Separation solutions for the QA/QC lab: From prefiltration to sterile filtration and colony counting to air monitoring
When it comes to lab scale separation, we think small to detect microorganisms where they live and breed

At Sartorius, we have a think smart, think small philosophy. This means we focus on what we do best and then we do it very well. We are separation specialists in three key areas:
1. Pharmaceutical/ Biotechnology
2. Food and Beverage
3. Public Sector (e.g., hospitals, universities, water treatment and inspection labs).

We are very customer service oriented. We like being more focused, we can do more and get more involved with our customers.

Thinking small also means being as thorough as humanly possible. By paying attention to many of the “smaller” aspects of the lab separation process, we can make a big difference in your QA/QC, R&D or process lab to help you stop microbes before they stop your process.

Product selection made easy
This brochure is designed to help you quickly and easily locate the Sartorius lab separation solution right for your application. Here’s how it works:
The brochure is broken down into the following five sections:
1. Sterile Liquid Filtration
2. Sterile Air Filtration
3. Pre-filtration/ Particle Removal
4. Air Monitoring/ Sterility
5. Colony/ Particle Counting

Each page provides a brief description of all Sartorius products available on the general subject followed by a short list of sample applications. Finally, a color code to the right of each application indicates which industry or area the products are best suited for.

Start with Sartorius
Scale-up with Sartorius
Stay with Sartorius
Let’s face it, positive results in the lab that are not scaleable are not very positive. That’s why we’ve designed a complete range of prefilters, depth filters and final membrane filters to meet your growing requirements. The broad selection of Sartorius filters and cross-flow systems shown here make it easy to choose the membrane type, pore size and mode of filtration you need for a given volume.

Our commitment to you
Sartorius is a global company with over 70 years of experience in filtration, we offer:
- Worldwide fully-stocked facilities ready to respond to your filtration needs
- Testing and validation capabilities including bacterial challenge, integrity and extractable testing
- Products that meet or exceed standards such as ASTM F838-83 bacterial challenge and USP 23 requirements
- A responsive service team, available to help you maximize your process and minimize your costs.
Sterile liquid filtration for the QA/QC and R&D lab from pharmaceutical to cosmetics and food & beverage to water treatment

The Minisart® NML and the Minisart® plus

Minisart syringe filter units are engineered for greater throughput, faster flow, and broader chemical compatibility. It all starts with the membrane. Our Minisart high-flow units feature our new polyethersulfone (PESU) high-flow membrane. Our PESU membrane is an asymmetric, single-layer, high-flow membrane that assures exceptional chemical stability. So you benefit from high flow rates and throughput for the filtration of aggressive solutions. Our NML units incorporate a high-flow cellulose acetate membrane. The low adsorptive characteristics of cellulose acetate make these units ideal for protein separation. Our Minisart plus units also feature a low adsorptive cellulose acetate membrane combined with a glass fiber prefilter for up to twice the throughput of our standard Minisart syringe filter units.

The Sartolab® P20 and the Sartolab® P20 plus

Ideal for fast, reliable sterile filtration of tissue culture solutions, these ready-to-use pressure filtration units attach to a peristaltic pump for filtering volumes up to five liters. Whether media or aqueous solution, you’ll enjoy high flow rates and optimal total throughputs due to the large filtration area (20 cm²) and the automatic venting feature. Any trapped air will be vented out through one of the eight PTFE-membrane protected vent ports, ensuring that the entire filter surface is used. For more difficult to filter solutions, our Sartolab-P20 plus units contain a supplementary glass fiber prefilter for even higher throughputs.

The above comparison was made by filtering a contaminating culture medium containing 10% serum at 1 bar pressure.

Sample Applications for Minisart NML / plus 0.2µm
- Nutrient Media Additives
- Tissue Culture Media Additives
- Total Parenteral Nutrition
- Serum / Urine Samples
- Patient Serum (IVF)

Sample Applications for the SartolabP20/ plus 0.2µm
- Nutrient Media
- Tissue Culture and Bone Marrow Media
- Cell line Media
- Buffers and Emulsifiers
- Dilution Solutions
- Small lots of pharmaceuticals and cosmetics
Sterile air filtration for the QA/QC and R&D lab from pharmaceutical to cosmetics and food & beverage to water treatment

**The Minisart® HY**
Minisart-HY ready-to-connect units are ideal for sterile air venting of bottles and small containers. These 26mm units contain a polyester reinforced hydrophobic 0.2µm PTFE membrane in a MB Styrene housing featuring luer lock connections (female top, male bottom). Every batch of Minisarts is performance tested to ensure air flow rate of approx. 1.4 l/min at Δp = 0.1 bar and a housing burst pressure limit of no less than 6 bar. Minisart-HY units feature a generous 5.3cm² filtration area with a water penetration level of > 4 bar.

Minisart-HY units are available in two configurations:
- Sterile, individually packed (box of 50)
- Bulk packed, non-sterile (box of 500)

**The Minisart® SRP Family**
Minisart-SRP ready-to-use syringe filters are a fast, easy, reliable method for sterile venting of small bioreactors as well as venting applications for vacuum manifold systems. Each Minisart SRP features a hydrophobic PTFE filter membrane which is heat sealed in a rugged polypropylene housing. In addition, these units can be autoclaved multiple times.

**The Midisart® 2000**
Sterile venting was never easier. From fermenter to containers for culture media, these re-usable filtration units contain a naturally hydrophobic PTFE membrane for top performance in sterile venting. Designed for ease of handling and maximum reliability—tapered hose barb connections ensure a simple, secure hold for 6 to 12mm i.d. tubing. The lightweight (20g) units won’t weigh down or kink the tubing. The PTFE membrane is reinforced with polypropylene gauze for stability to pressures up to 3 bar. The large 20cm² filtration area allows high air flow rates at low differential pressures. Each unit will withstand at least 20 autoclaving cycles. And to avoid any confusion, a “memory disc” is supplied with each unit enabling you to clip or mark off each cycle.

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**Sample Applications for the Minisart HY 0.2µm and the Minisart SRP 0.45µm Family**
- Tissue Culture Containers
- Sterility Test Containers
- Product Container (e.g., cytotoxics)
- Cardioperfusion

**Sample Applications for the Midisart 2000 0.2µm**
- Fermenter Off Gasing
- Venting of Filling Machines

■ = Pharmaceutical / Cosmetic
△ = Food and Beverage
○ = Public Sector
Sartorius has your separation solutions for prefiltration and particle removal from 5 ml up to 20 liters

The Minisart® NML for sample preparation

Sartolab®-GF for product clarification

Minisart® RC/ SRP Family

Midisart® 2000 for sample preparation

Prefiltration/Particle Removal

Sample Applications for Minisart NML
- Prefiltration/Clarification
- Photometer Sample
- Refractometer Sample

Sample Applications for Sartolab-GF
- Pharmaceuticals
- Cosmetics
- Chemicals
- Media Preparation

Sample Applications for Midisart 2000 and Minisart RC/ SRP Family
- HPLC Sample Prep
- HPLC Mobile Phase
- Stain Clarification

- = Pharmaceutical/ Cosmetic
- = Food and Beverage
- = Public Sector

This hydrophilic membrane filter was designed for sample preparation of aqueous solutions. Our 0.8 µm unit is ideal for particle removal. For sterile filtration and removal of bacteria, our Minisart plus contains a 0.2 µm membrane with a glass fiber prefILTER membrane to optimize flow. A special interlocking feature of all Minisart syringe filters enables users to combine a 0.8 µm with a 0.2 or 0.45 µm unit reducing the number of steps needed to prep a sample. This built-in flexibility allows users to customize their filter sequence to best suit their needs.

Ideal for fast, product clarification of liquids containing a high particle load. These ready-to-use pressure filtration units attach to a peristaltic pump for filtering volumes up to 20 liters. Whether media or aqueous solution, you’ll enjoy high flow rates and optimal total throughputs due to the large filtration area (20 cm²) and the ability to remove a large variety of particle sizes. The depth filtration effect is performed by a special binder-free glass fiber filter.

From sample prep, to mobile phase to stain clarification—Sartorius Minisart-RC, Minisart-SRP and Midisart 2000 units provide a total solution. Minisart-RC syringe filter units feature a hydrophilic, solvent resistant regenerated cellulose membrane for rapid ultra-cleaning of small volume samples for HPLC or GC up to 100 ml. Minisart-SRP syringe filter units feature a clean and chemically inert PTFE membrane for up to 100 ml samples of more aggressive solvents and aqueous liquids.

Midisart 2000 is a larger pressure filtration unit which also contains a chemically inert PTFE membrane for filtration of the mobile phase.
We think small in air sampling to retain 99.9995% of bacillus subtilis niger and 99.94% of T3 coli phages.

**M D8 airscan and The Gelatin Membrane Filter Method**

The relentless existence and propagation of microorganisms is a small fact of life QA/QC managers and validation specialists must deal with. And growing regulatory requirements make it critical to employ a reliable air monitoring system and an accepted, validatable test method that eliminates any adverse effects on the test area.

The new MD8 airscan, air monitoring unit is specifically designed to work with the highly preferred Gelatin Membrane Filter Method. This innovative system is extremely easy to use and easy to install. Requires minimal space inside the critical test area. It meets or exceeds all regulatory requirements and has been optimized to eliminate false positive results.

**Sterisart® 2000**

The Sterisart 2000 is a complete sterility testing system in one compact package. Available in two versions: The Gamma 2000 version is double-packed, sterile for use in isolators and the Alpha 2000 version is single-packed, sterilized for use in laminar-flow environments. Sterisart 2000 handles all aspects of sterility testing—from transferring the sample to filtering and rinsing to incubating and observing the growth in the nutrient media. The system is ideal for investigation of both ampule and infusion solutions, as well as pharmaceutical routine testing and single investigations. Applications include open or closed systems, as well as aqueous solutions, and oils and solids after standard preparation.

**Here’s how it works**

The sample is drawn aseptically into the Sterisart tubing through a specially designed spike. At a constant rate, the peristaltic pump dispenses equal volumes of the sample into two test containers and the prescribed test media are added. The containers are then incubated under stipulated conditions (e.g., time and temperature). To evaluate the test, sterility of the sample is indicated by the absence of turbidity in the liquid culture medium.
How can you safely and economically detect microorganisms in raw materials, production and filling processes?

Biosart® 100 Monitors and Biosart® 250 Funnels

Biosart® 100 Monitors are specially developed for microbiological testing of beverages, pharmaceuticals, water, cosmetics and other liquid. Biosart 100 is an easy-to-handle, 100ml sterile disposable monitor with a 47mm or 56mm diameter membrane and pad. It is a ready-to-use filter unit designed to be placed onto the base of a vacuum manifold.

Biosart® 250 Funnel is a sterile plastic funnel for 250ml volumes. It reduces filtration and operation time in routine testing. A gridded membrane is placed on the filter support of a stainless steel holder and the Biosart 250 unit is attached for vacuum filtration of the sample. The optimized inner diameter allows highest flow rates and the tapered interior guarantees thorough rinsing of the system.

Combisart® vacuum manifold.

One reliable QA/QC system.
Six flexible choices.
Detection of unwanted microorganisms is a standard practice for QA/QC managers. What's not standard practice is the universal compatibility of QA/QC manifold systems. Unless, of course, you think smart, think small, think Sartorius. Thinking smart means designing a ready-to-use system with universal connections so that one Sartorius CombiSart manifold works with any combination of our six different funnel systems. From the Biosart family to stainless steel to polycarbonate to glass and from 47mm up to 5 liters there is a Sartorius QA/QC system for your application.

Thinking small means we continually make little improvements to our microbial detection systems for maximum safety, ease of use and performance.

Sample Colony Counting Application

- Water/ wastewater
- Raw material QC
- In-process sample QC
- Final product QC

Sample Particle Counting and Gravimetric Applications

- Samples taken at several points of production line

= Pharmaceutical/ Cosmetic
△ = Food and Beverage
○ = Public Sector
It's no small secret: We want your business and will go around the world to convince you to think smart, think small, think Sartorius!

Call us for sales, service and validation support, worldwide

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Focus on Scale-up