



Technical Bulletin 102

Evaluating Your Diffuser
Membrane Supplier

by:

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BULLETIN BRIEF



Purchasing membrane diffuser units is a significant investment decision.

To effectively evaluate and purchase the best membrane diffuser units requires knowing their quality and performance capabilities.

Environmental Dynamics International (EDI) offers membrane diffuser units and replacement membrane products that provide superior performance and service life while reducing energy consumption and routine maintenance requirements.

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TECHNICAL BULLETIN 102 – EVALUATING YOUR DIFFUSER MEMBRANE SUPPLIER



There are many manufacturers of membrane diffusers throughout the world.

To create a diffuser in its most basic form, many manufacturers simply cut holes in a rubber hose or tube. Not surprisingly, this approach means many diffuser properties are under-engineered, namely:

- Mechanical properties of the base membrane material.
- Mechanical requirements of the perforated membrane.
- Polymer formulation for specific performance requirements.

Properly engineering these critical design elements into the membrane material ensures superior performance for the intended service and avoids premature and costly failures and replacement.

Typical design requirements for membrane diffusers include:

- High oil concentrations in oily wastewaters.
- High temperature conditions.
- High airflow applications for lowest capital cost.
- Maximum operating efficiency at low air rate conditions for lowest energy use and lowest total cost of ownership.

Besides considering the engineered properties of the membrane diffuser and matching those characteristics with their intended application, it is also essential to understand the capabilities and resources of the diffuser manufacturers under review. When comparing the value offered by different manufacturers, you'll need answers to the following questions:

- How many years has the company been manufacturing membrane diffusers? (EDI has been manufacturing membrane diffusers since 1988 and fine bubble equipment since 1978).
- Can the manufacturer supply quality membranes specifically formulated for municipal, industrial, or specific wastewater applications? (EDI can).
- Does the supplier carry adequate inventory to address emergency product needs? (EDI inventories many membrane components in a variety of sizes, models, and materials).
- Can the membrane manufacturer supply specialty membranes on request? (EDI routinely custom-designs and delivers diffuser membranes, regardless of size, material, or capacity).
- Does the vendor offer membrane evaluation services? (EDI offers a membrane evaluation program complete with test equipment for difficult or unusual wastewaters. Field-testing will verify and optimize the selection of membrane material and provides an opportunity to demonstrate the performance capabilities of the products).

- Are application design services available? (EDI provides full process and application design and technical support to ensure the aeration system meets the design objectives of your application).

EDI formulates and recommends:

- EPDM membranes for most domestic wastewater applications.
- Matrix and Matrix Plus membranes incorporating PTFE in exposed surfaces to improve resistance to fouling and chemical attack.
- Nitrile and urethane membranes to provide superior service in oily wastewater applications.
- Silicone-based compounds for excellent performance in high temperature applications.
- Neoprene and other specialty polymers for other industrial or unusual wastewater applications (the ability of the manufacturer to engineer the membrane material is critical because there is no one “universal” product that can be applied to all wastewaters).

Systems:

- Does the membrane manufacturer offer a full spectrum of diffusers including panels, discs, and tubes?
- Can the manufacturer deliver membrane diffusers in proper configurations?
- Can the manufacturer offer system responsibility including design, installation, extended warranties, and extended service and maintenance programs?

