

DEPTH FILTER SHEETS

For food and industrial applications



Characteristics

FIBRAFIX® depth filter sheets represent an approved and established filtration technology for solid liquid separation. The three dimensional medium assures superior retention capacity for solid particles at a high flow rate.

The pore sizes can be fine enough to retain bacteria and thus produce a sterile liquid (logarithmic retention of bacteria up to LRV 8). The dirt holding capacity of a FIBRAFIX® depth filter sheet can be up to 4 kg per m². In the filtration process, solid particles are slowed down and eventually retained by the tortuous path inside the filter sheet and by electrokinetical interactions («zeta potential»). Through this unique mechanism, a high capacity (long lifetime of filter until plugging) can be achieved.

All materials are food grade and FDA approved.

Applications

The broad variety of available porosities allow for their use in a wide range of applications. Porosity grades are available from coarse over fine to germ reducing and germ removing filtration («sterile filtration»). Examples of industries:

- Biotech
- Beverage (beer, wine, spirits, juice...)
- Cosmetics
- Enzymes
- Fine chemicals
- Herbal or other natural extracts
- Inks, paints and glue
- Pharmaceutical intermediates
- Process water
- Solvents

Sheet sizes

FIBRAFIX® sheets are available in various sizes and shapes up to 1215 x 2425 mm: square, rectangular, round, with/without holes, foldover, etc.

Available grades

Standard version	High capacity version*	Retention rate (µm)	
FILTRODUR®			Supporting sheet
AF 6		35 – 15	Coarse filtration
AF 9		30 – 10	
AF 15		20 – 8.0	
AF 20	AF 21H	15 – 6.0	Clarifying filtration
AF 30	AF 31H (U3)	12 – 5.0	
AF 40	AF 41H	9.0 – 4.0	
AF 50		6.0 – 3.0	
AF 70	AF 71H	3.0 – 1.5	Fine filtration
AF 100	AF 101H	1.5 – 0.6	Germ reducing filtration
AF ST 110		0.8 – 0.5	Sterile filtration
AF ST 130		0.6 – 0.4	
AF ST 140		0.4 – 0.2	
AF ST 150		0.2 – 0.04	

*Provides increased dirt holding capacity for longer service life




Handling

Depth filter sheets are used in a plate and frame filter, such as the FILTROX NOVOX® series. The sheets need to be wetted when the filters are loaded and in beverage applications they need to be pre-flushed with 50 L/m². A pressure difference between in and outlet assures constant flow. The sheets are exhausted when the differential pressure exceeds a certain value (1.0 – 2.5 bar, depending on porosity and application). In some applications the sheets can be regenerated e.g. with caustic soda solution. Please refer to special literature.

Sterilization conditions

The sheets can be sterilized with hot water (85°C) or inline steam (125°C).

Recommended grades and parameters

Application		Recommended grade	Recommended flow rate L/m ² h	Max. differential pressure kPa (bar)
	Support sheet for D.E. filtration	FILTRODUR®		
	Polishing filtration after D.E.	AF 41H, AF 71H	200	150 (1.5)
	Germ reduction	AF 101H	150	150 (1.5)
	Sterile filtration	AF ST 110, AF ST 130	120	120 (1.2)
	For long shelf life	AF ST 140	100	100 (1.0)
	Filtration after fermentation	AF 31H (U3)	700...1000	250 (2.5)
	Clarifying after fining	AF 50	700...1000	250 (2.5)
	Fine clarification/germ reduction	AF 100, AF 101H	700	200 (2.0)
	Sterile filtration	AF ST 110, AF ST 130	350...400	120 (1.2)
	Pre-filtration prior to membrane	AF ST 140	300	120 (1.2)
	Coarse / clarifying filtration	AF 6, AF 9, AF 15 S, AF 21H	700...1000	250 (2.5)
	Fine filtration	AF 50, AF 100	500...700	150 (1.5)
	Prior to bottling	AF 100, AF 101H	500...700	150 (1.5)

For other applications, such as intermediates of pharmaceutical productions, biotech, cosmetics, paint, glue, solvents, herbal extracts please contact our application specialists or your local dealer.

Bacteria retention value (LRV)

LRV of germ reducing or germ removing sheets:

Type	Test germ	Load	LRV
AF 101 H	Germ reducing (reducing the no. of germs in filtrate)		
AF ST 110	<i>Serratia marcescens</i>	1.0 X 10 ⁷ /cm ²	>6
AF ST 130	<i>Serratia marcescens</i>	1.0 X 10 ⁸ /cm ²	>7
AF ST 140	<i>Serratia marcescens</i>	1.0 X 10 ⁹ /cm ²	>8
AF ST 150	<i>Brevundimonas diminuta</i>	1.0 x 10 ⁹ /cm ²	>8
Test germs:	<i>Serratia marcescens</i> , ATCC 14756 <i>Brevundimonas diminuta</i> , ATCC 19146		

FILTROX quality assurance

FILTROX assures the best quality control according to international standards:

- ISO 9001 (Quality management)
- ISO 14001 (Environmental management)
- HACCP
- FDA drug master file: # 16418

External tests of filter sheets were performed and certified according to – CFR requirements by the NAMSA

FILTROX is using polyamidoamine as a 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 for DCP and MCPD.

EU safety data sheets

EU safety data sheets for all types of FIBRAFIX® sheets can be downloaded from the FILTROX website. Hardcopies are available upon request.

Material

Purified and bleached cellulose, natural inorganic filter aids, polyamidoamine (< 3%). Free of plastic fibers and formaldehyde. The filter sheets are free of GMO and common allergens.

Disposal

Uncontaminated sheets can be recycled like paper, composted or disposed with the domestic waste. Contaminated sheets must be disposed according to the contamination.

Storage life and conditions

Sheets should be stored in their original packaging in an odorless, dry and ventilated environment. We recommend to use the filter sheets within 36 months after purchase.

Options

In applications of enzymes high cellulase activity cellulase resistant filter sheets (Pat. pend.) are available.

AF 15 or AF 71H are also available in a version with extra high zeta potential: AF 15S and AF 71S. The additional positive charge leads to a higher adsorption of negatively charged particles, such as dye molecules. For pharmaceutical applications we recommend our PURAFIX® sheets (low ion) or PURAFIX® P (low ion/low pyrogen) line. Please contact your local FILTROX dealer.

Your FILTROX dealer:

The information contained in this pamphlet is up-to-date at the time of release. However, each end user is requested to check the suitability of their product(s) with the types of filtration mentioned in this leaflet. Technical modifications are reserved.