

# Wastewater Treatment



## Wastewater Treatment

### Challenge

Due to more stringent requirements for wastewater discharge, the disposal cost of municipal and industrial wastewater is increasing. In addition, in some areas, the use of groundwater is being limited to prevent dehydration of the soil, which could have a destructive influence on nature's flora and fauna. With these factors in mind, the need for a closed water cycle is increasing rapidly. For efficient wastewater treatment, the Membrane BioReactor (MBR) has been developed.

### Solution

The Norit Airlift™ MBR is a compact-built purification system combining the biological degradation step with a membrane separation step. This combination offers several significant advantages over a conventional activated sludge system, including higher biomass concentration and less sludge carryover. The higher biomass concentration results in a more compact system. The decrease in sludge carryover reduces the need of post-treatment of the effluent.

The Norit Airlift™ MBR configuration offers an ultrafiltration (UF) membrane solution placed outside the reactor allowing the maintenance of the plant to be simple and clean. The side stream setup allows easy expansion of existing wastewater treatment plants. Energy consumption is at the same level of submerged membranes or even less, due to the efficient use of process conditions for flux enhancement. Norit X-Flow's tubular 5 mm UF membrane allows a bioreactor to run up to 15 g/l MLSS biomass.



**MBR**

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## Benefits

- Membrane placement  
• Permeate quality
  - Maintenance & cleaning
  - Airlift filtration Low energy
  - Fully automatic operation
  - Atmospheric system
- Outside the bioreactor
  - True ultrafiltration
  - Turbidity < 0.1 NTU
  - Silt Density Index < 3
  - Accessible & clean environment
  - Fully automated cleaning
  - Use of low cost chemicals
  - < 0.25 kWh/m<sup>3</sup>
  - Simple layout
  - High flux rates
  - Low TMP
  - Logging of operating parameters
  - Fully enclosed
  - No operator exposure to fumes or aerosols
  - Small footprint

## Applications

- Municipal (typical application)
- Industrial (only for specific applications)
  - Beverage industry, where high COD loads need to be reduced
    - breweries
    - dairy plants
    - malt houses
  - Leachate, effluent coming from landfill sites
  - Other industries
    - automotive
    - chemical
    - textile



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X-Flow BV reserves the right to make changes in the technical specifications at any time.

## MBR

**Norit**  
leading in purification

**X-Flow**