Technical Data Sheet

Depth Filtration
BECOPAD® Range

Premium Depth Filter Medium with High-Purity Cellulose

BECOPAD depth filter medium is characterized by maximum purity. BECOPAD offers exceptionally high chemical resistance both in alkaline and acidic applications.

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

The specific advantages of BECOPAD depth filter medium:

- Very good chemical and mechanical resistance
- Without the addition of mineral components, therefore low ion content
- Virtually no ash content, therefore optimum ashing
- Low charge-related adsorption
- Up to 20% higher performance
- Rinsing volume reduced by up to 50%, resulting in reduced process costs
- Drip losses reduced by up to 99% in open filter systems
- Biodegradable

Ingredients

BECOPAD depth filter medium is made only of high-purity cellulose and wet strength materials.

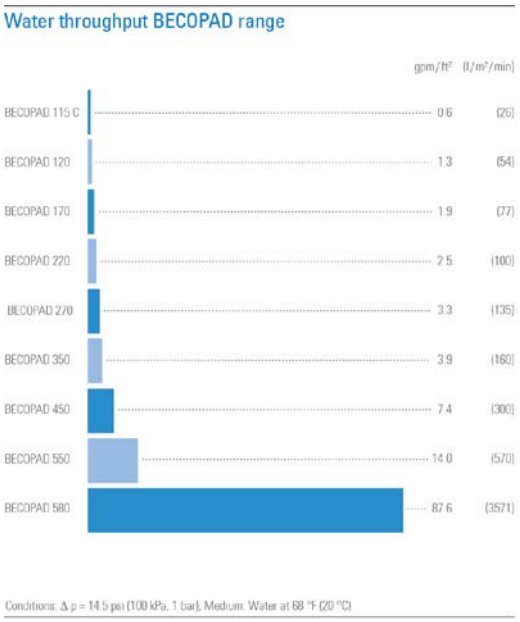
Areas of Application

BECOPAD depth filter medium can be used for filtration of any liquid media.

Application options range from coarse filtration to microbial removal.

BECOPAD Depth Filter Medium

BECOPAD depth filter medium is very low cationic. This means there is only a minor charge-related adsorption during the filtration. Valuable substances are not adsorbed and remain in the filtrate. The chemical resistance and the mechanical stability are exceptionally high.



BECOPAD depth filter medium is therefore particularly suitable for applications involving primarily mechanical separation of particles from aggressive media, e.g., for catalyst and/or activated carbon removal. For applications where the important substance should remain in the filtrate – e.g., in the flavor or cosmetic industry – the BECOPAD depth filter medium is ideal due to the low charge-related adsorption.

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Physical Data

This information is intended as a guideline for the selection of BECOPAD depth filter medium.
The water flow is a laboratory value characterizing the different BECOPAD depth filter medium types.
It is not the recommended flow rate.

Type	Article no.	Nominal retention range µm	Thickness in	(mm)	Ash content %	Bursting strength wet psi	(kPa*)	Water throughput at Δ p = 14.5 psi gpm/ft²	(Δ p = 100 kPa* l/m²/min)
BECOPAD 115 C	Q2C11	0.1 – 0.2	0.16	(4.1)	< 1	> 21.8	(150)	0.6	(26)
BECOPAD 120	Q2112	0.1 – 0.3	0.15	(3.9)	< 1	> 21.8	(150)	1.3	(54)
BECOPAD 170	Q2117	0.2 – 0.4	0.15	(3.9)	< 1	> 21.8	(150)	1.9	(77)
BECOPAD 220	Q2122	0.3 – 0.5	0.15	(3.9)	< 1	> 21.8	(150)	2.5	(100)
BECOPAD 270	Q2127	0.5 – 0.7	0.15	(3.9)	< 1	> 21.8	(150)	3.3	(135)
BECOPAD 350	Q2135	0.7 – 1.0	0.15	(3.9)	< 1	> 21.8	(150)	3.9	(160)
BECOPAD 450	Q2145	1.0 – 2.0	0.15	(3.9)	< 1	> 21.8	(150)	7.4	(300)
BECOPAD 550	Q2155	2.0 – 3.0	0.15	(3.9)	< 1	> 21.8	(150)	14.0	(570)
BECOPAD 580	Q2158	8.0 – 10.0	0.15	(3.9)	< 1	> 21.8	(150)	87.6	(3571)

* 100 kPa = 1 bar

Chemical Data

BECOPAD depth filter medium meets the requirements of LFGB*, Recommendation XXXVI/1 issued by BfR** and the test criteria of FDA*** Directive CFR 21 § 177.2260. The chemical compatibilities listed in the table below are a guide only.

Chemical resistance of the BECOPAD depth filter sheets to different solvents. The chemical compatibilities listed in the table below are a guide only.

Chemical compound		Max. tested temperature, Contact time	Mechani-cal resist-ance	Chemical compound		Max. tested temperature, Contact time	Mechani-cal resist-ance
Caustic:				**Organic solvents:**		68 °F (20 °C), 168 h	x
Ammonia solution	25%	68 °F (20 °C), 168 h	x	Acetone		68 °F (20 °C), 168 h	x
Potassium hydroxide	30%	68 °F (20 °C), 48 h	(x)	Butanol		68 °F (20 °C), 168 h	x
Sodium hydroxide	30%	68 °F (20 °C), 24 h	-	Cyclohexane		68 °F (20 °C), 168 h	x
	5%	68 °F (20 °C), 4 h	x	Dimethyl sulphide		68 °F (20 °C), 168 h	x
	2%	68 °F (20 °C), 48 h	(x)	Ethanol		68 °F (20 °C), 168 h	x
	1%	68 °F (20 °C), 72 h	x	Ethylene glycol		68 °F (20 °C), 168 h	x
	0.5%	68 °F (20 °C), 72 h	x	Ethyl methyl ketone		68 °F (20 °C), 168 h	x
				Isopropanol		68 °F (20 °C), 168 h	x
Acids:				Methanol		68 °F (20 °C), 168 h	x
Acetic acid	25%	68 °F (20 °C), 168 h	x	N,N dimethyl formamide		68 °F (20 °C), 168 h	x
Peracetic acid	0.1%	68 °F (20 °C), 168 h	x	N-hexane		68 °F (20 °C), 168 h	x
Peracetic acid	0.2%	68 °F (20 °C), 168 h	x	Tetrachloroethylene		68 °F (20 °C), 168 h	x
Peracetic acid	0.5%	68 °F (20 °C), 168 h	x	Toluene		68 °F (20 °C), 168 h	x
Nitric acid	20%	68 °F (20 °C), 24 h	x	Triethanolamine		68 °F (20 °C), 168 h	x
Hydrochloric acid	20%	68 °F (20 °C), 4 h	(x)	Xylene		68 °F (20 °C), 168 h	x
Sulphuric acid	20%	68 °F (20 °C), 72 h	x				
Citric acid	25%	68 °F (20 °C), 168 h	x	**Aqueous solutions:**			
				Iron trichloride	25%	68 °F (20 °C), 168 h	x
				Sodium hypochlorite free chlorine	12%	68 °F (20 °C), 168 h	x
				Hydrogen peroxide	10%	68 °F (20 °C), 72 h	x

x = resistant (x) = limited resistance - = not resistant

Guide to Choosing the Right BECOPAD Depth Filter Medium

BECOPAD 115C
Microbial removal, fine colloids removal; especially for membrane protection

BECOPAD 120, BECOPAD 170
Microbial removal filtration

BECOPAD 220, BECOPAD 270
Microbial reduction filtration

BECOPAD 350
Fine filtration, removal of yeasts

BECOPAD 450
Clarifying filtration, activated carbon removal

BECOPAD 550, BECOPAD 580
Coarse filtration, catalyst separation and recovery

Instructions for Correct Use

BECOPAD depth filter medium requires careful handling when inserting them into the plate and frame filter. Avoid banging, bending, and rubbing. Do not use damaged BECOPAD depth filter media.

Inserting
Each BECOPAD depth filter medium has a rough side and a smooth side. The rough side is the feed side; the smooth side is the filtrate side. Always ensure that the filtrate side is in contact with the clear filtrate plate when inserting the sheets.

Sterilizing (Optional)

The wetted BECOPAD depth filter sheets may be sterilized with hot water or saturated steam up to a maximum temperature of **273.2 °F (134 °C)**. The pressed filter package should be loosened slightly. Make sure to sterilize the entire filter system thoroughly. Do not apply final pressure until after the filter package has cooled down.

Sterilizing with Hot Water
The flow velocity should at least equal the filtration capacity. The water should be softened and free of impurities.

Temperature:	185 °F (85 °C)
Duration:	30 minutes after the temperature has reached 185 °F (85 °C) at all valves.
Pressure:	At least 7.2 psi (50 kPa, 0.5 bar) at the filter outlet.

Sterilizing with Steam

Steam quality:	The steam must free of foreign particles and impurities.
Temperature:	Max. **273.2 °F (134 °C) (saturated steam)**
Duration:	Approx. 20 minutes after steam escapes from all filter valves.
Rinsing:	After sterilizing with 0.61 gal/ft² (25 l/m²) at 1.25 times the flow rate.

Filter Preparation and Filtration

Unless already completed after sterilization, rinse the depth filter with 0.61 gal/ft² (25 l/m²) of water at 1.25 times the flow rate prior to the first filtration.

Check the entire filter for leakage at maximum operating pressure.

High-proof alcoholic solutions and products that cannot be rinsed with water should be circulated with the product. Discard the rinsing solution after rinsing.

Differential Pressure
Terminate the filtration process when a differential pressure of 43.5 psi (300 kPa, 3 bar) is reached.

For safety reasons, a differential pressure of 21.8 psi (150 kPa, 1.5 bar) should not be exceeded in applications for removing micro-organisms.

Regeneration/Backwashing for Beverage Applications

Framework Conditions
More detailed information regarding regeneration can be found in Note of Application 1 A 2.7.1.1

Safety

When used and handled correctly, there are no known unfavorable effects associated with this product.

Further safety information can be found in the relevant Material Safety Data Sheet, which can be downloaded from our website.

Waste Disposal

Due to their composition BECOPAD depth filter media are 100% biodegradable. Relevant current regulations must be followed, depending on the filtered product.

Storage

BECOPAD depth filter medium consists of strongly adsorbing materials. The product must be handled carefully during shipping and storage.

Store BECOPAD depth filter medium in a dry, odor-free, and well-ventilated place.

BECOPAD depth filter medium is intended for immediate use and should be used within 36 months after production date.

Available Formats

All common square or round filter sizes are available for delivery. Special formats are available on request.

Quality Control According to DIN EN ISO 9001

The Quality Management System of Eaton Technologies GmbH has been certified according to DIN EN ISO 9001.

This certification verifies that a fully functioning comprehensive Quality Assurance System covering product development, contract controls, choice of suppliers, receiving inspections, production, final inspection, inventory management, and shipment has been implemented.

Extensive quality assurance measures incorporate adherence to technical function criteria and chemical purity and quality recognized as safe under the German legislation governing the production of foods and beverages.

All information is given to the best of our knowledge. However, the validity of the information cannot be guaranteed for every application, working practice and operating condition. Misuse of the product will result in all warrantees being voided.

Subject to change in the interest of technical progress.

North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Friedensstraße 41
68804 Altlußheim, Germany
Tel: +49 6205 2094-0

An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
100G Pasir Panjang Road #07-08
Singapore 118523
Tel: +65 6825-1668

Brazil
Rua Clark, 2061 - Macuco
13279-400 - Valinhos, Brazil
Tel: +55 11 3616-8400

For more information, please email us at *filtration@eaton.com* or visit *www.eaton.com/filtration*

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02-2019

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