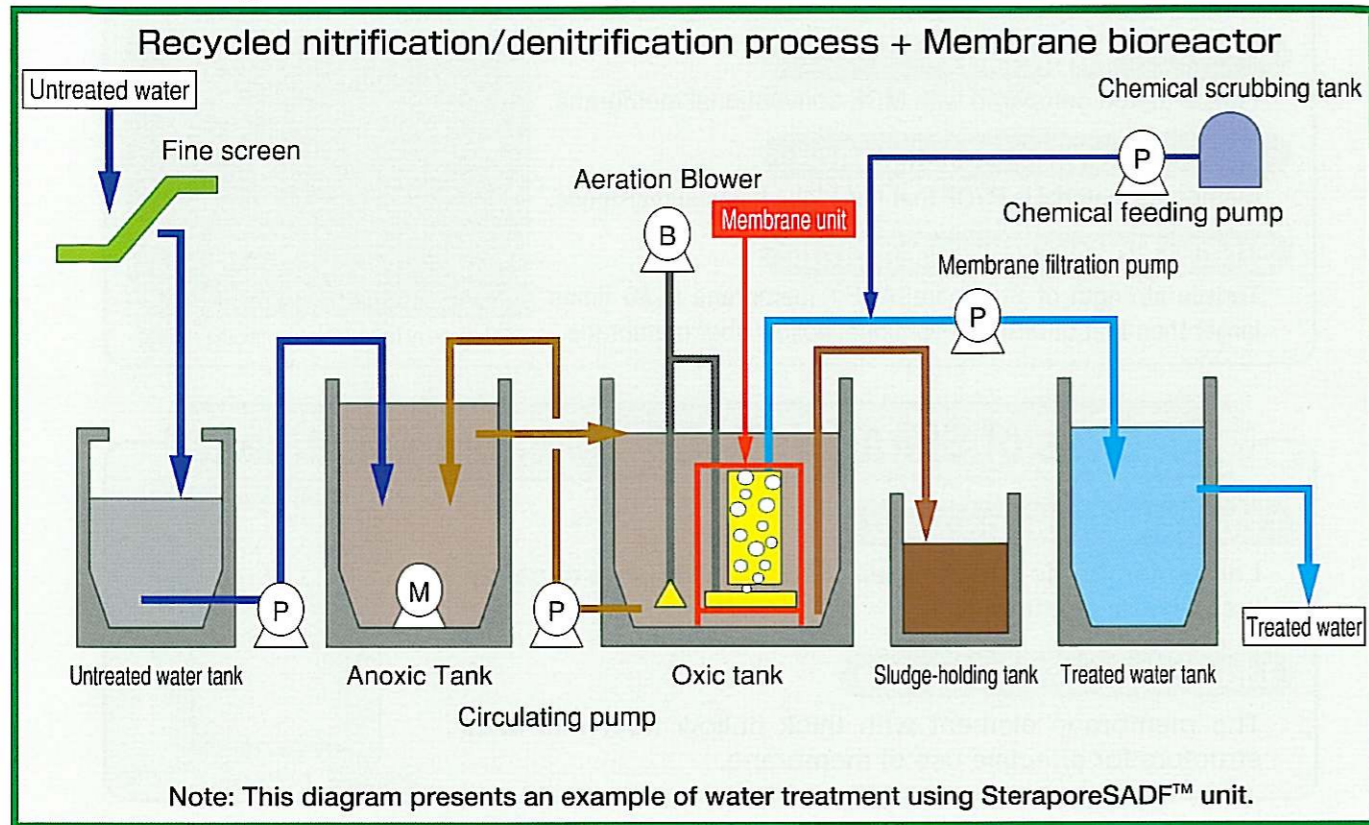


# Flow Diagram of MBR (Membrane Bioreactor) in Use



## SteraporeSADF™

Hollow Fiber Membrane Element and Unit  
for large capacity wastewater treatment  
by Membrane Bioreactor

### CAUTION

Please read the manual before using the SteraporeSADF™.



- When moving the membrane unit by 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 pipe 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.

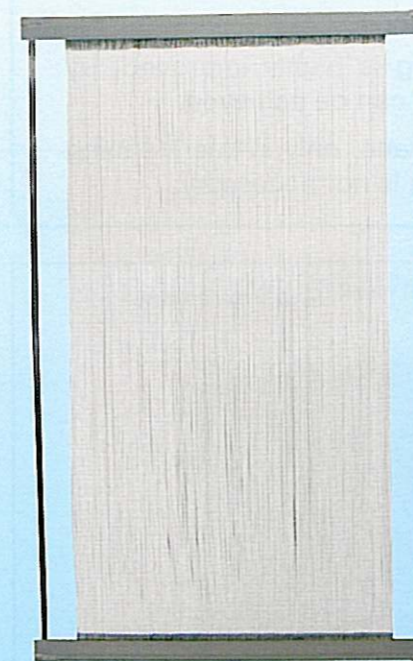
Membrane Products Dept.

6-41, Konan 1-chome, Minatoku, Tokyo 108-8506, Japan

Tel: +81-3-5495-3152 Fax: +81-3-5495-3217

E-mail: membrane.mre@mrc.co.jp

URL: <http://www.mrc.co.jp/mre/>



SADF2590A



SAA50090APE06

 MITSUBISHI RAYON ENGINEERING CO., LTD.

# SteraporeSADF™, advanced Membrane Unit most suitable for large capacity wastewater treatment by MBR.

Membrane bioreactor (MBR) technology has been used around the world for its ability to create safe and pleasant environment.

SteraporeSADF™ Membrane Unit for MBR developed by Mitsubishi Rayon Engineering (MRE) materializes saving space / energy and easy maintenance, which can be adapted to large capacity wastewater treatment facilities.

## Features of SteraporeSADF™ Membrane Unit

### High Volume Efficiency

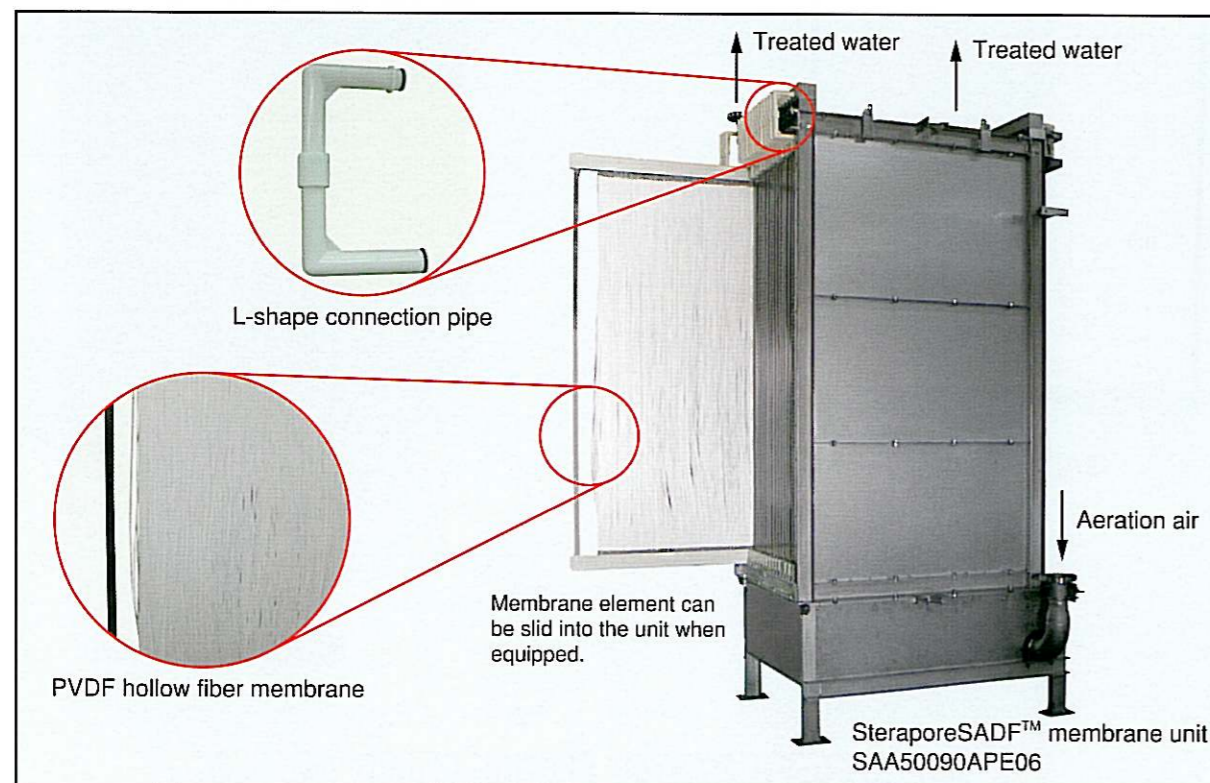
High flux type hollow fiber membrane made of PVDF developed by MRE enhances treatment capacity per unit volume, and achieves saving space.

### Saving Energy

- Volume efficiency is highly improved, so that needed air volume for scrubbing the membrane surface can be reduced to 2/3 (compared with MRE conventional membrane).
- The treatment volume per membrane surface area is tripled (compared with MRE conventional membrane), and necessary number of units can be greatly reduced. More over, the space for unit installation can be decreased with simplified ancillary equipment.

### Easy Maintenance

- Cleaning efficiency of the membrane by scrubbing is highly improved, by which stable operation for a long term with high flux can be achieved.
- Owing to high chemical resistance of PVDF membrane, only in-line cleaning is required in the system. Generally, off-line cleaning is not necessary.



## Features of SteraporeSADF™ Membrane

### High Flux

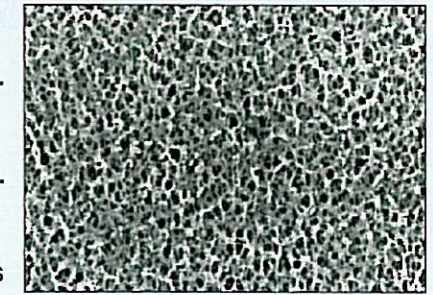
Flux is tripled compared with MRE conventional membrane.

### High Chemical Resistance

Membrane material is PVDF that has high chemical resistance.

### Strong Hollow Fiber Membrane

Tensile strength of SteraporeSADF™ membrane is 60 times larger than that of MRE conventional hollow fiber membrane.



SEM image of hollow fiber membrane surface

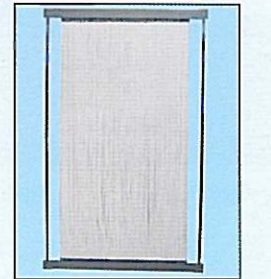
## Features of SteraporeSADF™ Membrane Element

### Large Membrane Area

Large membrane surface area is suitable for large capacity wastewater treatment.

### Ideal Element Structure

The membrane element with thick hollow fiber has ideal structure for effective use of membrane.



SteraporeSADF™ membrane element SADF2590A

## Standard Element Specifications

Product name	SADF2590A
Hollow fiber membrane	Polyvinylidene fluoride (PVDF)
Pore size	0.4 μm
Element size (D×W×Hmm)	30×1,250×2,000
Dry mass	16kg
Effective membrane surface area	25m <sup>2</sup>
Water-collecting pipe material	ABS resin
Sealing material	Polyurethane resin
Support shaft material	SUS304
Normal Trans-membrane pressure	≦ [Initial trans-membrane pressure+15kPa]
Normal operating temperature	0-40°C

## Standard Unit Specifications

Product name	SAA50090APE06
Unit size (D×W×Hmm)	1,553×1,443×3,124
Number of elements	20pcs
Dry mass	784kg
Effective membrane surface area	500m <sup>2</sup>
Header material	SUS304, ABS resin
Frame material	SUS304
Normal Trans-membrane pressure	≦ [Initial trans-membrane pressure+15kPa]
Normal operating temperature	0-40°C
Remarks	Equipped with rubber aeration pipes that have many slits on the surface