

AGENT, LIQUID, AND METHOD FOR CLEANING REVERSE OSMOSIS MEMBRANE

Abstract

Provided is an agent for cleaning an reverse osmosis (RO) membrane to remove effectively foulants that cannot be sufficiently removed with conventional cleaning agents when an RO membrane used for water treatment, particularly an aromatic polyamide RO membrane used for desalination of seawater, has become fouled resulting in degradation of performance such as permeation flux, pressure difference, and salt rejection rate. The agent for cleaning an RO membrane includes an aldonic acid and/or a salt of an aldonic acid. Also provided is a method for cleaning an RO membrane with the cleaning agent or the cleaning liquid. While the detachment and hydrolysis effects are achieved by performing cleaning under alkaline conditions, chelation of heavy metals is caused by the aldonic acid and/or the salt of an aldonic acid. When an anionic surfactant is used in combination with the aldonic acid and/or the salt of an aldonic acid, the anionic surfactant causes the detachment of foulants. When a polyol having a molecular weight of 1000 or less is used in combination with the aldonic acid and/or the salt of an aldonic acid, the polyol causes wetting and swelling of foulants. The above components synergistically increase the alkali cleaning effect.

Fig. 3