



CARBOFIL™ PLUS

LENTICULAR MODULE WITH EXTRA CARBON CAPACITY

High capacity activated carbon handling without mess



applications where PAC are widely used in the pharmaceutical as well as in the food & beverage industries. Due to their unique adsorption characteristics, PAC are also used in biotechnological processing and the production of fine chemicals. In order to meet these various demands, there are a large number of activated carbons available, offering different levels of activation, molecular structure and purity levels. Using activated carbon in an immobilized form (e.g. in a lenticular module) offers significant benefits in handling, cleaning and time (cost savings), compared to using PAC. FILTROX CARBOFIL™ PLUS brings out all the benefits of immobilized activated carbon versus PAC. Furthermore, the adsorption efficiency of immobilized activated carbon is higher than with an equivalent amount of bulk PAC.

Powdered activated carbons (PAC) play a critical role in a vast and diverse range of applications. Decolorization, deodorization or the removal of other trace impurities are amongst the most common

Technical specs

Carbon content: 60%
 Weight of available carbon per module: up to 3500 g

Applications

The CARBOFIL™ PLUS lenticular modules can be used in lenticular housings such as the DISCSTAR™ series.

	Decolorization	Removal of organic impurities
Biopharmaceutical industry	<ul style="list-style-type: none"> - Albumin - Vitamins - Antibiotics - Vaccines 	<ul style="list-style-type: none"> - Removal of PKA from human plasma fractions - Removal of endotoxins - Removal of organic impurities from contrast liquids
Chemical industry	<ul style="list-style-type: none"> - API - Silicon oils - Solvents - Fine chemicals 	<ul style="list-style-type: none"> - Catalyst recovery
Cosmetics industry	<ul style="list-style-type: none"> - Plant / herbal extracts - Fragrances 	<ul style="list-style-type: none"> - Deodorization of ethanol - Removal of pesticides from extracts
Food & beverage industry	<ul style="list-style-type: none"> - Sugar syrup - Spirits - Cider 	<ul style="list-style-type: none"> - Removal of off-tastes from spirits - Removal of bitterness from soups

Superior performance

CARBOFIL™ PLUS shows an exceptional adsorption capacity due to its unique design and its much higher carbon capacity, compared to a standard carbon module.

Benefits

- CARBOFIL™ PLUS modules offer up to 33% more carbon capacity at the same footprint as standard carbon modules.
- The CARBOFIL™ PLUS module offers increased contact time with the immobilized activated carbon.
- The totally enclosed construction of the system is ideal where hygiene is important or the conditions hazardous.
- CARBOFIL™ eliminates the need for loose PAC or granules, resulting in more effective carbon use (less carbon required).

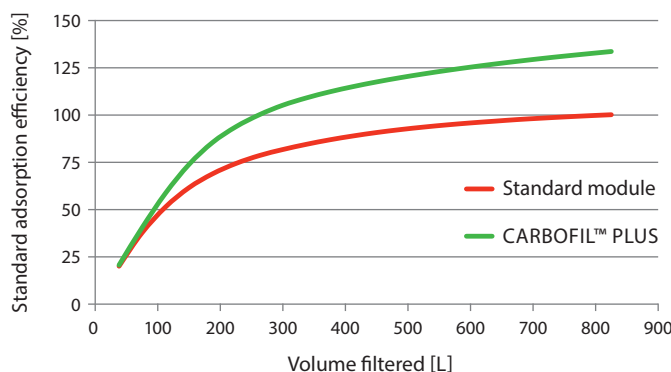


Chart: Comparison of adsorption capacity between a standard carbon module and the CARBOFIL™ PLUS.

CARBOFIL™ lenticular modules

Modules are available in the following versions:

	CARBOFIL™ PLUS DOR	CARBOFIL™ PLUS DOE	CARBOFIL™ standard DOR	CARBOFIL™ standard DOE
Diameter [mm]	400	400	400	400
Height [mm]	330	275	330	275
Number of cells	9	10	15	16
Carbon content/ module [g]	3150	3500	2625	2800

Adapter types

The CARBOFIL™ activated carbon modules are available in all common adapter types:

- flat adapter (= DOE)
- bayonet adapter (= DOR)

Construction

The modules with DOR adapter type consist of a polypropylene backbone (rigid core) and activated carbon filter sheets on drainage bodies. For the modules with DOE adapter type, the polypropylene backbone is replaced by metal straps.

Available grades

The CARBOFIL™ PLUS modules are available with the following grades:

Carbon grade	Typical applications
CA	Pharma decolorization / precious metal carrier
PC	Removal of high molecular weight colors
PR	Pharma purification and decolorization
RHC	Color removal

Following grades are available on request:

PA, PHA, PSA	Pharmaceutical processes
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CARBOFIL™ PLUS modules are also available as a HT (high temperature) version, on request. The plastic parts of the HT version are made of polyamide.

Operating conditions

	DOR adapter	DOE adapter
Max. operating temperature	82 °C	95 °C
Max. differential pressure	2.4 bar	2.4 bar
Recommended rinsing volume	50 l/m ²	50 l/m ²

Extractables

Heavy metals content referring to recommendations XXXVI/1 German BfR (law on foodstuffs and items of practical use): < 50 ppm

CARBOFIL™ PLUS modules are free of extractable organic solvents since no organic solvents are used in the production.

FILTROX quality assurance

FILTROX assures the highest quality control according to international standards:

- ISO 9001 (Quality management)
- HACCP
- FDA drug master file: # 14255
- Kosher certificate

FILTROX uses polyamidoamine, as wet strength agent, in its filter sheets. The ISEGA Institute for food analysis in Aschaffenburg (Germany) performed a test for extractable MCPD and DCP. The FILTROX filter sheets extracts were below the detection limit of the approved standard method. The filter sheets are free of GMO and common allergens.

Material

Activated carbon

CARBOFIL™ PLUS lenticular modules have acid and/or steam activated carbon inside with a high adsorptive capacity and a high purity. The carbons meet the requirements of the U.S. food chemicals codex (4th edition, 1996).

Backbone material (lenticular modules)

The drainage bodies and the rigid core are made of polypropylene. The modules with DOE adapter type incorporate stainless steel strips (302S25).

Gasket material

- Available materials:
- Silicone (standard)
 - EPDM
 - Teflon® (encapsulated gaskets)
 - Viton®

Activated carbon sheets

The filter sheets are made of acid and/or steam activated carbon, purified cellulose, natural filter aids and polyamidoamine resin (< 3%).

Expiring and storage

CARBOFIL™ PLUS modules should be stored in a dry and odor free place. Properly stored, the usable life is 5 years.