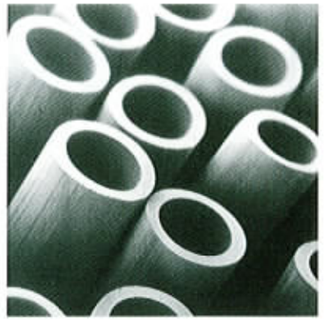
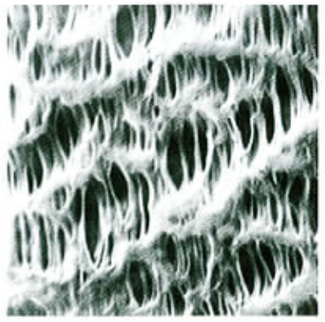
The Hollow Fiber Membrane Used in SteraporeSUN™ Membrane Units



Enlarged view of hollow fiber membranes (outside diameter, 540 μm)
The polyethylene membranes are highly resistant to flexural fatigue.



SEM image (5,000 ×) of hollow fiber membrane surface
Because the membranes have been made permanently hydrophilic, they can be stored dry and do not need to be pre-wetted prior to use.

Membrane bioreactor (MBR) is registered as "A Technical List" of Japan Sewage Works Agency as the technique which can be applied for sewage treatment plants in November 2001.

Caution

Please read the manual (technical data and attached instructions) before using the unit.

- When suspending the membrane unit from a hoist or other piece of equipment, make sure to do so only under the supervision of qualified personnel.
- Always wear the required protective apparel when chemically cleaning the membrane.
- Attach supports as needed to reduce the shaking of pipes by air during aeration.

Product shape and specifications are subject to change without prior notice for the sake of improvement.

MITSUBISHI RAYON ENGINEERING CO.,LTD.

MITSUBISHI RAYON ENGINEERING CO., LTD. Membrane Products Dept.
6-41, Konan 1-chome, Minato-ku, Tokyo 108-8506, Japan
Phone: +81(3)5495-3152/Fax: +81(3)5495-3217/E-mail: membrane@mrc.co.jp
URL: http://www.mrc.co.jp/mre/sterapore/

Sep04-2000(OM)C

SteraporeSUN™ Membrane Unit

Hollow Fiber Membrane Unit for Membrane Bioreactor

The SteraporeSUN™ membrane unit is a new type of hollow fiber membrane unit designed specifically for the membrane bioreactor—one of the key technologies in modern water treatment facilities.

MITSUBISHI RAYON ENGINEERING CO.,LTD.

Sterapore™ is utilized at wastewater treatment plants in the world.

The Membrane Bioreactor: At the Forefront of Modern Wastewater Treatment Technology

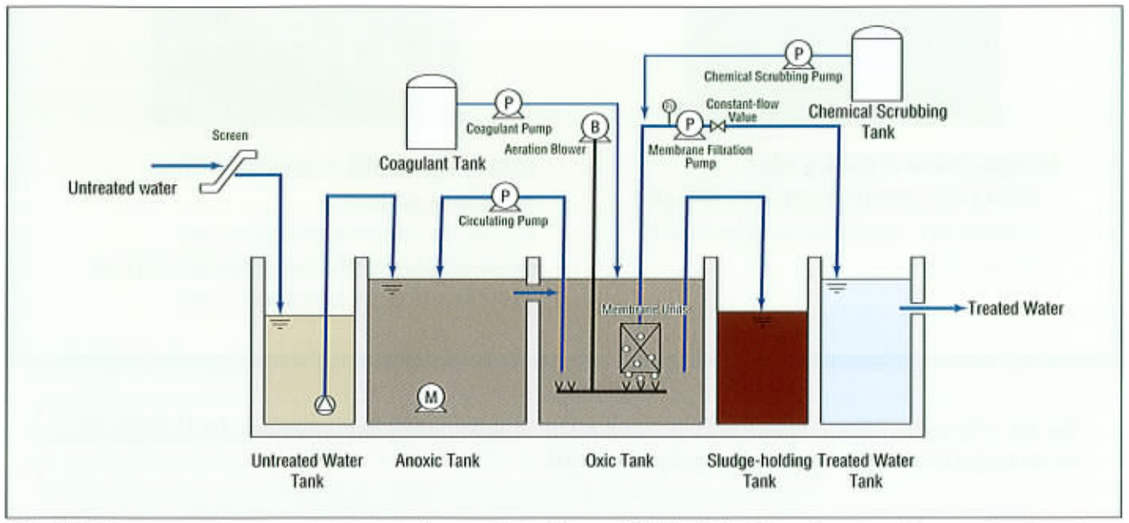
Membrane bioreactor (MBR) technology has been used around the world for its ability to create safe and pleasant environment. MBR is utilized to make safer and more comfortable lives in the world. The stackable hollow fiber membrane unit for MBR of Mitsubishi Rayon can be adopted to handle higher throughputs in sewage or wastewater treatment plants. Mitsubishi Rayon has developed the new units SteraporeSUN™ series with much easier maintenance.

Features of the SteraporeSUN™ Membrane Unit

- The water-collecting pipes of the unit form an L-shaped module, making attachment and removal easy and greatly reducing the time required, thereby sharply lowering maintenance costs.
- 4 SteraporeSUN™ series have been developed: SUN21034AAD7; SUN21034LAN; SUN21034LAP and SUNAAD7. See the Specifications.
- The membrane element has an ideal construction in which effective use is possible in all the hollow fiber membrane area.
- O-ring connections are used for easy replacement of the membrane element.
- Large membrane units can be assembled, making it possible to easily accommodate large throughputs.
- The newly developed water-collecting pipes are made of plastic and the total number of components has been reduced, thereby further lowering costs.

SteraporeSUR™ Membrane Element

Flow Diagram of MBR in Use



Note: This diagram presents an example of water treatment using the SteraporeSUN™ unit. For information on specific examples of use, please ask for our "Sterapore™ Water Treatment Case Reports."

Major Applications for SteraporeSUN™ Membrane Units

Domestic wastewater treatment, Sewage treatment

Industrial wastewater treatment (Food-manufacturing plant wastewater, Beverage plant wastewater, Livestock wastewater)

Specifications

( ) Specifications of Unit equipped with SUR234L Elements

Products Names	SUN21034AAD7 (SUN10534AD7)	SUN21034LAN (SUN10534LN)	SUN21034LAP (SUN10534LP)	SUNAAD7 (SUNAD7)
Module type	SUR334LA* (SUR234L)			—
Hollow fiber membrane	Polyethylene micro porous hollow fiber membrane			—
Pore size	0.4 μm			—
Size (D×W×H mm)	725×1,538×1,442 (678×1,538×1,442)	614×1,538×1,092 (536×1,538×1,092)	614×1,538×1,442 (536×1,538×1,442)	711×1,538×350 (673×1,538×350)
Mass**	184kg (175kg)	142kg (140kg)	157kg (155kg)	42kg (35kg)
Effective membrane surface area	210m² (105m²)			—
Water-collecting pipe material	ABS resin			—
Sealing material	Polyurethane resin			—
Frame material	SUS304			
Maximum trans-membrane pressure	30kPa or lower [See technical data for normal trans-membrane pressure]			—
Normal operating temperature	0–40°C			
Standard treatment volume***	52.5m³/day (26m³/day)			—
Standard aeration rate	66～99Nm³/hr (57～84Nm³/hr)			
Remarks	With rubber aeration pipes that has many slits on the surface	Without aeration pipes [For upper layer]	With polyvinyl chloride aeration pipe that has round holes	Rubber slits type aeration pipe unit

* Standard Units are equipped with SUR334LA Elements
** Dry mass
*** Assuming operation is conducted according to the manufacture's manual