



Sartocool® PS  
For the best taste  
in cold-filtered beer

## Sartorius meets Quality

Our No. 1 priority is to offer you products and service of the highest quality at a long term.

You can rely on the superior quality of our products, because all raw materials, semi-finished and finished products according to our quality management system (certified for compliance with ISO 9001) to ensure 100% traceability at all times. Moreover, all raw materials, as well as semi-finished and final products including packaging materials, must meet exactly defined quality specifications and pass stringent quality control tests, which are completely traced and documented.

Particularly final membrane filters, such as Sartocool PS, must comply with the highest microbiological standards. Therefore, random samples of Sartocool PS cartridges taken from each lot must pass standard microbiological quality control tests.

All materials used in Sartocool PS filter cartridges meet FDA requirements and are therefore approved for use in the food and beverage industry without any restrictions. All polypropylene parts used comply with the current USP Plastic Class VI requirements and are biosafe.

## With Sartocool PS, Sartorius guarantees reliable performance

### Filter area.

Sartocool PS features high flow rates. However, its filter area of 0.79 m<sup>2</sup> per 10" cartridge is not the only feature responsible for its excellent flow rate performance. Each pleat of filter material has an optimal fold geometry because we carefully selected nonwoven material layers that are ideal for protection and drainage.

Sartocool PS's innovative membrane material, along with its filter area and construction, enables it to achieve a flow rate performance up to three times higher than that of conventional cartridges. These exceptionally high flow rates possible with Sartocool PS considerably reduce filter preparation time because you need less equipment for a smaller Sartocool PS filtration system.

### Chemical compatibility.

Sartocool PS cartridges are highly resistant to commercially available regeneration agents and procedures within the entire pH range of 1 to 14. Even if you accidentally use a treatment method not recommended in the instructions, you won't have to fear the consequences – shrinkage, hydrolysis or saponification that would irreversibly damage the filter simply will not occur.

Sartocool PS's polyethersulfone membrane gives it the mechanical stability required in many applications, such as for filling kegs. This new membrane material withstands the highest mechanical and thermal stress. Moreover, Sartocool PS has passed pressure pulsation tests thousands of times at a differential pressure of 75 psi (5 bar). Plus, it withstands 50 steam-sterilization cycles at 134°C, each lasting 30 minutes. This means that Sartocool PS will deliver reliable performance right up to the end of its service life, ensuring smooth operations.

### Low Adsorption.

The polyethersulfone membrane's slight adsorption of unwanted particles and colloids and proteins in beer reduce the load on the final membrane and does not affect the beer characteristics e.g. foam stability. In addition, this low adsorption makes it easier to regenerate the membrane. Unlike other membrane materials, the PESU membrane attains an above-average in-service life because of its slight adsorption.

### Hydrophilicity.

Many filter materials are hydrophobic by nature. During their manufacture, they must therefore be hydrophilized. The consistency of hydrophilization is responsible for constant flow rates. Many materials have hydrophobic spots left by inconsistent hydrophilization. That is why we gave careful attention to the consistency of hydrophilization right while Sartocool PS was on the drawing board. As a result, Sartocool PS reliably delivers consistently high flow rates throughout its service life, thus assuring smooth operations in this respect as well.



## Sartocool® PS

Low maintenance system, maximum process security

### Sartocool PS at a glance.

- Validated, testable reliability
- Optimized pore structure
- High flow rate performance [max. 10 hl / (30" × h)]
- Chemical compatibility pH 1–14

### Original quality.

All materials used in the Sartocool PS filter cartridge meet the stringent FDA requirements for use in the food and beverage industry. All polypropylene parts of the cartridge fulfill the requirements of the current USP Plastic Class VI tests to assure their biosafety. Among other properties, the unaltered stability of foam on freshly poured or tapped beer is proof of perfect filtrate quality – right from the beginning of filtration. In other words, beer filtered through Sartocool PS will retain its original quality in terms of taste and color.

### Sartocool PS and system design.

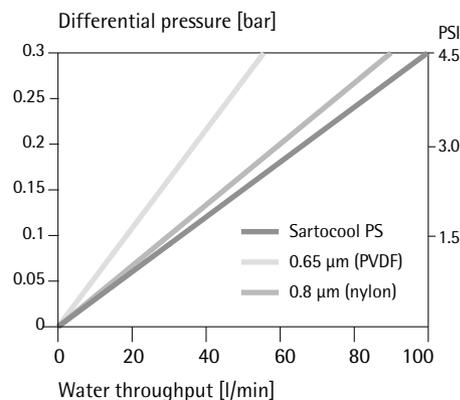
Sartorius has more to offer than a world class membrane filter. Sartorius supplies beer filtration systems all around the world. The system design covers single filtration systems for feed streams as well as planning, engineering and installation of Sartocool PS beer filter systems for manual, semi-automatic or fully automatized operation.

Whichever Sartocool PS system you choose, you'll be getting an easy-to-operate, low-maintenance system that provides maximum process security – plus it is so easy to integrate into existing production processes.

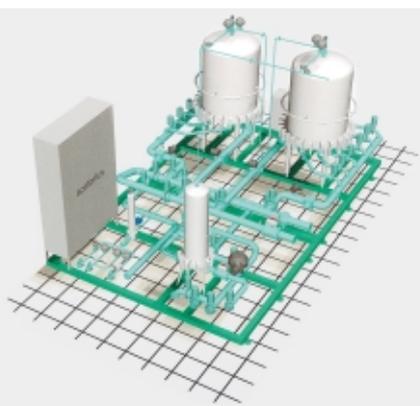
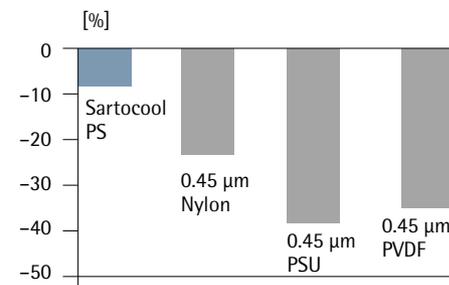
### The better taste of a cold filtered beer and the economical benefits.

Sartocool PS enables you to achieve high microbiological safety for your beer without any additional heat stress. More and more customers prefer cold filtered beer because of its natural taste. Sartocool PS is our way of matching your customer's requirements the best. Not only that we want to help you to satisfy your customers the best but Sartocool PS is the ideal membrane filter to reduce your overall filtration costs since chemical regeneration can be applied to this membrane filter element. How all this is done? Our specialists will be happy to give you a personal demonstration of the Sartocool PS innovation along with the wide range of products available for the processing of your beer.

Sartocool PS Water Flow Rates (l/min) for Cartridges at 20°C (10")



Stability: Reduction in Flow Rate after 20 Steam-Sterilization Cycles, 134°C, 30 Min.



# Sartocool® PS

## Advance filter cartridge technology

### Innovation.

Sartorius filtration specialists achieved a major innovation: Sartocool PS.

The most advanced filter materials and the latest manufacturing technologies have gone into the development of Sartocool PS filter cartridges. Their usage in countless breweries worldwide clearly attests their unique features and benefits.

### Construction.

Sartocool PS, a filter cartridge with a standard, 70-mm diameter, is available in 10" to 40" heights. It uses only two materials: polypropylene and polyethersulfone. During melt-sealing of the membrane to the core and cage-like outer support, no additional materials are employed. This means that there is no risk of filter materials being released into the product undergoing filtration.

### Ideal membrane geometry.

The innovative advantage of Sartocool PS is a special PESU membrane that ideally meets the requirements for the filtration of beer. The membrane geometry was especially developed to retain colloidal substances in the upstream part of the membrane and trust prevent the cartridge from early blockage.

### Microbiological safety.

Reliable removal of all potential beer-spoilage microorganisms is the No.1 criterion that filter cartridges must meet if they are to be used in microbe-retentive filtration of beer.

Requirements that are generally placed on microbe-retentive or sterilizing filter cartridges include the following:

- They must be integrity-testable
- They must be validated for reproducible retention of microbes

Sartocool PS exceeds these general requirements by specifically meeting the following conditions:

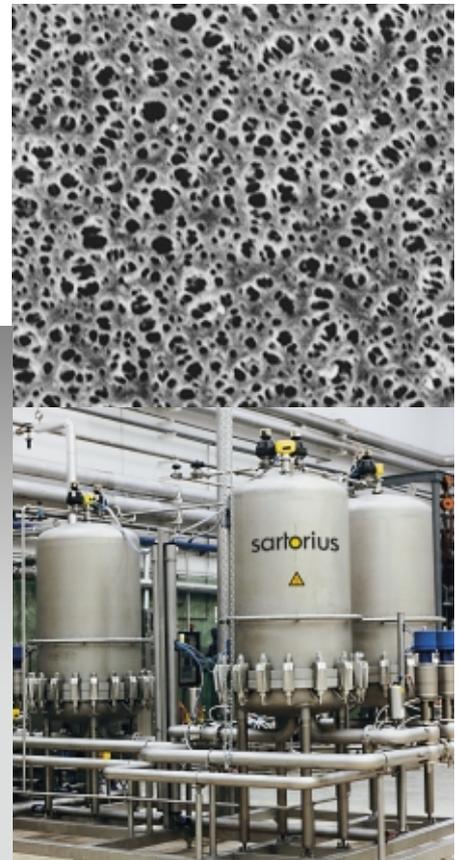
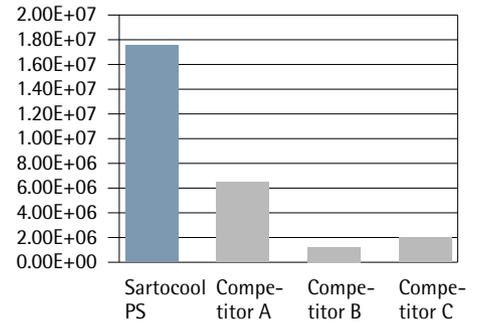
- Pore size of 0.45 µm
- Validated retention of at least 10<sup>7</sup> L. lindneri per cm<sup>2</sup>

A pore size of 0.45 µm correlated with a validated retention rating of 10<sup>7</sup> beer-spoilage microorganisms per cm<sup>2</sup> is proof that you do not need to make any compromises when it comes to microbiological security.

### Integrity testable.

The integrity of Sartocool PS membrane filter cartridges can be tested daily using the Sartocheck Junior integrity tester, for example. The integrity test serves two important purposes. First, it determines whether the filter cartridges are integer before filtration batch to be checked immediately at the end of a day.

Bacteria retention [CFU/cm<sup>2</sup>]



## Technical Specifications

Construction	Polyethersulfone membrane	
Pore size	0.45 µm	
Microbe retention	> 10 <sup>7</sup> /cm <sup>2</sup> (L. lindneri)	
Test pressure	1.2 bar (~7 psi)	
Max. allowable diffusion	15 ml/min × 10"	
pH compatibility	pH 1–14	
Filter area	0.79 m <sup>2</sup> / 10"	
Adapter types	25, 27, 28	
Max. differential pressure	5 bar (~72 psi) at 20°C   2 bar (29 psi) at 80°C	
Max. back pressure	2 bar (29 psi) at 20°C	
Sterilization	Hot water (85–95°C, 30 min.) Steam (110–121°C, 0.5–1 bar   7–14 psi for 20 min.)	
Number of steam-sterilization cycles	At least 50	
Materials	Membrane	Polyethersulfone
	Drainage layers	Polypropylene
	Core and outer support	Polypropylene
	End caps	Polypropylene
	O-rings	Silicone

## Ordering information

530	28	06	A	3	
					<b>Adapter</b>
					<b>Pore size</b>
					<b>Single-layer membrane</b>
					<b>Height</b>

### Adapter

25	S-adapter on top, 2-flange bayonet adapter with double O-ring on bottom
27	Closed adapter on top, double O-ring adapter on bottom
28	S-adapter on top, 3-flange bayonet adapter with double O-ring on bottom

### Pore sizes

06	0.45 µm
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### Heights

1	10" = 250 mm
2	20" = 500 mm
3	30" = 750 mm
4	40" = 1,000 mm

Sartorius AG  
Weender Landstrasse 94-108  
37075 Goettingen, Germany

Phone +49.551.308.0  
Fax +49.551.308.3289

[www.sartorius.com](http://www.sartorius.com)

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

Phone +1.800.3687178  
Fax +1.631.2544253

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  
Edificio Alfa III  
planta 4, of. 121  
28050 Madrid, Spain

Phone +34.91.3586100  
Fax +34.91.3588804

Sartorius S.p.A  
Via dell'Antella, 76/A

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

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