - <29µL 30mm - <137µL
Connections: Enhanced Female Luer-Lok Inlet Male Luer Slip Outlet		
Autoclave: Sterilize by dry heat at 121°C for 15 min.		

**Applications**

Protein based samples with high non-specific binding  
Sample analysis with required maximum recoveries

**Chemical Incompatibilities:**

Acids, NaOH, Dichloromethane, Chloroform, Ketones, DMSO, THF

Identifying Color Code	Catalog Number	Porosity	Std 1µm Prefilter	Recommended Sample Vol.	Qty
<b>4mm</b>					
LIGHT GREEN	42204-CA	0.20µm	N	<2mL	100/PKG
	42204-CAE	0.20µm	N	<2mL	5000/CS
TRANSP. ORANGE	44502-CA	0.45µm	N	<2mL	100/PKG
	44502-CAE	0.45µm	N	<2mL	5000/CS
<b>17mm</b>					
LIGHT GREEN	42213-CA	0.20µm	N	<30mL	200/PKG
TRANSP. ORANGE	44513-CA	0.45µm	N	<30mL	200/PKG
<b>30mm</b>					
LIGHT GREEN	42225-CA	0.20µm	N	<150mL	100/PKG
TRANSP. ORANGE	44525-CA	0.45µm	N	<150mL	100/PKG

Please go to page 94 for full information about our All-Plastic Disposable Syringes



**Polypropylene Syringe Filters**

Chemically resistive  
membrane with low  
protein binding



- Hydrophilic membrane for aqueous or organic sample matrices
- Use with protein or peptide based assays

**Specifications:**

Membrane: Hydrophilic Polypropylene	Max. Operating Temp.	110°C
Housing: Medical Grade, Virgin Polypropylene	Max. Operating Pressure:	17mm - 115 psi 30mm - 90 psi
Connections: Enhanced Female Luer-Lok Inlet Male Slip Outlet	Retention Volumes:	17mm – <29µL 30mm – <137µL

**Applications:**

Protein or peptide based assays, general HPLC analysis

**Chemical Incompatibilities:**

Hexane, Toluene, Benzene, limited resistance to MeCl and Chloroform

Identifying Color Code	Catalog Number	Porosity	Std 1µm Prefilter	Recommended Sample Vol.	Qty
<b>17mm</b>					
ROYAL BLUE	42213-PP	0.20µm	N	<30mL	200/PKG
ROYAL BLUE	42213-PPC	0.20µm	N	<30mL	200/PKG
WHITE	44513-PP	0.45µm	N	<30mL	200/PKG
WHITE	44513-PPC	0.45µm	N	<30mL	200/PKG
<b>30mm</b>					
ROYAL BLUE	42225-PP	0.20µm	N	<150mL	100/PKG
WHITE	44525-PP	0.45µm	N	<150mL	100/PKG

**SUN-SRi Technical Note:**

Maintain the purity of your sample extracts. Use SUN-SRi All-Plastic syringes with Titan2 syringe filters. All plastic syringes are free from silicone oil or other lubricants that are frequently used in the manufacture of other products. These syringes are constructed of high purity polypropylene and polyethylene components. There are no rubber components that might release contaminants or be subject to attack by common HPLC solvents.



**Power Filtration System**

*Optimized speed, power and efficiency in filtration procedures*

- Applies three times greater force compared to manual filtration methods
- Samples that are difficult to filter manually are now easily processed
- Speeds filtration applications compared to manual method, perfect for processing multiple samples
- Certified for chromatographic performance with an actual HPLC analytical standards run

**Laboratory tested and proven**

*Hot Shot* has been laboratory tested by an independent engineering firm to confirm the force and speed advantage the Hot Shot System produces compared to manual filtration with a syringe. Hot Shot was found to produce the following results:

1. Force applied advantage of 3.009 over manually applied pressure
2. P HotShot = 87 psi vs. P manual = 25 psi (5 mL syringe)
3. Elapsed time to fully empty, >6x for test solutions (10mL cartridge)

**A unique system approach, but easy to operate;**

*The Hot Shot System* is built around the permanent filter processor and utilizes disposable filter cartridges, which come preassembled with a 30mm filter attached to either a 5mL or 10mL sample reservoir. Simple to operate, the user fills the preassembled filter cartridge then applies the piston cap. The reservoir piston cap and filter are disposable to eliminate cross contamination between samples. The filled cartridge is then attached to the processor and the trigger is depressed to filter the sample. The units' built-in safety features release the cartridge before the pressure rating of the filter unit is exceeded. The result is no filter bursting or filter "blow-off". The user and lab work area are protected from contamination by sample leakage from over-pressurized filters. Multiple samples are processed quickly without causing user fatigue.

**Hot Shot**  
from 



Catalog No.	Size	Porosity	Qty
<b>Nylon</b>			
52205-HN	5mL	0.20µm	50/PKG
54505-HN	5mL	0.45µm	50/PKG
52210-HN	10mL	0.20µm	40/PKG
54510-HN	10mL	0.45µm	40/PKG
<b>PTFE</b>			
52205-HP	5mL	0.20µm	50/PKG
54505-HP	5mL	0.45µm	50/PKG
52210-HP	10mL	0.20µm	40/PKG
54510-HP	10mL	0.45µm	40/PKG
<b>Filter Processors</b>			
59440-HS	For 5mL Cartridges	—	1 EA
59441-HS	For 10mL Cartridges	—	1 EA

**Intro-Pac Special**

*Includes one package of 0.45µm Nylon and PTFE cartridges plus one Hot Shot Filter Processor*

59440-HSP  
5mL Hot Shot Intro Pac Kit

59441-HSP  
10mL Hot Shot Intro Pac Kit

