cobetter®
filtration

ViruClear VF

Virus Removal Filter

◀ Viruclear PVF Virus Removal Capsule Filter With PVDF Shell

ViruClear VF

Reliable & Effective Virus Removal Filter

▲ Viruclear VF Virus Removal Membrane Cassettes

At present, in the common drug virus removal process, virus removal filtration can be used as a effective physical steps for virus removal, due to its advantages such as simple and gentle operation,clear mechanism, easy validation, it has been widely used for virus safety assurance in purification processes.

At present, the most widely used is the virus removal filter with a cut-off pore size of 20nm.

Virus retention is achieved by size exclusion mechanism, and its mechanism of action is based on virus larger than the pore size of the filter membrane, the product passes through the filter membrane and the virus is retained, which can be removed viruses with an envelope or without envelopes, and at the same time based on the molecular size retention mechanism, in addition to virus filters,the 20nm interception pore size can not only be used to effectively remove parvoviruses, but also It can also effectively remove mouse leukemia virus with a diameter of 80-100nm and other types of virus particles

Cobetter Viruclear VF adopts a continuous gradient structure of PES membrane, which greatly increases the foulant holding space, and has a strong retention capacity for large-particle impurities, e.g., aggregates.The downstream side is composed of a 20nm-resolution filter membrane with a uniform pore size distribution, which can achieve a robust retention capacity for parvovirus and better response to extreme filtration test challenges like pressure interruption. Viruclear VF virus removal filter membrane adopts a highly hydrophilic formula, which effectively improves the hydrophilicity of the PES membrane, and has a higher flux and capacity on the filtration for high-concentration, more hydrophobic materials. At the same time, Viruclear VF virus removal filter can be used for robust linear process scale-up, and online integrity testing. Cobetter has independent intellectual property rights and has applied for many inventions.

Viruclear VF virus removal filter membrane adopts a high hydrophilic formula, which effectively improves the hydrophilicity of PES membrane, and has a Higher flux and capacity. At the same time, Viruclear ® VF virus removal filters enable robust linear process scale-up and can be tested for integrity in-line.

Features

- PES membrane has a unique surface hydrophilic improvement,which endows virus removal membranes with high filtration capacity and high recovers
- Asymmetric membrane structure, high porosity, which endows the membrane with high flux
- Water flux greater than 600LMH@30psi 25°C
- Narrow pore size distribution gives the membrane good separation performance
- Robust parvovirus removal capacity
- Mode virus removal rate ⩾ 4.0log
- Maintain robust virus removal capacity capacity even under process interruption
- Good chemical stability
- Easy to install, use and test

Typical Application

Monoclonal antibody

Bispecific monoclonal antibody

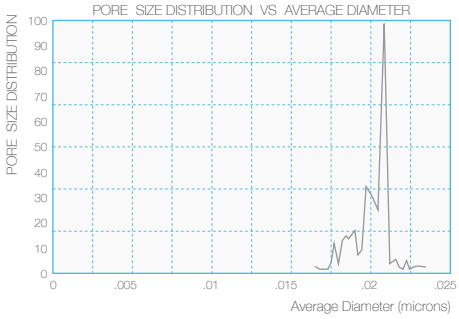
Fc fusion protein

Nanobody

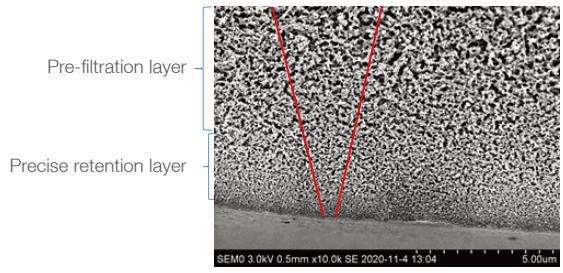
Recombinant Covid-19 vaccine

Small molecule recombinant proteins (< 180 kD), etc.

Virus Removal Filter Membrane Pore Size Distribution



Viruclear VF membrane pore size distribution



SEM image of virus removal filter membrane

Product Specifications

	Product Specifications	Effective Filtration Area	Application
Application	DS series	2.5/2.8cm²	For process development and virus clearance validation research
	Membrane filter	4.1cm²	For process development and virus clearance validation research
	Pilot device	0.017/0.07/0.22m²	≤200L
	Production device	0.50/1.50m²	>200L
Nylon Pre-filtration	DS series	3.4cm²	For process development and virus clearance validation research
	Pilot device	0.025/0.12/0.30m²	≤200L
	Production device	0.60/1.20/1.8m²	>200L
Depth Pre-filtration	DS series	4.5cm²	For process development and virus clearance validation research
	Pilot device	0.027/0.15/0.4m²	≤200L
	Production device	0.92/1.1m²	>200L

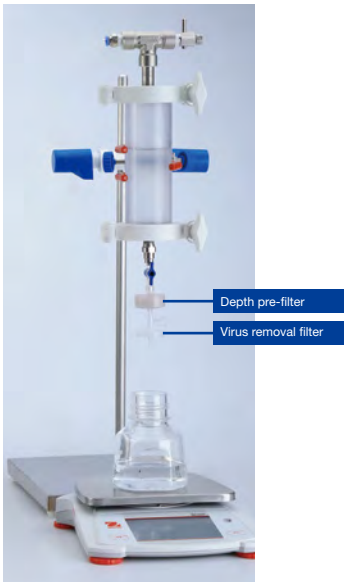
Material of Products

	Specifications	Material of Membrane	Format	Shell	Effective Filtration Area	Accessories Material
Removal Virus	DS series	PES	Syringe filter	Polypropylene	2.5/2.8cm²	-
	Pilot device	PES	Disposable capsule filter	Polyvinylidene fluoride	0.017/0.07/0.22m²	Silicone、Polypropylene
			Membrane Cassette	Silicone	0.018/0.08/0.26m²	Polypropylene
	Production device	PES	Disposable capsule filter	Polyvinylidene fluoride	0.50/1.50m²	Silicone、Polypropylene
			Membrane Cassette	Silicone	0.50/1.50m²	Polypropylene
Nylon Pre-filtration	DS series	Nylon	Syringe filter	Polypropylene	3.4cm²	Silicone
	Pilot device	Nylon	Disposable capsule filter	Polypropylene	0.025/0.12/0.30m²	Silicone
	Production device	Nylon	Disposable capsule filter	Polypropylene	0.60/1.20/1.80m²	Silicone
Depth Pre-filtration	DS series	Cellulose, diatomite	Syringe filter	Polypropylene	4.5cm²	Silicone
	Pilot device	Cellulose, diatomite	Disposable capsule filter	Polypropylene	0.027/0.15/0.4m²	Silicone
	Production device	Cellulose, diatomite	Disposable capsule filter	Polypropylene	0.92/1.1m²	Silicone

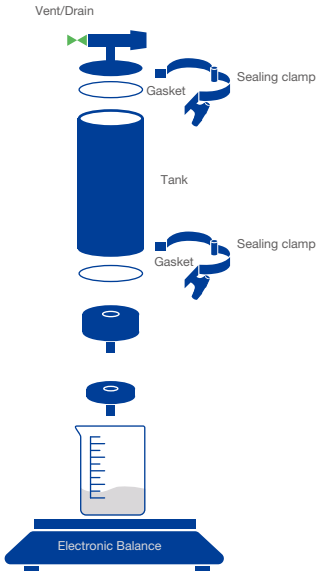
Virus Clearance Filtration Process Development Service

Our technical engineers will work with customers to optimize the process parameters during the virus clearance filtration process to obtain a robust, efficient and economical filtration operation.

Virus Removal Filter Filterability Testing Device



Virus Removal Filter Assembly Sketch Map



Optimization Strategy of Virus Clearance Filtration Process

Replace the traditional microporous pre-filter with the adsorption-type nylon membrane filter PNY

Adopt PDF depth pre-filter.

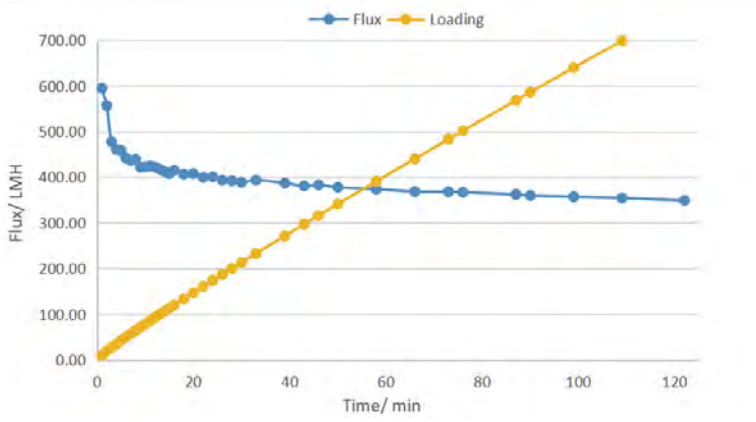
Increase the effective filtration area of PNY or PDF.

Dilute, and reduce protein concentration.

Optimize pH and conductivity of solution, and add stabilizer.

Customer Application Case

Test conditions: mAb concentration 12g/L; constant pressure 30psi; series filtration with PDF depth filter; After filtration, chasing with 30L/m2 Buffer



Filtration performance	Viruclear VF
Filtration time (min)	120
Flux decay at filtration endpoint(%)	27
Capacity at filtration endpoint L/m^2	775
Average flux(LMH)	380
Recover(%)	99

Order Information

Viruclear PDT Virus Removal Pre-Filter (Depth Filter)

V P	D T	□□	□□	P
Application	Material of Membrane	Type	Quantity/Package	Market
VP Viruclear PDF	DT Depth filter	DS Syringe filte ($4.5cm^2$)	N9 Only for syringe filter, 9pcs / pk N1 1pcs / pk	P Biopharmaceutical

Viruclear PDF Virus Removal Pre-Filter (Depth Filter)

V P	D F	□□	□□	P
Application	Material of Membrane	Type	Quantity/Package	Market
VP Viruclear PDF	DF Depth filter	L4 L08TT($0.027m^2$) SA CSCD($0.15m^2$) SC CSCE($0.4m^2$)	N1 1pcs / pk	P Biopharmaceutical

Viruclear PDF Virus Removal Pre-Filter (Depth Filter)

V P	D F	□□	□□	P
Application	Material of Membrane	Type	Quantity/Package	Market
VP Viruclear PDF	DF Depth filter	SB CSCB($0.92m^2$) SM CSCM($1.1m^2$)	N1 1pcs / pk	P Biopharmaceutical

Order Information

Viruclear PNY Virus Removal Pre-Filter (Nylon Filter)

V P	N Y	□□	□□	P
Application	Material of Membrane	Type	Quantity/Package	Market
VP Viruclear PNY	NY mNylon, Modified nylon membrane	DS Syringe filte ($3.4cm^2$)	N9 Only for syringe filter, 9pcs / pk N1 1pcs / pk	P Biopharmaceutical

Viruclear PNY Virus Removal Pre-Filter (Nylon Filter)

V P	N Y	□□□	□□	□□	P
Application	Material of Membrane	Type	Type	Quantity/Package	Market
VP Viruclear PNY	NY mNylon, Modified nylon membrane	C02 $250cm^2$ L02 $0.12m^2$ L05 $0.30m^2$	TT 3/4" TC	N1 1pcs / pk	P Biopharmaceutical

Viruclear PNY Virus Removal Pre-Filter (Nylon Filter)

V P	N Y	□□□	□□	□□	P
Application	Material of Membrane	Type	Type	Quantity/Package	Market
VP Viruclear PNY	NY mNylon, Modified nylon membrane	L10 $0.60m^2$ L20 $1.20m^2$ L30 $1.80m^2$	SS 1 1/2" TC	N1 1pcs / pk	P Biopharmaceutical

Order Information

Viruclear VF Virus Removal syringe filter with PP shell

V F	M P	□□	□□	P
Application	Material of Membrane	Type	Quantity/Package	Market
VF Virus filtration	MP mPES, Hydrophilic modified PES membrane	DS Syringe filter (2.5cm²) DB Syringe filter (2.8cm²)	N9 Only for syringe filter, 9pcs/pk (3 batchs, 3 pcs per batch) N1 1pcs / pk	P Biopharmaceutical

Viruclear VF Virus Removal membrane filter

V F	M P	□□	□□	P
Application	Material of Membrane	Type	Membrane Diameter	Market
VF Virus filtration	MP mPES, Hydrophilic modified PES membrane	FS Circular membrane, should be installed in holder to use	25 Only for membrane filter, diameter 25mm	P Biopharmaceutical

Viruclear PVF Virus Removal capsule filter with PVDF shell

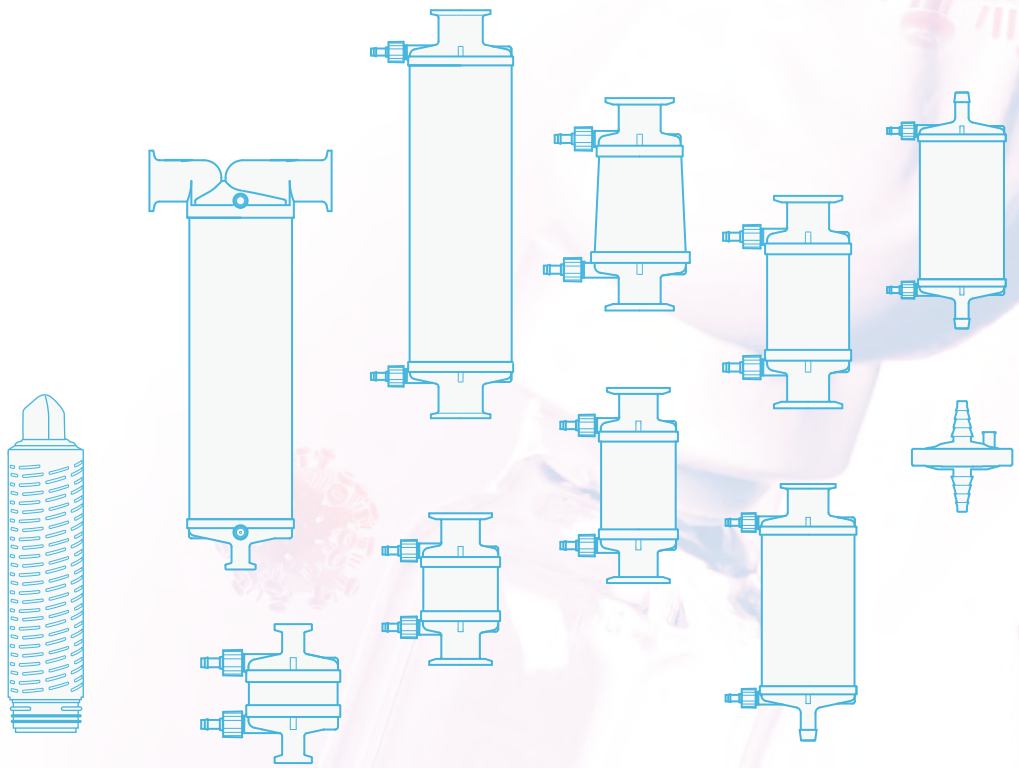
V F	E	S	□□	□□□	□□	P
Application	Material of Membrane	Configuration Code	Type	Filtration Area	Quantity/Package	Market
VF Virus filtration	E PES	S Standard	LA Lab(0.017m² & 0.07m²) FL Flow(0.22m² 0.50m² & 1.50m²)	002 0.017m² 008 0.07m² 026 0.22m² 050 0.50m² 150 1.50m²	N1 1pcs / pk	P Biopharmaceutical

Viruclear VF Virus Removal membrane cassettes

V F	M P	□□	□□	P
Application	Material of Membrane	Type	Quantity/Package	Market
VF Virus filtration	MP mPES, Hydrophilic modified PES membrane	A1 Pilot device 1 (0.018m²) A2 Pilot device 2 (0.08m²) B1 Amplification device 1 (0.26m²) B2 Amplification device 2 (0.5m²) B3 Amplification device 3 (1.5m²)	N1 1pcs / pk	P Biopharmaceutical

Our Mission

Through Excellent Products & Sustainable Innovative Solutions,
We Help Customers Solve Process Problems & Increase Yield.



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