AQUA-RM® / CARBOPLUS®

The winning combination for the removal of hazardous substances and micropollutants.

The combination of the **AQUA-RM®** submerged plate membrane bioreactor and **CARBOPLUS®**, a continuously renewed fluidized activated carbon reactor, represents the best available technique for the comprehensive treatment of pollutants and micropollutants in urban or industrial wastewater.

Among biological treatments, **AQUA-RM®** is the optimal solution prior to any specific tertiary treatment for micropollutants, thanks to:

- Retention of all suspended solids by the membrane.
- Maximum removal of organic matter through biological processes, including the dissolved phase, significantly reducing interactions of downstream treatment with the organic matrix of water.
- Consistent and reliable water quality output from **AQUA-RM®**, preventing any pollution of the downstream process and ensuring sustainable results.

A patented process by Saur/Stereau, based on technologies used in drinking water treatment, **CARBOPLUS®** excels in capturing micropollutants through the adsorption of undesirable by-products.

The exceptional removal performance of **CARBOPLUS®** stems from:

- The large mass of fluidized activated carbon in the reactor, providing an unmatched surface area for contact with water.
- Continuous but low renewal of activated carbon to maintain constant and optimal micropollutant removal properties.

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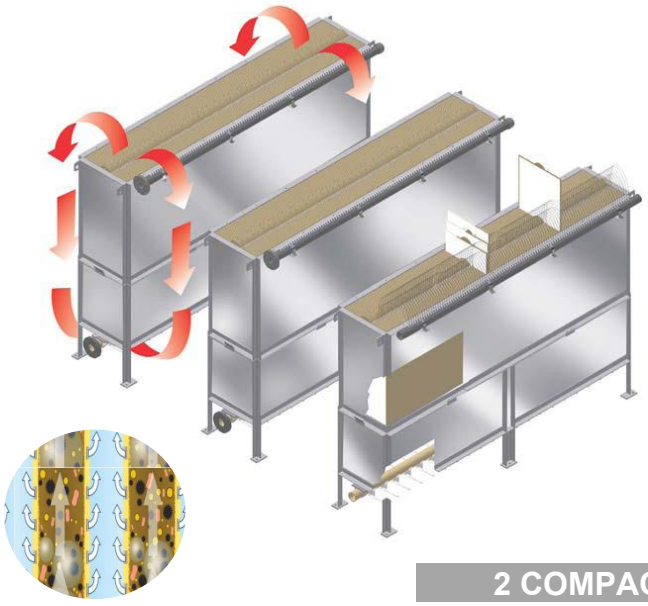

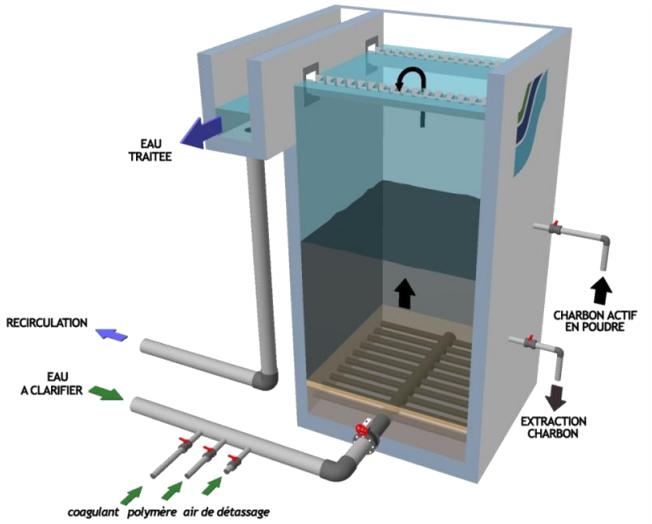

2 COMPACT TECHNOLOGIES

Membrane bioreactors offer higher pollutant and micropollutant removal efficiencies compared to conventional installations. This improved performance is not only due to the quality of effluent filtration but also achieved on the dissolved portion of the effluent. This enhanced performance, compared to tertiary filtration, is a result of various phenomena related to:

- Higher concentration in the reactor
- Generally higher sludge age
- Slightly different biomass compared to conventional installations

In the **AQUA-RM®**, all biomass produced is retained within the biological process through filtration, unlike in conventional installations where biomass is selected based on its settling ability, and the light or poorly flocculated biomass fraction is continuously discharged.

FEATURES

- No formation of toxic or mutagenic by-products
- Ability to handle spikes in micropollutants
- Metal or concrete construction, depending on dimensions
- Compact process with small footprint
- Range of reactor sizes from 2 to 450 m3/h per unit
- Cost-effective operation: low chemical consumption and use of readily available chemicals

CARBOPLUS® provides a treatment efficiency that cannot be achieved with Granular Activated Carbon (GAC) filtration or a simple contact reactor (CAP). This process can be implemented using either Granular or Powdered Activated Carbon (GAC or PAC). In both cases, treatment is carried out by a fluidized bed of Activated Carbon.

The significant mass of Activated Carbon in contact with water, achieved through a fluidized bed with several grams per liter and continuous renewal of the carbon, offers the following benefits:

- **Through ADSORPTION**, it delivers advanced and consistent removal performance for micropollutants (such as pesticides, pharmaceutical residues, hormones, etc.), unlike GAC filtration.
- **Through COAGULATION**, in the case of **CARBOPLUS®** Powdered version, it provides enhanced removal of molecules such as Glyphosate, AMPA, and hydrophilic pesticides that are resistant to adsorption on activated carbon.

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