

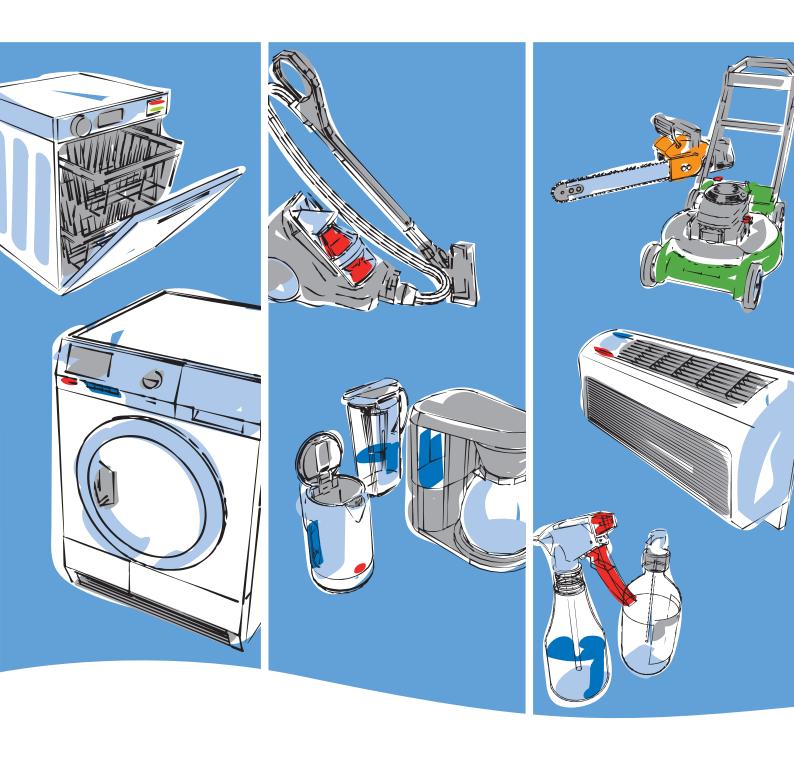






Sefar Appliance

Technical Mesh Solutions for Different Industries



Sefar Group

Sefar is the leading manufacturer of precision fabrics from monofilaments for the filtration and screen printing market. Sefar products are used in a wide variety of industries, reaching from electronics, graphics, medical, automotive, food and pharmaceutical applications to aerospace, mining & refining and architecture. With its profound understanding of the applications, Sefar helps its customers to achieve optimum results in their industrial processes. With subsidiaries and representatives around the world, Sefar offers its customers the comprehensive, global support they need.

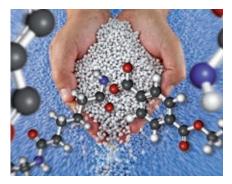




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Polymer experience

Our subsidiary company «Monosuisse» processes a wide range of polymers.

Polymer types

ETCFE (ethylene chlorotrifluoroethylene) ETFE (ethylene tetrafluoroethylene) FEP (fluorinated ethylene propylene) PA (polyamide:

PA6, PA6.6, PA6.10, PA11, PA12) PEEK (polyetheretherketone) PET (polyethyleneterephthalate)

PFA (perfluoroalkoxy alkanes) PP (polypropylene)

PVDF (polyvinylidene difluoride) PTFE (poly tetrafluoroethylene)

Yarn diameters

From 19 μm up to 2'000 μm

Yarn experience

Monosuisse combines technological knowledge about spinning polymers with years of experience producing fine and very fine monofilaments.

Monosuisse has production plants in Switzerland, Poland, Romania and Mexico.

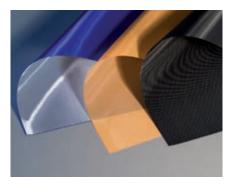
Weaving experience

In the weaving mills, high-grade monofilaments are processed to produce fabrics with highly precise, reproducible mesh openings. Different polymers are used in order to meet specific demands. By combining selected polymers with specific yarn counts and the appropriate weaving techniques, we create customized fabrics that deliver maximum performance.

Weaving patterns

Plain weave, twill weave, dutch weave, plain reverse dutch weave, satin weave.









Finishing capabilities

The chemical and/or physical treatments used to finish the gray fabric enhance each product by adding specific characteristics. In order to meet the required specifications, various applications are used for this purpose: examples include coatings, thermal treatments, calendering, chemical finishes, plasma treatments and dyeing processes.

The additional characteristics obtained in these ways increase the performance of the product, improve its downstream processing and/or meet visual requirements.

Converting capabilities

Sefar's expertise covers all processes to convert mesh into customer-specific solutions, such as shaped, pleated, coated or sewed products.

Depending on the requirements, fabrics can be cutted/slitted/stamped by a heat, ultrasonic or laser source. Single or multilayer fabrics can be heat cut or ultrasonically welded into tube configurations or pleatings.

The mesh can be combined with one or several adhesive layers which enables cost-efficient and fast joining of the mesh piece to any component.

Quality control

The product specific characteristics, such as mesh size, mesh count, open area, thickness and air permeability are strictly monitored using modern optical or pressure sensitive equipment.

Sefar's quality control is process-oriented throughout the entire manufacturing process and provides full traceability and lot-to-lot accuracy. That guarantees a reliable and consistent performance and gives our customers the confidence to specify Sefar fabrics for the most demanding applications.



Technical Mesh Solutions for the Appliance Industry

To cope with today's demanding requirements it is crucial to have maximum production efficiency along with trouble-free, long-lasting operation to decrease the total cost of ownership. Sefar offers the broadest selection of filtration and separation products non-corroding monofilament fabrics that ensure excellent efficiency in extreme environments for your application.

We Focus on your Application

Understanding your process is one key requirement to choose your best Sefar mesh solution. With decades spent developing filter media and fabrics from synthetic yarn, our innovative fabrics have become the trusted choice for a wide range of various systems worldwide.



Your Development Partner

A team of experienced field sales and engineering personnel assist you to develop your customized solution. Sefar works with all standards like ISO, DIN, REACH, RoHS and FDA to provide injection moulders and manufacturers with significant advantages.

With a wide range of industry standard testing, development possibilities and fabrication technologies, we are ready and capable to meet your needs.



ISO 9001 ISO 13485 ISO 14001 IATF 16949

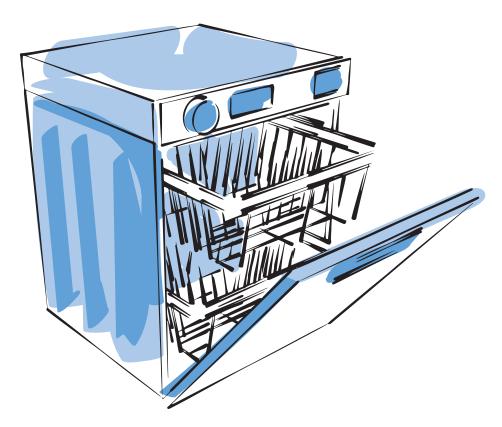








A good dishwater removes all food residues and grease from your cutlery and crockery. These end up as debris in a filter. Sefar offers excellent chemical, mechanical and termal resistance combined with precise mesh openings for self-cleaning and manual-cleaning filters to extend their lifetime and improve their performance.







Endless tube



Tube cut

- High open area
- Smaller filtration area due to higher throughput
- Optimal chemical resistance
- Stiff fabrics for optimal molding
- Plasma treatment possible

- Customized fabrics
- Wide range of different polymers
- Fabrication capabilities: ribbons, cuts, tubes
- Customized colors
- Counselling and close support

SEFAR **PETEX®** 07-190/70

SEFAR® **S-TEX** PET 150-150

SEFAR® **S-TEX** PET 185-170

SEFAR® **S-TEX** PET 200-160 SEFAR® **S-TEX** PET 300-245

SEFAR® **BASIC** 43/110-80W PW

(PET, 149μm mesh opening) SEFAR® **BASIC** 36/92-90W PW

(PET, 183 μm mesh opening) SEFAR® **BASIC** 32/83-100W PW

(PET, 209 μm mesh opening) SEFAR® **PET** 1500 24/60-120W PW

(294 µm mesh opening)

SEFAR® **S-TEX** PA 150-155 SEFAR® **S-TEX** PA 200-180 SEFAR® **S-TEX** PA 250-225

SEFAR® **S-TEX** PA 300-240

SEFAR® **PA** 36/92-90W PW (190 µm mesh opening)

SEFAR® **PA** 24/60-160W PW (252 µm mesh opening)

SEFAR® **PEEK** 17-195/70

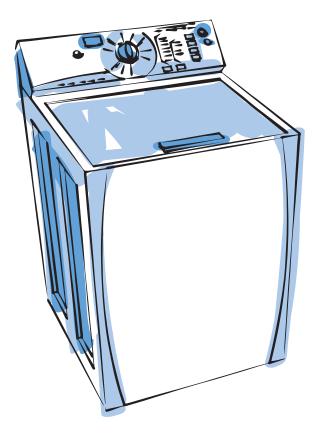
SEFAR® **PEEK** 17-220/56

Sefar Fabrics for Washing Machine Filters



The main function of the filter in a washing machine is to catch small objects to protect the pump from clogging or even damage. Many minor defects can result from a clogged filter.

Sefar open mesh filters provide protection against particle migration with excellent debris holding capacity and low pressure drop.







Ribbon



Cut pieces on an adhesive layer

- Specified for this industry
- High open area
- Smaller filtration area due to higher throughput
- Antibacterial fabrics possible
- Plasma treatment possible

We offer

- Monofilament fabrics with high open area
- Available in different polymers like polyamide
 (PA) and polyethylene terephthalate (PET)
- Combination with non-woven materials
- Different fabrication solutions: tubes, tube cuts, ribbons, shapes (on dispenser/liner available)
- Filter fabrics for micro-particles
- Customized colors
- Counselling and close support

Recommended fabrics

SEFAR **PETEX®** 07-190/70

SEFAR® **S-TEX** PET 150-150

SEFAR® **S-TEX** PET 185-170

SEFAR® **S-TEX** PET 200-160

SEFAR® **S-TEX** PET 300-245

SEFAR® BASIC 43/110-80W PW

(PET, 149μm mesh opening) SEFAR® **BASIC** 36/92-90W PW

(PET, 183 µm mesh opening)

SEFAR® **BASIC** 32/83-100W PW

(PET, 209 μm mesh opening) SEFAR® **PET** 1500 24/60-120W PW

(294 µm mesh opening)

SEFAR® **S-TEX** PA 150-155

SEFAR® **S-TEX** PA 200-180

SEFAR® **S-TEX** PA 250-225 SEFAR® **S-TEX** PA 300-240

SEFAR® **PA** 36/92-90W PW (190 μm mesh opening) SEFAR® **PA** 24/60-160W PW

(252 μm mesh opening)

Sefar Fabrics for Tumble Dryer Filters

Lint filters improve the performance of your tumble dryer by holding back all solid pieces above a desired size. Sefar fabrics resist the hot air flow and mechanical stress while remaining durable and easy to clean.











Shaped parts



Injection-molded customer product

- High lint holding capacity
- Optimal chemical resistance
- Antibacterial treatment possible

We offer

- Customized fabrics
- Different polymers
- Monofilament open mesh
- Surface or depth filtration
- Fabrication solutions:
- ribbons, tube cuts, shapes, etc.

 Customized colors
- Combined fabrics for higher filtration rate
- Counselling and close support

Recommended fabrics

SEFAR **PETEX®** 07-400/48

SEFAR® **S-TEX** PET 150-150 SEFAR® **S-TEX** PET 185-170 SEFAR® **S-TEX** PET 200-160

SEFAR® **S-TEX** PET 300-245

SEFAR® **BASIC** 43/110-80W PW (PET, 149µm mesh opening)
SEFAR® **BASIC** 36/92-90W PW (PET, 183 µm mesh opening)
SEFAR® **BASIC** 32/83-100W PW (PET, 209 µm mesh opening)
SEFAR® **PET** 1500 24/60-120W PW (294 µm mesh opening)

SEFAR® **S-TEX** PA 150-155 SEFAR® **S-TEX** PA 200-180 SEFAR® **S-TEX** PA 250-225

SEFAR® **S-TEX** PA 300-240

SEFAR® **PA** 36/92-90W PW (190 μm mesh opening) SEFAR® **PA** 24/60-160W PW (252 μm mesh opening)

Sefar Fabrics for Air Filtration

Small modern engines place high demands on clean air to prevent particles from entering the engine and causing damage. Sefar filters provide protection against particle migration, with excellent debris holding capacity and low pressure drops in all conditions.





Endless pleated filter element in blister



Customized colored fabrics



Ribbon, double layer



Injection-molded customer product

Main teatures and benefits

- High dirt holding capacity
- Optimal chemical resistance
- Antibacterial treatment
- Pleated elements
- Water repellent (hydrophobic treatment)

We offer

- Customized fabrics
- Different polymers
- Surface or depth filtration
- Fabrication solutions: ribbons, shapes, etc.
- Pleated elements
- Customized colors
- Combined fabrics for higher filtration rate
- Counselling and close support

Recommended fabrics

Filter fabrics

SEFAR® **PA** or SEFAR® **PETEX** mesh range (20–100 μ m mesh opening)

Support fabrics

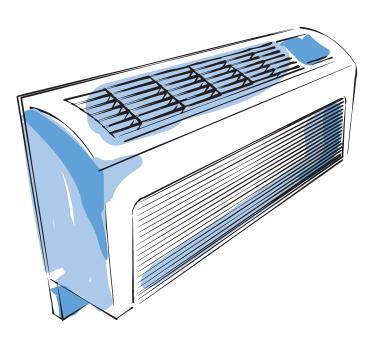
SEFAR® **PA** or SEFAR® **PETEX** mesh range (600–1000 µm mesh opening)

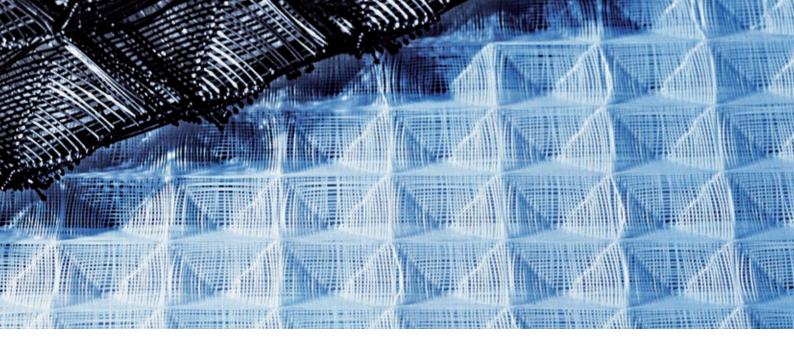
SEFAR® **BASIC** 43/110-80W PW (PET, 149µm mesh opening)
SEFAR® **BASIC** 36/92-90W PW (PET, 183 µm mesh opening)
SEFAR® **BASIC** 32/83-100W PW (PET, 209 µm mesh opening)
SEFAR® **PET** 1500 24/60-120W PW (294 µm mesh opening)

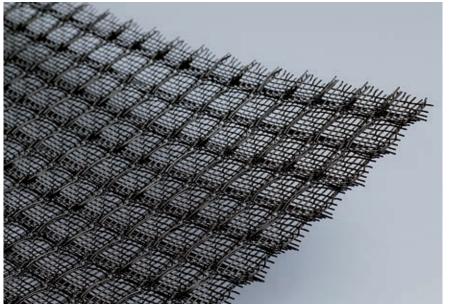
SEFAR® **PA** 36/92-90W PW (190 µm mesh opening) SEFAR® **PA** 24/60-160W PW (252 µm mesh opening)



Sefar supplies highly efficient AC spacers and filters for both split units and bigger industrial units. Our open mesh fabrics combined with custom specific depth media (HEPA, HVAC) provide the ultimate in filtration protection. Our products are manufactured and fabricated to your specifications and are available in a variety of sizes, shapes and colors.







Delta mesh, black spun-dyed



Delta mesh, undyed



Hydrophobic treatment possible

- High open area
- Pleated elements
- Temperature resistance
- Weavable with all Sefar polymers (ex. PTFE)

We offe

- Larger surface
- Air permeability
- Hydrophobic treatment possible
- Antibacterial treatment possible
- Higher air flow stability
- Customized colors
- Counselling and close support

Recommended fabrics

SEFAR® **DELTA** mesh range (150–1000 µm mesh opening)

SEFAR **PETEX**® mesh range (5–1000 µm mesh opening)



Clean water is not only essential for life but also for an enormous number of applications, that require high water purity. Sefar mesh solutions meet these high standards and remove particles that harm the desired process. Additional treatments exceed the function (e.g. hydrophilic, hydrophobic, antibacterial).

Domestic coffee and tea makers increasingly rely on re-usable and washable filters. Again Sefar mesh is the right choice to provide consistent results throughout the life of the appliance.







Ribbon with antibacterial treatment







Injection-molded customer products

- Specified for this industry
- High open area
- Smaller filtration area due to higher throughput
- Antibacterial fabrics

We offer

- Monofilament open mesh with high open area
- Available in PA and PET
- Combination with non-woven materials
- Different fabrication solutions: tubes, tube cuts, ribbons, shapes (on dispenser/liner available)
- FDA conformity
- Customized colors
- Counselling and close support

Recommended fabrics

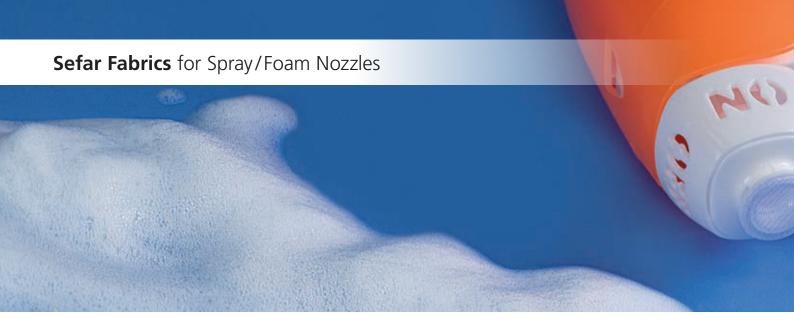
Water pitcher | Coffee and tea filter

SEFAR **PETEX®** mesh range (100–250 µm mesh opening, 32-46 % open area)

Water filte

SEFAR **PETEX®** mesh range (200–500 µm mesh opening, 39-48 % open area)

SEFAR® BASIC 43/110-80W PW (PET, 149µm mesh opening)
SEFAR® BASIC 36/92-90W PW (PET, 183 µm mesh opening)
SEFAR® BASIC 32/83-100W PW (PET, 209 µm mesh opening)
SEFAR® PET 1500 24/60-120W PW (294 µm mesh opening)



Cleaners, care products or other liquids often either need to be distributed evenly or foamed. By adding a chemically high resistant Sefar fabric you can achieve both.

In addition Sefar offers the possibility to cut fabrics into ribbons that are suitable directly for in-molding.







Ribbon with a chemically high resistant fabric

Injection-molded customer products

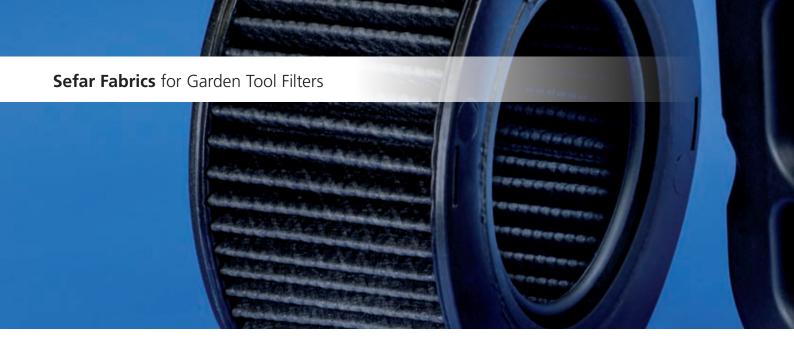
- High open area
- Optimal chemical resistance
- Stiff fabrics for optimal molding
- Hydrophilic treatment possible

We offer

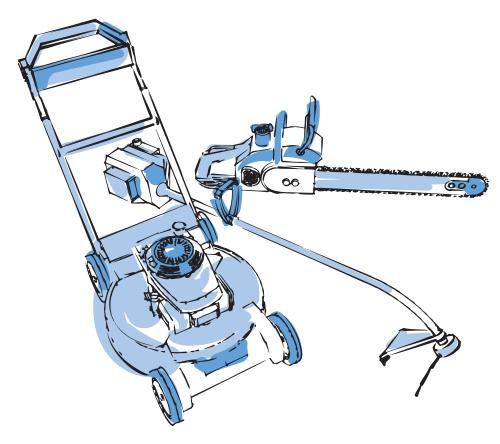
- Customized fabrics
- Wide range of different polymers
- Fabrication capabilities: ribbons, cuts, tubes
- Plasma treatment possible
- Customized colors
- Counselling and close support

Recommended fabrics

SEFAR® **PROPYLTEX** 05-75/21 SEFAR® **PROPYLTEX** 05-150/34 SEFAR® **PROPYLTEX** 05-280/41



Whether used in lawn mowers, chain saws, hedge clippers and leaf blowers, Sefar mesh filters air, holds back particles and ensures the best performance and longest lifetime for your product. Pleated elements are commonly prefered for their larger filter surface, fullfilling similar functions.



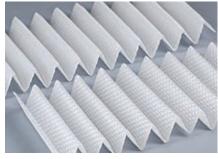




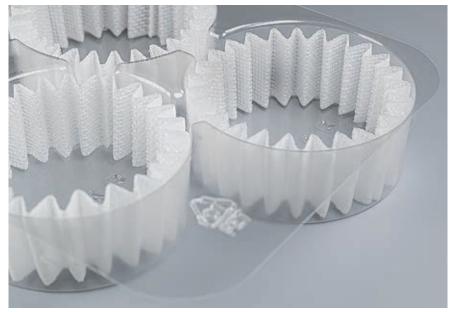
Raw support fabric



Ribbon, double layer



Pleated elements, support fabric and filter element



Endless pleated filter element in blister

- High open area
- Optimal chemical resistance
- Stiff fabrics for optimal molding
- Hydrophobic treatment possible

We offer

- Customized fabrics
- Wide range of different polymers
- Fabrication capabilities: ribbons, cuts, tubes
- Customized colors
- Counselling and close support

Recommended fabrics

Filter fabrics

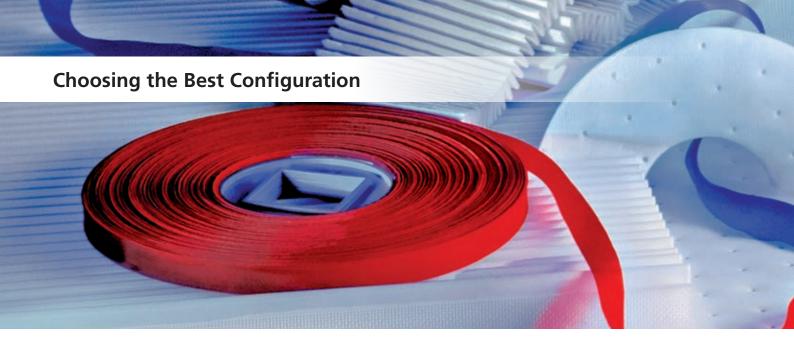
SEFAR* **PA** or SEFAR* **PETEX** mesh range (20–100 μ m mesh opening)

Support fabrics

SEFAR® **PA** or SEFAR® **PETEX** mesh range (600–1000 µm mesh opening)

SEFAR® **BASIC** 43/110-80W PW (PET, 149µm mesh opening)
SEFAR® **BASIC** 36/92-90W PW (PET, 183 µm mesh opening)
SEFAR® **BASIC** 32/83-100W PW (PET, 209 µm mesh opening)
SEFAR® **PET** 1500 24/60-120W PW (294 µm mesh opening)

SEFAR® **PA** 36/92-90W PW (190 μm mesh opening) SEFAR® **PA** 24/60-160W PW (252 μm mesh opening)

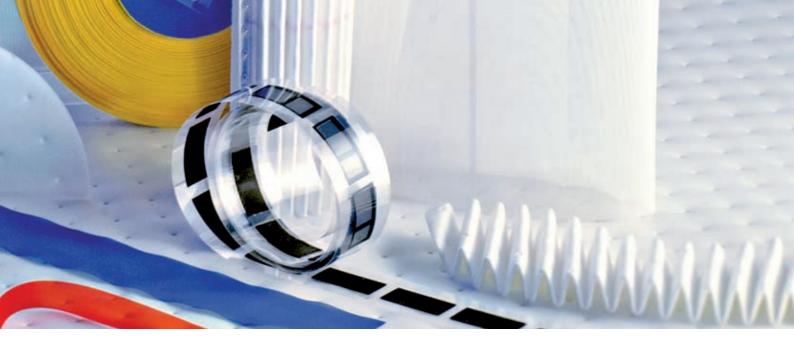


In addition to the wide range of effective filter media, Sefar offers the possibility to fabricate different shapes and parts. Sefar products can be optimized for maximum compatibility with the injection molding process.

Edge qualities

The edge quality differs significantly depending on the stamping or slitting technology.

Technology	Advantage	Edge quality
■ Cold - Cutting - Stamping	– Possible for all fabrics	
■ Heat – Cutting – Slitting	 Closed edge due to melting Possible for most fabrics (except fluorpolymer) 	
■ Laser – Cutting	No specific toolsHigh flexibility	
■ Ultrasonic (US) - Slitting - Welding	– Very clean cut edges and small material build-up – Narrow tolerances possible	



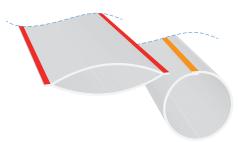
Tubes

Sefar has the competence to manufacture tubes either by heat slitting or by ultrasonic welding. For even better filter performance a combination of support- and filter fabrics are possible.

By slitting two layers of mesh simultaneously, the heat emitting from the slitting facility will weld both sides together creating a tube. These are suitable for in-molding and simple and cheap in production.

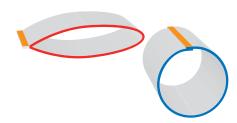
For higher weld strength, we recommend US-welded tubes having one overlapping weld. US-welded seams are significantly more resistant, dense and could be used as functional seam.

Sefar has the possibility to produce micro tubes with a diameter down to 2 mm and tubes can be up to 500 m long, depending on fabric, manufacturing technology and dimensions.



Tube cuts

Sefar offers to produce and deliver parts cut to length ready for further processing. Depending on the required edge quality, different fabrication methods are available such as laser or cold sectioning.



Ribbons

The fabric can be slit and rolled up to ribbon rolls, using various technologies perfectly adapted to your application. Each slitting technique has its advantages

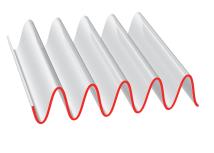
e.g. ensuring an optimally sealed, nonfraying edge quality or being fast and cost effective.



Pleated elements

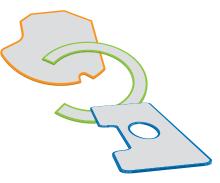
The individual fabric layers are simultaneously cut and welded together on their length side during the US-slitting.

To increase the effective filter area, up to five layers of ribbons are pleated and then cut to a defined number of pleats.



Stampings, discs, other shapes and cut pieces

Shapes are cut polygons or irregular cut flat pieces. We are happy to advise the best fabrication technology according to your drawing.



Tape and dispenser products

These products are made by combining fabrics, foils or films with one or several adhesive layers. Alternatively, a combination using a dispenser tape is also possible. Your benefits are a quick and efficient joining to any housing or other component (one- or double-sided adhesive layer) and easy handling and transport in automated assembly systems (dispenser tape).



Properties of Polymers

Sefar's line of specialty fabrics is ideal where high temperature, chemical resistance and material fatigue are common.

	PET	PP	PA6	PA6.6	PEEK
Material code	07	05	06	03	17
Specific gravity [g/mm³]	1.38	0.91	1.14	1.14	1.30
Tensile strength [daN/mm²]	45–75	35-62	41–67	41–67	33–75
Relative strength at wet conditions [%]	100	100	85–90	85–90	100
Elongation at break [%]	15–30	20-50	20–35	20–35	20-40
Moisture absorption at 20°C/65 % r.h. [%]	0.4	0	3.5-4	3.5-4	0.1
Melting point [°C]	250–260	165–175*	210–220	260–268	334
Softening point [°C]	220–240	140–155	_	-	300
Working temperature dry [°C]	-75 to +150	-30 to +90	_	-	up to 250
Stability to light	poor	poor	poor	poor	good
Atmospheric influence	none	none	_	_	none
Abrasion resistance	limited	limited	good	good	good
Acid resistance	good	good	limited-poor	limited-poor	good
Alkaline resistance	limited	good	good	good	good
Stability to solvents	good	good	limited	limited	good
Hydrolysis resistance	limited	good	good	good	good

^{*} Turns Yellow above 140 °C

Main advantages of polymers

PET (polyethyleneterephthalate) (polypropylene)

Three Basic Weaving Types

PA6 (polyamide 6)

PA6.6 (polyamide 6.6)

High rigidity, high hardness, high chemical resistance, good dimensional stability Good chemical resistance, more heat resistant than PVC

Tough, abrasion-resistant, good vibration damping, resistant to solvents, fuels and lubricants Rigid, stiff, abrasion-resistant, dimensionally stable at heat exposure

PEEK (polyetheretherketone) High mechanical strength, stiffness, toughness, temperature-, chemical- and radiation resistance

Properties of the basic fabric types. Plain weave **Twill weave** Satin weave 2 3 Min. pattern repeat limited-poor Slip resistance very good good Elongation limited-poor very good good Tensile strenght limited-poor good very good Maximum thread density limited-poor good very good Rigidity very good good limited-poor

good

good

very good

very good

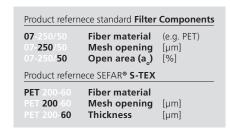
limited-poor

limited-poor

Permeability

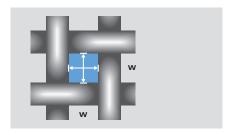
Drapability

Technical Mesh Definitions & Application Specific Surface Modifications



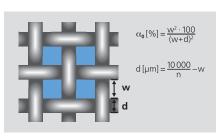
Product reference number

Valid only for Sefar Filter Components products



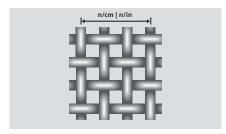
Mesh opening (w) [µm]

The mesh opening \mathbf{w} is the distance between two adjacent warp or weft threads.



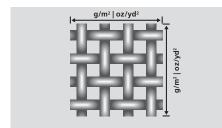
Open area (α_{o}) [%]

The percentage of the open area $\alpha_{\rm o}$ is the sum of all mesh openings as percentage of the total fabric area.



Mesh count (n) [n/cm], [n/in]

The mesh count stands for the number of threads per cm or inch.



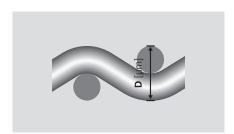
Weight [g/m²] [oz/yd²]

Method: Gravimetry According to: DIN EN 12127

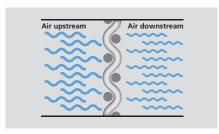


Yarn diameter nominal (d) [µm]

The yarn diameter is measured on the thread before weaving.

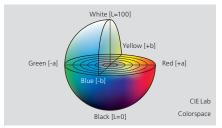


Fabric thickness D [µm]

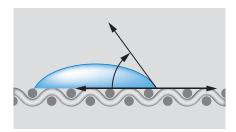


Air permeability

Method: Airflow at pressure drop According to: DIN EN ISO 9237

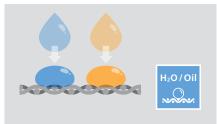


Color [CIE Lab]

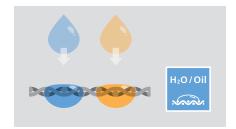


Contact angle

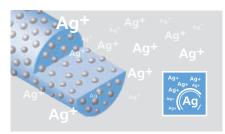
Method: Optical image analysis According to: TAPPI T 558



Hydrophobic / Oleophobic (coating or plasma) Most coatings are fluoropolymer-based solids that are both hydrophobic and oleophobic.



Hydrophilic/Oleophilic (coating or plasma) Most coatings have an affinity for water, oils or oily materials: readily absorb water and oil.



SEFAR® AntiBac (silver ions)

The silver particles integrated in the polymer are a fixed component of the yarn.



Antiflame (coatings and/or PEEK mesh) Limited spread of fire and heat emission and disclosure of burning droplets and smoke emission.



Antistatic

Preventing the build-up of static electricity or reducing its effects.



Sefar Worldwide

Sefar is the leading manufacturer of precision fabrics from monofilaments for the screen printing and filtration market. Sefar products are used in a wide variety of industries, reaching from electronics, graphics, medical, automotive, food and pharmaceutical applications to aerospace, mining & refining and architecture. With its profound understanding of the applications, Sefar helps its customers to achieve optimum results in their industrial processes. With subsidiaries and representatives around the world, Sefar offers its customers the comprehensive, global support they need.

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