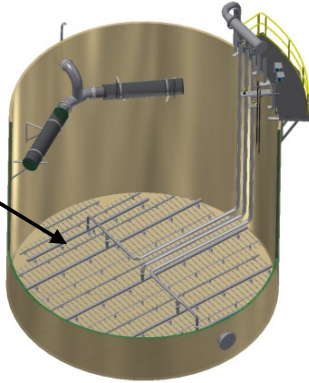


## Mutag MBBR Technology™

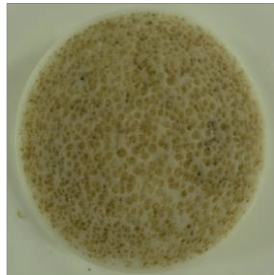
Based on more than 20 years of experience with MBBR systems, MUTAG developed the **Mutag BioChip™** in 2008 which nowadays forms the core of MUTAG's fluidized bed process called **Mutag MBBR Technology™**.



Typical scheme of a MBBR treatment tank



### System components



Mutag BioChip 25™ with biofilm

Aeration system



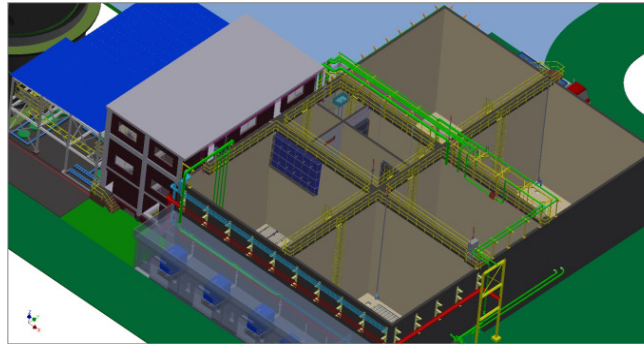
Carrier retention screen



## Design & application

The Mutag MBBR Technology™ is a proven biological treatment process with numerous WWTP operators world wide. A lot of plants using the Mutag MBBR Technology™ have been designed and engineered in basic and detail by MUTAG's high-qualified engineering team.

### 3D-engineering by MUTAG



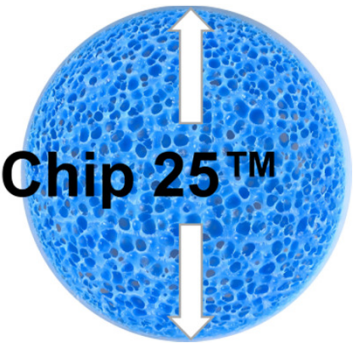
### Trendsetting and sustainable MBBR carrier technology ...

- ☞ pulp & paper industry
  - ☞ municipal plants
  - ☞ coke & steel production
  - ☞ petro and oil industry
  - ☞ food and beverage industry
  - ☞ pharmaceutical & chemical industry
  - ☞ aquaculture industry and fish-farming
- ... and many more!



Mutag MBBR Technology™

## Mutag BioChip 25™



*... for highest performance in biological water treatment*

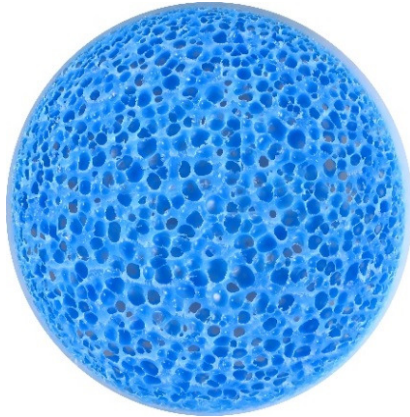


**> 4,000 m<sup>2</sup>/m<sup>3</sup>**  
**> 1,220 ft<sup>2</sup>/ft<sup>3</sup>**

- ☞ best possible removal performance
- ☞ remarkably stable processes
- ☞ small footprints
- ☞ ideal for easy retrofit & upgrade
- ☞ high grade quality
- ☞ long life material, no wear
- ☞ best price-performance ratio

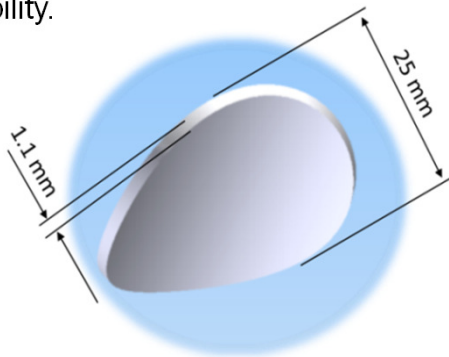
## Mutag BioChip 25™ - the best carrier available -

**Removal rates** of Mutag BioChip 25™ are **up to 10 times higher** than with “conventional” carriers.



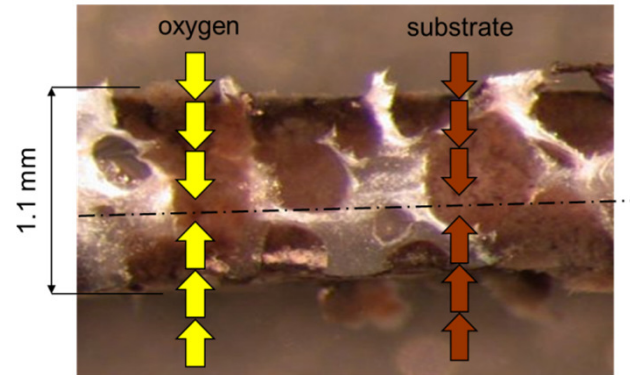
High quality pore system of Mutag BioChip 25™

The **Mutag BioChip 25™** is a high-performance MBBR carrier and provides a protected active surface area of **> 4,000 m<sup>2</sup>/m<sup>3</sup>** for the immobilization of microorganisms which are in charge of the different biological water treatment processes. Its application is characterized by extremely high removal rates and reliable process stability.



Diffusion depth from each side approx. 0.5 mm

The pores of the Mutag BioChip 25™ are permanently filled with active biomass since substrate and/or oxygen can diffuse into the biofilms down to a depth of approx. 0.5 mm on both sides of the chips.



Cross section Mutag BioChip 25™

### Application

Mutag BioChip 25™ is used in the following biological treatment processes:

- ☞ **Denitrification**
- ☞ **Nitrification**
- ☞ **COD removal**
- ☞ **ANAMMOX**



Mutag BioChip 25™ with planctomycetes

### Advantages of Mutag BioChip 25™

- ✓ protected active surface: **> 4,000 m<sup>2</sup>/m<sup>3</sup>**
- ✓ high quality PE material (virgin)
- ✓ optimal pore system and –structure
- ✓ **less carrier volume needed**
- ✓ small footprint system
- ✓ **simple operation**
- ✓ thin, controlled biofilms
- ✓ optimal diffusion of O<sub>2</sub> and substrate
- ✓ **easy upgrading or retrofitting** of existing plants
- ✓ **large diameter (25 mm; 1“)**
- ✓ no abrasion & wear
- ✓ proven technology & know-how  
“Made in Germany”
- ✓ developed and produced by MUTAG
- ✓ **process support** for calculations, start-up and operation by MUTAG



### Contact and more information

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