

CARBOFIL™



DEPTH FILTER SHEETS WITH ACTIVATED CARBON

Characteristics

Activated carbon is widely used in various areas of the food and pharmaceutical industries to remove soluble organic contaminants. Usually, the activated carbon is introduced into the process in powder form (Powdered Activated Carbon, PAC), but this is associated with disadvantages such as dust generation and increased cleaning efforts.

CARBOFIL™ products are an efficient and clean solution for the adsorptive purification of liquids. They combine the high adsorption capacity of activated carbon with the simple and safe handling of depth filter sheets. The adsorption capacity is further increased compared to the use of PAC, as the contaminants are forced into contact with the activated carbon when flowing through the filter medium. As a result, the contact time can be significantly reduced, resulting in cost and time savings.

Material

- Purified and bleached cellulose
- Natural filter aids (CARBOFIL™ LWT und RW)
- Wet strength agent
- Activated Carbon



Product range

The CARBOFIL™ series contains seven different grades, which are suitable for different applications depending on the pore size distribution of the activated carbon type. They can be used in filter presses such as the NOVOX® series (see separate Technical Data Sheet, TDS). Formats ranging from 6 cm round sheets to 2,425 m × 1,215 m sheets are available, which allows the application in various filter types. Special formats are cut on request. In addition, the sheets are available as lenticular modules for the use in a closed module housing (see TDS for FILTRODISC™ and CARBOFIL™ PLUS modules, and DISCSTAR™ housing).

Handling

It is recommended to rinse filter modules and filter sheets with 50 L/m² of a process-compatible solution before use. The adsorption capacity depends on the contact time and can be adapted by the flow rate. The sheets can be sterilized with hot water (85 °C) or steam (125 °C). For this purpose, please refer to the corresponding instructions for the use of filter sheets or filter modules.

Testing and application services

CARBOFIL™ depth filter sheets are available as capsules for sheet filtration to test performance and efficiency in laboratory scale before upscaling. The CARBOFIL™ Test Kit includes several different grades to determine the most suitable type of activated carbon. In order to provide the best possible support and to find the optimal solution for your filtration task, our experienced FILTROX specialists are at your disposal. For more information, please contact your FILTROX representative or our experts at applications@filtrox.com.

CARBOFIL™ grades

| Pharma | Pore size | Application examples |
|--------|--------------|--|
| CA | Macro | <u>Pharmaceutical Processes:</u> Decolorization or treatment of mAbs, enzymes, vaccines, blood plasma products, X-ray contrast media, vitamins, antibiotics, ... |
| PA | Meso / Macro | |
| PR | Micro / Meso | |
| PXS | Micro | |
| Food | Pore size | <u>Cosmetics:</u> Decolorization of plant extracts, aqueous and alcoholic solutions, fragrances, ... <u>Food and beverages:</u> Decolorization and aroma correction of spirits, wine, cider, sugar solutions, ... |
| RHC | Meso / Macro | |
| RW | Meso / Macro | |
| LWT | Meso / Macro | |

Chemical resistance

| Substance | Concentration (%) | Resistance (T=20 °C) | Resistance (T=80 °C) |
|--------------------------------|-------------------|----------------------|----------------------|
| NaOH | 1 | r | r |
| | 2 | r | lr |
| HCl | 5 | r | lr |
| HNO ₃ | 5 | r | lr |
| H ₂ SO ₄ | 10 | r | lr |
| Citric acid | 10 | r | r |
| Butanol | 80 | r | r |
| Ethanol | 80 | r | r |

r = resistant; lr = limited resistance. This table is for guidance only. Please contact FILTROX for further information.

Ion values (CARBOFIL™ CA, PR, PA, PXS)

| Ion | ppm* | Ion | ppm* |
|-----|--------|-----|--------|
| Ca | <1 | Cu | <0.01 |
| Mg | <0.5 | Ni | <0.02 |
| Pb | <0.06 | Co | <0.025 |
| Zn | <0.01 | Fe | <0.05 |
| Cd | <0.005 | Al | <0.05 |

* after rinsing with WFI (50 L/m²).

Extractables

| Substance | |
|---|--------------------------------------|
| Endotoxins (CA, PR, PA, PXS) | <0.125 EU/mL* |
| Heavy metals (according to recommendation XXXVI/1, BfR) | <50 ppm |
| MCPD und DCP from the wet strength agent | in accordance with legal regulations |
| GMO | absent |
| Allergene Substanzen | absent |

* after rinsing with WFI (50 L/m²).

Packaging

FILTROX filter sheets in standard sizes are hygienically shrink-wrapped and packed in cardboard boxes. For packaging of special dimensions, please contact FILTROX directly.

Storage

The sheets should be stored in their original packaging in an odorless, dry and well-ventilated area. We recommend using the sheets within 5 years, pharmaceutical grade sheets within 3 years from the date of manufacture.

Disposal

Unused sheets can be disposed of as non-hazardous waste. Used sheets must be disposed of in accordance with the respective regulations depending on the type of contamination.

Quality assurance

The filter sheets are manufactured under controlled conditions to guarantee the highest standards of quality and purity. Measurement methods for quality control are described in the corresponding validation guide for filter sheets.

FILTROX filter sheets meet the following requirements:

- Recommendation XXXVI/1 of the Federal Institute for Risk Assessment (BfR)
- Test criteria of the FDA (US Food and Drug Administration) CFR 21 Section 177.2260

Quality controls meet the following international standards:

- ISO 9001 (quality management)
- ISO 14001 (environmental management)
- ISO 22000 (food safety)
- Kosher certificate

Others:

- FDA Drug Master file: DMF #14255
- Safety data sheets (can be downloaded from the website)