



SYNTHAFIX™

DEPTH FILTER SHEETS

Synthetic fiber reinforced filter sheets

Depth filter sheets are used to remove particles from liquids. This means that liquids can be clear-, fine- or sterilization-filtered. For depth filtration filter media of a thickness of 2.5–4.5 mm are required. The particles are retained using two filtration principles: 1. surface filtration and 2. depth filtration. The liquid flows through a three-dimensional, asymmetrical fiber network in the depth filter. The solid components are retained using mechanical and electrokinetic effects. This significantly increases the absorption capacity. The purpose of a filtration process is to produce either a liquid (filtrate) or solids (retentate). Depth filtration focuses mainly on the production of liquid filtrate.

Formats are available from 6 cm round to 2.425 m x 1.215 m square. Practically every format in between is possible, which means they can be installed in any commercially available sheet filter. Depth filter sheets have a particle absorption capacity of up to 4 kg/m². Furthermore, any available filter sheet grade is available as lenticular module (FILTRDISC™, see brochures for DISCSTAR™ and FILTRDISC™ modules).

Material

Filter sheets:

- Cleaned and bleached cellulose
- Natural filter aid (kieselgur, perlite)
- Cationic wet strength agent
- Polymer fibres

Handling

Depth filter sheets are used in sheet filters such as those in the FILTROX NOVOX® range. The sheets (except with NOVOX® OD and NOVOX® CP) must be wettened when fitted into the filter and should be pre-rinsed with 50 l/m² of clean water/buffer for industrial applications and for use in the drinks industry. A pressure difference between inlet and outlet is required to allow flow. The filters are exhausted when the differential pressure exceeds a given value (1–2.5 bar, depending on the porosity and application). With certain applications it is possible for the filter sheets to be regenerated. Please refer to the special instructions for this purpose.

The sheets can be sterilized with hot water (85 °C).

SYNTHAFIX™ SY retention rates

Module type	Retention rate [µm]	Water equivalent* [l/m ² min] Δp = 1 bar	Filtration type
SY 30	12.0–5.0	421–758	Clear
SY 50	6.0–3.0	225–393	Clear
SY 100	1.5–0.6	140–253	Germ reducing
SY 120	0.7–0.4	69–119	Sterile

* does not correspond to the effective flow rate

Bacterial log reduction value (LRV)

Type	Test microbe	Load	LRV
SY 100	Reduction of microbe quantity in filtrate		
SY 120	<i>Serratia marcescens</i>	1.0 x 10 ⁷ /cm ²	>6
Test microbe	<i>Serratia marcescens</i> : ATCC 14756		

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
Acetic acid	Conc.	r	r
Citric acid	10	r	r
Peracetic acid	0.1	r	r
Butanol	80	r	r
Ethanol	80	r	r

r = resistant; lr = limitation in resistance

Extractable materials

FILTROX filter sheets fulfil the requirements of the German Food, Consumer Goods and Feedstuffs Code (Lebensmittel-Bedarfsgegenstände und Futtermittelgesetzbuch – LFGB) Recommendation XXXVI/1 of the Federal Institute for Risk Assessment (Bundesinstitut für Risikobewertung – BfR), and the test criteria of the FDA (US Food and Drug Administration) CFR 21 Section 177.2260. The filter sheets are manufactured under controlled conditions, to guarantee the highest expectations in terms of quality and cleanliness (FDA Drug Master file: DMF #16418).

MCPD and DCP in the wet

strength agent: in accordance with legal regulations

GMO: absent

Allergenic substances: absent

The description of the methods can be found in the filter sheet validation guide.

Quality assurance

Quality checks meet international standards:

- ISO 9001:2008 (quality management)
- ISO 14001:2004 (environmental management)
- ISO 22000 (food safety)
- FDA Drug Master file: DMF #16418
- FDA 21 CFR compliance
- Kosher certificate
- EU safety data sheets can be downloaded from the website.

Packaging

FILTROX filter sheets of all standard sizes are hygienically shrink-wrapped and packaged in boxes. Special packaging (non-standard sizes or unboxed) is available on request.

Storage period and conditions

The sheets must be stored in their original packaging in an odorless, dry and well-ventilated area. We recommend using the sheets within 60 months of the date of manufacture.

Disposal

Untainted sheets can be disposed of with normal household waste. Used sheets must be disposed of in accordance with the type of contamination.