

## Depth Filtration

### BECO ACF 07

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## Activated Carbon Depth Filter Sheet

The BECO ACF 07 depth filter sheet is used for the demanding filtration of liquids in the chemical, pharmaceutical and food industry as well as in biotechnical processes.

The specific advantages of the BECO ACF 07:

- ▶ High adsorption capacity for a high decolourizing and odour correction effect as well as reduction of endotoxin at liquids.
- ▶ Differentiated fibre and pore texture with large inner surfaces for a wide variety of application areas and operating conditions.
- ▶ BECO ACF 07 depth filter sheets are easy to handle and allow dust-free application

### Adsorption through Activated Carbon

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Activated carbon is produced from carbonaceous raw materials. It is a microporous, inert material that is activated by special processes after extraction to produce a very large number of pores and a large inner surface of activated carbon.

A physical bond is produced between the activated carbon and the impure or chromophore substances on their inner surfaces during cleaning or decolourization. This is homoeopolar for the most part so that there is a great affinity to the organic molecules.

### Factors Effecting the Adsorption Capacity

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#### Filtration temperature

The quantity of adsorbed substances increases at lower temperatures and the thus decreasing diffusion rate because the adsorption balance ensues more slowly. The adsorption capacity can likewise be increased if the properties and structure of the substances to be filtered are changed by rising temperatures.

#### Filtration rate

All adsorption processes are decisively effected by the contact time between the product and the adsorbing substance. The adsorption performance can therefore be controlled by the flow rate. Low flow rates and long contact times result in optimum use of adsorption capacities.

### Application Examples

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- ▶ Decolourization of chemicals and oils
- ▶ Decolourization of aqueous and alcoholic plant extracts
- ▶ Reduction of endotoxin
- ▶ Filtration of glucose, enzyme, vitamin and antibiotic solutions
- ▶ Treatment of cosmetics
- ▶ Taste and colour correction of beverages such as spirits and fruit juices
- ▶ Removing of pesticides

## Physical Data

### Selection Guidelines

Type	Article no.	Thickness mm (in)	Dry substance %	Bursting strength wet kPa (psi)	Water permeability at $\Delta p = 100 \text{ kPa}$ $\text{l m}^{-2} \text{ min}^{-1}$
ACF 07	19207	3.8 (0.15)	15.0	> 40 (> 5.8)	1455

BECO ACF 07 depth filter sheets meet the requirements of recommendation XXXVI/1 regarding the LFGB\* by the BfR\*\*, and the test criteria of FDA directive CFR 21 § 177.2260.

### Chemical Data

Examination acc. to § 177.2260 US Code of Federal Regulation of the US Food and Drug Administration (FDA)

Dry residue of the n-hexane extract 2 hours boiling time	< 0.5 %
Dry residue of the extract with demineralized water 2 hours boiling time	< 4.0 %
Dry residue of the extract with 5 % acetic acid 2 hours at 90 °C	< 4.0 %
Dry residue of the extract with 8 % ethanol (v/v) 2 hours at 80 °C	< 4.0 %
Dry residue of the extract with 50 % ethanol (v/v) 2 hours at 60 °C	< 4.0 %

### Components

The BECO ACF 07 depth filter sheet is made from extremely pure materials. It contains varying quantities of finely fibrillated cellulose fibre and cationic resin as well as high quality kieselguhr and acid washed, steam activated carbon of vegetable origin.

### Instructions for Correct Use

When inserting the depth filter sheets into the sheet filters, handle carefully. Avoid knocks, distortion or abrasion. Never use a damaged depth filter sheet.

#### Insertion of the depth filter sheets:

The depth filter sheet has one rough side and one smooth side each. The rough side faces the liquid to be filtered (= upstream). The smooth side is the filtrate side of the filter sheet (= downstream). When inserting take care to ensure that the smooth side is facing the filtrate plate.

#### Filter Preparation

Prior to the first filtration, it is recommended to pre-rinse the closed filter with 50 liters (13.2 gal) of water per square meter at 1.25 times the flow rate. As a rule, this equals a rinsing time of 10 to 20 minutes depending on the application. Test the entire filter for leakage at maximum operating pressure.

High-proof alcohol solutions and chemical products that cannot be used with water for pre-rinsing should be circulated for 10 to 20 minutes. Dispose of the solution after rinsing.

\* = German Food, Commodity and Feed Act; \*\* = Federal Institute of Risk Assessment

## **Sterilization**

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The BECO ACF 07 depth filter sheet may be sterilized with steam. The pressed packed filter has to be slightly loosened. Final pressure should be applied to the filter package once the entire filter has cooled down.

### **Sterilization with steam:**

Steam quality: Steam has to be free of foreign particles and impurities

Temperature: Max. **121 °C (250 °F)**

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

### **Important notice:**

**All vent and discharge valves must be slightly opened for optimal sterilization effect and to avoid the steam shock.**

## **Safety**

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If used properly no negative effects are known.

An EC safety data sheet is available upon request.

## **Waste Disposal**

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The BECO ACF 07 depth filters sheet can be composted due to their composition. Please observe the current valid official directives relation to filtration products.

## **Storage**

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Depth filters consist of strongly adsorbing materials. Careful handling is necessary during transportation and storage. Depth filters must be stored in a dry and smell-free place that is well aerated.

Do not expose the depth filter sheets in direct sun light.

BECO depth filter sheets are intended for immediate use and should be used within 36 months after delivery.

## **Forms of Supply**

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BECO depth filters can be supplied for all current filter sizes, square or round. Special formats are available at request.

HS customs tariff number: 4812 00 00

## **Quality Assurance according to DIN EN ISO 9001:2000**

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The comprehensive Quality-Management-System of BEGEROW has been certified from DQS according to DIN EN ISO 9001:2000.

The certification confirms the functioning of the total system of Quality Assurance from product development through contract controls, choice of suppliers as well as acceptance controls, production and final examination all in the way to storage and dispatch.

Extensive quality assurance measures comprise the adherence to technical criteria regarding the function as well as the confirmation of chemical purity and quality recognized as safe under the German law governing the production of foodstuffs and beverages.



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