

PLATE MEMBRANE BIOREACTOR WASTEWATER TREATMENT SYSTEM

The Plate Membrane Bioreactor (MBR) Solution that is offered by Light Environmental is a combination of an activated sludge process characterized by a suspended growth of biomass, with a plate membrane filtration system designed to separate extremely fine particles. Membrane technology has been successfully used for over 50 years in the purification of water.

Effluent from our Plate Membrane Bioreactor technology is suitable to meet strict discharge limits or even for direct reuse. These wastewater treatment systems are significantly smaller than traditional systems and are designed to allow for simple incremental growth or large structural expansion. MBR technology provides for separation of the clean permeate directly inside the activated sludge, as opposed to, phase separation seen in a traditional clarifier. This allows the sludge to become more concentrated and to be wasted in much higher levels. This substantially reduces the amount of water that needs to be processed.

The effluent passes through a membrane barrier. This positive barrier ensures the highest quality effluent. Light Environmental's Plate Membranes do not require the extensive and continuous cleaning procedures and equipment required by hollow fiber membranes. Air separation equipment, dip tanks, and secondary screening are also not required; therefore, plate membrane systems require fewer components.

Membrane Bioreactor systems use multiple recycle zones. This provides for a superior level of process control that is not found in other traditional MBR systems. MBR systems are designed to operate efficiently in activated sludge from 5,000 MLSS to over 20,000 MLSS. Traditional MBR systems focus on operating in a much narrower range.



Major Advantages to our Plate MBR (PMBR) versus Kubota's PMBR:

- Our membrane material was developed to operate directly in the ultra filtration range and does not use the biofilm filtration process. The Kubota membrane is a micro filter (0.4 microns) that requires a biofilm to operate effectively in the UF range as a MBR.
- Our PMBR was developed using PVDF, a substance similar to Teflon, which resist any attachment by activated sludge. The Kubota PMBR uses Chlorinated Polyethylene that does not resist the attachment of activated sludge. PVDF has superior chemical resistance and strength as compared to polyethylene.
- Although the size of membrane holes for our PMBR are smaller than the Kubota membrane (average 0.08 micron for our PMBR vs. 0.4 micron for Kubota), the total number of holes and the uniform dispersion of holes for our PMBR provide for greater flow area. Clean water tests between Kubota and our PMBR have shown a 25% to 50% increase in flow capability for the Unibrane.
- The standard size of our PMBR membrane sheet is 33% larger than the standard size of the Kubota membrane. This allows for more wastewater treatment in a smaller area.
- Our PMBR requires significantly less scouring air than the Kubota membrane. Both the Unibrane and the Kubota membrane are designed to operate with about 0.5 SCFM for each membrane plate (half this amount for double deck operations). Our standard PMBR membrane sheet has 33% greater area than the Kubota membrane. The Unibrane is designed to operate with cycling air (10 seconds on – 10 seconds off). This reduces the total scouring air by approximately 50% as compared to Kubota.

Learn More

To learn more about our Plate Membrane Bioreactor Solution or any of our other wastewater solutions, please visit our web site at www.lightenvironmental.com or call our Corporate Sales Office at: 1-816-537-9190.

We look forward to providing your next wastewater solution.

LIGHT ENVIRONMENTAL, INC.

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