

# Gas Transfer Membrane Solutions

The PureFlow De-Aeration solutions from Envirogen are used around the world for the deoxygenation of water and other liquids. Oxygen and its corrosive properties can negatively impact many stages in the manufacturing process, Envirogen's bespoke solutions meet clients needs according to the application, project and budgetary requirements.

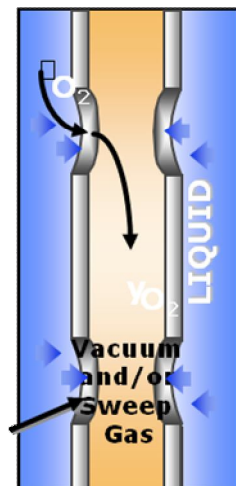
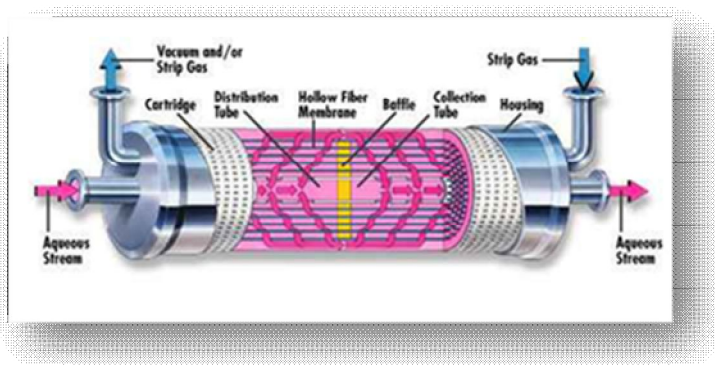


## De-Aeration Technology

**De-eration and de-gassing technologies are typically** used to remove or add atmospheric gases such as oxygen and carbon dioxide from liquids. Probably the most common application is the de-aeration of water to reduce the oxygen content. This is carried out by using a hydrophobic membrane.

### Gas Transfer Principles

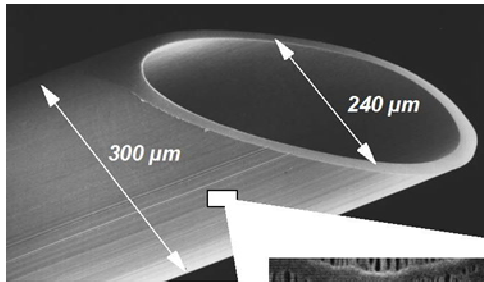
- Gasses in the atmosphere dissolve into water until equilibrium is reached
- Equilibrium between the liquid and gas phase is offset when a vacuum and/or source of strip gas is applied
- This creates a driving force to move gasses from the liquid phase into the gas phase



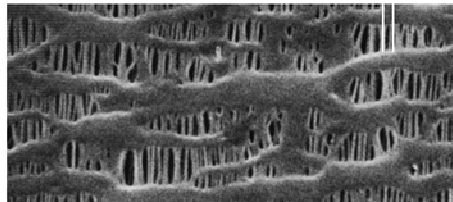
Liquid / gas contact area at the pore

## Principle

Water is passed through a chamber containing a large number of extremely small bore tubes which are manufactured in a gas porous, hydrophobic, FDA conforming plastic. A sweep gas under vacuum passes through the small tubes counter-current to the water. Gases such as Oxygen, Carbon Dioxide, and even Hydrogen pass from the water into the small tubes via microscopic pores.



Microscopic view of the tube  
0.005 μm



## Benefits

- GMT contactors can be configured in series or parallel to meet design specification
- Small footprint and modular design are space efficient and allow flexibility for increases in capacity or performance
- Lower operating costs
- No chemicals required – no contaminant introduction
- Low maintenance requirements
- Low pressure drop can eliminate repressurisation pump costs
- Predictable and Reliable performance
- Ideally suited for replacing degassers downstream of reverse osmosis
- Gas Transfer Membrane can add, reduce or control concentration of dissolved gasses.



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