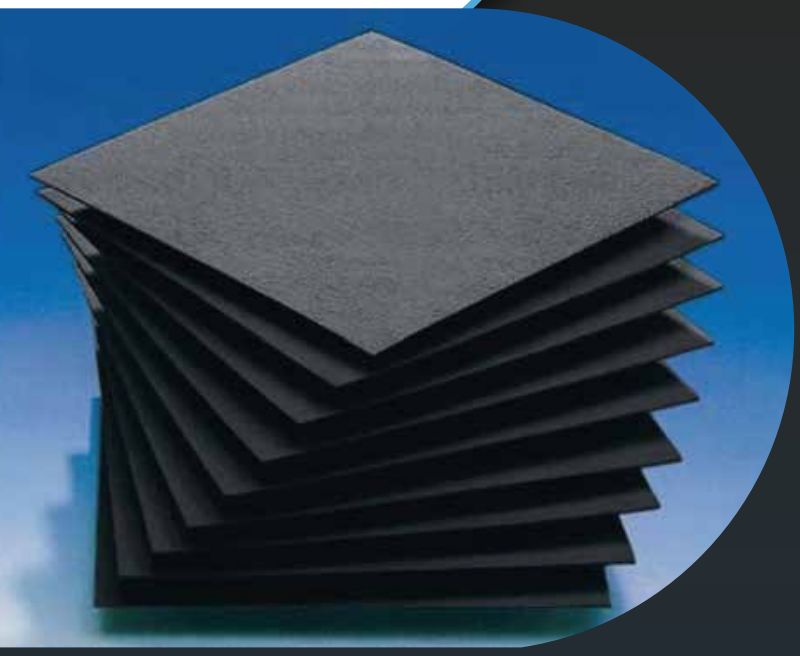
AEB FILTRATION

AEB CARBON

Filter sheets for color and flavor correction



Description

Powdered activated carbon is widely used in the food and beverage industry for absorption applications. The use of bulk activated carbon has significant drawbacks relating to the handling of bulk carbon powder, cleaning of the process equipment, as well as time and costs associated with carbon removal from the process.

AEB CARBON immobilized carbon filter media alleviates these concerns by incorporating activated carbon within a matrix of cellulosic fibers. Additionally, the adsorption efficiency of AEB CARBON immobilized carbon filter media is greater than an equivalent amount of bulk powdered activated carbon, reducing overall process time and increasing product yield. An internal comparative study using the same carbon grade showed up to 150 % better color removal efficiency when compared to bulk PAC *(Powdered Activated Carbon)*.

FEATURES	BENEFITS
Carbon-impregnated media with a homogeneous and consistent matrix	• Free of carbon dust • Simplified handling and cleaning
High adsorption efficiency as compared to PAC	• Reduction of overall process time • Increased product yield • Good permeability with excellent filtrate quality
General-duty media targeted to food and beverage industry needs	• High economic efficiency due to a long service life

Applications

- De-chlorination of water
- Correction of color, flavor and odors in distilled spirits
- Decolorization of sweetener and sugar syrups
- Color correction in juice and beer applications
- Gelatin decolorization and deodorization

Available Sheet Formats

400 mm x 400 mm

Physical characteristic values

MASS PER UNIT AREA (g/m²)	THICKNESS (mm)	ASH %	WATER PERMEABILITY[1] L/m²/min (gal/ft²/min)
150	3.8	13	291 (7.2)

These figures have been determined in accordance with in-house test methods and the methods of the Technical/Analytical Work Group within the European Depth Filtration Association.

[1] The permeability was measured under test conditions with clean water at 20 °C (68 °F) and a Δp of 1 bar (14.5 psi).

Components

Cellulose, powdered activated carbon, diatomaceous earth (DE, Kieselguhr).

Adsorption Capability

At an optimized flow rate, the probability of contact between the impurities and carbon particles is greater in carbon impregnated sheets. This is due to process fluids more efficiently contacting carbon particles immobilized into a sheet matrix. Because of the depth (thickness) of the sheet, it is possible to consider the structure as being made up of a series of layers containing PAC.
Macro and mesopores can generally be regarded as the highways into the carbon particle and are crucial for adsorption kinetics. Macropores are used for the transport, and adsorption occurs in the meso and micropores. Small molecules, such as methylene blue, which has a molecular weight of 319.86 Dalton, are mainly captured in micropores. Typically, over 20 g/m² methylene blue is adsorbed.

Regeneration

Depending upon the application and the nature of the adsorbed contaminants, AEB CARBON filter sheets may be regenerated by means of rinsing with clean water in a forward direction.

Sterilization and Sanitation

METHOD	TEMPERATURE °C (°F)	MAXIMUM DIFFERENTIAL PRESSURE BAR (PSI)	TIME[2]/ CICLE min
STEAM	125 (257)	0.5 (7.2)	20
HOT WATER	90 (194)	1 (14.5)	30

Filtration guidelines

Typical flux rates used on food and beverage fluids are 150- 250 L/m²/h.
AEB recommends an initial scaled-down testing as a reliable method of qualifying filter performance.