

Recycles wastewater into processed water and industrial water of high quality.

# RO Membrane Element for Wastewater Reclamation

## Features

- Removes more than 97% of the organic matter in sewage.
- Applies a special net-shaped feed spacer to enhance fouling resistance.
- Maintains excellent chemical resistance, thus ensuring the stable operation of the element for a long time.

## Overview

(Technical principles, actions, etc.)

### Principle

If a concentrated solution and a dilute solution are poured separately into a container partitioned with a semipermeable membrane, the solvent in the dilute solution shifts to the concentrated solution side through the semipermeable membrane so that the both solutions become same in concentration. This phenomenon is called osmosis.

Reverse osmosis (RO) is the process of shifting the solvent in the concentrated solution to the dilute solution side through the semipermeable membrane with a pressure higher than the osmotic pressure imposed on the concentrated solution side. An RO membrane element uses the principle of RO for membrane separation.

### Summary of RO Membrane Element for Wastewater

An RO membrane is generally used for the removal of the solutes, such as the salt and organic matter, in solutions. Since the latter half of the 1980's, the market of water treatment using RO membranes to remove the impurities in wastewater and recycle the wastewater into pure water has been developing for the electronic industry.

In recent years, the reuse of water is becoming popularized in areas that are short in water. Long-life and stable RO membrane elements with a high rejection of impurities have been expected for efficient wastewater reclamation.

The Nitto Denko group's RO membrane elements for wastewater reclamation, which have attained a high rejection of impurity as a basic requirement from RO membrane elements, are now used as safe and reliable products by customers throughout the world.



LFC3-LD

## Introductory Track Record

- Plant references of advanced urban wastewater reclamation project are shown in the following table.

RO Plants for High-quality Recycling of Wastewater in Urban Areas

Country	Capacity (m <sup>3</sup> /day)	Year of start
Singapore	10,000	2000
Singapore	32,000	2002
Singapore	40,000	2002
Singapore	166,000	2006
USA	264,000	2006
Australia	100,000	2009

Note: Delivery examples of the Nitto Denko group's RO elements.

## Effects

- Ensuring a high rejection of impurities, thus producing a high-quality level for industrial water and non-drinking water.
- Incorporating feed spacer made of a special net-shaped material, which reduces membrane fouling and works at a low operating pressure, thus making it possible to save more energy than conventional products.
- Maintaining excellent chemical resistance, thus making it possible to use chemicals for highly efficient and stable water purification, along with the performance recovery of the elements for repeated use for a long time.

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