MUTAG
WATER MATTERS

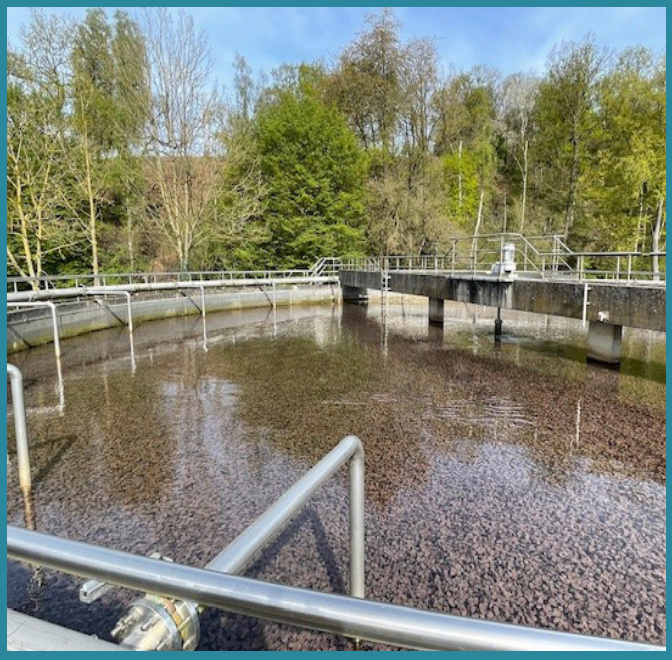
Reference: Aachen, Germany.

Replacement of abraded MBBR carriers at sewage treatment plant

Project:
Substitution of abraded polyurethane (PU) carriers at the sewage treatment plat (STP) in the city of Aachen by Mutag BioChip™ carriers.

Industry:
Municipal sewage.

Facts & figures:
- Replacement of abraded PU (polyurethane) carriers of the biological sewage treatment plant Aachen-Soers
- Q = 458,300 population equivalents (PE)
- 50 % of the load is treated with Mutag BioChip™, corresponding to a flowrate of 1,625 m^3/h
- 180 m^3 Mutag BioChip™ in operation since March 2021



Task:
Replacement of abraded conventional carriers. Before the replacement by Mutag BioChip™, the plant was operated with PU carrier media, which needed to be replaced and re-filled in regular intervals due to loss, wear and tear of the media, leading to recurring costs due to the repeated purchase of new batches of carriers. Furthermore, the abrasion of carriers led to the release of microplastics, which should be avoided for the future.

Solution:
The abraded carriers were replaced by 180 m^3 Mutag BioChip™ carriers. Due to the light weight of each carrier disk, the impulse transferred on the carriers when colliding with each other or the tank wall is that insignificant, that no wear and tear is to be expected. Furthermore, the Mutag BioChip™ provides a flexible property, making it less prone to fractions when colliding, and has an outer protection ring. Furthermore, the biofilm that establishes in the pore system of the Mutag BioChip™ creates a lubricant layer on the carriers, which serves as an additional buffer against mechanical stress when colliding, whereas wear and tear is being minimalizing and can be nearly excluded.

Results:
The biological sewage treatment plant is in operation until today, whereas the discharge quality requirements of the plant, inclusive of the post-nitrification stage operated with Mutag BioChip™ carriers, have been safely attained since the retrofitting until today. The carrier media is being inspected by Mutag in intervals of two years, whereas no signs of wear and tear could be observed so far.

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