



sartorius stedim
biotech

Minisart® Syringe Filters



turning science **into solutions**

Table of Contents

■ Sterile Filtration page 7

Removal of microorganisms
and particles from liquids
with hydrophilic Minisarts®,
pore sizes $\leq 0.2 \mu\text{m}$

■ Sterile Venting page 15

Removal of microorganisms and
particles from gases and air with
hydrophobic Minisarts®,
pore sizes $0.2 \mu\text{m}$ and $0.45 \mu\text{m}$

■ Chromatography page 23
 Sample Preparation

Ultra-cleaning of small volume
samples with chemical resistant
Minisarts®, pore sizes $0.2 \mu\text{m}$
and $0.45 \mu\text{m}$

■ Clarification page 33

Ultra-cleaning, purification
and pre-filtration of liquids
with hydrophilic Minisarts®,
pore sizes $\geq 0.45 \mu\text{m}$

■ Medical Applications page 43

Minisarts® for the use in hospitals,
pharmacies and for direct patient
care, syringe filters with various
pore sizes

■ Chemical page 52
 Compatibility page 52
 Index page 55

Sales and Service Contacts page 56

Minisart® product overview and user's application guide





Sartorius Stedim Biotech brings more than 70 years of worldwide experience in membrane technology to each application. As a leading international supplier, we provide innovative products, cost-effective solutions, certified quality and superior technical support.

Company Profile

Increasing our high quality standard

We place our highest priority on quality. From product design, testing and production to marketing and administration, quality assurance is our most important parameter. Sartorius Stedim Biotech is also an accredited institution, playing a major role in quality assurance issues, including the development of new standards.

Innovative manufacturing processes

Our casting equipment for manufacturing filter membranes have set new process and environmental standards in Germany and throughout the world. We recycle 99% of the solvents used in production and reuse 96% of the recycled material in our production processes.

Application research and development

Sartorius Stedim Biotech relies on their customers for input and experience to help guide our new product development. This interaction helps the R&D team to

create innovative products and systems that meet customer needs and exceed customer expectations. Today, in cooperation with our partners and accredited science and research institutes at industrial centers throughout the world, Sartorius Stedim Biotech is developing international standards of technology for tomorrow.

Up-to-date expertise through training

We stress continuous training and qualification of our employees in all areas. We also offer standard or customized training programs for our customers employees who work with Sartorius Stedim Biotech products.

cGMP Quality and its assurance

Consistent high quality of our Membrane Filters, Minisart® syringe filters are assured by careful selection of the raw materials. The production process and the efficient Quality Assurance procedure is well-planned and validated, all of which results in high batch-to-batch reproducibility. The test procedures used are based both on external standard methods, such as the USP, EP and ASTM, and on in-house methods which are the result of Sartorius Stedim Biotech's experience over the past 70 years.

BIOCOMPATIBILITY CERTIFICATE	
Test material:	Medical High-Flow tips, representing syringe filter with PES housing and PES membrane Order No.: 16532 - GUM Lot No.: 16532 005729
Analysed:	16/07/2012 ThermoLabs GmbH ThermoLabs GmbH ThermoLabs GmbH
Results performed:	The following studies were performed in order to determine the biocompatibility of the device. The material was processed according to the manufacturing process of 16532/005729-A3.
CYTOTOXICITY HAEMLYSIS TEST USP BIOLOGICAL TESTS (CLASSIFICATION V121 "C")	
Results:	The test items did not show any effect in the performed studies and meets the criteria of USP Biological Tests (Classification II). No hazardous substances with cytotoxic or haemolytic potential were released from the test item.
BSL BIOSERVICE Scientific Laboratories GmbH Bismarckstr. 4 D-63129 Pfungau	
 G. Grottel (Name) Manager Quality Testing Date: October 10, 2012	

BIOCOMPATIBILITY CERTIFICATE	
Test material:	Minicart type, representing syringe filter with SBS housing and PTFE membranes Order No.: 10396 - MYN Lot No.: 10396 003737
Supplier:	3-4-17 Schiedsberg 69126 Heidelberg (Germany)
Studies performed:	The following studies were performed to demonstrate the device compatibility according to the manufacturing of
EXOTOXICITY HAEMOLYSIS TEST USP BIOLOGICAL TESTS (CLASSIFICATION V121)	
Results:	The test items did not show studies and meets the criteria Classification 10, No toxic (completely potential) www.bion
BIO INCOMPATIBILITY Scientific Label 3-4-17 Schiedsberg 69126 Heidelberg	
	Test material:
Dr. Doreen Bommert Regional Technical Testing Date: October 10, 2020	Supplier:
	Studies performed: The following

Test material:	Moisture type, representing springs filter with BMS Resin and CA membrane Order No.: 10034 - R Lot No.: 76234 00009
Supplier:	SARTORIUS AG Strümpker Landstraße 100, D-47797 Osterath
Studies performed:	The following studies are performed in order to determine the compatibility of the device. The results are produced according to the manufacturing process at SARTORIUS AG.
CYTOTOXICITY ISO 10993 TEST USP BIOLOGICAL TESTS (GLASSIFICATION VI21 TC)	
Results:	The test item did not show any effect in the performed studies and meets the criteria of USP Biological Tests Classification VI. No leachables substances with cytotoxic or toxicologic potential were released from the test item.
ISO 10993/ISO 10993-1 (Leachables) tested Springstraße 3 D-47797 Osterath	
Dr. David Schumacher Biological Safety Testing Date: October 16, 2019	

[illegible]

EC-CERTIFICATE
DQS GmbH
Deutscher Institut für Zertifizierung und Managementleistungen
Quality enables the way to success

 sartorius stedim
s i e d i m
Sartorius Steidim Betriebs GmbH
Kugler-Straße 10a 11
D-37075 Göttingen
Tel. 0551 309-1111
Fax 0551 309-1112
E-Mail info@stedim.de
Web www.stedim.de

Quality Management System
An audit, administered in accordance with ISO 9001, has confirmed that the quality management system conforms the requirements of
Annex B of Directive 90/269/EEC
and complies with the following standard:
DIN EN ISO 9001:2008

EC-CERTIFICATE
DQS GmbH
Deutscher Institut für Zertifizierung und Managementleistungen
Quality enables the way to success

 sartorius stedim
s i e d i m
Sartorius Steidim Betriebs GmbH
Kugler-Straße 10a 11
D-37075 Göttingen
Tel. 0551 309-1111
Fax 0551 309-1112
E-Mail info@stedim.de
Web www.stedim.de

EC-CERTIFICATE
DQS GmbH
Deutscher Institut für Zertifizierung und Managementleistungen
Quality enables the way to success

 sartorius stedim
s i e d i m
Sartorius Steidim Betriebs GmbH
Kugler-Straße 10a 11
D-37075 Göttingen
Tel. 0551 309-1111
Fax 0551 309-1112
E-Mail info@stedim.de
Web www.stedim.de

[illegible][illegible]

Quality Assurance

Adherence to cGMP requirements (clean-room conditions, gowning and employee hygiene, etc.) which are monitored by documented in-process-controls, ensures optimal quality control in standard operating procedures for production. Finished Minisart® syringe filters undergo final product quality control. This involves 100% non-destructive testing of each individual product and other individual tests carried out on a representative number of samples. A lot is not released until all in-process and final quality control data are available and within their specifications.

Complete Traceability

The product name, product description, article code, pore size, sterilization method, expiration date, product lot number and the CE mark is printed on each individual blister lid and on the label of the box in which the Minisart® syringe filters are packed. In addition, the pack size and the barcodes for article code and lot number are printed on the label of the box. The traceable lot number allows convenient retrieval of all data complied on the materials used, production steps and QC tests.

DIN ISO 9001 Certificates

The quality management system of Sartorius Stedim Biotech GmbH meets the requirements of DIN EN ISO 9001 and has been certified by DQS, the German Association for the Certification of Quality Systems.

Certificate of product

The certificate in every package of Minisart® syringe filters documents passing of quality assurance tests as well as compliance with HPLC instruments for Minisart® RC and SRP.

Declaration as Medical Devices

In addition, the Sartorius Stedim Biotech Quality Management System fulfills the requirements of the DIN EN ISO 13485, the harmonized standard for Quality Systems for Medical Devices.

Declaration of Conformity CE

As part of the CE-marking Procedure, the Sartorius Stedim Biotech Quality Management system fulfills and is certified according to EU Guideline 93/42/EEC Annex II, setting specific requirements for medical devices. On the basis of this certification as well as appropriate documentation, the declaration of conformity for Minisart® syringe filters was obtained.

Biocompatibility

Minisart® syringe filters are free of cytotoxic and haemolytic effects, they pass the USP Biological Tests (classification VI|121°C), Haemolysis Tests and the Cytotoxicity Tests.



Sterile Filtration

For sterilization of liquids, sterile filtration is the optimal method. It removes all microorganisms and particles reliably, without any influence of their ingredients, due to adsorption or decomposition. Beyond the sterility of pharmaceutical products, the absence of particles or dead microorganisms which may release pyrogens is very important. For optimal sterilization of liquids, syringe filters must provide high flow rates and low adsorption characteristics.

Sterile Filtration

Reliable removal of microorganisms and particles from liquids with Minisart® syringe filters with pore sizes $\leq 0.2 \mu\text{m}$

Applications

- : Sterile filtration of small volume liquids
- : Drug development studies
- : Product compatibility and recovery studies
- : Filterability testing
- : Separation of virus | bacteria suspension
- : Medical applications (see also page 43)

Minisart® Features

- : Low adsorption
- : Superior flow rate
- : High total throughput
- : Low hold-up volume
- : Particulate-free
- : Minimum extractables
- : Scaleable
- : Integrity testable
- : 100% integrity tested
- : Easy pore size identification
- : PVC-free



Additional Minisart® Features

- : Pre-sterilized or non-sterile
- : Gamma irradiated or EO sterilized
- : Fully validated
- : Certified quality
- : Maximum chemical compatibility
- : Various membrane diameters available
- : Various outlet connectors available
- : Bi-directional use
- : CE-marked

Media Types

- : Tissue culture-, nutrient-, cell line- and bone marrow media
- : Additives for tissue culture and nutrient media
- : Pharmaceuticals and cosmetics
- : Diagnostics
- : Buffers and emulsifiers
- : Biological- and dilution solutions

How do the Minisarts® meet my needs for my sterile filtration?

My Requirements are...

No interaction with the media

The composition of the ingredients of my media must stay the same prior to filtration

The syringe filter must not release any particles into my media

There should be no chemicals released from the syringe filter into my media

Any possible residues from Ethylene oxide must be avoided

The syringe filter should not be decomposed by solvents and aggressive solutions

The plastic materials must be carefully selected and should not contain any softening agent

The Minisart® Features are...

The Minisart® type should have the lowest adsorption of proteins and preservatives

The Minisart® type must be particulate-free

The Minisart® type should be extractable-free

The Minisart® type should be gamma irradiated

The Minisart® type should have a high chemical compatibility

The Minisart® type must be PVC-free

Superior performance

My filtration must be completed as fast as possible

I don't want to change the filter within one filtration campaign

The Minisart® type must have the highest flow rate

The Minisart® type must have the highest total throughput

Flexibility

The small volume filtration must easily transition to my pilot or production scale

The syringe filter must have an optimal ratio between speed and hold-up volume

I want to be flexible in the future to decide which connectors are ideal for my application

I don't want to be worry about the syringe filter orientation

The membrane within Minisart® must be available in filter units with larger filtration areas

The Minisart® type should be available with various diameters

The Minisart® type should be available with different outlet connectors

The Minisart® type should be used bi-directional

You can fold out the last page of this brochure to easily select your optimal Minisart® type for your sterile filtration with our **Application Guide Disc**.

Reliability & less validation work

My main prerequisite is the sterility of my media after filtration	The integrity of every single Minisart® unit is tested during manufacturing
I want to check the integrity of the syringe filter unit after use	The Minisart® type must be integrity testable
The syringe filter must provide documents to support my validation procedure	The Minisart® type must be validated and a Validation Guide should be available
I have to file a certificate which certifies the high quality of the syringe filter	The Minisart® type must have a certificate in each box
The pore size of the syringe filter must be clearly visible to me	The Minisart® type is color-coded or the pore size is printed on the housing
Any loss of my expensive media must be avoided	The design of the Minisart® type guarantees the lowest hold-up volume
The syringe filter is used for a medical application	The Minisart® type must have the CE mark

You can fold out the last page of this brochure to easily select your optimal Minisart® type for your sterile filtration with our **Application Guide Disc**.

Sterile Filtration: Minisart® Syringe Filters individually, sterile packaged

■ Minisart® high flow Syringe Filters,

for fastest sterile filtration and low binding, individually, sterile packaged, Polyethersulfone membrane, MBS² housing, connector inlet: Female Luer Lock, 50 units

Type	Pore size [μm]	Sterilization ¹	Color code	Connector outlet	MF Ø [mm]	Process volume ⁶	Order number
Minisart® high flow	0.1	EO	dark red	Male Luer Lock	28	100 ml	16553-----K
Minisart® high flow	0.2 ⁷	GI	royal blue	Male Luer Lock	28	100 ml	16532-----GUK
Minisart® high flow	0.2 ⁷	EO	royal blue	Male Luer Lock	28	100 ml	16532-----K
Minisart® high flow	0.2 ⁷	EO	royal blue	Male Luer Slip	28	100 ml	16541-----K

■ Minisart® NML Syringe Filters,

for fast sterile filtration and lowest binding, individually, sterile packaged, surfactant-free Cellulose Acetate membrane, MBS² housing, connector inlet: Female Luer Lock, 50 units

Type	Pore size [μm]	Sterilization ¹	Color code	Connector outlet	MF Ø [mm]	Process volume ⁶	Order number
Minisart® NML	0.2 ⁷	GI	blue	Male Luer Lock	28	100 ml	16534-----GUK
Minisart® NML	0.2 ⁷	EO	blue	Male Luer Lock	28	100 ml	16534-----K
Minisart® NML	0.2 ⁷	EO	blue	Male Luer Slip	28	100 ml	17597-----K
Ophthalsart	0.2	EO	pink	Male Luer Slip	28	100 ml	17528-----K

■ **Minisart® plus Syringe Filters,**

for fast sterile filtration of high particulate liquids, individually, sterile packaged, surfactant-free Cellulose Acetate membrane and GF² depth filter, MBS² housing, connector inlet: Female Luer Lock, 50 units

Type	Pore size [μm]	Sterilization ¹	Color code	Connector outlet	MF Ø [mm]	Process volume ⁶	Order number
Minisart® plus	0.2	GI	blue	Male Luer Lock	28 100 ml		17823-----GUK
Minisart® plus	0.2	EO	blue	Male Luer Lock	28 100 ml		17823-----K

■ **Minisart® NY25 Syringe Filters,**

for fast sterile filtration and high chemical compatibility, individually, sterile packaged, Nylon membrane, PP² housing, connector inlet: Female Luer Lock, 50 units

Type	Pore size [μm]	Sterilization ¹	Color code	Connector outlet	MF Ø [mm]	Process volume ⁶	Order number
Minisart® NY25	0.2	EO	printed ⁸	Male Luer Slip	28 100 ml		17845-----ACK

■ **Minisart® SRP Syringe Filters,**

for sterile filtration and maximum chemical compatibility, individually, sterile packaged, PTFE² membrane, PP² housing, connector inlet: Female Luer Lock, 50 units

Type	Pore size [μm]	Sterilization ¹	Color code	Connector outlet	MF Ø [mm]	Process volume ⁶	Order number
Minisart® SRP15	0.2	EO	printed ⁸	Male Luer Slip	15 20 ml		17573-----ACK
Minisart® SRP25	0.2	EO	printed ⁸	Male Luer Slip	25 100 ml		17575-----ACK

Sterile Filtration: Minisart® Syringe Filters non-sterile

■ Minisart® Syringe Filters,

for diverse sterile filtrations, non-sterile, 0.2 µm membranes, connector inlet: Female Luer Lock, 500 units

Type	MF Housing ²	Feasible sterilization ¹	Color code	Connector outlet	MF Ø Process volume ⁶	Order number
Minisart® high flow	PES MBS	EO, GI	royal blue	Male Luer Lock	28 100 ml	16532-----Q
Minisart® high flow	PES MBS	EO, GI	royal blue	Male Luer Slip	28 100 ml	16541-----Q
Minisart® NML	SFCA MBS	EO, GI	blue	Male Luer Lock	28 100 ml	16534-----Q
Minisart® NML	SFCA MBS	EO, GI	blue	Male Luer Slip	28 100 ml	17597-----Q
Minisart® plus	SFCA+GF MBS	EO, GI	blue	Male Luer Lock	28 100 ml	17823-----Q
Minisart®NY25	Nylon PP	EO, AU	printed ⁸	Male Luer Slip	25 100 ml	17845-----Q ⁵
Minisart® SRP4	PTFE PP	EO, AU	blue ⁸	Male Luer Slip	4 1 ml	17844-----Q
Minisart® SRP15	PTFE PP	EO, AU	printed ⁸	Male Luer Slip	15 20 ml	17573-----Q ³
Minisart® SRP15	PTFE PP	EO, AU	printed ⁸	Male Spike	15 20 ml	17558-----Q ³
Minisart® SRP25	PTFE PP	EO, AU	printed ⁸	Male Luer Slip	25 100 ml	17575-----Q ^{3,4}

For sterile filtration of larger volumes we recommend the use of Sartolab® P filter units, capsules and cartridge filters. Minisart® syringe filters with pore sizes > 0.2 µm are described under the section „Clarification“.

1) Sterilization

EO: Ethylene oxide | GI: Gamma irradiation | AU: Autoclave 121°C, 30 min

2) Materials

MBS: Meta acrylate butadiene styrene polymerisate | PP: Polypropylene

GF: Binder-free glass fiber depth filter | Nylon: Polyamide | PES: Polyethersulfone | PTFE: Polytetra-fluorethylene (hydrophobic material, hydrophilic after wetting with IPA) | SFCA: Surfactant-free Cellulose Acetate

3) Also available as box with 50 units: ----- Q replaced by -----K

4) Also available as box with 200 units: ----- Q replaced by -----S

5) Also available as box with 1,000 units: ----- Q replaced by -----R

6) The process volume is a recommended value and depends on the ratio of retentive substances

7) These Minisart® syringe filters are fully validated (Validation Guide can be obtained for Order No. SL-5707e)

8) The pore size and the type of membrane of 15 mm and 25 mm syringe filters is printed on the housing, 4 mm filter units are packaged in a color coded tray (blue for 0.2 µm, yellow for 0.45 µm)



Sterile Venting

For sterilization and removal of particles from air and other gases, filtration with PTFE membranes is the optimal method. It removes all microorganisms and particles reliably, in order to vent containers, fermenters and tubing systems in medical devices. The 100% hydrophobic character of the membrane ensures the availability of 100% of the filtration area at any time, because the membrane area could not cut down by wetting with aqueous solutions. Additionally the Minisart® syringe filters can be used bi-directional, which makes in-line use a lot easier.

Sterile Venting

Reliable removal of microorganisms and particles from air and gases with Minisart® syringe filters with pore sizes 0.2 µm and 0.45 µm

Applications

- : Sterile venting of fermenters
- : Sterile venting of containers
- : General sterile filtration of gases and air
- : Medical applications (see also page 43)

Minisart® Features

- : Superior flow rate
- : High total throughput
- : Bi-directional use
- : Certified quality
- : Integrity testable
- : 100% integrity tested
- : Minimum extractables
- : Scaleable
- : Easy pore size identification
- : Various outlet connectors available
- : Particulate-free
- : PVC-free



Additional Minisart® Features

- : Pre-sterilized or non-sterile
- : Gamma irradiated or EO sterilized
- : Fully validated
- : Maximum chemical compatibility
- : Various membrane diameters available
- : CE-marked

How do the Minisarts® meet my needs for my sterile venting?

My Requirements are...

No reduction in effective filtration area

The Minisart® Features are...

The Minisart® type must have a 100 % hydrophobic membrane

No interaction with the media

The syringe filter must not release any irritating particles into my container

The Minisart® type must be particulate-free

There should be no chemicals released from the syringe filter into my container

The Minisart® type should be extractable-free

Any possible residues from Ethylene oxide must be avoided

The Minisart® type should be gamma irradiated

The syringe filter should not be decomposed by solvents and aggressive solutions

The Minisart® type should have a high chemical compatibility

The plastic materials must be carefully selected and should not contain any softening agent

The Minisart® type must be PVC-free

Superior performance

The pressure compensation of my container must be completed as fast as possible

The Minisart® type must have the highest flow rate

I don't want to change the filter within one filtration campaign

The Minisart® type must have the highest total throughput

Flexibility

The small volume filtration must easily transition to my pilot or production scale

The membrane within the Minisart® must be available in filter units with larger filtration areas

The syringe filter must have an optimal ratio between speed and hold-up volume

The Minisart® type should be available with various diameters

I want to be flexible in the future to decide which connectors are ideal for my application

The Minisart® type should be available with different outlet connectors

I don't want to be worry about the syringe filter orientation, it should be optimal for in-line use

The Minisart® type should be used bi-directional

You can fold out the last page of this brochure to easily select your optimal Minisart® type for your sterile venting with our **Application Guide Disc**.

Reliability & less validation work

My main prerequisite is the sterility of the air or gas after filtration	The integrity of every single Minisart® unit is tested during manufacturing
I want to check the integrity of the syringe filter unit after use	The Minisart® type must be integrity testable
The syringe filter must provide documents to support my validation procedure	The Minisart® type must be validated and a Validation Guide should be available
I have to file a certificate which certifies the high quality of the syringe filter	The Minisart® type must have a certificate in each box
The pore size of the syringe filter must be clearly visible to me	The Minisart® type is color-coded or the pore size is printed on the housing
The syringe filter is used for a medical application	The Minisart® type must have the CE mark

You can fold out the last page of this brochure to easily select your optimal Minisart® type for your sterile venting with our **Application Guide Disc**.

Sterile Venting: Minisart® Syringe Filters individually, sterile packaged

■ Minisart® HY Syringe Filters,

for sterile venting, individually, sterile packaged, PTFE membrane, MBS⁴ housing, connector inlet: Female Luer Lock, 50 units

Type	Pore size [μm]	Sterilization ¹	Color code	Connector outlet	MF Ø [mm]	Order number
Minisart® HY	0.2	EO	transparent	Male Luer Lock	26	16596-----HYK

■ Minisart® Air,

with connected needle, for sterile venting, individually, double packaged, sterile, optimal for use in isolators, PTFE membrane, MBS⁴ housing, connector inlet: Female Luer Lock, 50 units

Type	Pore size [μm]	Sterilization ¹	Color code	Connector outlet	MF Ø [mm]	Order number
Minisart® Air	0.2 ⁵	GI	yellow	Male Luer Slip + needle	15	16596-----HNK

■ Minisart® SRP Syringe Filters,

for sterile venting, individually, sterile packaged, PTFE membrane, PP⁴ housing (pore size printed on), connector inlet: Female Luer Lock, 50 units

Type	Pore size [μm]	Sterilization ¹	Color code	Connector outlet	MF Ø [mm]	Order number
Minisart® SRP	0.2	EO	printed ⁶	Male Luer Slip	15	17573-----ACK
Minisart® SRP	0.2	EO	printed ⁶	Male Luer Slip	25	17575-----ACK

Sterile Venting: Minisart® Syringe Filters non-sterile

■ Minisart® Syringe Filters,

for sterile venting, non-sterile, PTFE membrane, 500 units

Type	Housing material ⁴	Pore size [µm]	Feasible sterilization ¹	Connector inlet	Connector outlet	MF Ø [mm]	Order number
Minisart® HY	MBS	0.2	EO	Female Luer Lock	Male Luer Lock	26	16596-----HYQ
Minisart® HY	MBS	0.2	EO	Female Luer Lock	Male Luer Slip	26	17595-----HYQ
Minisart® HY	MBS	0.2	EO	Male Luer Slip	Male Luer Lock	26	16599-----HYQ
Minisart® SRP4	PP ⁶	0.2	EO, AU	Female Luer Lock	Male Luer Slip	4	17844-----Q
Minisart® SRP15	PP ⁶	0.2	EO, AU	Female Luer Lock	Male Luer Slip	15	17573-----Q ²
Minisart® SRP15	PP ⁶	0.2	EO, AU	Female Luer Lock	Male Spike	15	17558-----Q ²
Minisart® SRP25	PP ⁶	0.2	EO, AU	Female Luer Lock	Male Luer Slip	25	17575-----Q ^{2,3}
NEW Minisart® HY	MBS	0.45	EO	Tube Connector Ø 5 mm	Tube Connector Ø 5 mm	26	40078-----Q
NEW Minisart® HY Res ⁷	MBS	0.45	EO	Tube Connector Ø 5 mm	Tube Connector Ø 5 mm	26	40080-----Q
Minisart® SRP4	PP ⁶	0.45	EO, AU	Female Luer Lock	Male Luer Slip	4	17820-----Q ²
Minisart® SRP15	PP ⁶	0.45	EO, AU	Female Luer Lock	Male Luer Slip	15	17574-----Q ²
Minisart® SRP15	PP ⁶	0.45	EO, AU	Female Luer Lock	Male Spike	15	17559-----Q ²
Minisart® SRP25	PP ⁶	0.45	EO, AU	Female Luer Lock	Male Luer Slip	25	17576-----Q ^{2,3}

■ Minisart® Air,

for sterile venting and gas filtration, non-sterile, gamma-irradiatable PTFE membrane, color code: yellow, 500 units

Type	Housing material ⁴	Pore size [μm]	Feasible sterilization ¹	Connector inlet	Connector outlet	MF Ø [mm]	Order number
Minisart® Air	MBS	0.2 ⁵	EO GI	Female Luer Lock	Male Luer Slip	15	1751A-----Q

For higher flow rates of gases we recommend the use of Midisart® filter units, Sartofluor® capsules and cartridge filters.

1) Sterilization: EO: Ethylene oxide | GI: Gamma irradiation | AU: Autoclave 121°C, 30 min

2) Also available as box with 50 units: -----Q replaced by -----K

3) Also available as box with 200 units: -----Q replaced by -----S

4) Materials: MBS: Meta acrylate butadiene styrene polymerisate | PP: Polypropylene
PTFE: Polytetra-fluorethylene

5) Minisart® Air is part of the fully validated Sterisart® NF system

6) The pore size and the type of membrane of 15 mm and 25 mm syringe filters is printed on the housing, 4 mm filter units are packaged in a color coded tray (blue for 0.2 μm, yellow for 0.45 μm)

7) Minisart® HY Res is a liquid barrier with reservoir. For technical information, please refer to the Technical Specification Disc under "Actiosart", with two exceptions: The connectors are tube connectors Ø 5 mm and Minisart® HY Res has no sealed 5 μm PTEE on the inlet.



Chromatography Sample Preparation

Reliable elimination of particles and microorganisms prior to chromatographic analysis is essential in order to protect your chromatography columns from fine particles or from premature plugging. The result spectrum must be free of ghost peaks, which may influenced by the filter unit. Syringe filters for these applications must provide the maximum chemical compatibility and minimum extractables combined with a low hold-up volume.

Chromatography Sample Preparation

Reliable ultra-cleaning of small volume samples
for HPLC | IC | GC with Minisart® syringe filters with
pore sizes 0.2 µm and 0.45 µm

Applications

- : Protection of columns and chromatography instruments
- : Dissolution testing

Minisart® Features

- : Low adsorption
- : Particulate-free
- : Maximum chemical compatibility
- : Minimum extractables
- : Superior flow rate
- : High total throughput
- : Low hold-up volume
- : Certified quality
- : Integrity testable
- : 100% integrity tested
- : Easy pore size identification
- : PVC-free
- : Bi-directional use



Additional Minisart® Features

- : Pre-sterilized or non-sterile
- : Various membrane diameters available
- : Various outlet connectors available
- : Scaleable

Media Types

- : Aqueous solutions
- : Solvents
- : Hydrocarbons

How do the Minisarts® meet my needs for my sample preparation?

My Requirements are...

No interaction with the media

The composition of the ingredients of my sample must stay the same prior to filtration

The syringe filter must not release any premature plugging particles into my sample

There should be no UV-absorbing chemicals released from the syringe filter into my sample (to avoid ghost peaks)

The syringe filter should not be decomposed by solvents and aggressive solutions

The plastic materials must be carefully selected and should not contain any softening agent

The Minisart® Features are...

The Minisart® type should have the lowest adsorption of proteins and preservatives

The Minisart® type must be particulate-free

The Minisart® type should be extractable-free

The Minisart® type should have a high chemical compatibility

The Minisart® type must be PVC-free

Superior performance

My filtration must be completed as fast as possible

I don't want to change the filter within one filtration step

The Minisart® type must have the highest flow rate

The Minisart® type must have the highest total throughput

Flexibility

The small volume filtration must easily transition to my pilot or production scale

The syringe filter must have an optimal ratio between speed and hold-up volume

I want to be flexible in the future to decide which connectors are ideal for my application

I don't want to be worry about the syringe filter orientation

The membrane within Minisart® must be available in filter units with larger filtration areas

The Minisart® type should be available with various diameters

The Minisart® type should be available with different outlet connectors

The Minisart® type should be used bi-directional

You can fold out the last page of this brochure to easily select your optimal Minisart® type for your sample preparation with our **Application Guide Disc**.

Reliability & less validation work

My main prerequisite is reliable particle removal from my sample	The integrity of every single Minisart® unit is tested during manufacturing
I want to check the integrity of the syringe filter unit after use	The Minisart® type must be integrity testable
I have to file a certificate which certifies the high quality of the syringe filter	The Minisart® type must have a certificate in each box
The pore size of the syringe filter must be clearly visible to me	The Minisart® type is color-coded or the pore size is printed on the housing
Any loss of my expensive sample must be avoided	The design of the Minisart® type guarantees the lowest hold-up volume

You can fold out the last page of this brochure to easily select your optimal Minisart® type for your sample preparation with our **Application Guide Disc**.

Sample preparation: Minisart® Syringe Filters non-sterile

■ Minisart® RC Syringe Filters,

for fastest sample preparation and high chemical compatibility, regenerated Cellulose membrane, PP⁵ housing,
connector inlet: Female Luer Lock, non-sterile¹

Type	Pore size [µm]	MF Ø [mm]	Process volume ⁴	Connector outlet	Pack size	Order number
Minisart® RC4	0.2	4 1 ml		Male Luer Slip	50	17821-----K
Minisart® RC4	0.2	4 1 ml		Male Luer Slip	500	17821-----Q
Minisart® RC15	0.2	15 20 ml		Male Luer Slip	50	17761-----K ²
Minisart® RC15	0.2	15 20 ml		Male Luer Slip	100	17761-----N
Minisart® RC15	0.2	15 20 ml		Male Luer Slip	500	17761-----Q
Minisart® RC15	0.2	15 20 ml		Male Luer Slip	1,000	17761-----R
Minisart® RC25	0.2	25 100 ml		Male Luer Slip	50	17764-----K ²
Minisart® RC25	0.2	25 100 ml		Male Luer Slip	200	17764-----S
Minisart® RC25	0.2	25 100 ml		Male Luer Slip	500	17764-----Q ³
Minisart® RC4	0.45	4 1 ml		Male Luer Slip	50	17822-----K
Minisart® RC4	0.45	4 1 ml		Male Luer Slip	500	17822-----Q ³
Minisart® RC15	0.45	15 20 ml		Male Luer Slip	50	17762-----K
Minisart® RC15	0.45	15 20 ml		Male Luer Slip	500	17762-----Q
Minisart® RC25	0.45	25 100 ml		Male Luer Slip	50	17765-----K
Minisart® RC25	0.45	25 100 ml		Male Luer Slip	200	17765-----S
Minisart® RC25	0.45	25 100 ml		Male Luer Slip	500	17765-----Q

■ **Minisart® NY25 Syringe Filters,**

for fast sample preparation and high chemical compatibility

Nylon membrane, PP⁵ housing, connector inlet: Female Luer Lock

Type	Pore size [μm]	MF Ø [mm]	Process volume ⁴	Connector outlet	Pack size	Order number
Minisart® NY25	0.2	25	100 ml	Male Luer Slip	50 EO-sterile	17845-----ACK
Minisart® NY25	0.2	25	100 ml	Male Luer Slip	500 non-sterile ¹	17845-----Q
Minisart® NY25	0.2	25	100 ml	Male Luer Slip	1,000 non-sterile ¹	17845-----R
Minisart® NY25	0.45	25	100 ml	Male Luer Slip	50 EO-sterile	17846-----ACK
Minisart® NY25	0.45	25	100 ml	Male Luer Slip	500 non-sterile ¹	17846-----Q
Minisart® NY25	0.45	25	100 ml	Male Luer Slip	1,000 non-sterile ¹	17846-----R

■ Minisart® SRP Syringe Filters,

for fast sample preparation and maximum chemical compatibility,
PTFE membrane, PP⁵ housing, connector inlet: Female Luer Lock, non-sterile¹

Type	Pore size [μm]	MF Ø [mm]	Process volume ⁴	Connector outlet	Pack size	Order number
Minisart® SRP4	0.2	4 1 ml		Male Luer Slip	500	17844-----Q
Minisart® SRP15	0.2	15 20 ml		Male Spike	50	17558-----K
Minisart® SRP15	0.2	15 20 ml		Male Spike	500	17558-----Q
Minisart® SRP15	0.2	15 20 ml		Male Luer Slip	50	17573-----K ²
Minisart® SRP15	0.2	15 20 ml		Male Luer Slip	500	17573-----Q
Minisart® SRP25	0.2	25 100 ml		Male Luer Slip	50	17575-----K ²
Minisart® SRP25	0.2	25 100 ml		Male Luer Slip	200	17575-----S
Minisart® SRP25	0.2	25 100 ml		Male Luer Slip	500	17575-----Q

■ **Minisart® SRP Syringe Filters,**

for fast sample preparation and maximum chemical compatibility,
PTFE membrane, PP⁵ housing, connector inlet: Female Luer Lock, non-sterile¹

Type	Pore size [μm]	MF Ø [mm]	Process volume ⁴	Connector outlet	Pack size	Order number
Minisart® SRP4	0.45	4	1 ml	Male Luer Slip	50	17820-----K
Minisart® SRP4	0.45	4	1 ml	Male Luer Slip	500	17820-----Q
Minisart® SRP15	0.45	15	20 ml	Male Spike	50	17559-----K
Minisart® SRP15	0.45	15	20 ml	Male Spike	500	17559-----Q
Minisart® SRP15	0.45	15	20 ml	Male Luer Slip	50	17574-----K
Minisart® SRP15	0.45	15	20 ml	Male Luer Slip	500	17574-----Q
Minisart® SRP25	0.45	25	100 ml	Male Luer Slip	50	17576-----K
Minisart® SRP25	0.45	25	100 ml	Male Luer Slip	200	17576-----S
Minisart® SRP25	0.45	25	100 ml	Male Luer Slip	500	17576-----Q

For particle removal from larger volumes (e.g. eluents) we recommend the use of Midisart® filter units, Sartofluor® and Sartolon® capsules or disc filters with all-glass filter holders.

1) Supplied non-sterile, feasible sterilization methods: By ethylene oxide or by autoclaving 121°C, 30 min

2) Also available as individually, sterile packaged (EO): -----K replaced by -----ACK

3) Also available as individually, sterile packaged (EO): -----Q replaced by -----ACQ

4) The process volume is a recommended value and depends on the ratio of retentive substances

5) Materials

Housing: Polypropylene, the pore size and the type of membrane of 15 mm and 25 mm syringe filters is printed on the housing, 4 mm filter units are packaged in a color coded tray (blue for 0.2 μm, yellow for 0.45 μm)

Membrane: Nylon: Polyamide | PTFE: Polytetra-fluorethylene (hydrophobic material, hydrophilic after wetting with IPA) | RC: Regenerated Cellulose



Chemical Compatibility
Index

Medical Applications

Clarification

Chromatography
Sample Preparation

Sterile Venting

Sterile Filtration



Clarification

Prior to sterile filtration steps or for general removal of particles and large microorganisms, such as yeasts and molds, Minisart® syringe filters, available in various pore sizes, are ideal for clarification, purification and ultra-cleaning of liquids. The filter units with their Luer Lock outlet can be screwed tightly to the inlet of the final filter. Syringe filters for these applications excel by high flow rates and low adsorption characteristics in order to fulfill your requirements.

Clarification

Reliable ultra-cleaning, purification and pre-filtration of liquids with Minisart® syringe filters with pore sizes $\geq 0.45 \mu\text{m}$

Applications

- : Ultra-cleaning, purification, particulate removal and clarification of liquids
- : Medical applications (see also page 43)

Minisart® Features

- : Low adsorption
- : Superior flow rate
- : High total throughput
- : Low hold-up volume
- : Minimum extractables
- : Easy pore size identification
- : PVC-free



Additional Minisart® Features

- : Pre-sterilized or non-sterile
- : Gamma irradiated or EO sterilized
- : Particulate-free
- : Scaleable
- : Certified quality
- : Integrity testable
- : 100% integrity tested
- : Maximum chemical compatibility
- : Various membrane diameters available
- : Various outlet connectors available
- : Bi-directional use
- : CE-marked

Media Types

- : Tissue culture-, nutrient-, cell line- and bone marrow media
- : Additives for tissue culture and nutrient media
- : Pharmaceuticals and cosmetics
- : Diagnostics
- : Buffers and emulsifiers
- : Biological- and dilution solutions

How do the Minisarts® meet my needs for my clarification?

My Requirements are...

No interaction with the media

The composition of the ingredients of my media must stay the same prior to filtration

The syringe filter must not release any particles into my media

There should be no chemicals released from the syringe filter into my media

Any possible residues from Ethylene oxide must be avoided

The syringe filter should not be decomposed by solvents and aggressive solutions

The plastic materials must be carefully selected and should not contain any softening agent

The Minisart® Features are...

The Minisart® type should have the lowest adsorption of proteins and preservatives

The Minisart® type must be particulate-free

The Minisart® type should be extractable-free

The Minisart® type should be gamma irradiated

The Minisart® type should have a high chemical compatibility

The Minisart® type must be PVC-free

Superior performance

My filtration must be completed as fast as possible

I don't want to change the filter within one filtration campaign

The Minisart® type must have the highest flow rate

The Minisart® type must have the highest total throughput

Flexibility

The small volume filtration must easily transition to my pilot or production scale

The syringe filter must have an optimal ratio between speed and hold-up volume

I want to be flexible in the future to decide which connectors are ideal for my application

I don't want to be worry about the syringe filter orientation

The membrane within Minisart® must be available in filter units with larger filtration areas

The Minisart® type should be available with various diameters

The Minisart® type should be available with different outlet connectors

The Minisart® type should be used bi-directional

You can fold out the last page of this brochure to easily select your optimal Minisart® type for your clarification with our **Application Guide Disc**.

Reliability & less validation work

The syringe filter is used for a medical application	The Minisart® type must have the CE mark
I want to check the integrity of the syringe filter unit after use	The Minisart® type must be integrity testable
My main prerequisite is reliable elimination of any substances which are larger than the nominal pore size from my media	The integrity of every single Minisart® unit is tested during manufacturing
The syringe filter must provide documents to support my validation procedure	The Minisart® type must be validated and a Validation Guide should be available
I have to file a certificate which certifies the high quality of the syringe filter	The Minisart® type must have a certificate in each box
The pore size of the syringe filter must be clearly visible to me	The Minisart® type is color-coded or the pore size is printed on the housing
Any loss of my expensive media must be avoided	The design of the Minisart® type guarantees the lowest hold-up volume

You can fold out the last page of this brochure to easily select your optimal Minisart® type for your clarification with our **Application Guide Disc**.

Clarification: Minisart® Syringe Filters individually, sterile packaged

■ Minisart® high flow Syringe Filters,

for fastest pre-filtration and low binding, individually, sterile packaged,
Polyethersulfone membrane, MBS⁵ housing, connector inlet: Female Luer Lock, 50 units

Type	Pore size [µm]	Sterilization ¹	Color code	Connector outlet	MF Ø [mm]	Process volume ⁶	Order number
Minisart® high flow	0.45	EO	yellow	Male Luer Lock	28	100 ml	16537-----K
Minisart® high flow	0.45	GI	yellow	Male Luer Slip	28	100 ml	16533-----GUK
Minisart® high flow	0.45	EO	yellow	Male Luer Slip	28	100 ml	16533-----K

■ Minisart® NML Syringe Filters,

for fast pre-filtration and lowest binding, individually, sterile packaged,
surfactant-free Cellulose Acetate membrane, MBS⁵ housing, connector inlet: Female Luer Lock, 50 units

Type	Pore size [µm]	Sterilization ¹	Color code	Connector outlet	MF Ø [mm]	Process volume ⁶	Order number
Minisart® NML	0.45	GI	yellow	Male Luer Lock	28	100 ml	16555-----GUK
Minisart® NML	0.45	EO	yellow	Male Luer Lock	28	100 ml	16555-----K
Minisart® NML	0.45	EO	yellow	Male Luer Slip	28	100 ml	17598-----K
Minisart® NML	0.65	EO	pink	Male Luer Slip	28	100 ml	16569-----K
Minisart® NML	0.8	GI	green	Male Luer Lock	28	100 ml	16592-----GUK
Minisart® NML	0.8	EO	green	Male Luer Lock	28	100 ml	16592-----K
Minisart® NML	1.2	GI	red	Male Luer Lock	28	100 ml	17593-----GUK
Minisart® NML	1.2	EO	red	Male Luer Lock	28	100 ml	17593-----K
Minisart® NML	5	EO	brown	Male Luer Lock	28	100 ml	17594-----K
Minisart® PA	20 µm Nylon gauze	EO	transparent	Male Luer Lock	28	100 ml	17710-----TUK

■ **Minisart® plus Syringe Filters,**

for fast pre-filtration and high throughput, individually, sterile packaged, surfactant-free Cellulose Acetate membrane and GF⁵ depth filter, MBS⁵ housing, color code: yellow, connector inlet: Female Luer Lock, 50 units

Type	Pore size [μm]	Sterilization ¹	Connector outlet	MF Ø [mm]	Process volume ⁶	Order number
Minisart® plus	0.45	GI	Male Luer Lock	28 100 ml		17829-----GUK
Minisart® plus	0.45	EO	Male Luer Lock	28 100 ml		17829-----K

■ **Minisart® GF Syringe Filters,**

for fast pre-filtration of high particulate liquids, individually, sterile packaged,
GF⁵ depth filter, MBS⁵ housing, color code: white, connector inlet: Female Luer Lock, 50 units

Type	Pore size [μm]	Sterilization ¹	Connector outlet	MF Ø [mm]	Process volume ⁶	Order number
Minisart® GF	-	EO	Male Luer Lock	28 100 ml		17824-----K

■ **Minisart® NY25 Syringe Filters,**

for fast pre-filtration and high chemical compatibility, individually, sterile packaged,
Nylon membrane, PP⁵ housing (pore size printed on), connector inlet: Female Luer Lock, 50 units

Type	Pore size [μm]	Sterilization ¹	Connector outlet	MF Ø [mm]	Process volume ⁶	Order number
Minisart® NY25	0.45	EO	Male Luer Slip	25 100 ml		17846-----ACK

Clarification: Minisart® Syringe Filters non-sterile

■ Minisart® Syringe Filters,

for various pre-filtrations, non-sterile, connector inlet: Female Luer Lock, 500 units

Type	Pore size [µm]	MF Housing ⁵	Feasible sterilization ¹	Color code	Connector outlet	MF Ø Process [mm] volume ⁶	Order number
Minisart® high flow	0.45	PES MBS	EO, GI	yellow	Male Luer Lock	28 100 ml	16537-----Q
Minisart® high flow	0.45	PES MBS	EO, GI	yellow	Male Luer Slip	28 100 ml	16533-----Q
Minisart® NML	0.45	SFCA MBS	EO, GI	yellow	Male Luer Lock	28 100 ml	16555-----Q
Minisart® NML	0.45	SFCA MBS	EO, GI	yellow	Male Luer Slip	28 100 ml	17598-----Q
Minisart® plus	0.45	SFCA+GF MBS	EO, GI	yellow	Male Luer Lock	28 100 ml	17829-----Q
Minisart® RC4	0.45	RC PP	EO, AU	yellow ⁷	Male Luer Slip	4 1 ml	17822-----Q ²
Minisart® RC15	0.45	RC PP	EO, AU	printed ⁷	Male Luer Slip	15 20 ml	17762-----Q ²
Minisart® RC25	0.45	RC PP	EO, AU	printed ⁷	Male Luer Slip	25 100 ml	17765-----Q ^{2,3}
Minisart® NY25	0.45	Nylon PP	EO, AU	printed ⁷	Male Luer Slip	25 100 ml	17846-----Q ⁴
Minisart® SRP4	0.45	PTFE PP	EO, AU	yellow ⁷	Male Luer Slip	4 1 ml	17820-----Q ²
Minisart® SRP15	0.45	PTFE PP	EO, AU	printed ⁷	Male Spike	15 20 ml	17559-----Q ²
Minisart® SRP15	0.45	PTFE PP	EO, AU	printed ⁷	Male Luer Slip	15 20 ml	17574-----Q ²
Minisart® SRP25	0.45	PTFE PP	EO, AU	printed ⁷	Male Luer Slip	25 100 ml	17576-----Q ^{2,3}

■ Minisart® Syringe Filters,

for various pre-filtrations, non-sterile, connector inlet: Female Luer Lock, 500 units

Type	Pore size [µm]	MF Housing ⁵	Feasible sterilization ¹	Color code	Connector outlet	MF Ø [mm]	Process volume ⁶	Order number
Minisart® NML	0.8	SFCA MBS	EO, GI	green	Male Luer Lock	28 100 ml		16592-----Q
Minisart® NML	1.2	SFCA MBS	EO, GI	red	Male Luer Lock	28 100 ml		17593-----Q
Minisart® plus	1.2	SFCA+GF MBS	EO, GI	red	Male Luer Lock	28 100 ml		17825-----Q
Minisart® NML	5	SFCA MBS	EO, GI	brown	Male Luer Lock	28 100 ml		17594-----Q
Minisart® GF	-	GF MBS	EO, GI	white	Male Luer Lock	28 100 ml		17824-----Q
Minisart® GF	-	GF MBS	EO, GI	white	Male Luer Slip	28 100 ml		17856-----Q

Minisart® syringe filters with pore sizes < 0.45 µm are described under the section „Sterile Filtration“.

1) Sterilization

EO: Ethylene oxide | GI: Gamma irradiation | AU: Autoclave 121°C, 30 min

2) Also available as box with 50 units: -----Q replaced by -----K

3) Also available as box with 200 units: -----Q replaced by -----S

4) Also available as box with 1,000 units: -----Q replaced by -----R

5) Materials

MBS: Meta acrylate butadiene styrene polymerisate | PP: Polypropylene

GF: Binder-free glass fiber depth filter | Nylon: Polyamide | PES: Polyethersulfone | PTFE: Polytetra-fluorethylene (hydrophobic material, hydrophilic after wetting with IPA) | RC: Regenerated Cellulose | SFCA: Surfactant-free Cellulose Acetate

6) The process volume is a recommended value and depends on the ratio of retentive substances

7) The pore size and the type of membrane of 15 mm and 25 mm syringe filters is printed on the housing, 4 mm filter units are packaged in a color coded tray (blue for 0.2 µm, yellow for 0.45 µm)



Chemical Compatibility
Index

Medical Applications

Clarification

Chromatography
Sample Preparation

Sterile Venting

Sterile Filtration



Medical Applications

Sterile filtration of liquids or gases | air in hospitals, pharmacies and direct patient care are the optimal method for the preparation of pharmaceuticals, infusion solutions and blood | urine samples for laboratory tasks. More than 15 different types of Minisart® syringe filters are **CE**-marked and available with various types of membranes, connectors and housing materials.

Medical Applications

Minisart® syringe filters with various pore sizes for use in hospitals, pharmacies and for direct patient care

Applications

- : Filtration of serum and urine samples
- : Filtration of patient serum (IVF)
- : Filtration of buffer solutions
- : Filtration of infusion- and parenteral solutions
- : Filtration of pharmaceuticals and chemotherapeutics
- : Filtration of diagnostics and anesthetics

Minisart® Features

- : Low adsorption
- : Superior flow rate
- : High total throughput
- : Low hold-up volume
- : Particulate-free
- : Minimum extractables
- : Easy pore size identification
- : PVC-free



Additional Minisart® Features

- : Pre-sterilized or non-sterile
- : Gamma irradiated or EO sterilized
- : CE-marked
- : Certified quality
- : Fully validated
- : Integrity testable
- : 100% integrity tested
- : Easy to stick to other plastic parts
- : Scaleable
- : Bi-directional use
- : Various membrane diameters available
- : Various outlet connectors available
- : Maximum chemical compatibility

Additional Applications

- : Total parenteral nutrition
- : Sterile venting of containers
- : Sterile venting of tubing | infusion systems

How do the Minisarts® meet my needs for my medical applications?

My Requirements are...

No interaction with the media

The composition of the ingredients of my media must stay the same prior to filtration

The syringe filter must not release any particles into my media

There should be no chemicals released from the syringe filter into my media

Any possible residues from Ethylene oxide must be avoided

The syringe filter should not be decomposed by solvents and aggressive solutions

The plastic materials must be carefully selected and should not contain any softening agent

The Minisart® Features are...

The Minisart® type should have the lowest adsorption of proteins and preservatives

The Minisart® type must be particulate-free

The Minisart® type should be extractable-free

The Minisart® type should be gamma irradiated

The Minisart® type should have a high chemical compatibility

The Minisart® type must be PVC-free

Superior performance

My filtration must be completed as fast as possible

I don't want to change the filter within one filtration campaign

The Minisart® type must have the highest flow rate

The Minisart® type must have the highest total throughput

Flexibility

The small volume filtration must easily transition to my pilot or production scale

The syringe filter must have an optimal ratio between speed and hold-up volume

I want to be flexible in the future to decide which connectors are ideal for my application

I don't want to be worry about the syringe filter orientation

The membrane within Minisart® must be available in filter units with larger filtration areas

The Minisart® type should be available with various diameters

The Minisart® type should be available with different outlet connectors

The Minisart® type should be used bi-directional

You can fold out the last page of this brochure to easily select your optimal Minisart® type for your medical application with our **Application Guide Disc**.

Easy to process

The syringe filter housing must be easily stick to other plastic parts i.e. tubes, cannulae

The Minisart® type must have a styrene housing

Reliability & less validation work

The syringe filter is used for a medical application
I want to check the integrity of the syringe filter unit after use
My main prerequisite is reliable elimination of microorganisms or any other substances which are larger than the nominal pore size from my media
The syringe filter must provide documents to support my validation procedure
I have to file a certificate which certifies the high quality of the syringe filter
The pore size of the syringe filter must be clearly visible to me
Any loss of my expensive media must be avoided

The Minisart® type must have the **CE** mark
The Minisart® type must be integrity testable
The integrity of every single Minisart® unit is tested during manufacturing
The Minisart® type must be validated and a Validation Guide should be available
The Minisart® type must have a certificate in each box
The Minisart® type is color-coded or the pore size is printed on the housing
The design of the Minisart® type guarantees the lowest hold-up volume

You can fold out the last page of this brochure to easily select your optimal Minisart® type for your medical application with our **Application Guide Disc**.

Medical Applications: Minisart® Syringe Filters individually, sterile packaged

■ Minisart® NML Syringe Filters,

mostly **CE**-marked, for fast liquid filtration and lowest binding, individually, sterile packaged, surfactant-free Cellulose Acetate membrane, MBS² housing, connector inlet: Female Luer Lock, 50 units

Type	Pore size [µm]	Sterilization ¹	Color code	Connector outlet	MF Ø [mm]	Process volume ³	Order number	
Minisart® NML	0.2 ⁴	GI	blue	Male Luer Lock	28 100 ml		16534-----GUK	CE
Minisart® NML	0.2 ⁴	EO	blue	Male Luer Lock	28 100 ml		16534-----K	CE
Minisart® NML	0.2 ⁴	EO	blue	Male Luer Slip	28 100 ml		17597-----K	CE
Ophthalsart	0.2	EO	pink	Male Luer Slip	28 100 ml		17528-----K	CE
Minisart® NML	0.45	GI	yellow	Male Luer Lock	28 100 ml		16555-----GUK	CE
Minisart® NML	0.45	EO	yellow	Male Luer Lock	28 100 ml		16555-----K	CE
Minisart® NML	0.45	EO	yellow	Male Luer Slip	28 100 ml		17598-----K	CE
Minisart® NML	0.65	EO	pink	Male Luer Slip	28 100 ml		16569-----K	
Minisart® NML	0.8	GI	green	Male Luer Lock	28 100 ml		16592-----GUK	
Minisart® NML	0.8	EO	green	Male Luer Lock	28 100 ml		16592-----K	
Minisart® NML	1.2	GI	red	Male Luer Lock	28 100 ml		17593-----GUK	
Minisart® NML	1.2	EO	red	Male Luer Lock	28 100 ml		17593-----K	
Minisart® NML	5	EO	brown	Male Luer Lock	28 100 ml		17594-----K	
Minisart® PA	20 µm Nylon gauze	EO	transparent	Male Luer Lock	28 100 ml		17710-----TUK	

■ **Minisart® Air,**

with connected needle, for sterile venting, validated, individually, double packaged, sterile, optimal for use in isolators, PTFE membrane, MBS² housing, connector inlet: Female Luer Lock, 50 units

Type	Pore size [µm]	Sterilization ¹	Color code	Connector outlet	MF Ø [mm]	Order number
Minisart® Air	0.2	GI	yellow	Male Luer Slip + needle	15	16596-----HNK

■ **Minisart® HY and SRP Syringe Filters,**

mostly **CE**-marked, for sterile venting and gas filtration, individually, sterile packaged, PTFE membrane, pore size 0.2 µm, connector inlet: Female Luer Lock, 50 units

Type	Housing material ²	Sterilization ¹	Color code	Connector outlet	MF Ø [mm]	Order number
Minisart® HY	MBS	E0	white	Male Luer Lock	26	16596-----HYK CE
Minisart® SRP25	PP	E0	pore size printed on	Male Luer Slip	25	17575-----ACK CE

Medical Applications: Minisart® Syringe Filters non-sterile

■ Minisart® NML Syringe Filters,

mostly **CE**-marked, for fast liquid filtration and lowest binding, non-sterile

surfactant-free Cellulose Acetate membrane, MBS² housing, connector inlet: Female Luer Lock, 500 units

Type	Pore size [µm]	Feasible sterilization ¹	Color code	Connector outlet	MF Ø [mm]	Process volume ³	Order number
Minisart® NML	0.2	E0, GI	blue	Male Luer Lock	28 100 ml		16534-----Q CE
Minisart® NML	0.2	E0, GI	blue	Male Luer Slip	28 100 ml		17597-----Q CE
Minisart® NML	0.45	E0, GI	yellow	Male Luer Lock	28 100 ml		16555-----Q CE
Minisart® NML	0.45	E0, GI	yellow	Male Luer Slip	28 100 ml		17598-----Q CE
Minisart® NML	0.8`	E0, GI	green	Male Luer Lock	28 100 ml		16592-----Q
Minisart® NML	1.2	E0, GI	red	Male Luer Lock	28 100 ml		17593-----Q
Minisart® NML	5	E0, GI	brown	Male Luer Lock	28 100 ml		17594-----Q

■ Minisart® Air,

for sterile venting and gas filtration, validated, non-sterile, gamma-irradiatable

PTFE membrane, pore size 0.2 µm, connector inlet: Female Luer Lock, 500 units

Type	Housing material ²	Feasible sterilization ¹	Color code	Connector outlet	MF Ø [mm]	Order number
Minisart® Air	MBS	E0 GI	yellow	Male Luer Slip	15	1751A-----Q

■ Minisart® HY Syringe Filters,

mostly **CE**-marked, for sterile venting and gas filtration, non-sterile, PTFE membrane, 500 units

Type	Housing material ²	Pore size [µm]	Feasible sterilization ¹	Connector inlet	Connector outlet	MF Ø [mm]	Order number
Minisart® HY	MBS	0.2	EO	Female Luer Lock	Male Luer Lock	26	16596-----HYQ CE
Minisart® HY	MBS	0.2	EO	Female Luer Lock	Male Luer Slip	26	17595-----HYQ
Minisart® HY	MBS	0.2	EO	Male Luer Slip	Male Luer Lock	26	16599-----HYQ CE
Minisart® HY	MBS	0.45	EO	Tube Connector Ø 5 mm	Tube Connector Ø 5 mm	26	40078-----Q
Minisart® HY Res ⁵	MBS	0.45	EO	Tube Connector Ø 5 mm	Tube Connector Ø 5 mm	26	40080-----Q

■ Acticosart active carbon filter unit,

for ultra-cleaning of gases, e.g. to adsorb unpleasant smells, non-sterile, MBS housing with high-adsorptive active carbon filling, two PTFE membranes, 500 units

Type	Housing material ²	Pore size [µm]	Feasible sterilization ¹	Connector inlet	Connector outlet	MF Ø [mm]	Order number
Acticosart	MBS	inlet 5 µm outlet 0.45 µm	EO	Male Luer Slip	Male Luer Slip	26	17840-----Q

Other filter unit types with different, membranes, connectors and housing on request.

1) Sterilization

EO: Ethylene oxide | GI: Gamma irradiation

2) Materials

MBS: Meta acrylate butadiene styrene polymerisate | PP: Polypropylene

Nylon: Polyamide | PTFE: Polytetra-fluorethylene | SFCA: Surfactant-free Cellulose Acetate

3) The process volume is a recommended value and depends on the ratio of retentive substances

4) These Minisart® syringe filters are fully validated (Validation Guide can be obtained free of charge. Order No. SL-5707-e)

5) Minisart® HY Res is a liquid barrier with reservoir. For technical information, please refer to the Technical Specification Disc under "Actiosart", with two exceptions: The connectors are tube connectors Ø 5 mm and Minisart® HY Res has no sealed 5 µm PTFE on the inlet.

■ Chemical Compatibility

	PES membrane	SFCA membrane	PTFE membrane	RC membrane	Nylon membrane	Nylon gauze	GF depth filter	Housing MBS	Housing PP	Minisart® High Flow	Minisart® NML Ophthalsart	Minisart® plus	Minisart® GF	Minisart® HY	Minisart® PA	Acticosart	Minisart® Air	Minisart® RC	Minisart® NY	Minisart® SRP
Filter	PES	SFCA	PTFE	RC	PA	PA	GF			PES	SFCA	SFCA + GF	GF	PTFE	PA	PTFE	PTFE	RC	PA	PTFE
Housing								MBS	PP	MBS	MBS	MBS	MBS	MBS	MBS	MBS	MBS	PP	PP	PP
Sterilization																				
Ethylene oxide	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++
Gamma irradiation	++	++	- ¹	++	-	-	++	++	-	++	++	++	++	-	-	-	+	-	-	-
Autoclaving 121 °C, 30 min	++	++	++	++	++	++	++	-	++	-	-	-	-	-	-	-	-	++	++	++
Solvents																				
Acetone	-	-	++	++	++	++	++	-	++	-	-	-	-	-	-	-	-	++	++	++
Acetonitrile	-	-	++	++	n.a.	n.a.	++	-	++	-	-	-	-	-	-	-	-	++	n.a.	++
Gasoline	+	+	++	++	++	++	++	++	++	+	+	+	++	++	++	++	++	++	++	++
Benzene	-	+	++	++	++	++	++	-	++	-	-	-	-	-	-	-	-	++	++	++
Benzyl alcohol	-	-	++	++	++	++	++	-	+	-	-	-	-	-	-	-	-	+	+	+
n-Butyl acetate	-	-	++	++	++	++	++	-	++	-	-	-	-	-	-	-	-	++	++	++
n-Butanol	+	+	++	++	++	++	++	++	++	+	+	+	++	++	++	++	++	++	++	++
Cellosolve	++	-	++	++	++	++	++	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform	-	-	++	++	++	++	++	-	++	-	-	-	-	-	-	-	-	++	++	++
Cyclohexane	-	+	++	++	++	++	++	+	+	-	+	+	+	+	+	+	+	+	+	+
Cyclohexanone	-	+	++	++	++	++	++	-	+	-	-	-	-	-	-	-	-	+	+	+
Diethylacetamide	-	-	++	++	++	++	++	-	++	-	-	-	-	-	-	-	-	++	++	++
Diethyl ether	-	+	++	++	++	++	++	-	++	-	-	-	-	-	-	-	-	++	++	++
Dimethyl formamide	-	-	++	+	+	+	++	-	+	-	-	-	-	-	-	-	-	+	+	+
Dimethylsulfoxide	-	-	++	++	++	++	++	-	++	-	-	-	-	-	-	-	-	++	++	++
Dioxane	-	-	++	++	++	++	++	-	++	-	-	-	-	-	-	-	-	++	++	++
Ethanol, 98%	++	+	++	++	++	++	++	-	+	-	-	-	-	-	-	-	-	+	+	+
Ethyl acetate	-	-	++	++	++	++	++	-	+	-	-	-	-	-	-	-	-	+	+	+
Ethylene glycol	++	+	++	++	++	++	++	++	++	++	+	+	++	++	++	++	++	++	++	++
Formamide	++	-	++	+	++	++	++	++	++	++	-	-	++	++	++	++	++	+	++	++
Glycerin	++	+	++	++	++	++	++	+	+	+	+	+	+	+	+	+	+	+	+	+
n-Heptane	++	+	++	++	++	++	++	+	++	+	+	+	+	+	+	+	+	++	++	++
n-Hexane	++	+	++	++	++	++	++	+	+	+	+	+	+	+	+	+	+	+	+	+
Isobutanol	++	+	++	++	++	++	++	++	-	++	+	+	++	++	++	++	++	-	-	-
Isopropanol	++	+	++	++	++	++	++	-	++	-	-	+	-	-	-	-	-	++	++	++

	PES membrane	SFCA membrane	PTFE membrane	RC membrane	Nylon membrane	Nylon gauze	GF depth filter	Housing MBS	Housing PP	Minisart® High Flow	Minisart® NML Ophthalsart	Minisart® plus	Minisart® GF	Minisart® HY	Minisart® PA	Acticosart	Minisart® Air	Minisart® RC	Minisart® NY	Minisart® SRP
Filter	PES	SFCA	PTFE	RC	PA	PA	GF			PES	SFCA	SFCA + GF	GF	PTFE	PA	PTFE	PTFE	RC	PA	PTFE
Housing								MBS	PP	MBS	MBS	MBS	MBS	MBS	MBS	MBS	MBS	PP	PP	PP
Sterilization																				
Isopropyl acetate	-	-	++	++	++	++	++	-	++	-	-	-	-	-	-	-	-	++	++	++
Methanol, 98%	+	-	++	++	++	++	++	++	+	+	-	+	++	++	++	++	++	+	+	+
Methyl acetate	-	-	++	++	++	++	++	-	+	-	-	-	-	-	-	-	-	+	+	+
Methylene chloride	-	-	++	++	++	++	++	-	++	-	-	-	-	-	-	-	-	++	++	++
Methyl ethyl ketone	-	-	++	++	++	++	++	-	+	-	-	-	-	-	-	-	-	+	+	+
Methyl isobutyl ketone	-	-	++	++	++	++	++	-	+	-	-	-	-	-	-	-	-	+	+	+
Monochlorobenzene	-	-	++	++	++	++	++	-	+	-	-	-	-	-	-	-	-	+	+	+
Nitrobenzene	-	-	++	++	+	+	++	-	+	-	-	+	-	-	-	-	-	+	+	+
n-Pentane	++	+	++	++	++	++	++	+	++	+	+	+	+	+	+	+	+	++	++	++
Perchloroethylene	-	-	++	++	++	++	++	-	++	-	-	-	-	-	-	-	-	++	++	++
Pyridine	-	-	++	++	++	++	++	-	++	-	-	-	-	-	-	-	-	++	++	++
Carbon tetrachloride	-	-	++	++	++	++	++	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrahydrofuran	-	-	++	++	++	++	++	-	++	-	-	++	-	-	-	-	-	++	++	++
Toluene	-	+	++	++	++	++	++	-	++	-	-	++	-	-	-	-	-	++	++	++
Trichloroethane	-	-	++	++	++	++	++	-	n.a.	-	-	-	-	-	-	-	-	n.a.	n.a.	n.a.
Trichloroethylene	-	+	++	++	++	++	++	-	++	-	-	++	-	-	-	-	-	++	++	++
Xylene	-	+	++	++	++	++	++	-	+	-	-	-	-	-	-	-	-	+	+	+
Acids																				
Acetic acid, 25%	+	+	++	++	-	-	++	-	+	-	-	-	-	-	-	-	-	+	-	+
Acetic acid, 80%	n.a.	-	++	++	-	-	++	-	+	-	-	-	-	-	-	-	-	+	-	+
Hydrofluoric acid, 25%	+	-	++	+	-	-	++	+	+	+	-	-	+	+	-	+	+	+	-	+
Hydrofluoric acid, 50%	+	-	++	+	-	-	++	+	+	+	-	-	+	+	-	+	+	+	-	+
Perchloric acid, 25%	-	-	++	-	-	-	++	n.a.	+	-	-	-	n.a.	n.a.	-	n.a.	n.a.	-	-	+
Phosphoric acid, 1%	++	+	++	-	-	-	++	+	+	+	+	+	+	+	-	+	+	-	-	+
Phosphoric acid, 86%	++	+	++	-	-	-	++	+	+	+	+	+	+	+	-	+	+	-	-	+
Nitric acid, 30%	+	-	++	-	-	-	++	+	+	+	-	-	+	+	-	+	+	-	-	+
Nitric acid, conc.	-	-	++	-	-	-	++	-	-	-	-	-	-	-	-	-	-	-	-	-
Hydrochloric acid, 15%	++	+	++	-	-	-	++	+	+	+	+	+	+	+	-	+	+	-	-	+
Hydrochloric acid, 20%	++	-	++	-	-	-	++	+	+	+	-	-	+	+	-	+	+	-	-	+

Sterile Filtration

Sterile Venting

Chromatography
Sample Preparation

Clarification

Medical Applications

Chemical Compatibility
Index

■ Chemical Compatibility

	PES membrane	SFCA membrane	PTFE membrane	RC membrane	Nylon membrane	Nylon gauze	GF depth filter	Housing MBS	Housing PP	Minisart® High Flow	Minisart® NML Ophthalsart	Minisart® plus	Minisart® GF	Minisart® HY	Minisart® PA	Acticosart	Minisart® Air	Minisart® RC	Minisart® NY	Minisart® SRP
Filter	PES	SFCA	PTFE	RC	PA	PA	GF			PES	SFCA	SFCA + GF	GF	PTFE	PA	PTFE	PTFE	RC	PA	PTFE
Housing								MBS	PP	MBS	MBS	MBS	MBS	MBS	MBS	MBS	MBS	PP	PP	PP
Sterilization																				
Acids																				
Sulfuric acid, 25%	+	-	++	+	-	-	++	+	++	+	-	-	+	+	-	+	+	+	-	++
Sulfuric acid, 98%	-	-	++	-	-	-	++	-	+	-	-	-	-	-	-	-	-	-	-	+
Trichloroacetic acid, 25%	n.a.	-	++	++	-	-	++	-	+	-	-	-	-	-	-	-	-	+	-	+
Bases																				
Ammonia, 1N	++	-	++	+	++	++	++	-	++	-	-	-	-	-	-	-	-	+	++	++
Ammonium hydroxide, 25%	+	+	++	+	++	++	+	-	+	-	-	-	-	-	-	-	-	+	+	+
Potassium hydroxide, 32%	++	-	++	-	+	+	+	-	++	-	-	-	-	-	-	-	-	-	+	++
Sodium hydroxide, 32%	++	-	++	-	+	+	+	-	+	-	-	-	-	-	-	-	-	-	+	+
Sodium hydroxide, 1N	++	-	++	+	++	++	+	-	++	-	-	-	-	-	-	-	-	+	++	++
Aqueous solutions																				
Formalin, 30%	+	++	++	+	++	++	++	+	+	+	+	+	+	+	+	+	+	+	+	+
Sodium hypochlorite, 5%	++	-	++	-	-	-	++	+	+	+	-	-	+	+	-	+	+	-	-	+
Hydrogen peroxide, 35%	++	-	++	-	-	-	++	+	++	+	-	-	+	+	-	+	+	-	-	++
pH range																				
pH 1-14	-	-	++	-	-	-	++	-	++											
pH 1-13	++	-	++	-	-		++	-	++											
pH 3-14	+	-	++	+	++	++	++	-	++											
pH 3-12	++	-	++	++	++	++	++	+	++											
pH 4-8	++	++	++	++	++	++	++	++	++											

Legend:

Compatible	++
Limited compatibility	+
Not compatible	-
not analyzed	n.a.

1) gamma irradiation feasible for Minisart® Air

Contact time: 24 hours at 20 °C
Chemical compatibilities can be influenced by various factors.
Therefore, we recommend that you confirm compatibility with the liquid you want to filter by performing a trial filtration run before you start your actual filtration.

■ Index by Minisart® Types

Minisart® Type	Order no.	Pore size	Page
Acticosart	17840	0.45 µm	50
Minisart® Air	16596	0.2 µm	19, 48
Minisart® Air	1751A	0.2 µm	21, 49
Minisart® GF	17824	-	38, 40
Minisart® GF	17856	-	40
Minisart® high flow	16553	0.1 µm	11
Minisart® high flow	16532	0.2 µm	11, 13
Minisart® high flow	16541	0.2 µm	11, 13
Minisart® high flow	16533	0.45 µm	37, 39
Minisart® high flow	16537	0.45 µm	37, 39
Minisart® HY	16596	0.2 µm	19, 20, 48, 50
Minisart® HY	16599	0.2 µm	20, 50
Minisart® HY	17595	0.2 µm	20, 50
Minisart® HY	40078	0.45 µm	20, 50
Minisart® HY Res	40080	0.45 µm	20, 50
Minisart® NML	16534	0.2 µm	11, 13, 47, 49
Minisart® NML	17597	0.2 µm	11, 13, 47, 49
Minisart® NML	16555	0.45 µm	37, 39, 47, 49
Minisart® NML	17598	0.45 µm	37, 39, 47, 49
Minisart® NML	16569	0.65 µm	37, 47
Minisart® NML	16592	0.8 µm	37, 40, 47, 49
Minisart® NML	17593	1.2 µm	37, 40, 47, 49
Minisart® NML	17594	5 µm	37, 40, 47, 49
Minisart® NY25	17845	0.2 µm	12, 13, 28
Minisart® NY25	17846	0.45 µm	28, 38, 39
Minisart® PA	17710	20 µm	37, 47
Minisart® plus	17823	0.2 µm	12, 13
Minisart® plus	17829	0.45 µm	38, 39
Minisart® plus	17825	1.2 µm	40
Minisart® RC4	17821	0.2 µm	27
Minisart® RC4	17822	0.45 µm	27, 39
Minisart® RC15	17761	0.2 µm	27
Minisart® RC15	17762	0.45 µm	27, 39
Minisart® RC25	17764	0.2 µm	27
Minisart® RC25	17765	0.45 µm	27, 39
Minisart® SRP4	17844	0.2 µm	13, 20, 29
Minisart® SRP4	17820	0.45 µm	20, 30, 39
Minisart® SRP15	17558	0.2 µm	13, 20, 29
Minisart® SRP15	17573	0.2 µm	12, 13, 19, 20, 29
Minisart® SRP15	17559	0.45 µm	20, 30, 39
Minisart® SRP15	17574	0.45 µm	20, 30, 39
Minisart® SRP25	17575	0.2 µm	12, 13, 19, 20, 29, 48
Minisart® SRP25	17576	0.45 µm	20, 30, 39
Ophthalsart	17528	0.2 µm	11, 47

■ Index by Order Numbers

Order no.	Minisart® Type	Pore size	Page
16532	Minisart® high flow	0.2 µm	11, 13
16533	Minisart® high flow	0.45 µm	37, 39
16534	Minisart® NML	0.2 µm	11, 13, 47, 49
16537	Minisart® high flow	0.45 µm	37, 39
16541	Minisart® high flow	0.2 µm	11, 13
16553	Minisart® high flow	0.1 µm	11
16555	Minisart® NML	0.45 µm	37, 39, 47, 49
16569	Minisart® NML	0.65 µm	37, 47
16592	Minisart® NML	0.8 µm	37, 40, 47, 49
16596	Minisart® HY	0.2 µm	19, 20, 48, 50
16596	Minisart® Air	0.2 µm	19, 48
16599	Minisart® HY	0.2 µm	20, 50
1751A	Minisart® Air	0.2 µm	21, 49
17528	Ophthalsart	0.2 µm	11, 47
17558	Minisart® SRP15	0.2 µm	13, 20, 29
17559	Minisart® SRP15	0.45 µm	20, 30, 39
17573	Minisart® SRP15	0.2 µm	12, 13, 19, 20, 29
17574	Minisart® SRP15	0.45 µm	20, 30, 39
17575	Minisart® SRP25	0.2 µm	12, 13, 19, 20, 29, 48
17576	Minisart® SRP25	0.45 µm	20, 30, 39
17593	Minisart® NML	1.2 µm	37, 40, 47, 49
17594	Minisart® NML	5 µm	37, 40, 47, 49
17595	Minisart® HY	0.2 µm	20, 50
17597	Minisart® NML	0.2 µm	11, 13, 47, 49
17598	Minisart® NML	0.45 µm	37, 39, 47, 49
17710	Minisart® PA	20 µm	37, 47
17761	Minisart® RC15	0.2 µm	27
17762	Minisart® RC15	0.45 µm	27, 39
17764	Minisart® RC25	0.2 µm	27
17765	Minisart® RC25	0.45 µm	27, 39
17820	Minisart® SRP4	0.45 µm	20, 30, 39
17821	Minisart® RC4	0.2 µm	27
17822	Minisart® RC4	0.45 µm	27, 39
17823	Minisart® plus	0.2 µm	12, 13
17824	Minisart® GF	-	38, 40
17825	Minisart® plus	1.2 µm	40
17829	Minisart® plus	0.45 µm	38, 39
17840	Acticosart	0.45 µm	50
17844	Minisart® SRP4	0.2 µm	13, 20, 29
17845	Minisart® NY25	0.2 µm	12, 13, 28
17846	Minisart® NY25	0.45 µm	28, 38, 39
17856	Minisart® GF	-	40
40078	Minisart® HY	0.45 µm	20, 50
40080	Minisart® HY Res	0.45 µm	20, 50

Sales and Service Contacts

For further contacts, visit www.sartorius-stedim.com

Europe

Germany

Sartorius Stedim Biotech GmbH
August-Spindler-Strasse 11
37079 Goettingen

Phone +49.551.308.0
Fax +49.551.308.3289

www.sartorius-stedim.com

Sartorius Stedim Systems GmbH
Schwarzenberger Weg 73-79
34212 Melsungen

Phone +49.5661.71.3400
Fax +49.5661.71.3702

www.sartorius-stedim.com

France

Sartorius Stedim Biotech S.A.
Z.I. des Paluds
Avenue de Jouques - BP 1051
13781 Aubagne Cedex

Phone +33.442.845600
Fax +33.442.845619

Sartorius Biotechnologie S.A.S.
4, rue Emile Baudot
91127 Palaiseau Cedex

Phone +33.1.6919.2100
Fax +33.1.6920.0922

Austria

Sartorius Stedim Austria GmbH
Franzosengraben 12
A-1030 Vienna

Phone +43.1.7965763.18
Fax +43.1.796576344

Belgium

Sartorius Biotech N.V.
Leuvensesteenweg, 248/B
1800 Vilvoorde

Phone +32.2.756.06.80
Fax +32.2.756.06.81

Denmark

Sartorius Stedim Nordic A/S
Himmelev Bygade 49
4000 Roskilde

Phone +45.70.23.4400
Fax +45.46.30.4030

Italy

Sartorius Stedim Italy S.p.A.
Via dell'Antella, 76/A
50012 Antella-Bagno a Ripoli (FI)

Phone +39.055.63.40.41
Fax +39.055.63.40.526

Netherlands

Sartorius Biotech B.V.
Edisonbaan 24
3439 MN Nieuwegein

Phone +31.30.6025080
Fax +31.30.6025099

Spain

Sartorius, S.A.
C/Isabel Colbrand 10-12,
Planta 4, Oficina 121
Poligono Industrial de Fuencarral
28050 Madrid

Phone +34.91.3586102
Fax +34.91.3588804

Switzerland

Sartorius Biotech GmbH
Lerzenstrasse 21
8953 Dietikon

Phone +41.1.746.50.00
Fax +41.1.746.50.50

U.K.

Sartorius Stedim UK Limited
Longmead Business Park
Blenheim Road, Epsom
Surrey KT19 9 QQ

Phone +44.1372.737100
Fax +44.1372.720799

America

USA

Sartorius Stedim North America Inc.
131 Heartland Blvd.
Edgewood, New York 11717

Toll-Free +1.800.368.7178
Fax +1.631.254.4253

Sartorius Stedim SUS Inc.
1910 Mark Court
Concord, CA 94520

Phone +1.925.689.6650
Toll Free +1.800.914.6644
Fax +1.925.689.6988

Sartorius Stedim Systems Inc.
2800 Baglyos Circle
Bethlehem, PA 18020

Phone +1.610.866.4800
Toll-Free +1.800.258.9000
Fax +1.610.866.4890

Asia | Pacific

India

Sartorius Biotech India Private Ltd.
10, 6th Main, 3rd Phase Peenya
KIADB Industrial Area
Bangalore - 560 058

Phone +91.80.2839.1963|0461
Fax +91.80.2839.8262

Japan

Sartorius Stedim Japan K.K.
KY Building, 8-11
Kita Shinagawa 1-chome
Shinagawa-ku
Tokyo 140-0001

Phone +81.3.3740.5407
Fax +81.3.3740.5406

Malaysia

Sartorius Stedim Malaysia Sdn. Bhd.
Lot L3-E-3B, Enterprise 4
Technology Park Malaysia
Bukit Jalil
57000 Kuala Lumpur

Phone +60.3.8996.0622
Fax +60.3.8996.0755

Singapore

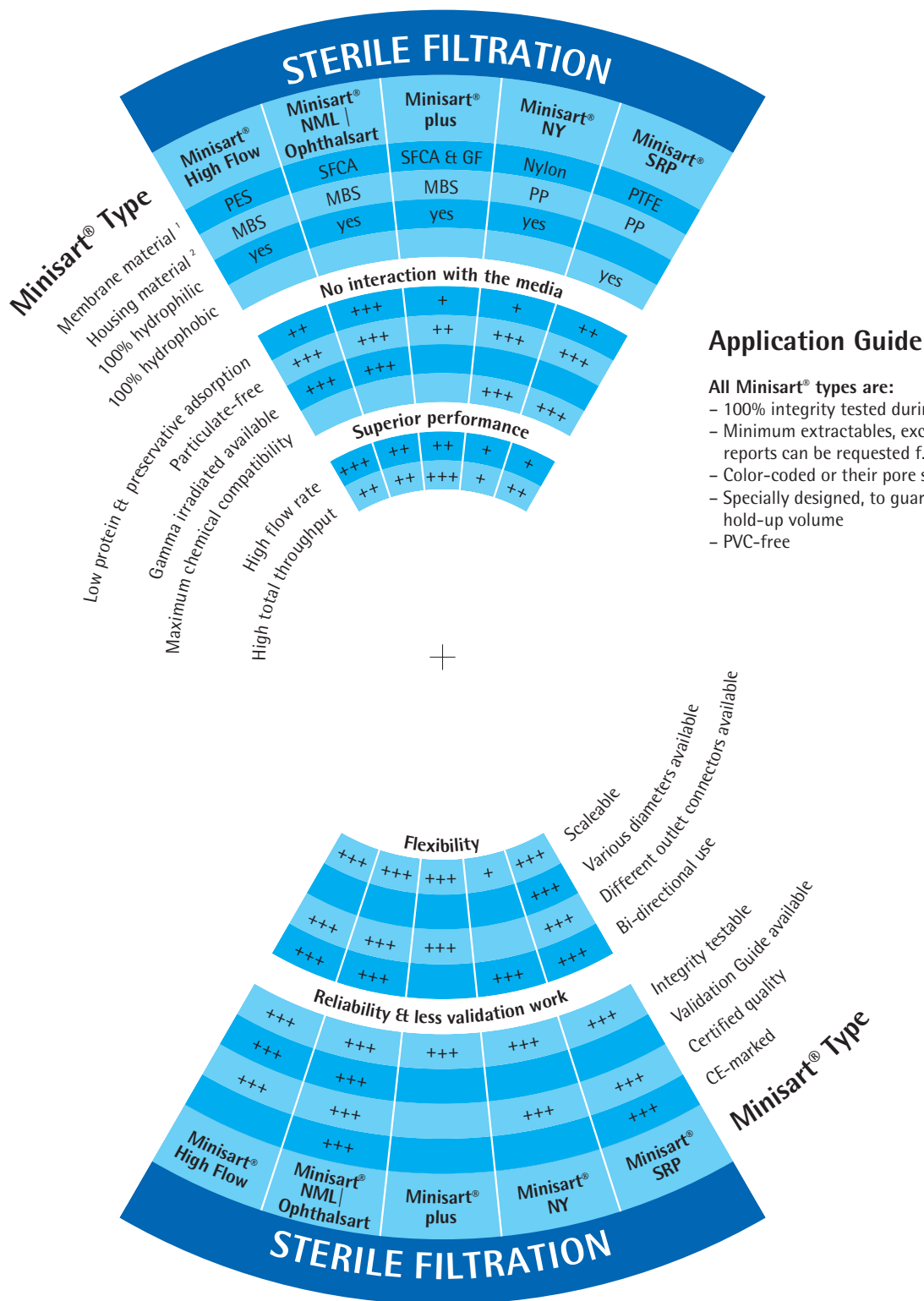
Sartorius Stedim Singapore Pte. Ltd.
10, Science Park Road, The Alpha
#02-25, Singapore Science Park 2
Singapore 117684

Phone +65.6872.3966
Fax +65.6778.2494

Australia

Sartorius Stedim Australia Pty. Ltd.
Unit 17/104 Ferntree Gully Road
Waverley Business Park
East Oakleigh, Victoria 3166

Phone +61.3.9590.8800
Fax +61.3.9590.8828



Application Guide

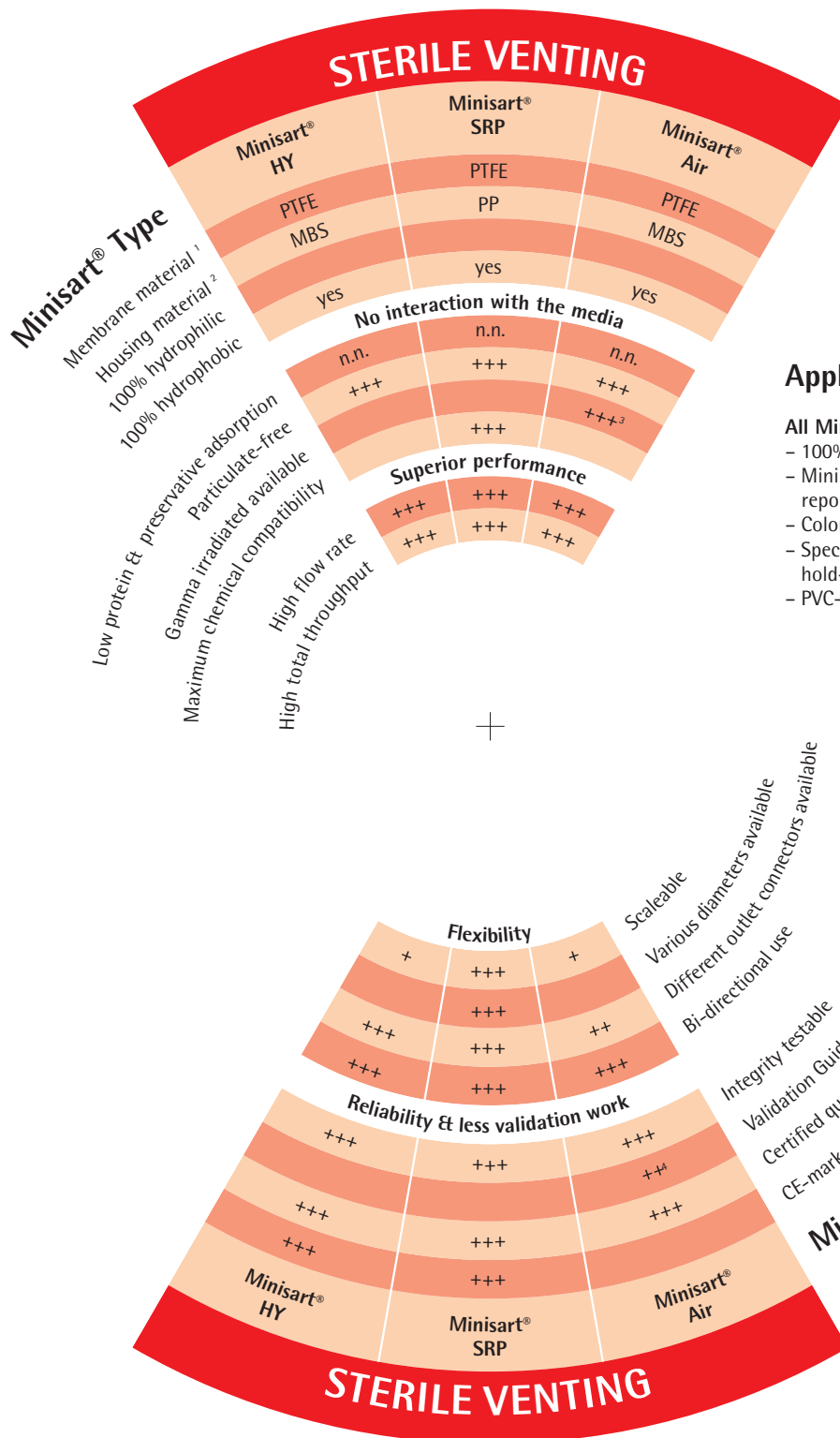
All Minisart® types are:

- 100% integrity tested during manufacturing
- Minimum extractables, excerpts of test study reports can be requested f.o.c.
- Color-coded or their pore size is printed on
- Specially designed, to guarantee lowest hold-up volume
- PVC-free

Legend:

- GF: Binder-free glass fiber depth filter | Nylon: Polyamide | PES: Polyethersulfone | PTFE: Polytetra-fluorethylene (hydrophobic material, hydrophilic after wetting with IPA) | RC: Regenerated Cellulose | SFCA: Surfactant-free Cellulose Acetate
- MBS: Meta acrylate butadiene styrene | PP: Polypropylene
- Non-sterile versions could be gamma irradiated
- Minisart® Air is part of the fully validated Sterisart® NF system

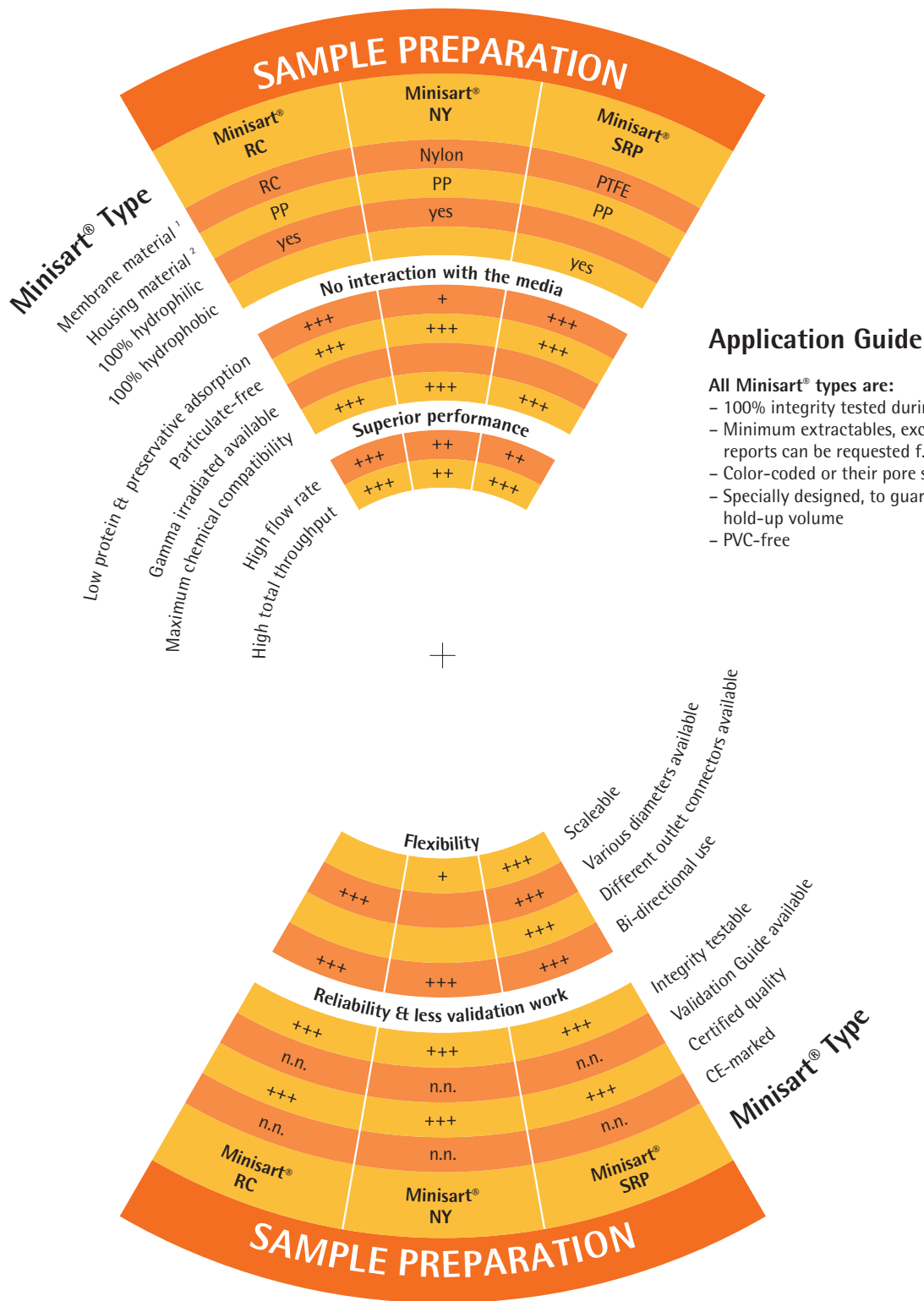
- + = good performance
 ++ = better performance
 +++ = best performance
 n.n. = not necessary



Legend:

- 1) GF: Binder-free glass fiber depth filter | Nylon: Polyamide |
 PES: Polyethersulfone |
 PTFE: Polytetra-fluorethylene (hydrophobic material, hydrophilic after wetting with IPA) |
 RC: Regenerated Cellulose | SFCA: Surfactant-free Cellulose Acetate
 2) MBS: Meta acrylate butadiene styrene | PP: Polypropylene
 3) Non-sterile versions could be gamma irradiated
 4) Minisart® Air is part of the fully validated Sterisart® NF system

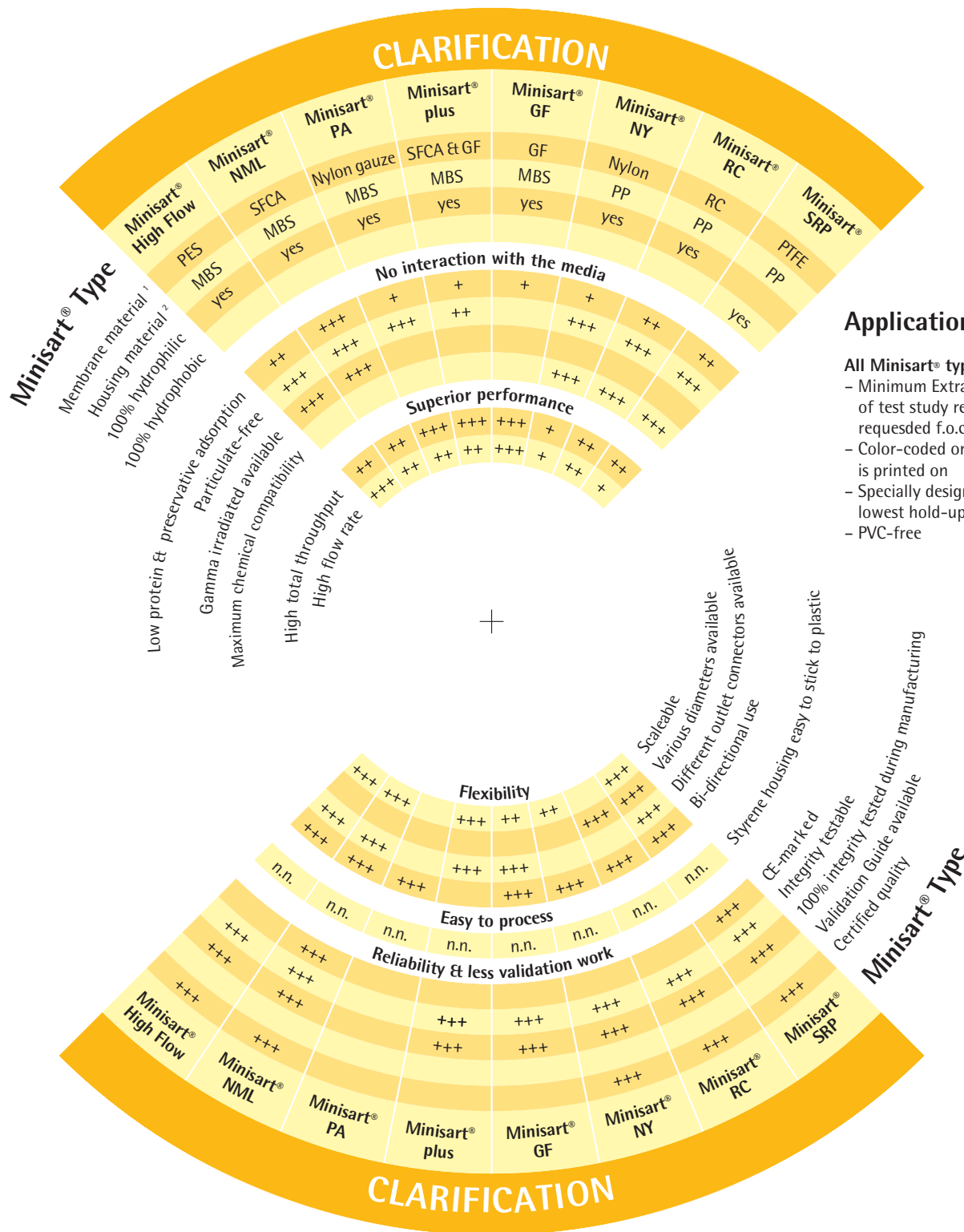
- + = good performance
 ++ = better performance
 +++ = best performance
 n.n. = not necessary



Legend:

- 1) GF: Binder-free glass fiber depth filter | Nylon: Polyamide |
 PES: Polyethersulfone |
 PTFE: Polytetra-fluorethylene (hydrophobic material, hydrophilic after wetting with IPA) |
 RC: Regenerated Cellulose | SFCA: Surfactant-free Cellulose Acetate
 2) MBS: Meta acrylate butadiene styrene | PP: Polypropylene
 3) Non-sterile versions could be gamma irradiated
 4) Minisart® Air is part of the fully validated Sterisart® NF system

- + = good performance
 ++ = better performance
 +++ = best performance
 n.n. = not necessary



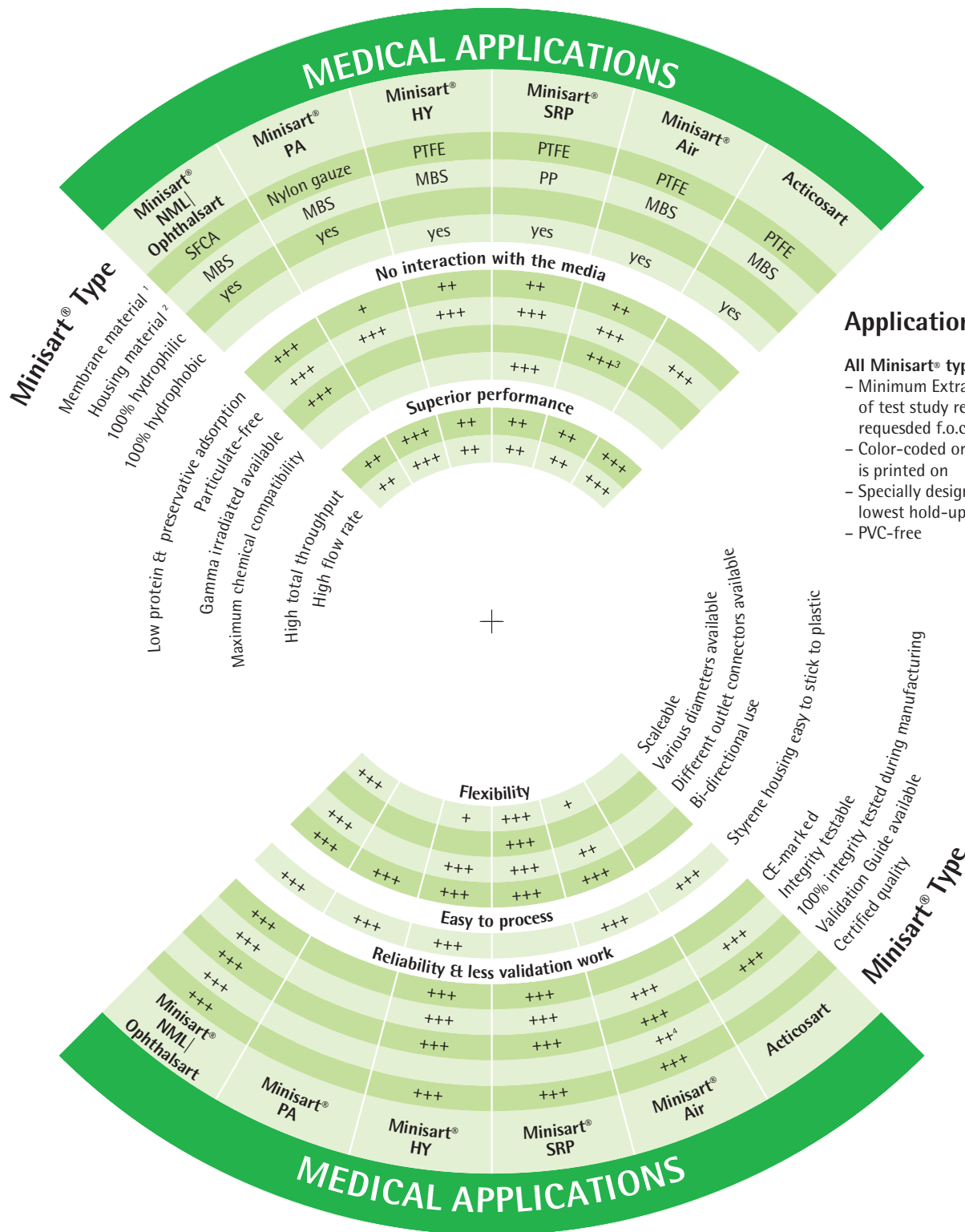
Application Guide

- All Minisart® types are:**
- Minimum Extractables, excerpts of test study reports can be requested f.o.c.
 - Color-coded or their pore size is printed on
 - Specially designed, to guarantee lowest hold-up volume
 - PVC-free

Legend:

- 1) GF: Binder-free glass fiber depth filter | Nylon: Polyamide |
PES: Polyethersulfone | PTFE: Polytetra-fluoroethylene | RC: Regenerated Cellulose |
SFCA: Surfactant-free Cellulose Acetate
2) MBS: Meta acrylate butadiene styrene | PP: Polypropylene
3) Non-sterile versions could be gamma irradiated
4) Minisart® Air is part of the fully validated Sterisart® NF system

- + = good performance
++ = better performance
+++ = best performance
n.n. = not necessary



Legend:

- GF: Binder-free glass fiber depth filter | Nylon: Polyamide | PES: Polyethersulfone | PTFE: Polytetra-fluorethylene | RC: Regenerated Cellulose | SFCA: Surfactant-free Cellulose Acetate
- MBS: Meta acrylate butadiene styrene | PP: Polypropylene
- Non-sterile versions could be gamma irradiated
- Minisart® Air is part of the fully validated Sterisart® NF system

+ = good performance
++ = better performance
+++ = best performance
n.n. = not necessary

Minisart® Type

Membrane filter	Polyethersulfone ¹ (PES)	
Housing ²	MBS ¹ polymerisate	
Packaging ³	Sterile: EO, GI; non-sterile	
Feasible sterilization methods ⁴	EO, GI	
Protein-binding (for 0.2 µm)	BSA: 5 IgG: 10 Insulin: 1.9	[µg/cm ²]
Pack size	50 units, 500 units	
Connectors: inlet/outlet ⁵	28 33 24 or 26	[mm]
Filtration area	FLL MLL or MLS	
Max. temperature	6.2 cm ²	[°C °F]
Max. operating pressure	50 122	[bar psi]
Burst pressure	4.5 65.3	[bar psi]
Recomm. process volume	≥ 6 87	[m]
	100	

Specification Guide

Filling/Priming volume	0.9 ml	
Hold-up volume	0.3 0.15	
Cytotoxicity Test passed: MRC-5	yes	yes
Endotoxin Test passed	yes	yes
Bacteria Challenge Test passed	yes	yes
Flow rate for water	yes	yes
Bubble Point with water	≥ 30	≥ 140
Color code top part	≥ 5.0 72.5	≥ 3.2 46.4
Color code base part	≥ 2.3 33.4	
Article codes	Clear transparent	
Pore size	dark red	royal blue
	16553	16532, 16541
	0.1 µm	0.2 µm
		0.45 µm

[ml] before Bubble Point|after BP
no inhibition with MRC-5 (human lung cells)
no inhibition with L-929 cells
≤ 0.06 EU/ml, meets current USP bacterial endotoxin test for devices
retention of 10⁷ bacteria /ml · cm² Brevundimonas diminuta
[ml/min] at 1.0 bar|14.5 psi
[bar|psi]

Legend:

n.n. = not necessary

1) The material meets the FDA requirements as defined in Title 21 Code of Federal Regulations. Biosafety testing, such as the Class VI Plastics Testing as described in the current USP, are also met and exceeded.

2) MBS = Meta acrylate butadiene styrene

3) Sterile = individually, sterile packaged; EO = Ethylene oxide; GI = Gamma irradiation; non-sterile = bulk-packaged in PE bag

4) EO = Ethylene oxide; GI = Gamma irradiation

5) FLL = Female Luer Lock; MLL = Male Luer Lock; MLS = Male Luer Slip (cone)

Minisart® Type

Membrane filter	Surfactant-free Cellulose Acetate ¹ (SFCA)	
Housing ²	MBS ¹ polymerisate	
Packaging ³	Sterile: EO, GI; non-sterile	
Feasible sterilization methods ⁴	EO, GI	
Protein-binding (for 0.2 µm)	BSA: 0.8–3 IgG: 8–12	[µg/cm ²]
Pack size	50 units, 500 units	
Connectors: inlet/outlet ⁵	28 33 24 or 26	[mm]
Filtration area	FLL MLL or MLS	
Max. temperature	6.2 cm ²	[°C °F]
Max. operating pressure	50 122	[bar psi]
Burst pressure	4.5 65.3	[bar psi]
Recomm. process volume	≥ 6 87	[m]
	100	

Specification Guide

Filling/Priming volume	0.9 ml		
Hold-up volume	0.3 0.15		
Cytotoxicity Test passed: MRC-5	yes	yes	yes
Endotoxin Test passed	yes		
Bacteria Challenge Test passed	yes	yes	yes
Flow rate for water	yes		
Bubble Point with water	≥ 60	≥ 160	≥ 250
Color code top part	≥ 3.2 46	≥ 2.0 29	≥ 1.3 18.9
Color code base part			
Article codes	Clear transparent		
Pore size	blue	yellow	pink
	16534, 17597	16555, 17598	16569
	0.2 µm	0.45 µm	0.65 µm

[ml] before Bubble Point|after BP
no inhibition with MRC-5 (human lung cells)
no inhibition with L-929 cells
≤ 0.06 EU/ml, meets current USP bacterial endotoxin test for devices
retention of 10⁷ bacteria/ml · cm² Brevundimonas diminuta
[ml/min] at 1.0 bar|14.5 psi
[bar|psi]

Legend:

n.n. = not necessary

1) The material meets the FDA requirements as defined in Title 21 Code of Federal Regulations. Biosafety testing, such as the Class VI Plastics Testing as described in the current USP, are also met and exceeded.

2) MBS = Meta acrylate butadiene styrene

3) Sterile = individually, sterile packaged; EO = Ethylene oxide; GI = Gamma irradiation; non-sterile = bulk-packaged in PE bag

4) EO = Ethylene oxide; GI = Gamma irradiation

5) FLL = Female Luer Lock; MLL = Male Luer Lock; MLS = Male Luer Slip (cone)

Minisart® Type

Membrane filter	Surfactant-free Cellulose Acetate ¹ (SFCA)	
Housing ²	MBS ¹ polymerisate	
Packaging ³	Sterile: EO, GI; non-sterile	
Feasible sterilization methods ⁴	EO, GI	
Protein-binding (for 0.2 µm)	BSA: 0.8–3 IgG: 8–12	[µg/cm ²]
Pack size	50 units, 500 units	
Connectors: inlet/outlet ⁵	28 33 24 or 26	[mm]
Filtration area	FLL MLL or MLS	
Max. temperature	6.2 cm ²	[°C °F]
Max. operating pressure	50 122	[bar psi]
Burst pressure	4.5 65.3	[bar psi]
Recomm. process volume	≥ 6 87	[m]
	100	

Specification Guide

Filling/Priming volume	0.9 ml		
Hold-up volume	0.3 0.15		
Cytotoxicity Test passed: MRC-5	yes	yes	yes
Endotoxin Test passed	yes	yes	yes
Bacteria Challenge Test passed	yes	yes	yes
Flow rate for water	≥ 350	≥ 400	≥ 500
Bubble Point with water	≥ 0.8 12	≥ 0.7 10	≥ 0.4 6
Color code top part	Clear transparent		
Color code base part	green	red	brown
Article codes	16592	17593	17594
Pore size	0.8 µm	1.2 µm	5 µm

[ml] before Bubble Point|after BP
 no inhibition with MRC-5
 no inhibition with L-929 cells
 ≤ 0.06 EU/ml, meets current USP bacterial endotoxin test for devices
 retention of 10⁷ bacteria/ml · cm² Brevundimonas diminuta
 [ml/min] at 1.0 bar|14.5 psi
 [bar|psi]

Legend:

n.n. = not necessary

1) The material meets the FDA requirements as defined in Title 21 Code of Federal Regulations. Biosafety testing, such as the Class VI Plastics Testing as described in the current USP, are also met and exceeded.

2) MBS = Meta acrylate butadiene styrene

3) Sterile = individually, sterile packaged; EO = Ethylene oxide; GI = Gamma irradiation; non-sterile = bulk-packaged in PE bag

4) EO = Ethylene oxide; GI = Gamma irradiation

5) FLL = Female Luer Lock; MLL = Male Luer Lock; MLS = Male Luer Slip (cone)

Minisart® Type

Membrane filter	SFCA & binder-free Glass Fiber depth filter	
Housing ²	MBS ¹ polymerisate	
Packaging ³	Sterile; EO; non-sterile	
Feasible sterilization methods ⁴	EO, GI	
Protein-binding (for 0.2 µm)	BSA: 0.8–3 IgG: 8–12 (for SFCA)	[µg/cm ²]
Pack size	50 units, 500 units	
Connectors: inlet/outlet ⁵	28 33 24 or 26	[mm]
Filtration area	FLL MLL or MLS	
Max. temperature	6.2 cm ²	[°C °F]
Max. operating pressure	50 122	[bar psi]
Burst pressure	4.5 65.3	[bar psi]
Recomm. process volume	≥ 6 87	[m]
	200	

Specification Guide

Filling/Priming volume	0.9 ml	
Hold-up volume	0.4 0.23	
Cytotoxicity Test passed: MRC-5	yes	yes
Endotoxin Test passed	yes	yes
Bacteria Challenge Test passed	yes	yes
Flow rate for water	yes	yes
Bubble Point with water	≥ 60	≥ 160
Color code top part	≥ 3.2 46.4	≥ 2.0 29
Color code base part	≥ 0.7 10	
Article codes	white	
Pore size	blue	yellow
	17823	17829
	0.2 µm	0.45 µm
		1.2 µm

[ml] before Bubble Point|after BP
no inhibition with MRC-5 (human lung cells)
no inhibition with L-929 cells
≤ 0.06 EU/ml, meets current USP bacterial endotoxin test for devices
retention of 10⁷ bacteria/ml · cm² Brevundimonas diminuta
[ml/min] at 1.0 bar|14.5 psi
[bar|psi]

Legend:

n.n. = not necessary

1) The material meets the FDA requirements as defined in Title 21 Code of Federal Regulations. Biosafety testing, such as the Class VI Plastics Testing as described in the current USP, are also met and exceeded.

2) MBS = Meta acrylate butadiene styrene

3) Sterile = individually, sterile packaged; EO = Ethylene oxide; GI = Gamma irradiation; non-sterile = bulk-packaged in PE bag

4) EO = Ethylene oxide; GI = Gamma irradiation

5) FLL = Female Luer Lock; MLL = Male Luer Lock; MLS = Male Luer Slip (cone)

Minisart® Type

Membrane filter	Binder-free Glass Fiber depth filter (GF)	
Housing ²	MBS ¹ polymerisate	
Packaging ³	Sterile: EO; non-sterile	
Feasible sterilization methods ⁴	EO, GI	
Protein-binding (for 0.2 µm)	50 units, 500 units	[µg/cm ²]
Pack size	28 33 24 or 26	
Connectors: inlet/outlet ⁵	FLL MLL or MLS	[mm]
Filtration area	6.2 cm ²	
Max. temperature	50 122	[°C °F]
Max. operating pressure	4.5 65.3	[bar psi]
Burst pressure	≥ 6 87	[bar psi]
Recomm. process volume	500	[m]

Specification Guide

Filling/Priming volume	0.9 ml	[ml] before Bubble Point after BP
Hold-up volume	0.5 0.25	no inhibition with MRC-5
Cytotoxicity Test passed: MRC-5	yes	no inhibition with L-929 cells
Endotoxin Test passed	yes	≤ 0.06 EU/ml, meets current USP
Bacteria Challenge Test passed	yes	retention of 10 ⁷ bacteria
Flow rate for water	≥ 450	[ml/min] at 1.0 bar 14.5 psi
Bubble Point with water	≥ 0.5 7	[bar psi]
Color code top part	Clear transparent	
Color code base part	white	
Article codes	17824, 17856	
Pore size	-	

Minisart® Type

Minisart® GF

Legend:

n.n. = not necessary

1) The material meets the FDA requirements as defined in Title 21 Code of Federal Regulations. Biosafety testing, such as the Class VI Plastics Testing as described in the current USP, are also met and exceeded.

2) MBS = Meta acrylate butadiene styrene

3) Sterile = individually, sterile packaged; EO = Ethylene oxide; GI = Gamma irradiation; non-sterile = bulk-packaged in PE bag

4) EO = Ethylene oxide; GI = Gamma irradiation

5) FLL = Female Luer Lock; MLL = Male Luer Lock; MLS = Male Luer Slip (cone)

Minisart® Type

Minisart® PA	Ophthalsart
Nylon gauze	SFCA ¹
MBS ¹ polymerisate	MBS ¹ polymerisate
Sterile: EO	Sterile: EO
EO	EO, GI
	BSA: 0.8-3/ IgG: 8-12
50 units	50 units
28 33 24	28 33 26
FLL MLL	FLL MLS
6.2 cm ²	6.2 cm ²
50 122	50 122
4.5 65.3	4.5 65.3
≥ 6 87	≥ 6 87
200	100

Specification Guide

Minisart® PA	Ophthalsart
Filling/Priming volume	0.9 ml
Hold-up volume	0.3 0.1
Cytotoxicity Test passed: MRC-5	0.3 0.15
Endotoxin Test passed	yes
Bacteria Challenge Test passed	yes
Flow rate for water	yes
Bubble Point with water	yes
Color code top part	n.a.
Color code base part	n.a.
Article codes	Clear transparent
Pore size	Clear transparent
	17710
	17528
	20 µm
	0.2 µm

Legend:

n.n. = not necessary

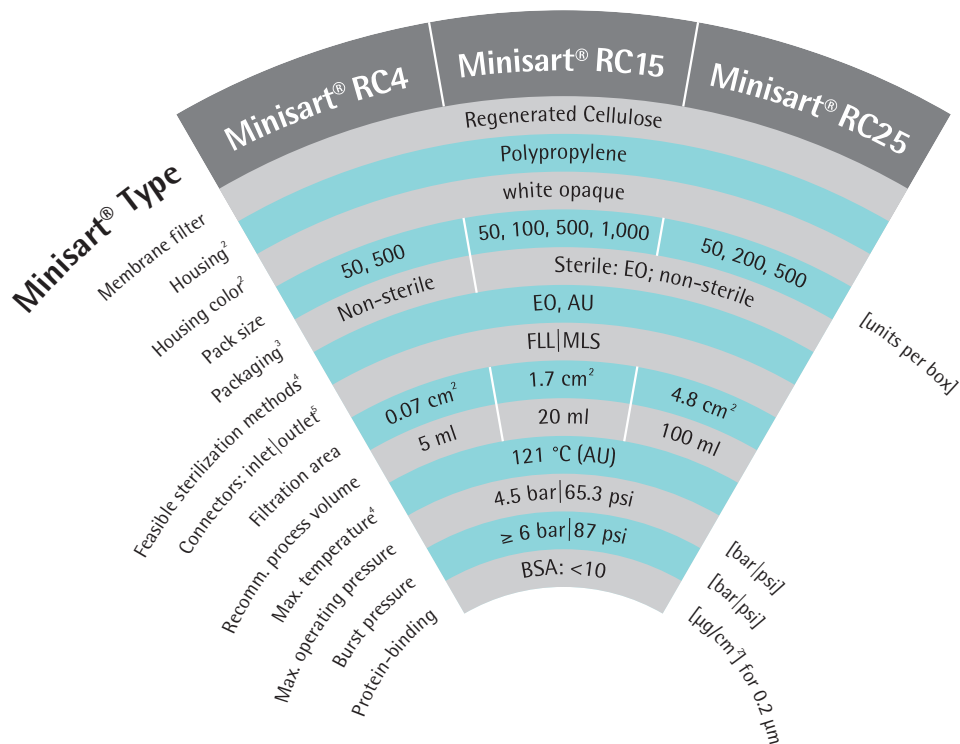
1) The material meets the FDA requirements as defined in Title 21 Code of Federal Regulations. Biosafety testing, such as the Class VI Plastics Testing as described in the current USP, are also met and exceeded.

2) MBS = Meta acrylate butadiene styrene

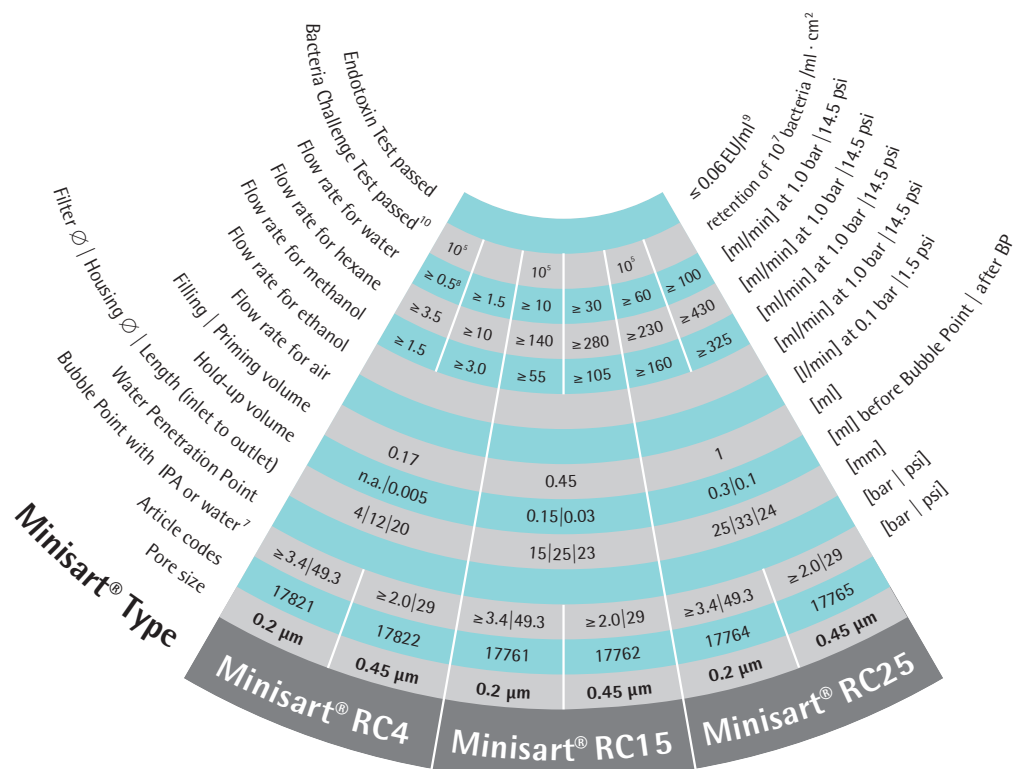
3) Sterile = individually, sterile packaged; EO = Ethylene oxide; GI = Gamma irradiation; non-sterile = bulk-packaged in PE bag

4) EO = Ethylene oxide; GI = Gamma irradiation

5) FLL = Female Luer Lock; MLL = Male Luer Lock; MLS = Male Luer Slip (cone)



Specification Guide



Legend:
n.n. = not necessary

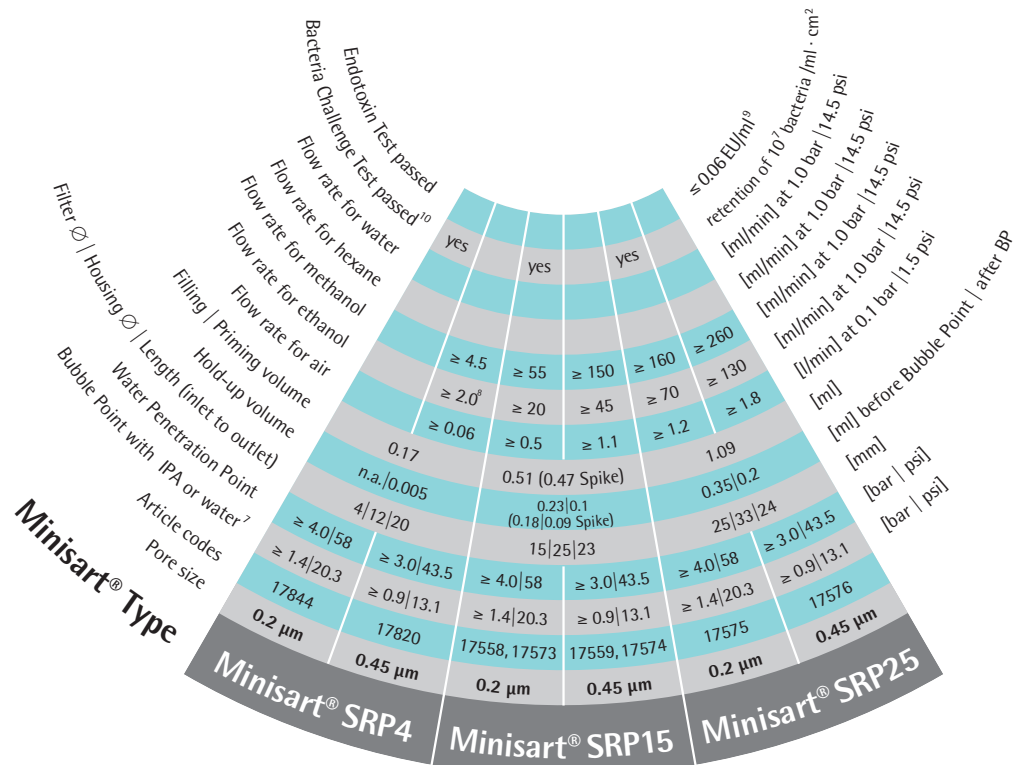
- 1) The material meets the FDA requirements as defined in Title 21 Code of Federal Regulations. Biosafety testing, such as the Class VI Plastics Testing as described in the current USP, are also met and exceeded.
- 2) MBS = Meta acrylate butadiene styrene. The color of the housing identifies the pore size. On white opaque polypropylene housings the pore size is printed on. For Minisart® RC4 and SRP4 the tray is color coded (blue = 0.2 μm, yellow = 0.45 μm)
- 3) Sterile = individually, sterile packaged; EO = Ethylene oxide; GI = Gamma irradiation; non-sterile = bulk-packaged in PE bag

- 4) EO = Ethylene oxide; GI = Gamma irradiation; AU = autoclaving at 121 °C | 250 °F for 30 min
- 5) FLL = Female Luer Lock; MLL = Male Luer Lock; MLS = Male Luer Slip (cone); MS = Male Spike; TC = Tube connector
- 6) After gamma irradiation: 0.5 bar | 7.3 psi
- 7) Wetting fluid: IPA = Isopropyl alcohol (for hydrophobic membranes); water for hydrophilic membranes
- 8) At 3 bar | 43.5 psi; 9) Meets current USP bacterial endotoxin test for devices
- 10) Bacteria = Brevundimonas diminuta

Minisart® Type	Minisart® SRP4	Minisart® SRP15	Minisart® SRP25
Membrane filter	PTFE ¹ , PP-reinforced	Polypropylene	Polypropylene
Housing		white opaque	white opaque
Housing color ²		50, 500	50, 200, 500
Pack size	50, 500	50, 500	50, 200, 500
Packaging ³	Non-sterile	Sterile: EO; non-sterile	Sterile: EO; non-sterile
Feasible sterilization methods ⁴	EO, AU	EO, AU	EO, AU
Connectors: inlet/outlet ⁵	FLL/MLS	FLL/MLS or MS	FLL/MLS
Filtration area	0.07 cm ²	1.7 cm ²	4.8 cm ²
Recomm. process volume	5 ml	20 ml	100 ml
Max. temperature ⁶	121 °C (AU)	121 °C (AU)	121 °C (AU)
Max. operating pressure	4.5 bar 65.3 psi	4.5 bar 65.3 psi	4.5 bar 65.3 psi
Burst pressure	≥ 6 bar 87 psi	≥ 6 bar 87 psi	≥ 6 bar 87 psi
Protein-binding	IgG: 8	IgG: 8	IgG: 8

[units per box]

[bar/psi]
[bar/psi]
[μg/cm²] for 0.2 μm



- 1) The material meets the FDA requirements as defined in Title 21 Code of Federal Regulations. Biosafety testing, such as the Class VI Plastics Testing as described in the current USP, are also met and exceeded.
- 2) MBS = Meta acrylate butadiene styrene. The color of the housing identifies the pore size. On white opaque polypropylene housings the pore size is printed on.
For Minisart® RC4 and SRP4 the tray is color coded (blue = 0.2 µm, yellow = 0.45 µm)
- 3) Sterile = individually, sterile packaged; EO = Ethylene oxide;
GI = Gamma irradiation; non-sterile = bulk-packaged in PE bag

- 4) EO = Ethylene oxide; GI = Gamma irradiation; AU = autoclaving at 121 °C | 250 °F for 30 min
5) FL = Female Luer Lock; MLL = Male Luer Lock; MLS = Male Luer Slip (cone); MS = Male Spike;
TC = Tube connector
6) After gamma irradiation: 0.5 bar | 7.3 psi
7) Wetting fluid: IPA = Isopropyl alcohol (for hydrophobic membranes);
water for hydrophilic membranes)
8) At 3 bar | 43.5 psi; 9) Meets current USP bacterial endotoxin test for devices
10) Bacteria = *Brevundimonas diminuta*

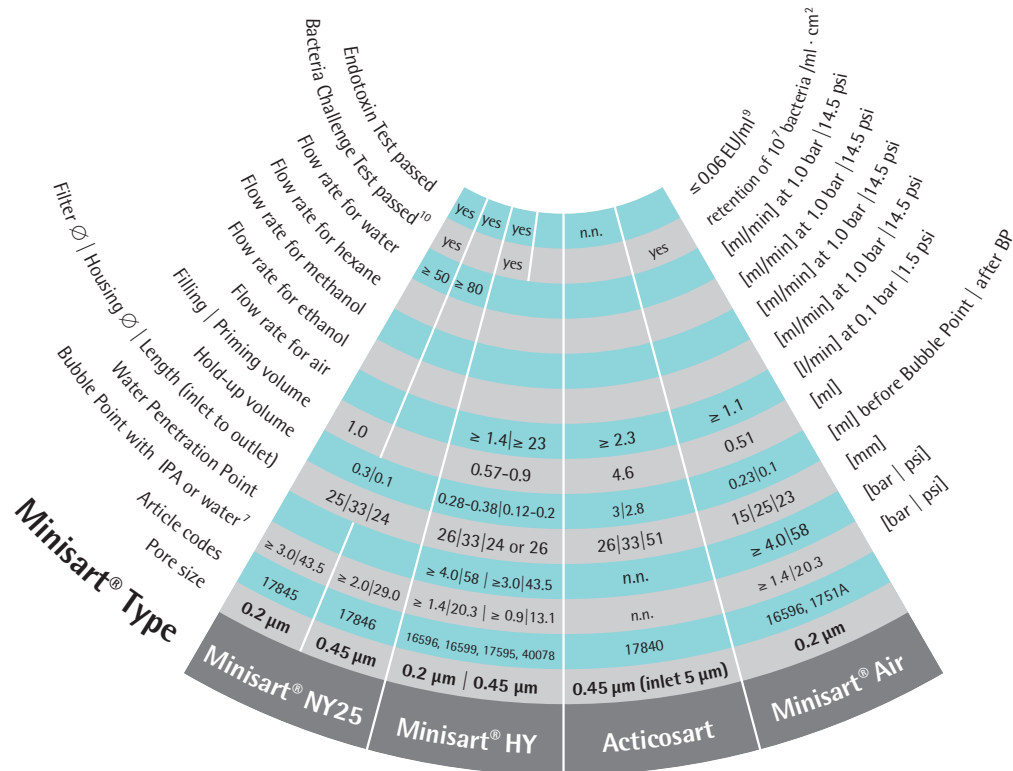
Minisart® Type	Minisart® NY25	Minisart® HY	Acticosart	Minisart® Air
Membrane filter	Nylon (polyamide)	PTFE ¹ , PP-reinforced	PTFE ¹ & active carbon	PTFE ¹ , PP-reinforced
Housing ²	Polypropylene	MBS ¹ polymerisate	MBS ¹ polymerisate	MBS ¹ polymerisate
Housing color ²	white opaque	Clear transparent	Clear transparent/ blue	yellow
Pack size	50, 500, 1,000	50, 500	500	500
Packaging ³	Sterile: EO; non-sterile	Sterile: EO; non-sterile	Non-sterile	Sterile: GI; non-sterile
Packaging methods ⁴	EO, AU	EO	EO	EO, GI
Feasible sterilization methods ⁵	FLL/MLS	FLL, MLS, TC/ MLL, MLS, TC	MLS/MLS	FLL/MLS or needle
Connectors: inlet/outlet ⁶	4.8 cm ²	5.3 cm ²	5.3 cm ²	1.7 cm ²
Filtration area	100 ml	n.n.	n.n.	n.n.
Recomm. process volume	121°C (AU)	50°C/ 122°F	50°C/ 122°F	50°C/ 122°F
Max. temperature ⁷	4.5/65.3	4.5/65.3	1/14.5	1.5/21.8 ⁸
Max. operating pressure	≥ 6/87	≥ 6/87	≥ 6/87	≥ 6/87
Burst pressure	BSA: 100	IgG: 8	IgG: 8	IgG: 8
Protein-binding				

[units per box]

[bar/psi]

[bar/psi]

[µg/cm²] for 0.2 µm



4) EO = Ethylene oxide; GI = Gamma irradiation; AU = autoclaving at 121 °C | 250 °F for 30 min
5) FL = Female Luer Lock; MLL = Male Luer Lock; MLS = Male Luer Slip (cone); MS = Male Spike;
 TC = Tube connector
6) After gamma irradiation: 0.5 bar | 7.3 psi
7) Wetting fluid: IPA = Isopropyl alcohol (for hydrophobic membranes);
 water for hydrophilic membranes
8) At 3 bar | 43.5 psi; 9) Meets current USP bacterial endotoxin test for devices
10) Bacteria = *Brevundimonas diminuta*