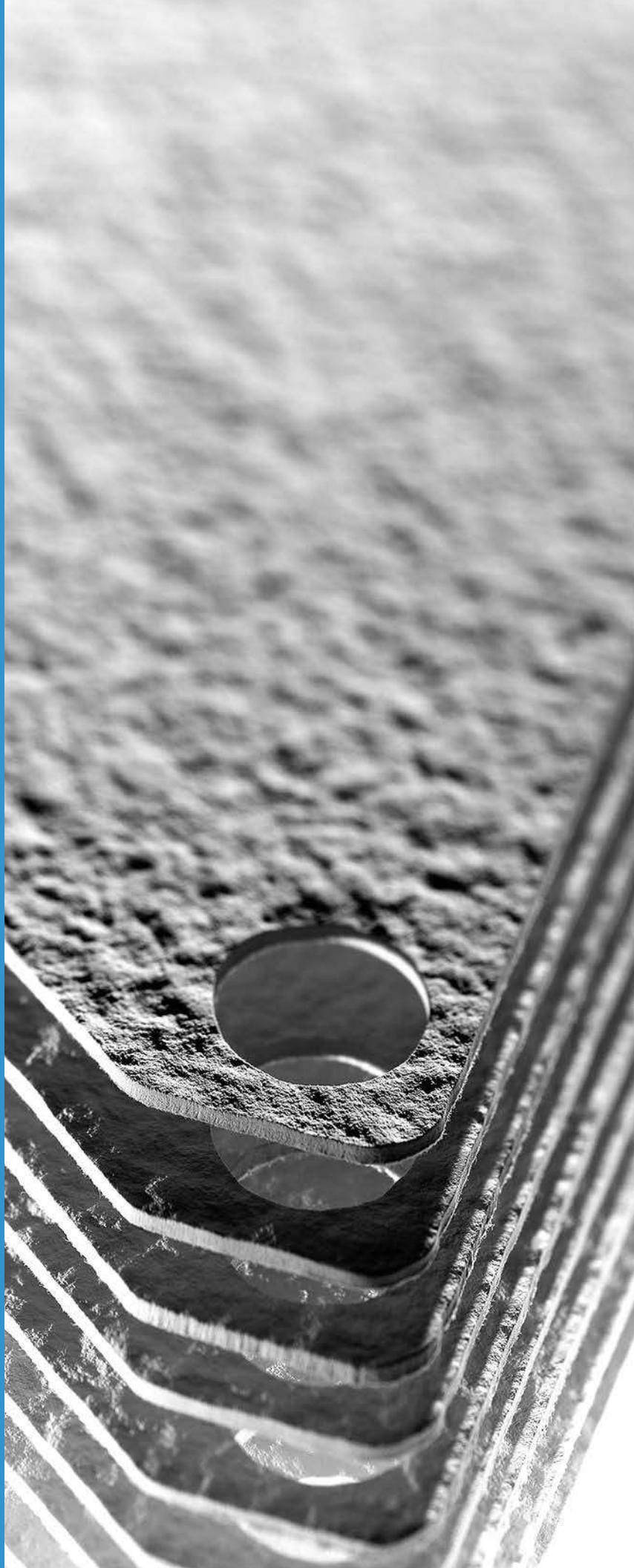
Filtration Products

BECO
depth filter sheets

Powering Business Worldwide

Eaton – supplier of complete solutions for depth filtration applications – develops, manufactures, and provides top-quality depth filter media for a wide range of applications in food and beverage industries, chemical, fine and specialty chemical, cosmetics, and pharmaceutical industries as well as in biotechnology. Eaton offers a variety of equipment and system solutions for the application of BECO® depth filter media.



Mechanisms and Components

Depth filtration

Depth filtration is used as coarse, clarifying, fine filtration as well as for microbe reduction and microbe removal. It is particularly suitable for the effective and safe separation of colloidal haze, very fine particles, and microorganisms.

Depth filters also can be used effectively as prefilters for efficient membrane protection. Another area of application for depth filter sheets or support sheets is the recovery of valuable substances or as support material for precoat filtration.

Mechanisms

The depth filtration mechanisms are both of a mechanical and an adsorptive nature. Particles are mechanically retained in the asymmetric hollow space structure of the depth filter medium (gradually decreasing pore structure toward the outlet side). Particles significantly smaller than the pores of the depth filter medium are retained through adsorption. This is due to the positive zeta potential (electrokinetic potential), which retains negatively charged particles through adsorption.

Components

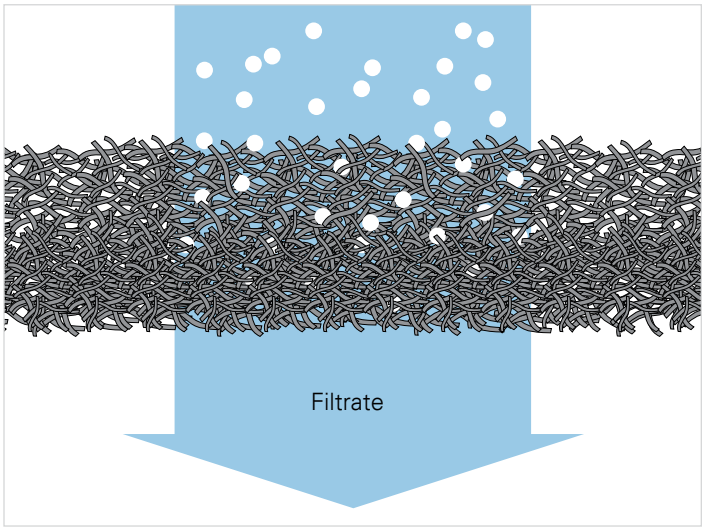
Very pure, finely fibrillated cellulose fibers form the matrix of the BECO depth filter sheets. The characteristic selective properties of the depth filter sheets are achieved in combination with the effects of the mineral components (e.g., diatomaceous earth).

In Eaton's innovative BECOPAD® depth filter sheet's range, high-purity celluloses form a unique structure, which even for superfine filtration does not require mineral components.

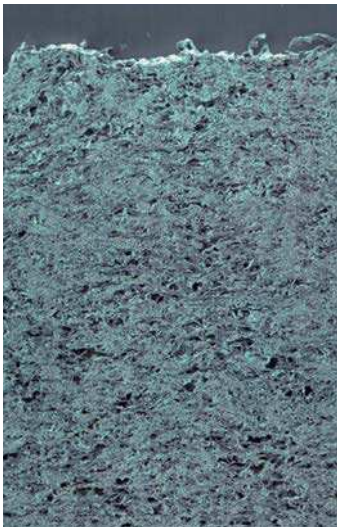
BECO depth filter sheets

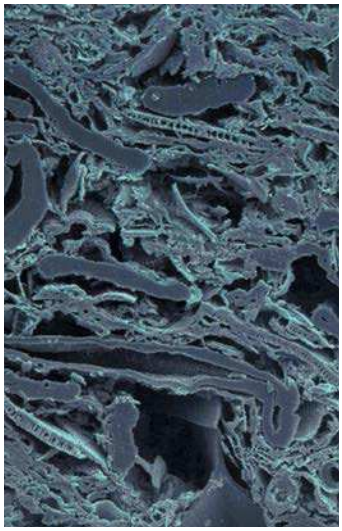
Eaton offers the right depth filter sheet for a wide range of filtration applications and for any clarifying level from coarse filtration to microbe removal.

Our basic aim is to provide high-quality customer products through optimum depth filter sheets, thus contributing to the cost effectiveness of the process.



The principle of depth filtration





Depth filter sheet section under the microscope

BECO Depth Filter Sheets for various Filtration Tasks

BECO standard range

Depth filter sheets for standard applications

There is a broad standard range within the different depth filter sheets. Numerous grades covering a wide retention range enable precise adaptation to each respective filtration task. BECO depth filter sheet's standard range is used for particle removal, removal of colloids, and for the removal of microorganisms.

Further details can be found in the Technical Information 1 A 2.2.2

Main applications: Wine, beer, fruit juices, spirits, food industry, chemistry, cosmetics, pharmaceutical, biotechnology

BECOPAD range

Premium mineral-free depth filter media

BECOPAD depth filter media are mineral-free and used for a wide range of applications from coarse filtration to microbe removal. It is characterized by an unparalleled purity giving rise to much lower values for extractable ions and organoleptic quality affecting substances. The new filter media provides excellent filtration quality, maximizes filtration throughput and has a significantly high chemical resistance.

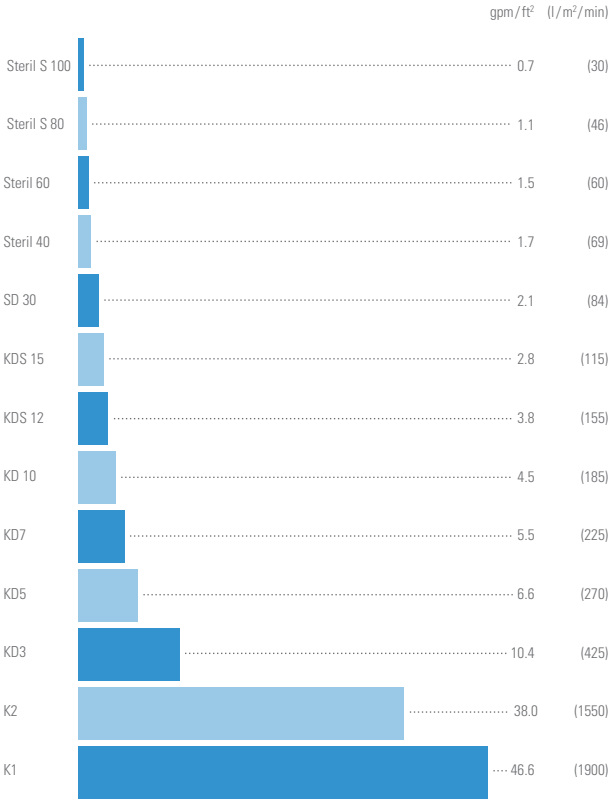
BECOPAD 115 C depth filter media is the finest grade that was developed to protect subsequent membrane filtration steps particularly in the filtration of wines with borderline colloid content.

BECOPAD depth filter media make it possible to combine the strictest standards of microbiological safety with the full maintenance of valuable flavor and color.

Further details can be found in the Technical Information 1 A 2.7.1

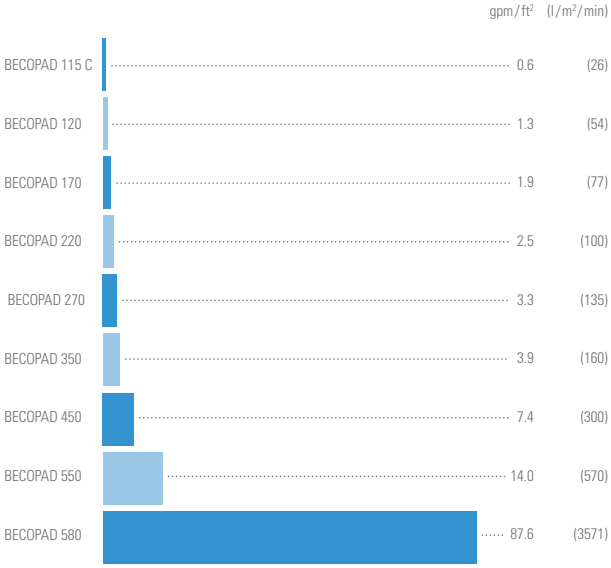
Main applications: Wine, beer, fruit juices, spirits, food industry, chemistry, cosmetics, pharmaceutical, biotechnology

Water throughput BECO standard range



Conditions: Δ p = 14.5 psi (100 kPa, 1 bar), Medium: Water at 68 °F (20 °C)

Water throughput BECOPAD range



Conditions: Δ p = 14.5 psi (100 kPa, 1 bar), Medium: Water at 68 °F (20 °C)

BECO CPS range

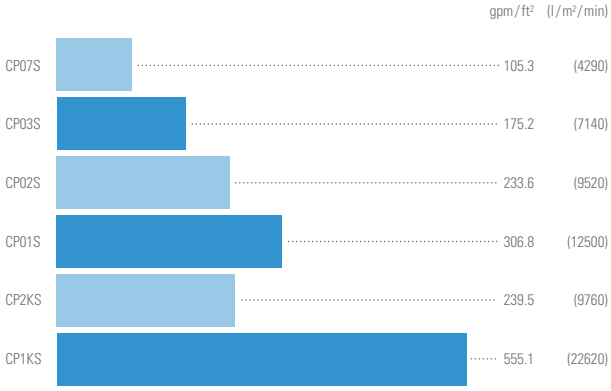
Depth filter sheets for filtration of highly viscous liquids

The CPS range of BECO depth filter sheets was specifically designed for the filtration of highly colloidal, highly viscous liquids and liquids containing particles. It is therefore mainly used for the filtration of highly viscous liquids and liquids with a high particle load.

Further details can be found in the Technical Information 1 A 2.1.6.3.14

Main applications: Fruit juices, sugar syrup, gelatin, and other food and beverages, chemistry, cosmetics, pharmaceutical, biotechnology

Water throughput BECO CPS range



Conditions: Δ p = 14.5 psi (100 kPa, 1 bar), Medium: Water at 68 °F (20 °C)

BECO CP1

Depth filter sheets for filtration of viscous liquids

BECO CP1 depth filter sheets were specifically designed for the filtration of highly viscous liquids and media containing particles. This depth filter sheet has a high dirt holding capacity for gel-like impurities and is used for the retention of activated carbon particles of plant extracts and for the polishing filtration. It has a reduced sheet thickness.

Further details can be found in the Technical Information 1 A 2.1.6.3

Main applications: Chemistry, cosmetics

Water throughput BECO CP1

Conditions: Δ p = 14.5 psi (100 kPa, 1 bar), Medium: Water at 68 °F (20 °C)

BECO SELECT A range

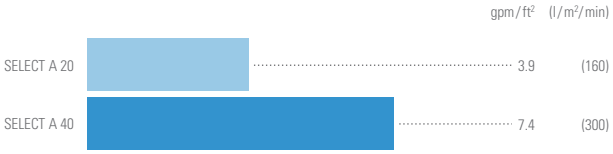
Special depth filter sheets with reduced Calcium and Magnesium content

These BECO SELECT™ A depth filter sheets are used wherever low Ca and Mg ion contents are necessary. They are used for the demanding filtration of colored spirits, such as cognac, armagnac, barrel-matured brandy, and whisky. The product range is graded from coarse particle separation to fine filtration and enables adaptation to the requirements of spirit filtration.

Further details can be found in the Technical Information 1 A 2.1.3.2

Main applications: Flavors, whisky, cognac, vodka, and others spirit

Water throughput BECO SELECT A range



Conditions: Δ p = 14.5 psi (100 kPa, 1 bar), Medium: Water at 68 °F (20 °C)

BECO ENDURA

Support sheets for cake filtration

BECO ENDURA™ support sheets are used for classic solid liquid separation where the solids or the liquids phase can be the product or as support material for precoat filtration. High wet strength and an optimized surface enable a service life up to 30 precoat cycles, depending on the liquid to be filtered and the filter aid used.

Further details can be found in the Technical Information 1 A 2.3.4

Main applications: Beer, gelatin, edible oil, essential oil, flavors, and others, chemistry, cosmetics

BECO ACF 07

Depth filter sheets containing activated carbon

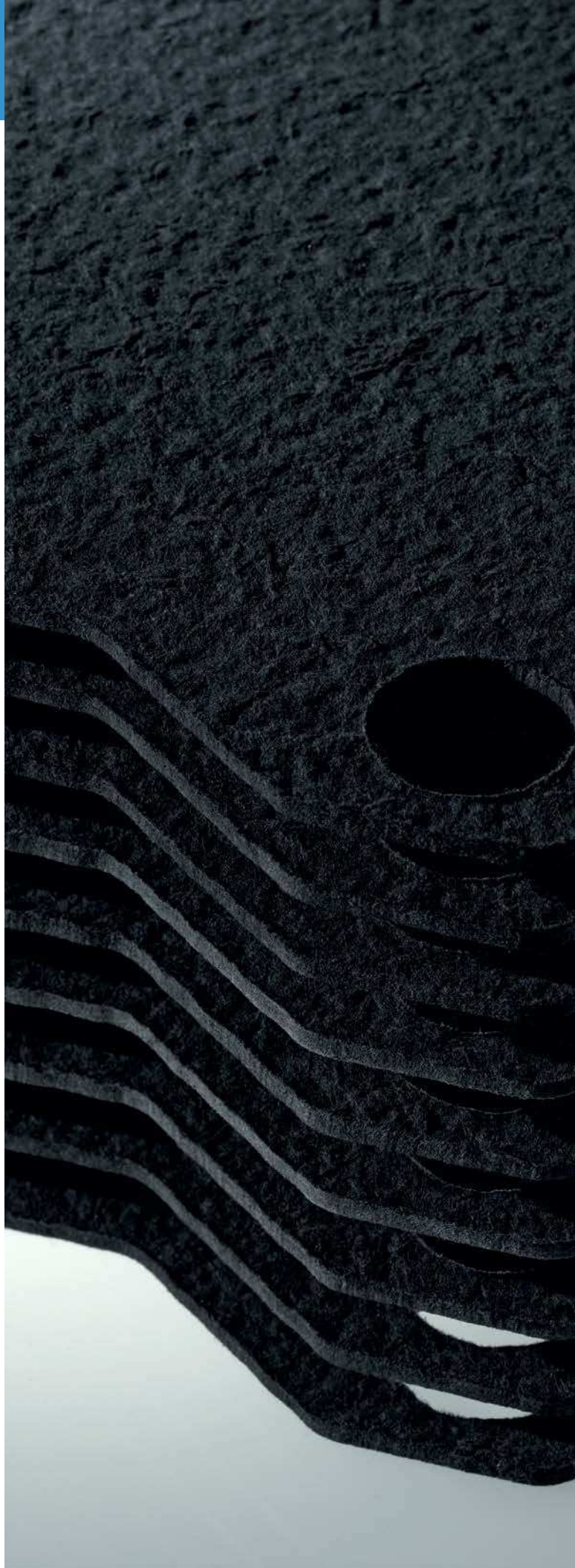
The BECO ACF 07 depth filter sheet has an exceptional adsorption capacity, achieved through a high content of highly activated carbon. These adsorptive characteristics enable the decolorization of solutions, for example. It is also very effective for lipid removal, dechlorination, or removal of negative sensoric effects in beverages.

Further details can be found in the Technical Information 1 A 2.1.6.5

Main applications: Vodka, white spirits, apple juice, sugar syrup, pharmaceutical, biotechnology, chemistry, fine/specialty chemistry, cosmetics

Water throughput BECO ACF 07

Conditions: Δ p = 14.5 psi (100 kPa, 1 bar), Medium: Water at 68 °F (20 °C)



BECO PR range

Depth filter sheets with low endotoxin content for pharmaceutical applications

The PR range of BECO depth filter sheets was specially developed for pharmaceutical and biotechnology applications. The innovative production process guarantees an endotoxin content of less than 0.125 EU/ml. Quantitative analysis of endotoxins takes place at an independent laboratory and is based on a LAL test (**L**imulus **A**mebocyte **L**ysate), which is used as standard to test the BECO PR depth filter sheet's range.

Our long-standing experience in the production of depth filter sheets in conjunction with the special technology of the manufacturing process guarantees an efficient depth filter sheet with demonstrably consistent product quality. A Validation Guide for the depth filter sheets is available providing support for the design, execution, and documentation of a validation. The application of BECO PR depth filter sheets ensures that the high quality standards for the manufacturing of pharmaceutical and biotech products are met.

Further details can be found in the Technical Information 1 A 2.1.6.4

Main applications: Pharmaceutical, fine/specialty chemistry, biotechnology

BECOPAD P range

High-pure mineral-free depth filter media

The pharmaceutical grade BECOPAD P depth filter media is mineral-free and with an exceptional purity. Distinguishing features are the very low level of extractables and an extremely low endotoxin content, < 0.025 EU/ml after rinsing with 6.6 gal/sqm WFI (25 l/m²).

The detection of ion content after extraction with 40% ethanol (after rinsing with 6.6 gal/sqm (25 l/m²) ethanol) is extremely low.

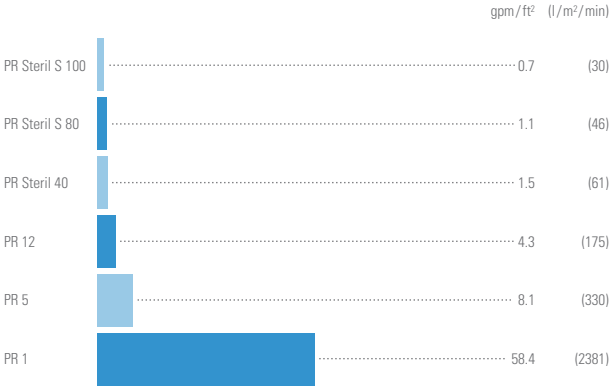
For example:
- Calcium < 50 ppb
- Magnesium < 25 ppb
- Aluminum < 5 ppb

Quality related test reports and documents are available in a Validation Guide.

Further details can be found in the Technical Information 1 A 2.7.5

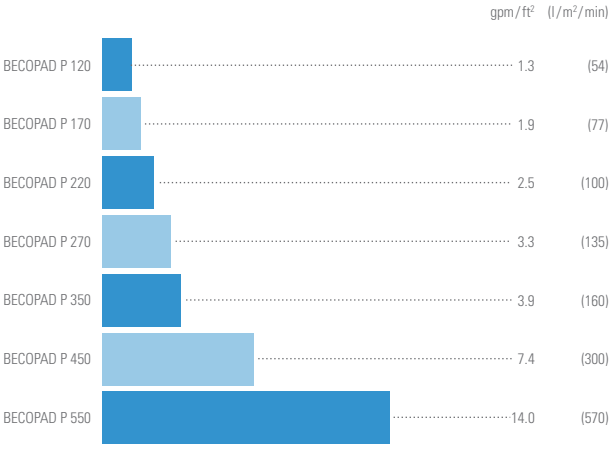
Main applications: Pharmaceutical, biopharmaceutical, fine/specialty chemistry, biotechnology

Water throughput BECO PR range



Conditions: Δ p = 14.5 psi (100 kPa, 1 bar), Medium: Water at 68 °F (20 °C)

Water throughput BECOPAD P range



Conditions: Δ p = 14.5 psi (100 kPa, 1 bar), Medium: Water at 68 °F (20 °C)

BECO PR ENDURA (S)

Support sheets for cake filtration in the pharmaceutical industry

BECO PR ENDURA and BECO PR ENDURA S support sheets were specially developed to meet the strict requirements of the pharmaceutical industry with respect to separation of desirable substances and for cake filtration. A special production process for the depth filter sheet guarantees that the endotoxin content is less than 0.125 EU/ml for BECO PR ENDURA and less than 0.08 EU/ml for BECO PR ENDURA S support sheets. These support sheets can be used for precoat filtration in combination with common filter aids. A filter sheet Validation Guide is available.

Further details can be found in the Technical Information 1 A 2.3.6

Main applications: Pharmaceutical, fine/specialty chemistry, biotechnology

Areas of Application

Depth filtration removes impurities and undesired particles from **foods** and **beverages** to enhance the natural flavor. BECO filter sheets can be adapted exactly to every filtration task and every production process.

The clear trend worldwide continues to be towards cold-sterile filtered draft and bottled beer. Gentle **beer production** without heat treatment thus requires a fully developed and reliable filtration technology. Beer-contaminating microorganisms are removed while simultaneously retaining the brightness of the beer and improving the chemical-physical stability.

Great importance is attached to microbiological safety when depth filtration is used in the area of **wine production**.

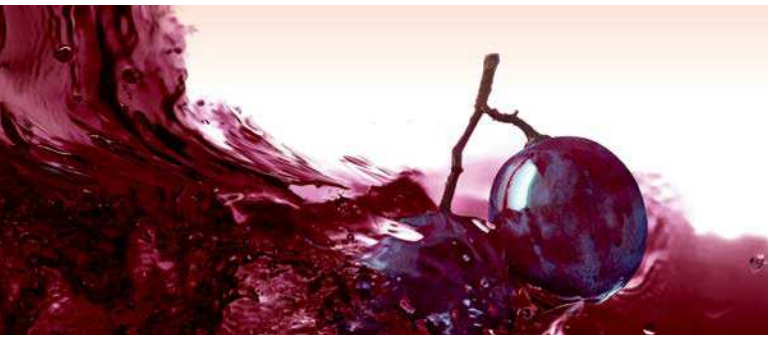
BECO depth filter sheets reliably separate coarse and fine haze substances and offer excellent colloid retention rates while simultaneously preserving beneficial ingredients with low color retention.

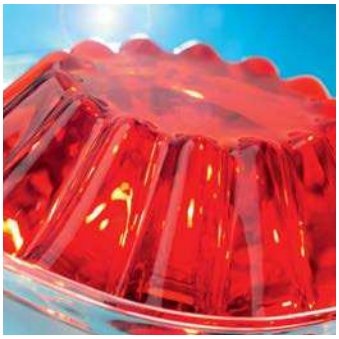
Gentle treatment of flavor and color plays a particularly important role in the filtration of **spirits**. In addition to reliable separation of fine colloidal and coarsely dispersed haze substances, the aim of filtration includes selective separation of haze-producing long-chain fatty acid esters. BECO depth filter sheets with a low calcium and magnesium ion content as well as high fusel and essential oil absorbing capacity are used in particular for this purpose.

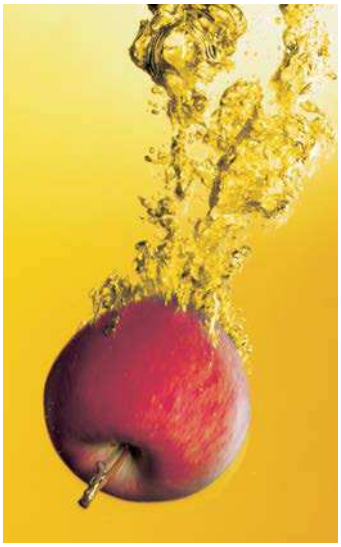
Refreshing and tasty **fruit juices** are part of a healthy and well-balanced diet. They supply the organism with vital vitamins, minerals, and secondary plant matter. BECO depth filter sheets enhance the natural task of fruit and vegetable juices and stabilize the product without destroying valuable components.

Water is not only a natural food but also the basis of most beverages. For this reason, the production of **mineral water**, **table water**, and **product water** as well as **industrial water** places particularly high demands on filtration technology. Particular emphasis is placed on reliable particle separation. BECO depth filter sheets assure safe and reliable filtration.

There are multitudes of possible filtration applications in the **food industry** in which BECO depth filter sheets play a major role. Filtration processes are typically used in the production of **gelatin**, **liquid sugar** and **invert sugar syrup**, **glucose**, **dextrose**, **extracts**, **essences**, **enzyme solutions**, and **rennin**. Filtration is especially important, for example, in the production of **edible oils** where top priority is placed on retaining taste, vitamins, and the fatty acid composition while removing haze and mucilaginous substances.







In the **chemical industry** an important task is the removal of residues and contamination from raw, intermediate, or finished products. Varnishes, paints, silicone products, synthetic resins, softeners, pesticides, abrasives, waxes, and industrial oils offer a wide range of applications. In these manufacturing processes the depth filter sheet often has to offer above-average chemical resistance against aggressive solvents, strong acids, and caustic solutions at demanding temperatures as well as high dirt holding capacity.

In **fine and specialty chemistry** a frequent task is the removal of undesired contamination and waste products from previous process steps or the separation of valuable metallic catalysts, activated carbon powder, or filter aids. An application example from antibiotics production is the adsorptive separation of decolorization via sheets containing activated carbon.

High dirt holding capacity and microbe reduction with simultaneous preservation of active ingredients plays an important role in the production of **active ingredients of plant origin**, which are used in the cosmetics and perfume sector and in the production of natural remedies and aromas.

In the **cosmetics industry** an important task is the removal of particulate contamination and substances that can lead to undesired hazing and precipitation in the finished product. This is ensured through the application of depth filter sheets in the processing of essential oils, alcohol-based perfumes, fragrances and aroma substances, resins and terpenes, creams, shampoos and lotions, face and hair tonics, skin and bath oils.

In the production of **therapeutic proteins** from blood plasma (e.g., albumin, immunoglobulin, clotting factors) the main function of the depth filter medium is the economical and reliable separation of precipitates. In addition, the production process involves numerous clarification and fine filtration steps aimed at removing contaminants, such as endotoxins and protecting downstream systems from premature blocking.

In **fermentative production processes**, filtration in downstream processing is a very important process step. The BECO depth filter sheet has the task of reliably removing cells and cell fragments from fermenter broth. Typical application examples include production processes for **industrial enzymes** used in the food and detergent industries, for **special enzymes** used in diagnostics, or for **active biopharmaceutical ingredients**.

In the production of **pharmaceutical precursor**, **intermediate**, **and finished products**, depth filtration is required for protecting downstream membrane filters, ultrafilters, chromatography columns, and cross-flow equipment.

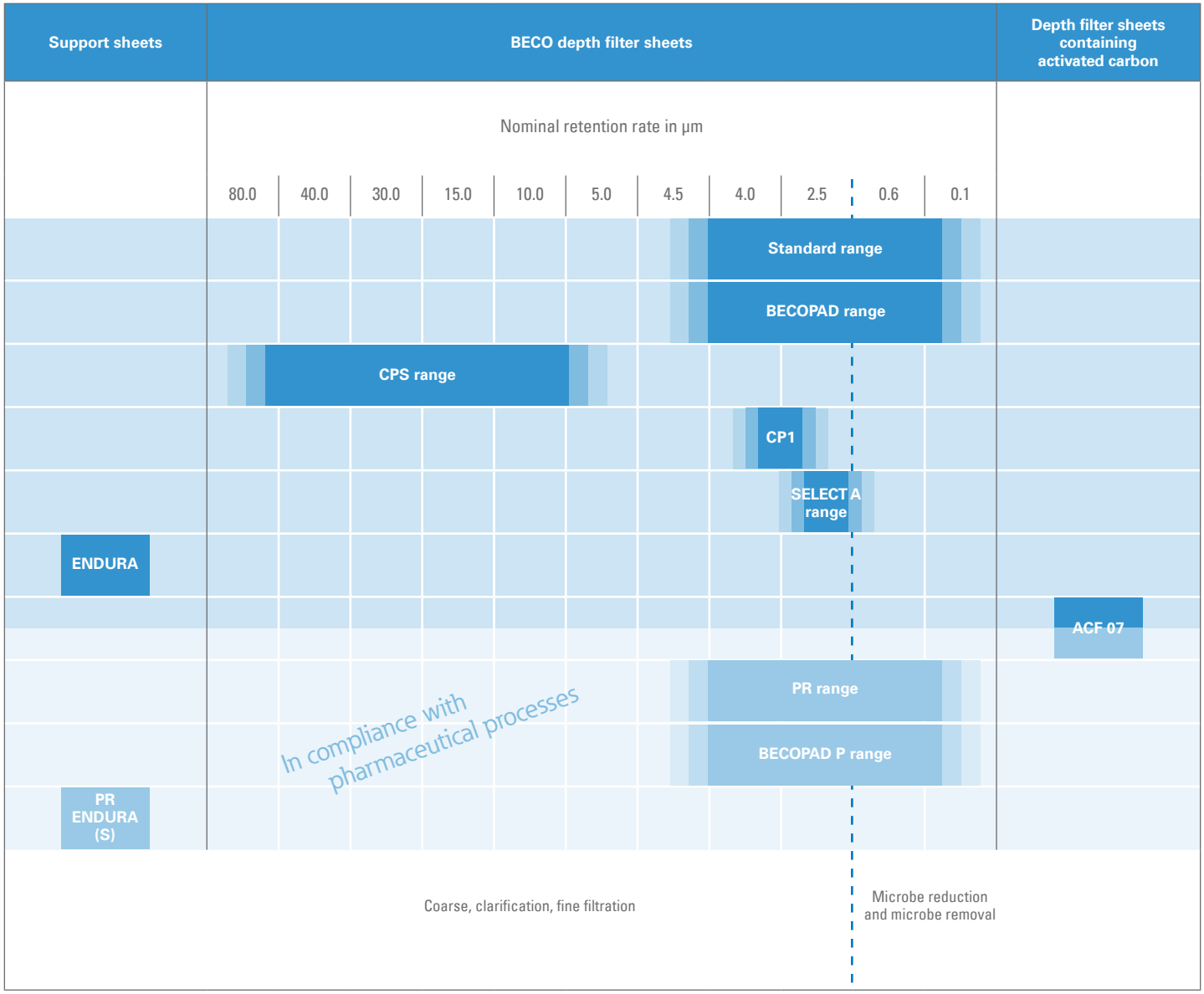
Overview of BECO Depth Filter Sheets

From coarse filtration to microbe removal, several product ranges for various applications, production technologies, and filtration tasks are available.

The selection of the appropriate depth filter sheet type and filtration technique (cake filtration or clarification) depends on the composition of the liquid to be filtered, the application and the process parameters.

Our filtration specialists recommend performing preliminary tests and will be happy to provide advice.

For laboratory or pilot plant trials, our application engineering division provides support for complex tasks and for selecting the right filter medium for optimal filtration quality and performance.



BECO depth filter sheets are used in the following filtration systems: enclosed plate and frame filters, stacked disc cartridge housings, single-sheet filters, laboratory filters, and a range of classic plate and frame filters. They meet the most stringent filtration demands and are available in a variety of sizes and types, depending on the application and customer requirements.

Enclosed filtration systems

BECO INTEGRA® enclosed system is the alternative to classic filtration systems when the protection of operating personnel and product is a priority.

BECO INTEGRA PLATE
Enclosed plate and frame filters type 400, 600, and 800

Hermetically enclosed depth filtration system without gaskets in contact with the product. Type 800 and 1000 filters are available only in plastic version (PP and PVDF) and are suitable for use with BECO depth filter sheets. Format: 7.9 x 7.9 in (200 x 200 mm), 15.7 x 15.7 in (400 x 400 mm), 23.6 x 23.6 in (600 x 600 mm), 31.5 x 31.5 in (800 x 800 mm) and 39.3 x 39.3 in (1000 x 1000 mm), filter areas from 0.6 ft² (0.056 m²) to a maximum of 1.083,3 ft² (100.64 m²) are available.

BECO INTEGRA DISC
Stacked disc cartridge housing 12"

For insertion of 1 – 4 BECODISC® stacked disc cartridges with filter areas from 6.4 ft² (0.59 m²), 11.8 ft² (1.1 m²), 17.8 ft² (1.65 m²), 20.4 ft² (1.9 m²), to a maximum of 81.8 ft² (7.6 m²).

Stacked disc cartridge housing 16"

For insertion of 1 – 4 BECODISC stacked disc cartridges with filter areas from 12.4 ft² (1.15 m²), 22.6 ft² (2.1 m²), 34.4 ft² (3.2 m²), 39.8 ft² (3.7 m²) to a maximum of 159.31 ft² (14.8 m²). Multicolumn stacked disc cartridge housings with a filter area from 119.5 ft² (11.1 m²) up to a maximum of 955.84 ft² (88.8 m²) are available. The 12" and 16" stacked disc cartridge housings are equipped with a quick release fastener or clamp screws according to DGR 97/23/EC.

BECO INTEGRA LAB

Enclosed laboratory filter **type 60**, **140** and **220** (available with and without pump).

BECO INTEGRA SOLO

Enclosed single-sheet filters with a filling space designed as a pressure vessel, are suitable for insertion of a depth filter medium. Types with diameters between 11.8 in (300 mm) and 47.2 in (1200 mm) correspond to a filter area from 0.6 ft² (0.06 m²) to a maximum of 12.0 ft² (1.12 m²).

Classic filtration systems
BECO COMPACT™ PLATE

Plate and frame filter **type 200**, **400**, and **600 SF/ASF** filter elements in sizes of 7.9 x 7.9 in (200 x 200 mm), 15.7 x 15.7 in (400 x 400 mm), 23.6 x 23.6 in (600 x 600 mm), and in various frame sizes with filter areas between 7.54 ft² (0.07 m²) and 724.6 ft² (67.32 m²) or 305.5 ft² (28.38 m²) with a solids volume of 131.03 gal (496 l) are available.

Filtration systems

Eaton's Begerow Product Line offers a wide range of components and devices, including complex filtration systems.

Using these resources, the engineering specialists develop optimum solutions for each customer. They offer competent and practical support from the preparation of the requirements profile and its implementation in practice, to delivery of documentation and customer staff training.


BECOPAD

These data are typical values and only serve as guidance for the selection of depth filter sheets.

BECO standard range

Type	Article no.	Nominal retention rate	Thickness		Ash content	Bursting strength wet		Water throughput at	
		µm	in	(mm)	%	psi	(kPa)[1]	Δ p = 14.5 psi gpm/ft²	(Δ p = 100 kPa[1] l/m²/min)
Steril S 100	26950	0.1	0.15	(3.9)	58.0	> 7.3	(50)	0.7	(30)
Steril S 80	26800	0.2	0.15	(3.9)	50.0	> 11.6	(80)	1.1	(46)
Steril 60	25600	0.3	0.15	(3.8)	50.0	> 7.3	(50)	1.5	(60)
Steril 40	25400	0.4	0.15	(3.8)	49.0	> 7.3	(50)	1.7	(69)
SD 30	24300	0.5	0.15	(3.8)	50.0	> 7.3	(50)	2.1	(84)
KDS 15	23150	0.6	0.15	(3.8)	50.0	> 7.3	(50)	2.8	(115)
KDS 12	23120	0.8	0.15	(3.8)	50.0	> 7.3	(50)	3.8	(155)
KD 10	22100	1.0	0.15	(3.8)	50.0	> 7.3	(50)	4.5	(185)
KD 7	22070	1.5	0.15	(3.8)	50.0	> 7.3	(50)	5.5	(225)
KD 5	22050	2.0	0.15	(3.8)	50.0	> 7.3	(50)	6.6	(270)
KD 3	22030	2.5	0.15	(3.8)	50.0	> 5.8	(40)	10.4	(425)
K2	21020	3.0	0.15	(3.8)	46.0	> 7.3	(50)	38.0	(1550)
K1	21010	4.0	0.15	(3.8)	42.0	> 8.7	(60)	46.6	(1900)

BECOPAD range

Type	Article no.	Nominal retention range	Thickness		Ash content	Bursting strength wet		Water throughput at	
		µm	in	(mm)	%	psi	(kPa)[1]	Δ p = 14.5 psi gpm/ft²	(Δ p = 100 kPa[1] l/m²/min)
BECOPAD 115 C[2]	Q2C11	0.1 – 0.2	0.16	(4.1)	< 1.0	> 21.8	(150)	0.6	(26)
BECOPAD 120[2]	Q2112	0.1 – 0.3	0.15	(3.9)	< 1.0	> 21.8	(150)	1.3	(54)
BECOPAD 170[2]	Q2117	0.2 – 0.4	0.15	(3.9)	< 1.0	> 21.8	(150)	1.9	(77)
BECOPAD 220[2]	Q2122	0.3 – 0.5	0.15	(3.9)	< 1.0	> 21.8	(150)	2.5	(100)
BECOPAD 270[2]	Q2127	0.5 – 0.7	0.15	(3.9)	< 1.0	> 21.8	(150)	3.3	(135)
BECOPAD 350[2]	Q2135	0.7 – 1.0	0.15	(3.9)	< 1.0	> 21.8	(150)	3.9	(160)
BECOPAD 450[2]	Q2145	1.0 – 2.0	0.15	(3.9)	< 1.0	> 21.8	(150)	7.4	(300)
BECOPAD 550[2]	Q2155	2.0 – 3.0	0.15	(3.9)	< 1.0	> 21.8	(150)	14.0	(570)
BECOPAD 580[2]	Q2158	3.0 – 4.0	0.15	(3.9)	< 1.0	> 21.8	(150)	87.6	(3571)

BECO CPS range

Type	Article no.	Nominal retention rate	Thickness		Ash content	Bursting strength wet		Water throughput at	
		µm	in	(mm)	%	psi	(kPa)[1]	Δ p = 14.5 psi gpm/ft²	(Δ p = 100 kPa[1] l/m²/min)
CP07S	27108	15.0	0.14	(3.6)	35.0	> 16.0	(110)	105.3	(4290)
CP03S	27123	20.0	0.15	(3.7)	35.0	> 13.1	(90)	175.2	(7140)
CP02S	27122	25.0	0.13	(3.3)	17.0	> 13.1	(90)	233.6	(9520)
CP01S	27121	30.0	0.18	(4.6)	16.0	> 14.5	(100)	306.8	(12500)
CP2KS[2]	27031	27.0	0.11	(2.9)	< 1.0	> 21.8	(150)	239.5	(9760)
CP1KS[2]	27021	40.0	0.17	(4.3)	< 1.0	> 21.8	(150)	555.1	(22620)

[1] 100 kPa = 1 bar
[2] Without mineral components

BECO CP1

Type	Article no.	Nominal retention rate	Thickness		Ash content	Bursting strength wet		Water throughput at	
		µm	in	(mm)	%	psi	(kPa)[1]	Δ p = 14.5 psi gpm/ft²	(Δ p = 100 kPa[1] l/m²/min)
CP1	27110	3.0	0.1	(2.6)	48.0	> 14.5	(100)	26.3	(1070)

BECO SELECT A range

Type	Article no.	Nominal retention rate	Thickness		Ash content	Bursting strength wet		Water throughput at	
		µm	in	(mm)	%	psi	(kPa)[1]	Δ p = 14.5 psi gpm/ft²	(Δ p = 100 kPa[1] l/m²/min)
SELECT A 20	27620	0.8	0.17	(4.4)	43.0	> 5.8	(40)	3.9	(160)
SELECT A 40	27640	2.5	0.17	(4.4)	43.0	> 5.8	(40)	7.4	(300)

BECO ENDURA

Type	Article no.	Thickness		Ash content	Bursting strength wet		Water throughput at	
		in	(mm)	%	psi	(kPa)[1]	Δ p = 14.5 psi gpm/ft²	(Δ p = 100 kPa[1] l/m²/min)
ENDURA[2]	29200	0.13	(3.4)	< 1.0	> 101.5	(700)	105.3	(4290)

BECO ACF 07

Type	Article no.	Thickness		Ash content	Bursting strength wet		Water throughput at	
		in	(mm)	%	psi	(kPa)[1]	Δ p = 14.5 psi gpm/ft²	(Δ p = 100 kPa[1] l/m²/min)
ACF 07	19207	0.15	(3.8)	15.0	> 5.8	(40)	34.7	(1415)

[1] 100 kPa = 1 bar
[2] Without mineral components

BECO PR range

Type	Article no.	Nominal retention rate	Thickness		Ash content	Bursting strength wet		Water throughput at		Endotoxin content[3]
		µm	in	(mm)	%	psi	(kPa)[1]	Δ p = 14.5 psi gpm/ft²	(Δ p = 100 kPa[1] l/m²/min)	EU/ml
PR Steril S100	27295	0.1	0.15	(3.9)	58.0	> 7.3	(50)	0.7	(30)	< 0.125
PR Steril S 80	27280	0.2	0.15	(3.9)	50.0	> 11.6	(80)	1.1	(46)	< 0.125
PR Steril 40	27240	0.4	0.15	(3.9)	49.0	> 7.3	(50)	1.5	(61)	< 0.125
PR 12	27212	0.8	0.15	(3.9)	50.0	>18.9	(130)	4.3	(175)	< 0.125
PR 5	27205	2.0	0.15	(3.9)	50.0	> 8.7	(60)	8.1	(330)	< 0.125
PR 1	27200	4.0	0.17	(4.3)	48.0	> 6.5	(45)	58.4	(2381)	< 0.125

BECOPAD P range

Type	Article no.	Nominal retention range	Thickness		Ash content	Bursting strength wet		Water throughput at		Endotoxin content[4]
		µm	in	(mm)	%	psi	(kPa)[1]	Δ p = 14.5 psi gpm/ft²	(Δ p = 100 kPa[1] l/m²/min)	EU/ml
BECOPAD P 120[2]	Q1112	0.1 – 0.3	0.15	(3.9)	< 1.0	> 21.8	(150)	1.3	(54)	< 0.025
BECOPAD P 170[2]	Q1117	0.2 – 0.4	0.15	(3.9)	< 1.0	> 21.8	(150)	1.9	(77)	< 0.025
BECOPAD P 220[2]	Q1122	0.3 – 0.5	0.15	(3.9)	< 1.0	> 21.8	(150)	2.5	(100)	< 0.025
BECOPAD P 270[2]	Q1127	0.5 – 0.7	0.15	(3.9)	< 1.0	> 21.8	(150)	3.3	(135)	< 0.025
BECOPAD P 350[2]	Q1135	0.7 – 1.0	0.15	(3.9)	< 1.0	> 21.8	(150)	3.9	(160)	< 0.025
BECOPAD P 450[2]	Q1145	1.0 – 2.0	0.15	(3.9)	< 1.0	> 21.8	(150)	7.4	(300)	< 0.025
BECOPAD P 550[2]	Q1155	2.0 – 3.0	0.15	(3.9)	< 1.0	> 21.8	(150)	14.0	(570)	< 0.025

BECO PR ENDURA/BECO PR ENDURA S

Type	Article no.	Thickness		Ash content	Bursting strength wet		Water throughput at		Endotoxin content[3]
		in	(mm)	%	psi	(kPa)[1]	Δ p = 14.5 psi gpm/ft²	(Δ p = 100 kPa[1] l/m²/min)	EU/ml
PR ENDURA S[2]	29450	0.06	(1.5)	< 1.0	> 58.0	(400)	18.9	(770)	< 0.08
PR ENDURA[2]	29451	0.13	(3.4)	< 1.0	> 101.5	(700)	105.3	(4290)	< 0.125

[1] 100 kPa = 1 bar
[2] Without mineral components
[3] Determination of endotoxin content after rinsing with 13.2 gal/sqm WFI (Water for Injection) (50 l/m²)
[4] Determination of endotoxin content after rinsing with 6.6 gal/sqm WFI (Water for Injection) (25 l/m²)

BECO depth filter sheets

Note for orders:
our 8-digit order no. consists of two parts:
- the 5-digit article no. and
- the 3-digit format no.

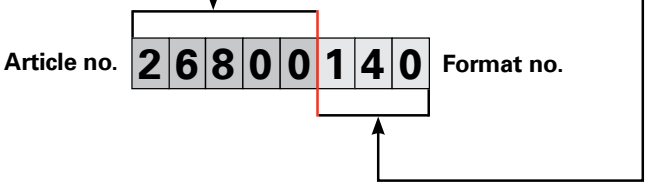
Examples for the format no. code:
Format 7.87 x 7.87 in = format no. 120
(Format 200 x 200 mm = format no. 120)

Format 15.7 x 15.7 in = format no. 140
(Format 400 x 400 mm = format no. 140)

Format 23.6 x 23.6 in = format no. 140
(Format 600 x 600 mm= format no. 160)

Example for order no.:
BECO Steril S 80 in format 15.7 x 15.7 in = 140
(BECO Steril S 80 in format 400 x 400 mm = 140)

Type	Article no.	Nominal retention rate µm
Steril S 80	26800	0.2



BECOPAD depth filter media

Note for orders:
our 8-digit order no. consists of two parts:
- the 5-digit article no. and
- the 3-digit format no.

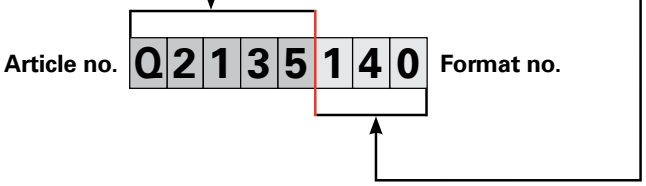
Examples for the format no. code:
Format 7.87 x 7.87 in = format no. 120
(Format 200 x 200 mm = format no. 120)

Format 15.7 x 15.7 in = format no. 140
(Format 400 x 400 mm= format no. 140)

Format 23.6 x 23.6 in = format no. 140
(Format 600 x 600 mm = format no. 160)

Example for order no.:
BECOPAD 350 in format 15.7 x 15.7 in = 140
(BECOPAD 350 in format 400 x 400 mm = 140)

Type	Article no.	Nominal retention range µm
BECOPAD 350	Q2135	0.7 – 1.0



Quality

Eaton is committed to providing consistently high quality products for our customers. As part of the manufacturing process, the depth filter sheet helps to ensure safe, repro-ducible, and economical results for our customers.

We meet this responsibility by ensuring that our products comply with national and international quality standards, such as the German LFGB[1], the FDA[2] guidelines, and the hygiene guidelines according to HACCP[3]. We have been in compliance with the requirements of DIN EN ISO 9001 and updated versions since 1993.

Eaton welcomes plant audits to ensure stringent manufacturing practices and processes are in place.

The procedures for development, production, and testing of our products are based on more than 80 years of experience in depth filter media. Staff at all levels of our company contribute to ensuring and continuously improving the quality of our products and services.

BECO depth filter sheets are listed with the FDA under the following master file number:

- Drug Master File DMF 9926

BECO depth filter sheets meet the requirements of Regulation (EC) No 1935/2004 in that:

- the BECO depth filter sheets are certified for hot filtration applications, based on LFGB recommendation XXXVI/I of the Plastics Commission of BfR[4].

BECO depth filter sheets meet the requirements of Commission Regulation (EC) No 2023/2006 on good manufacturing practice for materials and articles intended to be exposed to food.

BECO depth filter sheets meet the requirements of the FDA, as specified in the Code of Federal Regulation. Specifically:

- the depth filter sheets meet the requirements according to 21 CFR § 177.2260.

[1] German Food, Commodity and Feed Act
[2] Food and Drug Administration, USA
[3] Hazard Analysis of Critical Control Points
[4] Federal Institute of Risk Assessment

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11-2015

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