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MF Membrane FILPLATE for Water Treatment

FILPLATE

■ Contact:

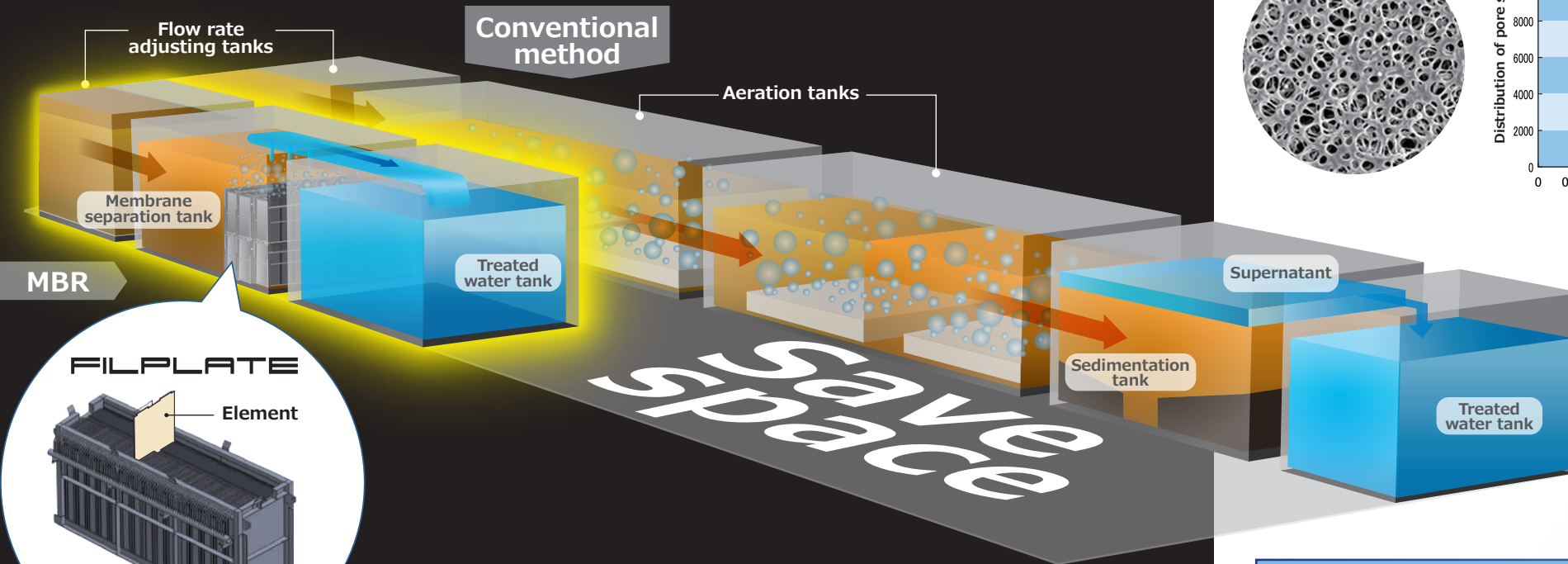
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MF Membrane FILPLATE for Water Treatment

FILPLATE

Conventional waste water treatment required large aeration and sedimentation tanks. Furthermore, the supernatant in the sedimentation tank—which is susceptible to suspended substances—is sent to the treated water tank. These problems are solved with FILPLATE, MF membrane for water treatment developed by Toyobo* based on its wide variety of membrane separation technologies. FILPLATE provides clean treated water and helps to reduce the size of facilities. FILPLATE provides sustained filtration performance and stable operation, plus high maintainability.



* Toyobo's membrane technologies include seawater desalination (RO) membranes, dialysis membranes, virus removal membranes, and ultrafiltration (UF) membranes for drinking water, with high market share for seawater desalination in the Middle East and other regions.

Element structure that contributes to operating stability

Elements are designed to reduce the unevenness of internal flow, enabling stable operation for extended periods. (Use of simulation technology)

Image of FILPLATE element

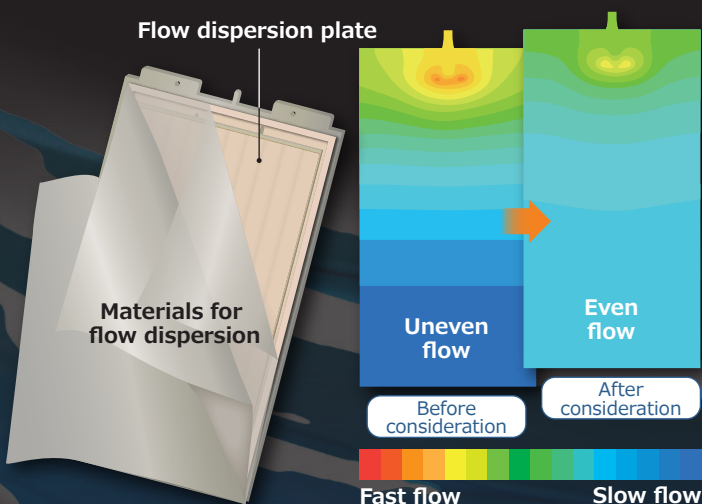
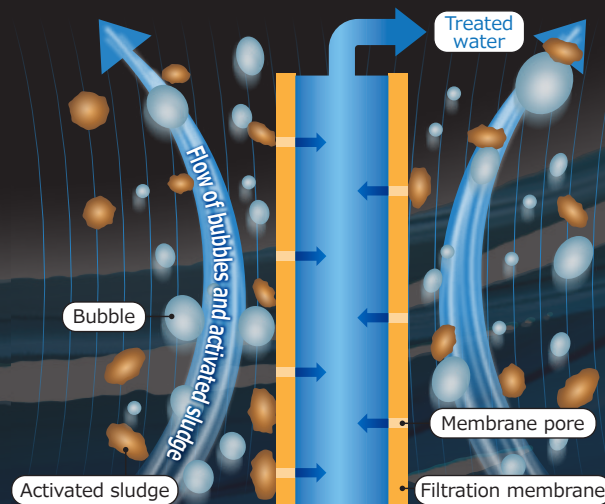


Image of membrane separation in activated sludge

The membrane element separates treated water from activated sludge, while the upward flow and bubbles during aeration pull away the sludge that tends to attach to the membrane.

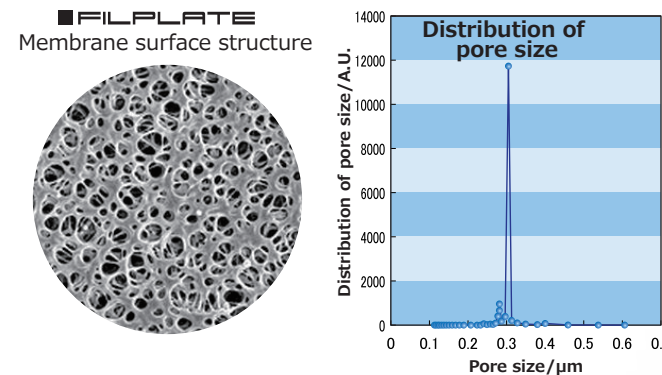
Cross-sectional image of element



Membrane Technologies

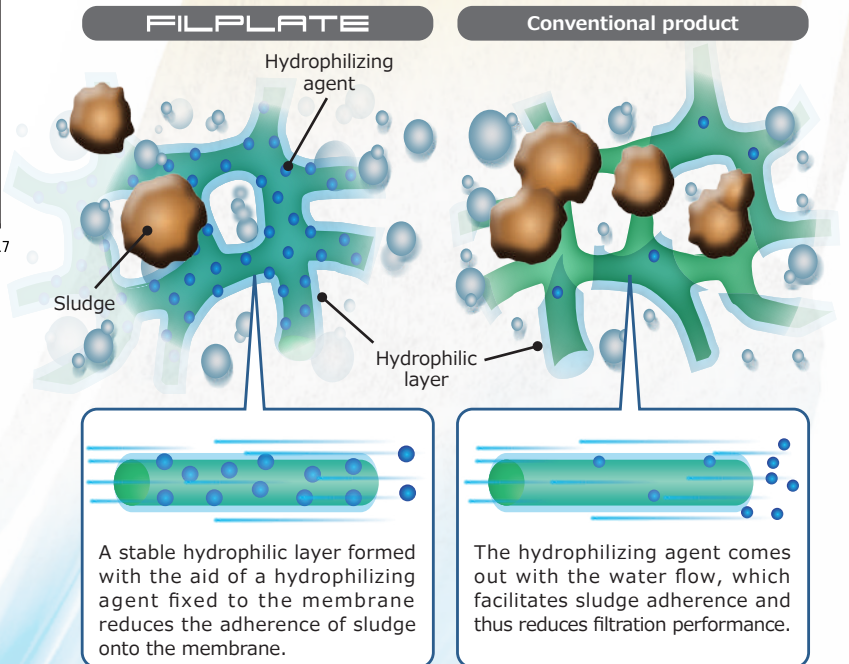
Advanced membrane forming technology

FILPLATE has high porosity and a uniform distribution of consistent pore size. This feature reduces the load on fine pores in the membrane during water treatment, ensuring stable separation.



Proprietary technology for sustained high performance

FILPLATE features proprietary hydrophilicity technology. Hydrophilic treatment is required to develop the performance of water treatment membrane. With conventional technology, however, the hydrophilizing agent tends to shed, and the resultant decrease in hydrophilicity allows sludge to adhere and accumulate, thus reducing the water treatment performance. FILPLATE uses a special durable hydrophilic treatment technology (patented) to increase the persistence of membrane performance.



Features & Benefits

Membrane that facilitates removal of adhering sludge

As filtration is continued over extended periods, sludge adhered to the membrane surface and reduced treatment performance.

With FILPLATE, sludge adhering to the surface tends to come off easily. This feature minimizes membrane performance degradation due to fouling and allows for stable membrane filtration over extended periods.

Sludge remaining after physical cleaning, on a membrane used for a year

(Used for general sewage treatment, including physical cleaning with sponge)



FILPLATE

Conventional membrane

Reduced maintenance workload

Membrane performance compared in Toyobo's laboratory test using A4-size elements (MLSS in 10000 mg/L · glucose source water · water temperature 30°C)

Days to reach 30 kPa of trans-membrane pressure

RUN		I	II	III
Condition	Flux	0.6 m/D (continuous)	0.8 m/D (intermittent)	
	Aeration flow rate	2 L/min/element	4 L/min/element	6 L/min/element
FILPLATE		23 days	12 days	24 days
Conventional product A		9 days	4 days	4 days
Conventional product B		8 days	3 days	2 days

Compared with conventional products, the trans-membrane pressure due to sludge accumulation increases more slowly, which leads to reduced maintenance work such as membrane cleaning.

(Note: The results vary depending on various conditions and factors.)