Application Note
Membrane Biofouling Index

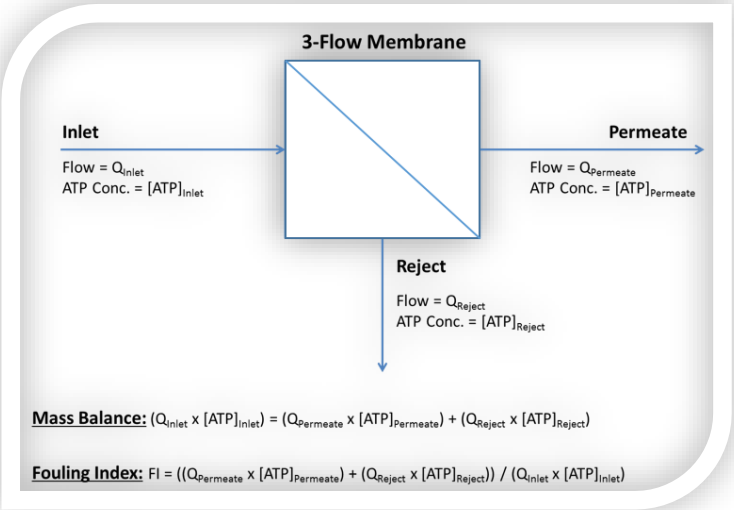
Membrane filtration is becoming a very popular alternative to conventional water treatment to utilities and industries that lack space for expansion or simply want an all-encompassing solution that addresses multiple water quality challenges.

From reverse osmosis to ultra-filtration to microfiltration, there is a common problem that always seems to come up: fouling. Fouling can come from a number of sources, including chemical scaling and physical particle impingement. But the most common type is also the hardest to resolve: biofouling.

Biofouling – Nature's Glue

Biofouling occurs when microorganisms get pushed onto the membrane surface and form biofilms – communities made up of countless bacteria and other creatures that secrete extra-polymeric substances (EPS), which is basically a form of glue. Once biofouling has taken hold in your membrane, it is next to impossible to eliminate – you now must manage its propagation.

When it comes to monitoring and thus managing microbiological fouling, we turn to the principles of the mass balance for help. A mass balance operated with the principle that whatever goes into a process must come out – unless it accumulates, or in this case, grows. When you have more biomass leaving your membrane process than was going in, you know you have a problem that requires mitigation through cleaning or outright membrane replacement.



The 2nd Generation ATP test from LuminUltra can be used to quickly and comprehensively establish the mass balance in your process. Simply measure all points entering and exiting the membrane process, compute the ratio of ATP out to in, and calculate your MBI. Take action at the earliest possible instance and protect your investment!

To learn more, contact us at sales@luminultra.com or check out our technical papers[1,2] describing the Membrane Fouling Index (MBI) and how our customers have used it to reduce operating costs and prolong membrane life.

1. Tracey, D., Long-term Benefits of Enhanced Biological Monitoring Strategies on Membrane Filtration Operations, AMTA 2015.

2. Whalen, P., The Benefits of Enhanced Biological Monitoring Capabilities for Membrane Treatment Optimization, SIWW 2014.