HOBRAFILT® - “R” series sorption depth filter sheets

Characteristic

The sorption filter sheets Hobrafilt® “R” series are in principle three-dimensional depth filters, consisting of adsorbents with a big inner surface and pronounced so called hyper-sorption properties. It exploits the high inner surface of the depth filter sheet which is further activated by suitable chemical groups. They enhance the sorption activity of these sheets towards some impurities by up to two orders of magnitude. This enables the sorption filter sheets to efficiently separate even the smallest colloidal particles and dissolved molecules, which would not be captured by a classical mechanical filter.

Mechanism of filtration

In the process of filtration through filter sheets there are four different below specified filter mechanisms. In praxis pursuant to broad dispersion of the element's size none of these four filter mechanisms occurs by itself in the filtration process, but there is always more or less big overlapping which is finally crucial for the result of filtration.

1. Mechanical filtration - direct filtration of extraneous substances through porous layer – all elements bigger than orifices of filter sheet are caught mechanically.

2. Electrostatical adsorption - small molecular interactions so called Van der Waals forces, which rise between the elements of solution and the material of filter sheet. This way it is ensured that inside the filter sheet in cellules and canals there are caught even elements smaller than the size of the pores.

3. Electrokinetical adsorption - based on the existence of so called Zeta - potential and asserted by the sheets with microbiological effectivity. Excellent effects against electrically negative particles of impurities, microorganisms and viruses suspended in filtrated liquid are reached through the change of natural negative electrokinetical charge of filter sheet to the positive charge - it means Zeta potential. This is reached through the special modification by health unexceptionable polyelectrolytes. Owing to this modification there are caught even particles tenfold smaller than the pores size of filter sheet.

4. Hyperadsorption - huge adsorption on the pore-surface induced by the presence of the active centers which are firmly fixed to the filter sheet surface. In the close proximity of these centers comes to an agglomeration of the attracted particles, i.e. to a process called surface flocculation. Especially because of the effect of coagulation or flocculation the sorption capacity of the pores is greatly enhanced and colloidal particles and anion-active molecules can be separated with 10-100 times higher efficiency than by molecular or elektrokinetical adsorption.

HOBRAFILT® “R” series depth filter sheets - overview:

Type of sheet	Nominal retention micron	Flow rate l/m^2/min. (at 100 kPa)	Thickness mm
S 10 R	0,8	127 - 174	3,5 - 3,7
S 15 R	2	182 - 227	3,5 - 3,7
S 20 R	3	233 - 280	3,5 - 3,7
S 40 R	5	420 - 540	3,5 - 3,7
S 60 R	6	711 - 889	3,5 - 3,7
S 80 R	8	1076 - 1390	3,5 - 3,7
S 100 R	11	830 - 1170*	3,2 - 3,4
S 150 R	20	1630 - 2100*	3,2 - 3,4

* at 30 kPa

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Certifikace:
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FSC