Biological carrier media
For waste water treatment

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An effective waste water treatment facility is an essential premise for ensuring a clean environment. One of the main process steps in a waste water treatment plant involves the degradation of organics by micro-organisms. Just as any living creature these micro-organisms need oxygen to survive. This oxygen is most commonly inserted by air injection directly into the waste water. The process can be improved by adding solid surfaces to the water container. These surfaces give the micro-organisms a place to grow up and their residence time is longer than the one of the water. RVT Process Equipment is delivering the optimum carriers for this application.

No matter whether the process requires biological carrying media for trickling filters, random or suspended beds, all of the following requirements must be fulfilled:

- High specific surface area
- Good permeability of the waste water
- Optimum size and configuration in respect of price and durability
- Suitable to be cleaned by water flowing through
- Non toxic material to ensure the life of the micro-organisms

Carriers for suspended beds

The biological carrying media used in MBBR (Moving Bed Biofilm Reactor) are continuously in motion caused by air injection and recirculating water. The specific density of the carrier media can be adjusted from 0.95 to 1.15 g/cm^3, depending on customers' demand. However it has to be considered that the actual density of the carrying media will increase as the biofilm develops on the media surface.

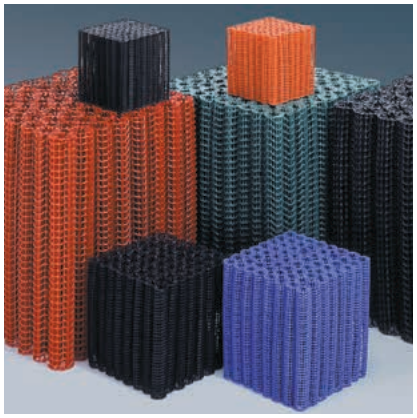
The advantage of the MBBR in comparison to the trickling filters and submerged fixed beds is that it maintains a thinner layer of biofilm on the carrier media which will allow higher specific surfaces. Therefore it is permissible to have smaller reactor sizes which will turn into smaller investment costs while maintaining the necessary degradation of the organic load.

The **Bioflow 9** with its filigree structure shows a very high specific surface area of 800 m^2/m^3. It is mostly used for waste water with low organic load. An example of this might be the waste water of fish farming.

In case the organic load is still higher the **Bioflow 401** will be the right choice. As its size and thus its weight per piece too is higher than that of the type 9 it was necessary to take care of the mechanical abrasion. Due to the drumlike shape the wear resistance is at a high level.

Carriers for trickling filters and submerged fixed beds

These carriers are available both as structured blocks and as random carriers each of which ensuring the flow of water in all directions.
When selecting a carrier next to the weight of itself the organic load must also be taken into calculation. For a high organic load a carrier with a more open structure might be appropriate while for low organic loads a carrier with high surface area might be required.



The Bioflow suspended bed filters from RVT Process Equipment at a glance

Type	specific surface area m^2/m^3	bulk density kg/m^3	dimensions d x h in mm
Bioflow 9	800	145	9 x 7
Bioflow 401	305	92	40/45 x 35

Figures include a tolerance of +/- 5 % due to manufacturing

Materials:

PE/PP recycled
PE, black
PE, virgin
The Bioflow 9 is only available in PE virgin, density is not variable

Carriers for trickling filters and submerged bed filters at a glance

Random packings

Type	specific surface area m^2/m^3	weight kg/m^3
RFK 25L	312	71
RFK 38L	188	51
RFK 50L	148	51
RFK 65L	102	38
RFK 75L	78	36
RFK 15S	437	118
RFK 15SL	602	125
RFK 65S	96	43
RFK 75S	65	30

Materials: PE, black and nature

Structured blocks

Type	block diemensions l x w x h in mm	specific surface area m^2/m^3	weight kg/m^3
RFK 25B	200 x 200 x 200	396	92
RFK 38B	300 x 300 x 300	262	68
RFK 50B	500 x 500 x 600	180	63
RFK 65B	500 x 500 x 600	135	52
RFK 75B	500 x 500 x 600	110	51

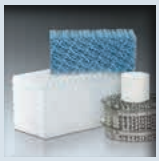
Materials: PE, black

The values indicated above apply for a ratio of diameter of vessel to carriers of D/d >/= 20. All information presented herein is believed to be accurate and reliable but does not constitute a warranty or performance guarantee on part of RVT Process Equipment GmbH.

RVT Process Equipment GmbH
Range of products

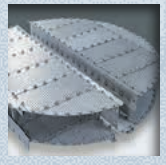
The way to RVT Process Equipment

Tower packings for mass and heat transfer



Structured packings for mass and heat transfer

Column internals



Mass transfer trays

Biological carrier media

Turn-key units for waste gas scrubbing

Ammonia recovery processes

Combustion plants for the disposal of exhaust air, waste gases and liquid media

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Biological Carrier Media
09/2013