



**Mini filter cartridges
and capsules**
for the biopharmaceutical
industry

Sartorius filter products – designed for the pharmaceutical industry



At Sartorius, we don't just sell you a filter. You work with experienced Sartorius filtration engineers, scientists and sales representatives who first gain a thorough understanding of your filtration needs. Only then do we offer a specific filtration system recommendation, based on an understanding of your production process. More than 60 years of expertise in filtration technology and support of applications, from laboratory bench scale to full manufacturing scale, stand behind our recommendations. For ongoing support, our sales representatives and customer service organization are available worldwide. With multiple manufacturing sites and fully stocked facilities worldwide, we are ready to respond to your product requirements at all times. We help you maintain productive and efficient use of your filtration products with a full range of support services, such as our ConfidenceSM Validation Service Program and filtration specialists who provide global support.

We offer a complete range of filtration products from prefiltration with depth filters to final sterilizing membrane filters, in products ranging from flat filter discs to capsules to standard filter cartridges.

Housings designed for all process scales, whether laboratory, pilot plant or full production, are available to match the requirements of your application.

Depth prefilters:

Sartorius polypropylene depth filters protect downstream membrane filters economically, are highly effective at cell removal and are the most inert depth filters available. Sartorius glass fiber depth filters add the power of adsorptive retention to the polypropylene filters' physical retention. Molecular force interaction between colloidal particles and the glass fibers results in retention of particles smaller than the rating, making Sartorius glass fiber filters very effective for clean-up of biological solutions. Sartorius filter elements containing glass fiber layers always include a downstream polypropylene layer or membrane to prevent fibers from shedding into the process solution.

Membrane prefilters.

Biological solutions can contain heavy loads of submicron particles which can quickly plug 0.2 µm and smaller membrane filters.

A prefilter element which combines layers of depth and membrane filters can more than double the throughput of downstream sterilizing-grade filters, making the entire process more economical.

The proper selection of prefilters, whether depth prefilters or membrane prefilters, will result in lower filtration costs with improved overall performance of the final filters. This can result in the uninterrupted filtration of complete batches without the need for oversized filter systems or costly change-outs during filtration.

Final sterilizing grade filters.

The highly uniform, porous structure of these sterilizing grade membrane filters provide highly effective filtration by retaining particles and bacteria absolutely, with 100 % retention. The Sartorius product range of sterilizing grade filter elements for liquids consists of 3 different types of hydrophilic membrane filters (Sartobran P, Sartopore 2, Sartolon) ideally suited for specific applications in the pharmaceutical industry.

Scale-up with Sartorius.

Our entire range of Sartobran P filter cartridges, for example, is made with the same membranes and materials of construction from the smallest element, our Sartobran 150, to capsules with a 0.015 m² (0.15 ft²) to 0.45 m² (5 ft²) filter area, all the way to our standard filter cartridge systems and Maxi Caps with up to 1.8 m² (18 ft²) filter area. This product selection gives you the opportunity to easily scale-up from R&D laboratory stages to pilot plant and production processes. Sartorius' philosophy of scaling up allows you to adapt the filter element size to meet your changing production needs and optimize your process by maximizing flow rates and throughputs.

ISO 9001 certified quality.

Sartorius is certified to meet the strictest of the ISO standards – ISO 9001. This covers our entire organization and ensures the highest of standards to provide for a quality management system ranging from R&D to production, warehousing, materials management and customer service. Our manufacturing facilities all operate in conformance with cGMP requirements, in addition to the ISO 9001 standards. Sartorius' philosophy on quality ensures that our customers receive products and services which meet the strictest quality controls and regulatory requirements. All Sartorius filter cartridges conform to testing protocols outlined in our Validation Guides as well as other in-house quality assurance tests. Total quality of the filter is assured from raw materials through final products, with complete in-process control testing along the way. Our sterilizing grade filter elements are 100 % factory pre-tested prior to release to assure the highest level of security and quality. Additionally, Sartorius filter capsules are certified as medical devices according to 93/42/21 EEC and labeled with a CE mark.

Audit our manufacturing sites.

At Sartorius, our filters are manufactured at facilities that meet the stringent needs of the pharmaceutical industry. All Sartorius facilities worldwide are audited on a regular basis and are available for you to audit.

Sartorius Validation Guides.

Sartorius filter cartridges are supplied with a quality assurance certificate to assist you in the validation of your manufacturing process. Comprehensive product specific validation packages are available for all Sartorius filter elements.

All Validation Guides for prefilter cartridges or sterilizing membrane filter cartridges contain the following information:

- Technical specifications for the filters
- Biological Safety Testing, including the current USP Class VI Plastics Test
- Extractable testing
- Filtrate analysis according to the current USP
- Chemical compatibility information

These results are included in the Sartorius Drug Master File – DMF 5967 at the U.S. Food and Drug Administration (FDA).

Process validation.

To validate the filtration products for your process, Sartorius offers a wide range of validation support services. Sartorius has assisted pharmaceutical manufacturers in validating their products and fulfilling the requirements for process validation relating to the use of filtration products. Utilization of these support services is growing as regulatory requirements change.

Applications and technical support.

Whether you have a technical question regarding the specifications of our filter products or require assistance in filter selection, our Applications Department is available to offer you assistance. We can perform filterability testing to properly select and optimize your filtration process, both in our laboratories or at your facilities. Filtration process audits can also be performed to assure the maximum performance of your filtration systems.

Training seminars.

Sartorius offers a comprehensive training program for filter users. This seminar series covers topics including:

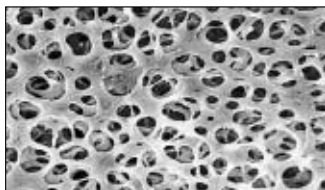
- General Filtration Theory
- Integrity Testing
- Crossflow Filtration and Technology
- Process Design
- Validation of Filtration Systems

These are available at your site for the training and continued education of personnel in your facilities.

For more information or immediate assistance, contact your local Sartorius representative.



Sartobran® P



Applications

Reliable and validated retention of microorganisms and particles by fractionated membrane filtration using low adsorption membranes.

Pleating Construction

Protective polypropylene layer
Reinforced cellulose acetate membrane
Reinforced cellulose acetate membrane
Polypropylene drainage layer

Material

Capsule housing, outer support, core and end caps: polypropylene

Mini Cartridge O-rings

Standard: Silicone
Optional: EPDM, Viton

Available Pore Size Combinations

0.65 + 0.45 μm
0.45 + 0.2 μm
0.45 + 0.1 μm

Capsule Connectors

(Inlet|Outlet)
SS = 1 1/2" Tri-Clamp
(Sanitary)
OO = hose barb

Construction Codes

Mini Cartridges: 15; 18
Capsules: 13

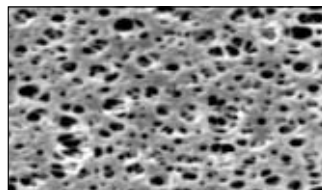
Filtration Areas

0.015; 0.03; 0.05; 0.1; 0.2; 0.45 m^2 |
0.15; 0.3; 0.5; 1; 2; 5 ft^2

Basic Order Number

523...

Sartopore® 2



Applications

Reliable and validated retention of microorganisms and particles by fractionated membrane filtration over the entire pH range.

Pleating Construction

Protective polypropylene layer
Polyethersulfone membrane
Polyethersulfone membrane
Polypropylene drainage layer

Material

Capsule housing, outer support, core and end caps: polypropylene

Mini Cartridge O-rings

Standard: Silicone
Optional: EPDM, Viton

Available Pore Size Combinations

0.8 + 0.45 μm
0.45 + 0.2 μm
0.2 + 0.1 μm

Capsule Connectors

(Inlet|Outlet)
SS = 1 1/2" Tri-Clamp
(Sanitary)
OO = hose barb

Construction Codes

Mini Cartridges: 15; 18
Capsules: 13

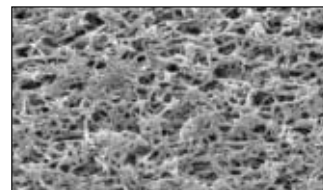
Filtration Areas

0.015; 0.03; 0.05; 0.1; 0.2; 0.45 m^2 |
0.15; 0.3; 0.5; 1; 2; 5 ft^2

Basic Order Number

544...

Sartolon®



Applications

Reliable and validated retention of microorganisms and particles by fractionated membrane filtration with broad solvent compatibility.

Pleating Construction

Protective polypropylene layer
Reinforced nylon membrane
Nylon membrane
Polypropylene drainage layer

Material

Capsule housing, outer support, core and end caps: polypropylene

Mini Cartridge O-rings

Standard: Silicone
Optional: EPDM, Viton

Available Pore Size Combinations

0.45 + 0.2 μm

Capsule Connectors

(Inlet|Outlet)
SS = 1 1/2" Tri-Clamp
(Sanitary)
OO = hose barb

Construction Codes

Mini Cartridges: 15
Capsules: 13

Filtration Areas

0.2 m^2 | 2 ft^2

Basic Order Number

510...

Sartofluor®



Applications

Retention of particles and microorganisms by membrane filtration. Strongly hydrophobic material for reliable sterile filtration of aggressive liquids, even of moist air and gases.

Pleating Construction

Protective polypropylene layer
PTFE membrane filter
Polypropylene drainage layer

Material

Capsule housing, outer support, core and end caps: polypropylene

Mini Cartridge O-rings

Standard: Silicone
Optional: EPDM, Viton

Available Pore Size Combinations

0.45 μm
0.2 μm
0.1 μm

Capsule Connectors

(Inlet|Outlet)
SS = 1 1/2" Tri-Clamp
(Sanitary)
OO = hose barb

Construction Codes

Mini Cartridges: 12, 15; 18
Capsules: 13

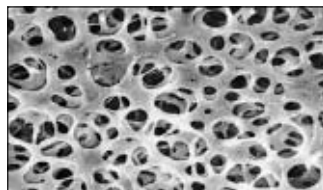
Filtration Areas

0.03; 0.05; 0.1; 0.2; 0.45 m^2 |
0.3; 0.5; 1; 2; 5 ft^2

Basic Order Number

518...

Sartoclean® CA



Applications

Prefiltration and clarifying membrane filtration in the production of vaccines and biological products. Prefiltration prior to liquid column chromatography.

Pleating Construction

Protective polypropylene layer
Reinforced cellulose acetate membrane(s)
Polypropylene drainage layer

Material

Capsule housing, outer support, core and end caps: polypropylene

Mini Cartridge O-rings

Standard: Silicone
Optional: EPDM, Viton

Available Pore Size Combinations

3+0.8 μm (double membrane)
0.8+0.65 μm (double membrane)
0.45 μm (single membrane)
0.2 μm (single membrane)

Capsule Connectors

(Inlet|Outlet)
SS = 1 1/2" Tri-Clamp
(Sanitary)
OO = hose barb

Construction Codes

Mini Cartridges: 15; 18
Capsules: 13

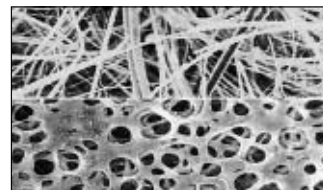
Filtration Areas

0.05; 0.1; 0.2; 0.45 m^2 | 0.5; 1; 2,
5 ft^2

Basic Order Number

562...

Sartoclean® GF



Applications

Clarification of heavily particle-laden solutions or colloidal suspensions. Especially suited for serum and plasma applications.

Pleating Construction

Protective polypropylene layer
Nonwoven glass fiber layers
Reinforced cellulose acetate membrane
Polypropylene drainage layer

Material

Capsule housing, outer support, core and end caps: polypropylene

Mini Cartridge O-rings

Standard: Silicone
Optional: EPDM, Viton

Available Pore Size Combinations

3+0.8 μm
0.8+0.65 μm

Capsule Connectors

(Inlet|Outlet)
SS = 1 1/2" Tri-Clamp
(Sanitary)
OO = hose barb

Construction Codes

Mini Cartridges: 15; 18
Capsules: 13

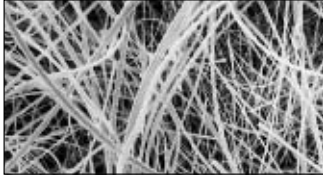
Filtration Areas

0.05; 0.1; 0.2 m^2 | 0.5; 1; 2 ft^2

Basic Order Number

560...

Sartopure® PP2



Applications

Fractionated, defined retention of particles by progressively finer depth filtration.

Pleating Construction

Protective polypropylene layer
Multiple polypropylene layers with progressively finer retention ratings
Polypropylene drainage layer

Material

Capsule housing, outer support, core and end caps: polypropylene

Mini Cartridge O-rings

Standard: Silicone
Optional: EPDM, Viton

Available Nominal Retention Ratings

20 µm 3 µm
8 µm 1.2 µm
5 µm 0.65 µm

Capsule Connectors

(Inlet | Outlet)
SS = 1/2" Tri-Clamp
(Sanitary)
OO = hose barb

Construction Codes

Mini Cartridges: 15; 18
Capsules: 13

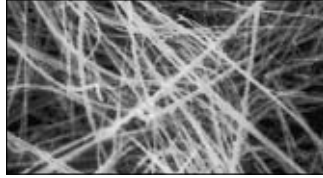
Filtration Areas

0.03; 0.05; 0.1; 0.2; 0.45 m² | 0.3;
0.5; 1; 2; 5 ft²

Basic Order Number

559...

Sartopure® GF2



Applications

Fractionated, defined retention of large particles and colloids by adsorption and depth filtration.

Pleating Construction

Protective polypropylene layer
Multiple nonwoven glass fiber layers with progressively finer retention ratings
Polypropylene drainage layer

Material

Capsule housing, outer support, core and end caps: polypropylene

Mini Cartridge O-rings

Standard: Silicone
Optional: EPDM, Viton

Available Nominal Retention Ratings

3.0 µm
1.2 µm
0.65 µm

Capsule Connectors

(Inlet | Outlet)
SS = 1/2" Tri-Clamp
(Sanitary)
OO = hose barb

Construction Codes

Mini Cartridges: 15
Capsules: 13

Filtration Areas

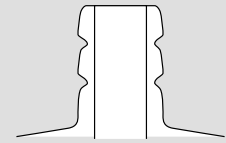
0.03; 0.05; 0.1; 0.2; 0.45 m² | 0.3;
0.5; 1; 2; 5 ft²

Basic Order Number

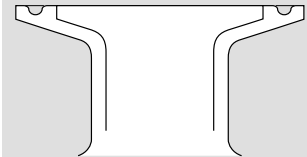
557...

Connectors

Capsule Connectors

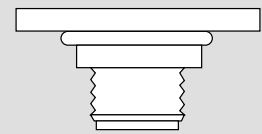


Hose Barb (Ø 14.5 mm)



1 1/2" Tri-Clamp (Sanitary)

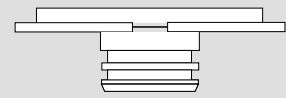
Mini Cartridge Connectors



Construction Code 12



Construction Code 15



Construction Code 18

Capsule ordering information

Type	Pore Size (µm)	Filtration Area 0.015 m ² 0.15 ft ²	Filtration Area 0.03 m ² 0.3 ft ²	Filtration Area 0.05 m ² 0.5 ft ²	Filtration Area 0.1 m ² 1 ft ²	Filtration Area 0.2 m ² 2 ft ²	Filtration Area 0.5 m ² 5 ft ²
Sartobran P	0.45		5231306D500B	5231306D7 B	5231306D8 B	5231306D9 A	5231306D0 V
	0.2	5231307H4 B	5231307H500B	5231307H7 B	5231307H8 B	5231307H9 A	5231307H0 V
	0.1		-	-	5231358H8 B	5231358H9 A	5231358H0 V
Sartopore 2	0.45		5441306G500B	5441306G7 B	5441306G8 B	5441306G9 A	5441306G0 V
	0.2	5441307H4 B	5441307H500B	5441307H7 B	5441307H8 B	5441307H9 A	5441307H0 V
	0.1	5441358K4 B	5441358K500B	5441358K7 B	5441358K8 B	5441358K9 A	5441307K0 V
Sartolon	0.2		-	-	-	5101307H9 A	-
Sartofluor	0.45		-	5181306T7 B	5181306T8 B	5181306T9 A	-
	0.2		5181307T500B	5181307T7 B	5181307T8 B	5181307T9 A	-
	0.1		-	5181358T7 B	5181358T8 B	5181358T9 A	-
Sartoclean CA	0.8		-	-	-	5621304E9 A	5621304E0 V
	0.65		-	-	-	5621305G9 A	5621305G0 V
	0.45		-	5621306A7 B	5621306A8 B	5621306A9 A	5621306A0 V
	0.2		-	5621307A7 B	5621307A8 B	5621307A9 A	5621307A0 V
Sartoclean GF	0.8		-	5601304E7 B	5601304E8 B	5601304E9 A	-
	0.65		-	5601305G7 B	5601305G8 B	5601305G9 A	-
Sartopure PP2	20		5591320P500B	5591320P7 B	5591320P8 B	5591320P9 A	5591320P0 V
	8		5591301P500B	5591301P7 B	5591301P8 B	5591301P9 A	5591301P0 V
	5		5591342P500B	5591342P7 B	5591342P8 B	5591342P9 A	5591342P0 V
	3		5591302P500B	5591302P7 B	5591302P8 B	5591302P9 A	5591302P0 V
	1.2		5591303P500B	5591303P7 B	5591303P8 B	5591303P9 A	5591303P0 V
	0.65		5591305P500B	5591305P7 B	5591305P8 B	5591305P9 A	5591305P0S V
Sartopure GF2	1.2		5571303P500B	5571303P7 B	5571303P8 B	5571303P9 A	5571303P0 V
	0.65		5571305P500B	5571305P7 B	5571305P8 B	5571305P9 A	5571305P0 V

■ Please replace the blanks with the appropriate two-letter combination for the capsule connectors (see order code information).

Mini cartridge ordering information

Cartridge Type	Pore Size Retention Rating (µm)	Filtration Area 0.05 m ² 0.5 ft ²	Filtration Area 0.1 m ² 1 ft ²	Filtration Area 0.2 m ² 2 ft ²
Sartobran P	0.45	5231506D7 B	5231506D8 B	5231506D9 B
	0.2	5231507H7 B	5231507H8 B	5231507H9 B
	0.1	–	–	5231558H9 B
	0.45	5441506G7 B	5441506G8 B	5441506G9 B
Sartopore 2	0.45	544150667 B	544150668 B	544150669 B
	0.2	5441507H7 B	5441507H8 B	5441507H9 B
	0.1	5441558K7 B	5441558K8 B	5441558K9 B
Sartolon	0.2	–	–	5101507H9 B
Sartofluor	0.45	–	–	5181506T9 B
	0.2	5181507T7 B*	5181507T8 B*	5181507T9 B*
	0.1	5181558T7 B	5181558T8 B	5181558T9 B
Sartoclean CA	0.8	–	–	5621504E9 B
	0.65	–	–	5621505G9 B
	0.45	5621506A7 B	5621506A8 B	5621506A9 B
	0.2	5621507A7 B	5621507A8 B	5621507A9 B
Sartoclean GF	0.8	5601504E7 B	5601504E8 B	5601504E9 B
	0.65	5601505G7 B	5601505G8 B	5601505G9 B
Sartopure PP2	20	–	–	5591520P9 B
	8	–	–	5591501P9 B
	5	5591542P7 B	5591542P8 B	5591542P9 B
	3	5591502P7 B	5591502P8 B	5591502P9 B
	1.2	5591503P7 B	5591503P8 B	5591503P9 B
	0.65	5591505P7 B	5591505P8 B	5591505P9 B
Sartopure GF2	1.2	–	–	5571503P9 B
	0.65	–	–	5571505P9 B

Mini cartridges with a filtration area 0.05 m²|0.5 ft² or 0.1 m²|1 ft² are optionally available with construction code 18.

*Sartofluor Mini cartridges with a 0.2 µm pore size are optionally available with construction code 12.

Order code information

Code	Cartridges Type
5 2 3	Sartobran P
5 4 4	Sartopore 2
5 1 0	Sartolon
5 1 8	Sartofluor
5 6 2	Sartoclean CA
5 6 0	Sartoclean GF
5 5 9	Sartopure PP2
5 5 7	Sartopure GF2

Code	Construction
1 2	Mini Cartridges (Ø 56 mm)
1 5	1/2" male thread
1 8	bayonet type
	double O-ring type (two outer O-rings)
1 3	Capsules (75 mm Ø) see connectors

Code	Pore Size Final Filter
2 0	= 20 µm
0 1	= 8 µm
4 2	= 5 µm
0 2	= 3 µm
0 3	= 1.20 µm
0 4	= 0.80 µm
0 5	= 0.65 µm
0 6	= 0.45 µm
0 7	= 0.20 µm
5 8	= 0.10 µm

Code	Pore Size Prefilter
A	no prefilter
P	only polypropylene layers
T	only one teflon membrane
E	3.00 µm
G	0.80 µm
D	0.65 µm
H	0.45 µm
K	0.20 µm

Code	Filtration Area
	Mini Cartridges or Capsules
4	0.015 m ² 0.15 ft ²
5	0.03 m ² 0.3 ft ²
7	0.05 m ² 0.5 ft ²
8	0.10 m ² 1 ft ²
9	0.20 m ² 2 ft ²
0	0.45 m ² 4.5 ft ²

Code	O-Ring for Standard Cartridges
- -	Silicone
- E	EPDM
- V	Viton
- P	PTTE-coated silicone

Code	Capsule connectors
O O	1/2" Hose barb (in out)
S S	1 1/2" Tri-Clamp (in out)

Code	Pack Size
V	box of 2
A	box of 4
B	box of 5

How to order: Sartobran P, Construction Code 15, 0.2 µm, Filtration Area 0.2m²

5 2 3 1 5 0 7 H 9 - - - - B

Sartorius AG
Weender Landstrasse 94-108
37075 Goettingen, Germany

Phone +49.551.308.0
Fax +49.551.308.3289

www.sartorius.com

Sartorius Corporation
131 Heartland Boulevard
Edgewood, New York 11717, USA

Phone +1.631.2544274
Fax +1.631.2544253
Toll-free +1.800.3687178

Sartorius Limited
Longmead Business Centre
Blenheim Road, Epsom, Surrey
KT19 9QN, Great Britain

Phone +44.1372.737100
Fax +44.1372.729972

Sartorius S.A.
4, rue Emile Baudot
91127 Palaiseau, France

Phone +33.1.69192100
Fax +33.1.69200922

Sartorius S.A.
c/Isabel Colbrand 10-12
Planta 4, Oficina 121
28050 Madrid, Spain

Phone +34.91.3586100
Fax +34.91.3588804

Sartorius S.p.A
Via dell'Antella, 76/A
50011 Antella (FI), Italy

Phone +39.055.634041
Fax +39.055.6340526

Sartorius K.K.
No. 3 Hoya Building 8-17
Kamitakaido 1-chome
Suginami-ku
Tokyo 168-0074, Japan

Phone +81.3.33295533
Fax +81.3.33295543