



Bonna-Agela Technologies

Filtration Products



Best Value
Guaranteed Product Quality
Innovation to Benefit Customers

Filtration Products

Clarinet™ Syringe Filters

- **High Quality** – Bonna-Agela Technologies is an ISO 9001 certified manufacturer; all of our products are guaranteed to meet our published specifications.
- **Cost Saving** – Reduce substantially the customers cost without sacrificing quality
- **Comprehensive** – Comprehensive product lines; Including some very unique products
- **Reliable Partnership** – Global OEM manufacturing partner



Important Features

- All filters' housing is made of high purity polypropylene
- Female luer-lock inlets on all filters secure the fit to syringes
- All filters are designed for use in all direction
- All filters are autoclavable
- All products are certified

Type of Filters

- **Single Layer Filters:** Single membrane, commonly used, highly cost-effective; newly developed $\Phi 33$ mm Syringe Filters, with pore sizes of $0.22\mu\text{m}$ and $0.45\mu\text{m}$ are in stock.
- **Double Layer Filters:** A prefilter before the main membrane, which would avoid the damage to the soft main membrane from larger particles and clogging of the main membrane by colloidal particles, is good for the overall lifetime, process volume, and efficiency
- **Drying Filters:** Syringe filters with PEFE membrane, embedded with MgSO_4 , to combine the drying function with filtration in one single step for organic samples.
- **Metal Remover:** Syringe filters with PEFE membrane, embedded with metal scavenger resin to remove heavy metals from the organic samples at the same time of filtration, to eliminate the interference of the metal in subsequent tests, or to protect the HPLC columns from contamination
- **Organic Remover:** Syringe filters with nylon membrane, embedded with polystyrene resin to remove hydrophobic organic interference from samples for ion-chromatography, HPLC, molecular biology testing, etc.
- **Sterilized Filters:** Filter the sample with biological activity or aseptic requirements; generally used as a fast, convenient, reliable sterilization and filtration tool in the lab. We supply many kinds of syringe filters, which can be used for filtration of 1mL to 300 mL sample solutions.
- **IC Syringe Filters:** The Nylon membrane filter is specially developed for IC filtration and is manufactured with advanced technology, with micro-pores evenly distributed with extremely low ion residual, which can effectively filter the particulate impurities.

Specifications:

Type	Diameter (mm)	Pore size (μm)	Pressure rating (bar)	Bubble Point rating (bar)	Water speed (ml /min /cm ²)	Air speed (L /min /cm ²)	Filtration /Hold-up Volume	Effective filter area(cm ²)
MCM	13	0.22	7	3.52	18	-	10 mL /<25 μL	0.65
		0.45	7	2.20	60	-		0.65
	25	0.22	5	3.52	18	-	100 mL /<100 μL	3.90
		0.45	5	2.20	60	-		3.90
Nylon	13	0.22	7	2.80	25	-	10 mL /<25 μL	0.65
		0.45	7	2.50	75	-		0.65
	25	0.22	5	2.80	25	-	100 mL /<100 μL	3.90
		0.45	5	2.50	75	-		3.90
PVDF	13	0.22	7	1.20	15	16	10 mL /<25 μL	0.65
		0.45	7	0.56	35	20		0.65
	25	0.22	5	1.20	15	16	100 mL /<100 μL	3.90
		0.45	5	0.56	35	20		3.90
PTFE	13	0.22	7	1.00	24	5	10 mL /<25 μL	0.65
		0.45	7	0.63	60	8		0.65
	25	0.22	5	1.00	24	5	100 mL /<100 μL	3.90
		0.45	5	0.63	60	8		3.90
PES	13	0.22	7	-	-	-	10 mL /<25 μL	0.65
		0.45	7	-	-	-		0.65
	25	0.22	5	-	-	-	100 mL /<100 μL	3.90
		0.45	5	-	-	-		3.90
Reg. Cellulose	13	0.22	7	-	-	-	10 mL /<25 μL	0.65
		0.45	7	-	-	-		0.65
	25	0.22	5	-	-	-	100 mL /<100 μL	3.90
		0.45	5	-	-	-		3.90

Selection Guide

Material, pore size, and diameter are important elements when choosing proper syringe filters; protein-binding should also be considered when filtering the protein-containing solutions. Generally, there is no one type of membrane that can be used for all purposes. To get the ideal result, the proper membrane must be chosen.

Material Type	Characteristics
MCM (Hydrophilic)	Remove the particle from aqueous; Can be high temperature sterilized. Low protein-binding
Nylon	Good flexibility and chemical compatibility (avoid strong acid and strong organic solution)
PTFE (Hydrophobic)	Broad chemical compatibility (compatible to any common solvents) Low protein-binding; Can be high temp. sterilized repeatedly; Low extractable; For use with high aqueous solution, pre-wet the filter membrane with MeOH, then rinse with DI water before filtering samples.
PVDF (Hydrophilic, Hydrophobic)	Low extractable; Low protein-binding; Broad chemical compatibility (avoid strong basic solution); Hydrophobic : for use with organic solution Hydrophilic: can be used with high aqueous solution without pre-wet steps
PES (Hydrophilic)	Broad chemical compatibility Apply to high-throughput, high efficiency filtration Low protein-binding
Reg. Cellulose (Hydrophilic)	Low protein-binding Better strength than MCM

Chemical Compatibility

The introduction of extra impurities (extractables) is undesired; we should minimize the extractables during sample preparation. Extractables are often the result of inappropriate choice of materials, improper operation of the device during the manufacturing process, or downstream particle shedding. Particular attention should be paid to potential impurities from the membrane and housing material. The membranes used in Bonna-Agela's Clarinert Filters are extensively tested to determine their compatibility with various HPLC solvents.

Material	MCM	R.C	Nylon	PTEE	Material	MCM	R.C	Nylon	PTEE
1-hexanol	R	R	R	R	glycol	R	R	R	R
CH ₃ COOH, 10%	LR	R	—	R	formic acid, 25%	LR	R	—	R
acetone	NR	R	R	R	n-hexane	R	R	R	R
acetonitrile	NR	R	R	NR	HCl,25%	NR	R	NR	R
fatty hydrocarbon	R	R	R	R	isopropanol	R	R	R	R
ammonia,1M	R	R	R	R	methanol	R	R	LR	R
aromatic hydrocarbons	R	R	N/A	R	nitrous acid,25%	LR	R	NR	R
benzene	R	R	R	R	pentane	R	R	R	R
boric acid	R	R	LR	R	phosphoric acid,25%	R	R	LR	R
tetrachloromethane	LR	LR	NR	R	phosphoric acid,45%	LR	LR	LR	R
carboxylic acid	R	R	NR	R	KOH,1M	NR	LR	NR	R
chloroacetic acid	NR	NR	NR	R	mineral salt in water	R	R	R	R
chloroform	NR	NR	R	LR	NaOH,1M	LR	NR	NR	R
cyclohexane	LR	LR	R	R	cellon	LR	R	LR	R
cyclohexanol	R	R	R	R	tetrahydrofuran	NR	R	R	LR
aether	LR	LR	R	LR	toluene	R	R	R	R
DMF	NR	NR	R	R	acetocastin, 10%	NR	NR	LR	R
DMSO	NR	NR	N/A	R	methyl chloroform	LR	R	LR	R
alcohol= <98%	R	R	R	R	chlorylene	LR	R	LR	R
ethyl acetate	NR	NR	R	R	xylene	R	R	R	R
chloroethylene	LR	LR	R	R					

Remarks: R (Resistant) , LR (Limited Resistant) , NR (Not Resistant)



Syringe Filter Ordering Information

★ Single Layer&Double Layer

Membrane Type	Pore Size	Hydrophobic PVDF	Hydrophilic PVDF	Qty.	Price(USD)
13mm Syringe Filters	0.22μm	AS031320-T	AS071320-T	100	70.00
	0.45μm	AS031345-T	AS071345-T	100	70.00
25mm Syringe Filters	0.22μm	AS032520-T	AS072520-T	100	85.00
	0.45μm	AS032545-T	AS072545-T	100	85.00
33mm Syringe Filters	0.22μm	AS033320-T	AS073320-T	100	105.00
	0.45μm	AS033345-T	AS073345-T	100	105.00
13mm Syringe Filters with PP/glass	0.22μm	AS031320-PT	AS071320-PT	100	79.00
	0.45μm	AS031345-PT	AS071345-PT	100	79.00
25mm Syringe Filters with PP/glass	0.22μm	AS032520-PT	AS072520-PT	100	95.00
	0.45μm	AS032545-PT	AS072545-PT	100	95.00
33mm Syringe Filters with PP/glass	0.22μm	AS033320-PT	AS073320-PT	100	115.00
	0.45μm	AS033345-PT	AS073345-PT	100	115.00

* Price for USA only.

Nylon	Pore Size	Cat No.	Qty.	Price(USD)
13mm Syringe Filters	0.22μm	AS021320-T	100	70.00
	0.45μm	AS021345-T	100	70.00
25mm Syringe Filters	0.22μm	AS022520-T	100	85.00
	0.45μm	AS022545-T	100	85.00
33mm Syringe Filters	0.22μm	AS023320-T	100	105.00
	0.45μm	AS023345-T	100	105.00
13mm Syringe Filters with PP prefilter	0.22μm	AS021320-PT	100	79.00
	0.45μm	AS021345-PT	100	79.00
25mm Syringe Filters with PP prefilter	0.22μm	AS022520-PT	100	95.00
	0.45μm	AS022545-PT	100	95.00
33mm Syringe Filters with PP prefilter	0.22μm	AS023320-PT	100	115.00
	0.45μm	AS023345-PT	100	115.00

* Price for USA only.

Mixed cellulose (MCM)	Pore Size	Cat No.	Qty	Price(USD)
13mm Syringe Filters	0.22µm	AS011320-T	100	70.00
	0.45µm	AS011345-T	100	70.00
25mm Syringe Filters	0.22µm	AS012520-T	100	85.00
	0.45µm	AS012545-T	100	85.00
33mm Syringe Filters	0.22µm	AS013320-T	100	105.00
	0.45µm	AS013345-T	100	105.00
13mm Syringe Filters with glass prefilter	0.22µm	AS011320-GT	100	79.00
	0.45µm	AS011345-GT	100	79.00
25mm Syringe Filters with glass prefilter	0.22µm	AS012520-GT	100	95.00
	0.45µm	AS012545-GT	100	95.00
33mm Syringe Filters with glass prefilter	0.22µm	AS013320-GT	100	115.00
	0.45µm	AS013345-GT	100	115.00

* Price for USA only.

Polyethersulfone (PES)	Pore Size	Cat No.	Qty.	Price(USD)
13mm Syringe Filters	0.22µm	AS051320-T	100	70.00
	0.45µm	AS051345-T	100	70.00
25mm Syringe Filters	0.22µm	AS052520-T	100	85.00
	0.45µm	AS052545-T	100	85.00
33mm Syringe Filters	0.22µm	AS053320-T	100	105.00
	0.45µm	AS053345-T	100	105.00
13mm Syringe Filters with glass prefilter	0.22µm	AS051320-GT	100	79.00
	0.45µm	AS051345-GT	100	79.00
25mm Syringe Filters with glass prefilter	0.22µm	AS052520-GT	100	95.00
	0.45µm	AS052545-GT	100	95.00
33mm Syringe Filters with glass prefilter	0.22µm	AS053320-GT	100	115.00
	0.45µm	AS053345-GT	100	115.00

* Price for USA only.

Regenerated cellulose (RC)	Pore Size	Cat No.	Qty.	Price(USD)
13mm Syringe Filters	0.22µm	AS061320-T	100	70.00
	0.45µm	AS061345-T	100	70.00
25mm Syringe Filters	0.22µm	AS062520-T	100	85.00
	0.45µm	AS062545-T	100	85.00
33mm Syringe Filters	0.22µm	AS063320-T	100	105.00
	0.45µm	AS063345-T	100	105.00
13mm Syringe Filters with glass prefilter	0.22µm	AS061320-GT	100	79.00
	0.45µm	AS061345-GT	100	79.00
25mm Syringe Filters with glass prefilter	0.22µm	AS062520-GT	100	95.00
	0.45µm	AS062545-GT	100	95.00
33mm Syringe Filters with glass prefilter	0.22µm	AS063320-GT	100	115.00
	0.45µm	AS063345-GT	100	115.00

* Price for USA only.

PTFE	Pore Size	Cat No.	Qty.	Price(USD)
13mm Syringe Filters	0.22µm	AS041320-T	100	70.00
	0.45µm	AS041345-T	100	70.00
25mm Syringe Filters	0.22µm	AS042520-T	100	85.00
	0.45µm	AS042545-T	100	85.00
	1µm	AS042501-T	100	95.00
	5µm	AS042505-T	100	95.00
33mm Syringe Filters	0.22µm	AS043320-T	100	105.00
	0.45µm	AS043345-T	100	105.00
13mm Syringe Filters with PP prefilter	0.2µm	AS041320-PT	100	79.00
	0.45µm	AS041345-PT	100	79.00
25mm Syringe Filters with PP prefilter	0.22µm	AS042520-PT	100	95.00
	0.45µm	AS042545-PT	100	95.00
	1µm	AS042501-PT	100	109.00
	5µm	AS042505-PT	100	109.00
33mm Syringe Filters with PP prefilter	0.22µm	AS043320-PT	100	125.00
	0.45µm	AS043345-PT	100	125.00

* Price for USA only.

★ Sterilized Syringe Filters



Membrane Type	Pore Size	Cat No.	Qty.	Price(USD)
Mixed cellulose (acetate and nitrate) syringe filters				
13mm Syringe Filters	0.22µm	AS911320	96	75.00
	0.45µm	AS911345	96	75.00
25mm Syringe Filters	0.22µm	AS912520	100	90.00
	0.45µm	AS912545	100	90.00

Membrane Type	Pore Size	Cat No.	Qty.	Price(USD)
Nylon syringe filters				
13mm Syringe Filters	0.22µm	AS921320	96	75.00
	0.45µm	AS921345	96	75.00
25mm Syringe Filters	0.22µm	AS922520	100	90.00
	0.45µm	AS922545	100	90.00

Membrane Type	Pore Size	Cat No.	Qty.	Price(USD)
Hydrophobic PVDF syringe filters				
13mm Syringe Filters	0.22µm	AS931320	96	75.00
	0.45µm	AS931345	96	75.00
25mm Syringe Filters	0.22µm	AS932520	100	90.00
	0.45µm	AS932545	100	90.00

Membrane Type	Pore Size	Cat No.	Qty.	Price(USD)
Regenerated cellulose (RC) syringe filters				
13mm Syringe Filters	0.22µm	AS961320	96	75.00
	0.45µm	AS961345	96	75.00
25mm Syringe Filters	0.22µm	AS962520	100	90.00
	0.45µm	AS962545	100	90.00

Membrane Type	Pore Size	Cat No.	Qty.	Price(USD)
PTFE syringe filters				
13mm Syringe Filters	0.22µm	AS941320	96	75.00
	0.45µm	AS941345	96	75.00
25mm Syringe Filters	0.22µm	AS942520	100	90.00
	0.45µm	AS942545	100	90.00

Membrane Type	Pore Size	Cat No.	Qty.	Price(USD)
Polyethersulfone (PES) syringe filters				
13mm Syringe Filters	0.22µm	AS951320	96	75.00
	0.45µm	AS951345	96	75.00
25mm Syringe Filters	0.22µm	AS952520	100	90.00
	0.45µm	AS952545	100	90.00

* Price for USA only. Customized sizes available upon request.

★ IC Syringe Filters

Membrane Type	Pore Size	Cat No.	Qty.	Price(USD)
IC-Nylon syringe filters				
13mm Syringe Filters	0.22µm	IC021320	96	75.00
	0.45µm	IC021345	96	75.00
25mm Syringe Filters	0.22µm	IC022520	100	90.00
	0.45µm	IC022545	100	90.00

* Price for USA only.

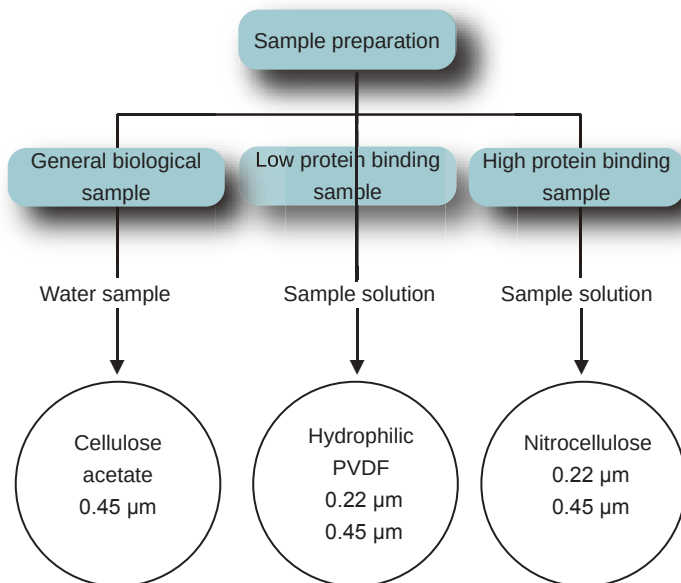
96-Well Filtration Plates and Collection Plates

■ **96-well Protein Precipitation Plates:** The wide selectivity range of protein precipitation plates makes it possible to supply preparation methods for samples with complex matrices.

■ **Features and Applications:**

- ★ Use chemical inert material, pH tolerance range: 1-13;
- ★ Compatible with automatic SPE or manual handling;
- ★ High throughput, superior to the traditional liquid-liquid extraction technique;
- ★ Dispense with stirring and centrifugal separation;
- ★ Larger specific surface area speeds up the extraction procedure;
- ★ Dispense with activating treatment.

Protein Precipitation Plates

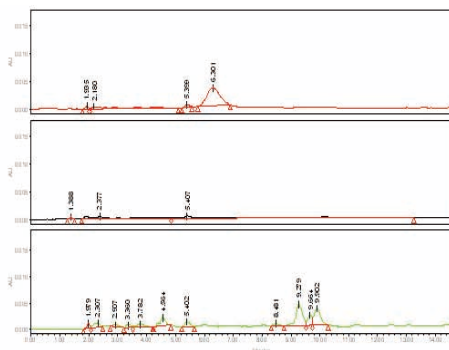


Membrane Filters



Materials: Cellulose Acetate, Nylon,
PVDF, PTFE;
Pore sizes: 0.22µm, 0.45µm;
Diameters: 13mm, 25mm, 50mm;
Custom sizes available upon request.

Comparison of Clean Performance of Three Brands' Filters



2487 UV Detector Column: Venusil ASB C18,
4.6×250mm, 5µm ; Mobile Phase: Water:
ACN= 22: 78 ; Wave Length: 251 nm

Membrane Filter Ordering Information

Material	Diameter(mm)	Pore Size	Qty	Cat. No.	Price(USD)
Cellulose Acetate	13	0.45µm	100/pk	AM011345	45.00
	25	0.45µm	100/pk	AM012545	59.00
	50	0.45µm	100/pk	AM015045	85.00
Nylon	13	0.45µm	100/pk	AM021345	45.00
	25	0.45µm	100/pk	AM022545	59.00
	50	0.45µm	100/pk	AM025045	85.00
PVDF	13	0.45µm	100/pk	AM031345	85.00
	25	0.45µm	100/pk	AM032545	159.00
	50	0.45µm	100/pk	AM0315045	199.00
PTFE	13	0.45µm	100/pk	AM041345	85.00
	25	0.45µm	100/pk	AM042545	149.00
	50	0.45µm	100/pk	AM045045	199.00

* Price only for USA.

96-well Filtration Plate and Collection Plate Ordering Information

Type	Vol	Qty	Cat No.	Price(USD)
Filtration plate	2mL	10	FTPP2002-01	190.00
PP frits 20µm	1mL	10	FTPP2001-01	190.00
Filtration plate	2mL	10	FTPF4502-01	290.00
PTFE membrane 0.45µm	1mL	10	FTPF4501-01	290.00
Filtration plate packed with	2mL	10	FTFT1002-01	590.00
earth diatomaceous 100mg	1mL	10	FTFT1001-01	590.00
Protein precipitation plates	2mL	10	PPPC1002-01	390.00
and collection	1mL	10	PPPC1001-01	390.00
Collection plate, round bottom	2mL	50	CLCM0002-01	120.00
	1mL	50	CLCM0001-01	120.00
96 well cap mats	—	50	CLCM9600-0	120.00

Glass Filtration System

The system includes a borosilicate glass funnel, a sintered borosilicate glass membrane core on the neck, aluminum clamp, and borosilicate glass filter flask. It can be used with or without a membrane filter depending on the application requirement to filtrate organic or aqueous solution. It is also used for liquid degassing.

Funnel volumes: 300mL, 500mL

Pore size of the glass membrane core: 10µm

Flask volumes: 1000ml, 2000mL



■ Glass Filtration System Ordering Information

Funnel Volume (mL)	Flask Volume (mL)	Qty	Cat. No.	Price(USD)
300	1000	ea	AM3100	145.00
500	2000	ea	AM5200	155.00

* Price for USA only.



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ABN: ZL-04202 Rev.3