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Industrial scale pilot at Maspalomas I desalination plant demonstrates the efficiency of DuPont™ B-Free™ pretreatment – a new breakthrough solution against biofouling

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ABSTRACT

Biofouling is one of the most common and severe issues in the operation of seawater reverse osmosis (RO) systems with open intake. Unchecked, it causes significant operational problems such as frequent interruption, damage to the membranes, intense chemical and energy use, and regular cleaning-in-place (CIP) of the RO membranes. A novel, vessel-based media technology utilized as a membrane pretreatment has shown to efficiently mitigate the effects of biofouling in RO elements. DuPont™ B-Free™ pretreatment works under different mechanisms which are smartly combined to provide a biostatic environment for downstream RO operations. The Maspalomas I desalination plant with a capacity of 14,500 m^3/d in the Gran Canaria Island (Spain), has been suffering from biofouling problems in the RO. To resolve the biofouling challenges, experts from Elmasa, a company with more than 45 years of experience in the water industry, collaborated with DuPont Water Solutions and tested for more than a year and a half the novel pretreatment technology – DuPont™ B-Free™ designed to eliminate the effects of biofouling in the RO system. An extensive trial using seawater open intake as source water showed biofouling prevention and trouble-free operation in an industrial scale pilot plant, while the parallel full-scale plant did continue to suffer from the negative effects of biofouling. DuPont(TM) B-Free(TM)-Free™ creates an instant and sustained biostatic environment for the downstream RO operations and is resilient to upstream upsets.

Keywords: Biofouling; Reverse osmosis; Media; Bacteria; Chemical cleanings

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