Technical Data Sheet

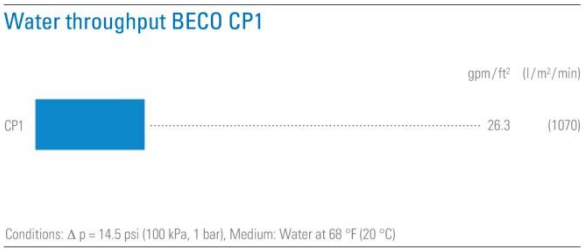
Depth Filtration
BECO® CP1

Depth Filter Sheets for the Chemical, Cosmetics, and Food Industries

BECO CP1 depth filter sheet is used in the chemical, cosmetics, and food industries for clarifying filtration of coarse, crystalline, amorphous or gel-like impurity structures. A wide range of filtration tasks can be performed according to given specifications, even with highly viscous liquids.

The specific advantages of BECO CP1 depth filter sheets:

- High dirt holding capacity for economic filtration.
- Differentiated fiber and cavity structure (internal surface area) for the widest range of applications and operating conditions.
- The ideal combination of filtration-active and adsorptive properties ensures maximum safety.
- Very pure raw materials and therefore minimum influence on filtrates.
- Comprehensive quality assurance for all raw and auxiliary materials and intensive in-process controls ensure consistent quality of the finished products.



Clarifying/Fine Filtration

BECO CP1
BECO depth filter sheet with a reduced sheet thickness. Preferred for the filtration of highly viscous liquids. High dirt holding capacity for gel-like impurities, especially when working at low filtration pressures. The sheets are used primarily in combination with filter aids to obtain particularly economic filtration.

Application Examples:
Retention of activated charcoal particles, polishing filtration of cooking oils, solvents, clear varnishes, vegetable extracts, ointment bases, and filtration of Fuller's earth.

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Physical Data

This information is intended as a guideline for the selection of BECO depth filter sheets.

Type	Article no.	Nominal retention rate 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)
CP1	27110	3.0	0.1 (2.6)	48.0	> 14.5 (100)	26.3	(1070)

The water flow is a laboratory value characterizing the different BECO depth filter sheet types. It is not the recommended flow rate.

* 100 kPa = 1 bar

Chemical Data

BECO depth filter sheet meets the requirements of LFGB*, Recommendation XXXVI/1 issued by BfR**, and the test criteria of FDA*** Directive CFR 21 § 177.2260.

Chemical resistance of the BECO depth filter sheets to different solvents over a contact time of 3 hours at 68 °F (20 °C). The chemical compatibilities listed in the table below are a guide only.

Solvent	Mechanical strength	Solvent appearance	Solvent	Mechanical strength	Solvent appearance	Solvent	Mechanical strength	Solvent appearance
Aqueous solutions:						Organic solvents:		
Sugar solution, 10%	r	nc	Hydrochloric acid, 1%	r	nc	Methanol	r	nc
With 1% free chlorine	r	nc	Hydrochloric acid, 3%	r	nc	Ethanol	r	nc
With 1% hydrogen peroxide	r	nc	Hydrochloric acid, 5%	r	nc	Isopropanol	r	nc
With 30% formaldehyde	r	nc	Hydrochloric acid, 10%	r	nc	Toluene	r	nc
With 10% ethanol	r	nc	Nitric acid, 1%	r	nc	Xylene	r	nc
With 40% ethanol	r	nc	Nitric acid, 3%	r	nc	Acetone	r	nc
With 98% ethanol	r	nc	Nitric acid, 5%	r	nc	Methyl ethyl ketone	r	nc
Caustic soda, 1%	r	nc	Nitric acid, 10%	r	nc	n-hexane	r	nc
Caustic soda, 2%	r	nc	Sulfuric acid, 1%	r	nc	Dioxan	r	nc
Caustic soda, 4%	r	0	Sulfuric acid, 3%	r	nc	Cyclohexane	r	nc
Ammonia solution, 1%	r	nc	Sulfuric acid, 5%	r	nc	Tetrachloroethylene	r	nc
Ammonia solution, 3%	r	nc	Sulfuric acid, 10%	r	nc	Ethylene glycol	r	nc
Ammonia solution, 5%	r	nc	Acetic acid, 1%	r	nc	Dimethyl sulfide	r	nc
			Acetic acid, 3%	r	nc	N, N-Dimethyl formamide	r	nc
			Acetic acid, 5%	r	nc			
			Acetic acid, 10%	r	0			
r = resistant			*nc = no change*			*0 = slight opalescence*		
** = German Food, Commodity, and Feed Act*			*** = Federal Institute of Risk Assessment*			**** = Food and Drug Administration; USA*		

Components

BECO CP1 depth filter sheet is made from particularly pure natural materials and cationic charge carriers. Different quantities of finely fibrillated cellulose fibers obtained from deciduous and coniferous trees, diatomaceous earth, and perlite are used.

Instructions for Correct Use

BECO depth filter sheets require careful handling when inserting them into the plate and frame filter. Avoid banging, bending, and rubbing the sheets. Do not use damaged depth filter sheets.

Inserting
Each BECO depth filter sheet has a rough side and a smooth side. The rough side of the depth filter sheet is the unfiltrate 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.

Sanitizing and Sterilizing (Optional)

The wetted BECO 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 exits from all filter valves.
Rinsing:	After sterilizing with 1.23 gal/ft² (50 l/m²) at 1.25 times the flow rate.

Filter Preparation and Filtration

Unless already completed after sterilization, Eaton recommends pre-rinsing the closed filter with 1.23 gal/ft² (50 l/m²) of water at 1.25 times the flow rate prior to the first filtration. Depending on the application, this usually equals a rinsing time of 10 to 20 minutes. Test the entire filter for leakage at maximum operating pressure.

High-proof alcohol solutions and chemical products that do not allow pre-rinsing with water should be circulated for 10 to 20 minutes. Dispose of 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 separating microorganisms.

Regeneration/Backwashing

The high capacity of the BECO depth filter sheets can be used to a greater or lesser degree for filtration under wet conditions through trouble-free backwashing with softened water, which contributes considerably to reducing the cost of filtration.

Proceed as follows to regenerate:

Cold rinsing:	In the direction of filtration
Temperature:	59 – 68 °F (15 – 20 °C)
Duration:	Approx. 5 minutes
Hot rinsing:	Opposite to the direction of filtration
Temperature:	140 – 176 °F (60 – 80 °C)
Duration:	Approx. 10 minutes

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 BECO depth filter sheets are biodegradable. Comply with relevant current regulations, depending on the filtered product.

Storage

BECO depth filter sheets consist of strongly adsorbing materials. The product must be handled carefully during shipping and storage. Store the depth filter sheets in a dry, odor-free, and well ventilated place.

Do not expose the depth filter sheets to direct sunlight.

BECO depth filter sheets are 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 Assurance 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

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

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