Introducing a biocarrier of high surface area (4000 M2/M3), with high BOD removal capacity for use in MBBR and to retrofit existing activated sludge systems.

BioChip Specifications

Protected active surface area	> 4,000 m²/m³
Reference weight per 4,000 m²	170 kg
Surface	porous foam structure
Pore distribution	irregular
Pore size	not defined
Diameter (average)	approx. 25 mm
Thickness (average)	1.0 mm
Shape	circular, parabolic
Outer ring shape-stabilizing	
Material	PE (virgin material) and additives
Color	white
Specific gravity (average)	approx. 0.95 kg/l (without biofilm)
Solubility in water	none
Melting index (190/5)	0.4 – 1.5
Thermal decomposition	> 300 °C
Change of shape	> 80 °C
Hazardous decomposition products	none
Appropriate extinguishing	Water spray, foam, dry powder, CO2
Standard packaging	Big Bags, 255.00 kg net each, or bags, 28.33 kg net each (on request only)
Delivery period	depending on stock availability

TG Water Additives, LLC 12195 Highway 92 Suite 114 PMB #324 Woodstock, GA 30188
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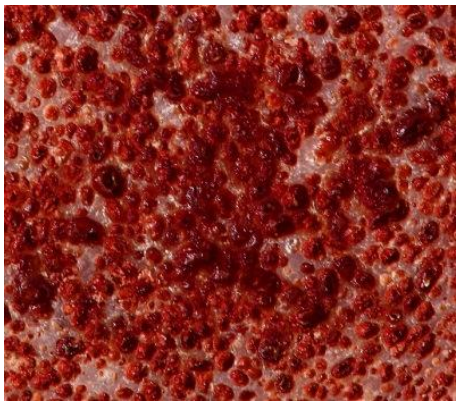


Active Biomass Growing in the Pore System

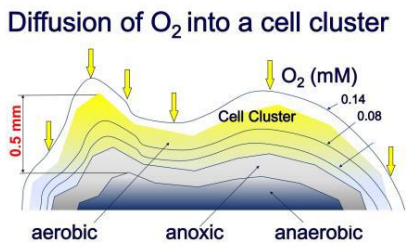
Fill Rate: 10-20%

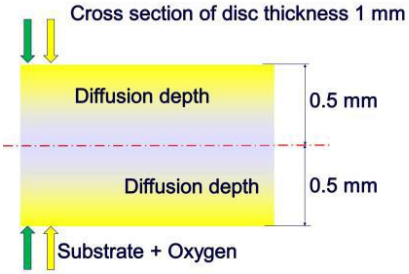
ACTIVE SURFACE AREA AVAILABILITY

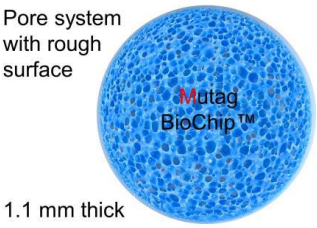
The optimal supply of the biofilms with substrates and oxygen is reached at a layer thickness/depth of up to approx. 0.5 mm.
Hence, the task to be fulfilled by research and development is, among others, to create a surface which allows for the growth of biofilms having a max. thickness of up to 0.5 mm for ensuring an appropriate diffusion.

If the biofilm establishes on an even/plain or smooth surface, it tends to be quickly flushed off and in an uncontrolled way or, respectively, grows on to a thick and uncontrolled biofilm containing inactive biomass in the lower layers. Both cases would be of negative benefit.

The task is the protection of the active biomass up to a layer thickness of approx. 0.5 mm (ideal compliance with the optimal diffusion process) on the one hand and the adherence to the aforementioned layer thickness on the other hand; avoiding excessive growth and too thick layers. Hence, by means of the carrier configuration, it must be managed to create the opportunity to shear off/remove the excess sludge and hence, to maintain a biofilm thickness of up to 0.5 mm.





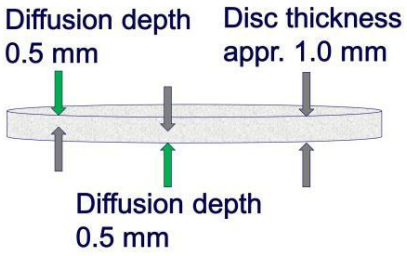


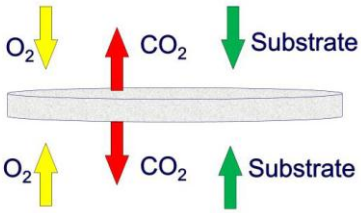
The illustration above shows the O_2 removal up to the anoxic zone

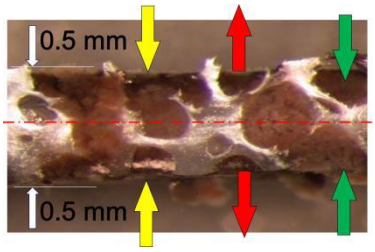
Nearly complete diffusion through the entire disc having a thickness of 1 mm thickness, from both sides

Carrier with active surface and disc thickness of approx. 1.1 mm to fulfill the requirements

When using stable, porous, disc-shaped carriers having a thickness of 1.0 – 1.2 mm, the active biofilm can establish inside of the pores and hence, the supply with substrates can be effected from both sides of the carrier.







Another requirement to be fulfilled is the maximum reduction of wear. In most cases, the reason for the occurrence of wear and abrasion of carriers is the kinetic energy. Any non-elastic, large, heavy, tubular, and hollow-body carriers which possibly even contain a huge amount of dead biomass, show a disadvantageous kinetic behavior compared to lightweight, flexible disc-shaped carriers. Flexible “buffer zones” in the plastic material maximally reduce wear. Additionally, the biofilm serves as lubricant layer.