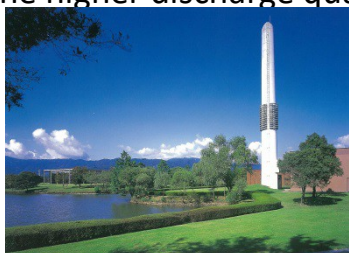


# Pharmaceutical wastewater treatment

Our customer is known for the world's first isotonic sports drink, inspired by intravenous solution. Now he is manufacturing various kinds of nutraceutical and pharmaceutical products.

He has built up an Environmental Management System according to ISO14001 to tackle various environmental problems. Effluent quality is also strictly controlled by setting more stringent voluntary standards.

Due to increasing production, he decided to expand its wastewater treatment plant. To utilize the existing facility (Trickling Filter + Activated Sludge Method), the best choice to increase capacity was the Membrane Bioreactor (MBR) system, which has shown the higher discharge quality and easier maintenance.



Factory Overview



Membrane Tank



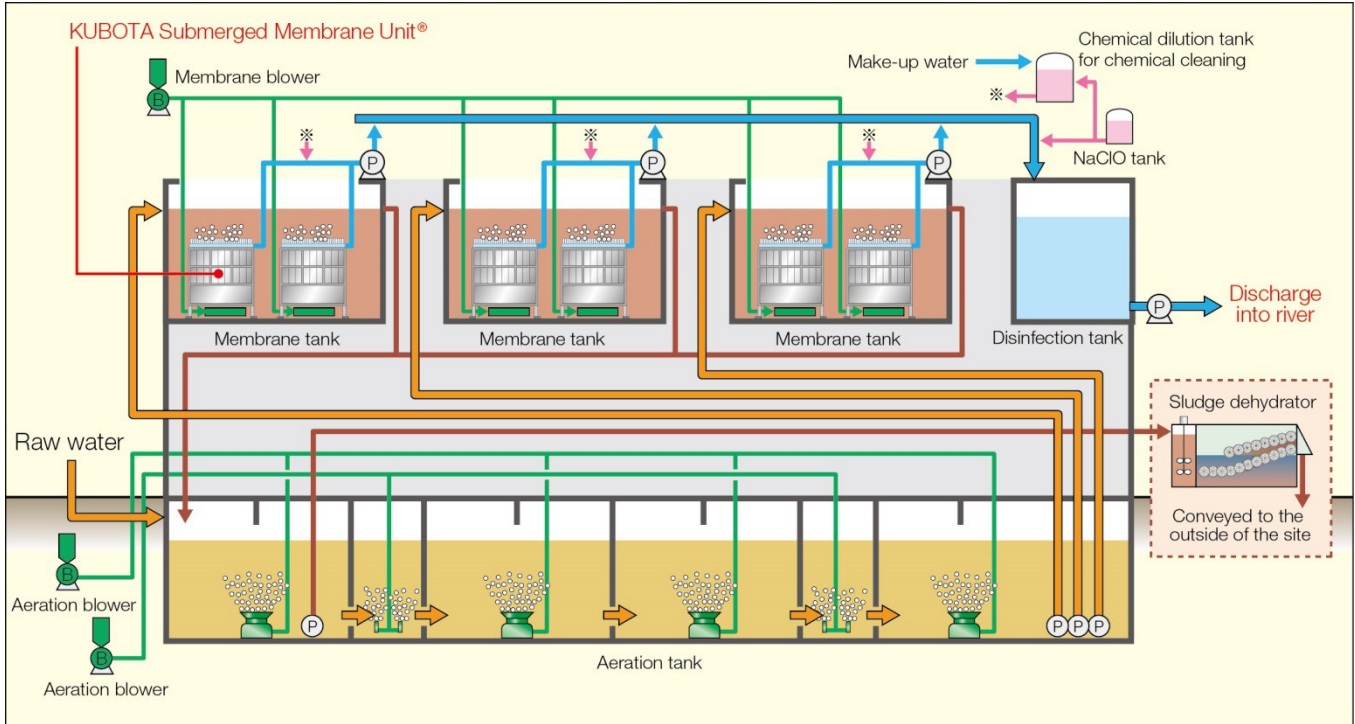
MBR Facility Overview

## Outline of the Facility

Location	Saga Prefecture, Japan
Type of wastewater	Pharmaceutical wastewater (Medicine, Nutritional supplement)
Flow	1,300 m <sup>3</sup> /d (MBR) ( totally 2,000 m <sup>3</sup> /d )
Commissioned	October 2006

# Pharmaceutical wastewater treatment

## MBR Process Flow Sheet



## Design Parameter and Actual Data

Parameter	Influent		Effluent	
	Design	Actual	Design	Actual
BOD5 (mg/L)	1,000	1,200	<20	<4
CODCr (mg/L)	-	1,320	-	7.2
SS (mg/L)	500	100	<10	<1
pH (-)	4.0~12	4.6	5.8~8.6	7.7

"Design" values of effluent are the regulatory limits. "Actual" values are average values.

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