

## Depth Filtration

### BECO® ACF 07.10, ACF 07.10S (with Protective Paper)

#### Activated Carbon Depth Filter Sheets

BECO ACF 07.10(S) depth filter sheets are ideal for the demanding liquid filtration applications of the chemical, pharmaceutical, cosmetics, food and beverage industries as well as in bioengineering.

The specific advantages of BECO ACF 07.10(S) depth filter sheets:

- High adsorption power for decolorizing and aroma correcting
- Complex fiber and cavity structure with a large interior surface for the widest range of applications and operating conditions
- BECO ACF 07.10(S) depth filter sheets are easy to use and allow dust-free handling
- BECO ACF 07.10S depth filter sheets with protective paper for filtrate protection

#### Adsorption through Activated Carbon

The activated carbon of BECO ACF 07.10(S) depth filter sheet is a micro-porous inert material, which is acid-washed and steam-activated. When products are cleaned or decolorized, a physical bond is created between the interior surfaces of the activated carbon and the unclean or colored substances. Since this bond is largely non-polar, there is a great affinity to organic molecules.

#### Factors Affecting the Adsorption Capacity

##### Filtration Speed

Adsorption processes are decisively affected by the contact time between the product and the adsorbing substance. The adsorption performance can thus be controlled by the speed of filtration. Slow filtration speeds and extended periods of contact result in optimum utilization of the adsorption capacity.



Water throughput BECO ACF 07.10(S)

	gpm/ft <sup>2</sup>	(l/m <sup>2</sup> /min)
ACF 07.10	34.7	(1415)
ACF 07.10S	29.8	(1215)

Conditions:  $\Delta p = 14.5$  psid (100 kPa, 1 bar), Medium: Water at 68 °F (20 °C)

#### Application Examples

- Decolorizing of chemicals and synthetic oils
- Decolorizing watery and alcoholic extracts
- Filtering of glucose, enzyme, vitamin, and antibiotic solutions
- Treating of cosmetics
- Taste and color correcting of beverages, spirits, and fruit juices
- Removal of odors and undesirable byproducts from liquids



## Physical Data

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

Type	Article no.	Thickness		Ash content %	Bursting strength wet psi (kPa)	Water throughput at	
		in	(mm)			$\Delta p = 14.5$ psid gpm/ft <sup>2</sup>	( $\Delta p = 100$ kPa* l/m <sup>2</sup> /min)
ACF 07.10	19607	0.15	(3.8)	15.0	>5.8 (40)	34.7	(1415)
ACF 07.10S**	19707	0.16	(4.0)	15.0	>5.8 (40)	29.8	(1215)

\* 100 kPa = 1 bar

\*\* with protective paper on the outlet side for format 140 (400 x 400 mm)

BECO ACF 07.10(S) depth filter sheets meet the requirements of LFGB (German Food, Commodity, and Feed Act), Recommendation XXXVI/1 issued by BfR (Federal Institute of Risk Assessment), and the test criteria of FDA (Food and Drug Administration; USA) Directive CFR 21 § 177.2260.

BECO ACF 07.10 depth filter sheets meet the test criteria of FDA (Food and Drug Administration; USA) Directive according to: CFR 21 § 177.2260.

BECO ACF 07.10S depth filter sheets meet the test criteria of FDA (Food and Drug Administration; USA) according to: Directive CFR 21 § 177.2260 (Filters, Resin, Bonded) (h) (i) (j) (k) (l).

## Components

BECO ACF 07.10(S) depth filter sheets are made from particularly pure natural materials using finely fibrillated cellulose fibers and cationic charge carriers as well as high quality diatomaceous earth, and acid-washed, steam-activated carbon.

## 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 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 ACF 07.10(S) depth filter sheets may be sterilized with hot water or saturated steam up to a maximum temperature of **250°F (121°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.

Water quality: 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 be free of foreign particles and impurities.

Temperature: Max. **250°F (121°C)**  
(saturated steam)

Duration: Approx. 20 minutes after steam escapes from all filter valves.

Rinsing: After sterilizing with 1.23 gal/ft<sup>2</sup>  
(50 l/m<sup>2</sup>) at 1.25 times the flow rate

## **Filter Preparation and Filtration**

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Unless already completed after sterilization, Eaton recommends pre-rinsing the closed filter with 1.23 gal/ft<sup>2</sup> (50 l/m<sup>2</sup>) 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 psid (300 kPa, 3 bar) is reached.

## **Safety**

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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**

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Due to their composition BECO ACF 07.10(S) depth filter sheets are biodegradable. Comply with relevant current regulations, depending on the filtered product.

## **Storage**

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BECO ACF 07.10(S) depth filter sheets are comprised of strongly adsorbent materials. The product must be handled carefully during shipping and storage.

Store the BECO depth filter sheets in a dry, odor-free, and well-ventilated place.

Do not expose 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**

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For ACF 07.10 depth filter sheets all common square or round filter sizes are available for delivery. Special formats are available on request. ACF 07.10S depth filter sheets with protective paper are available for standard format 140 (400 x 400mm) and on request for format 160 (600 x 615 mm).

## **Quality Assurance According to DIN EN ISO 9001**

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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 warranties being voided.

Subject to change in the interest of technical progress.

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