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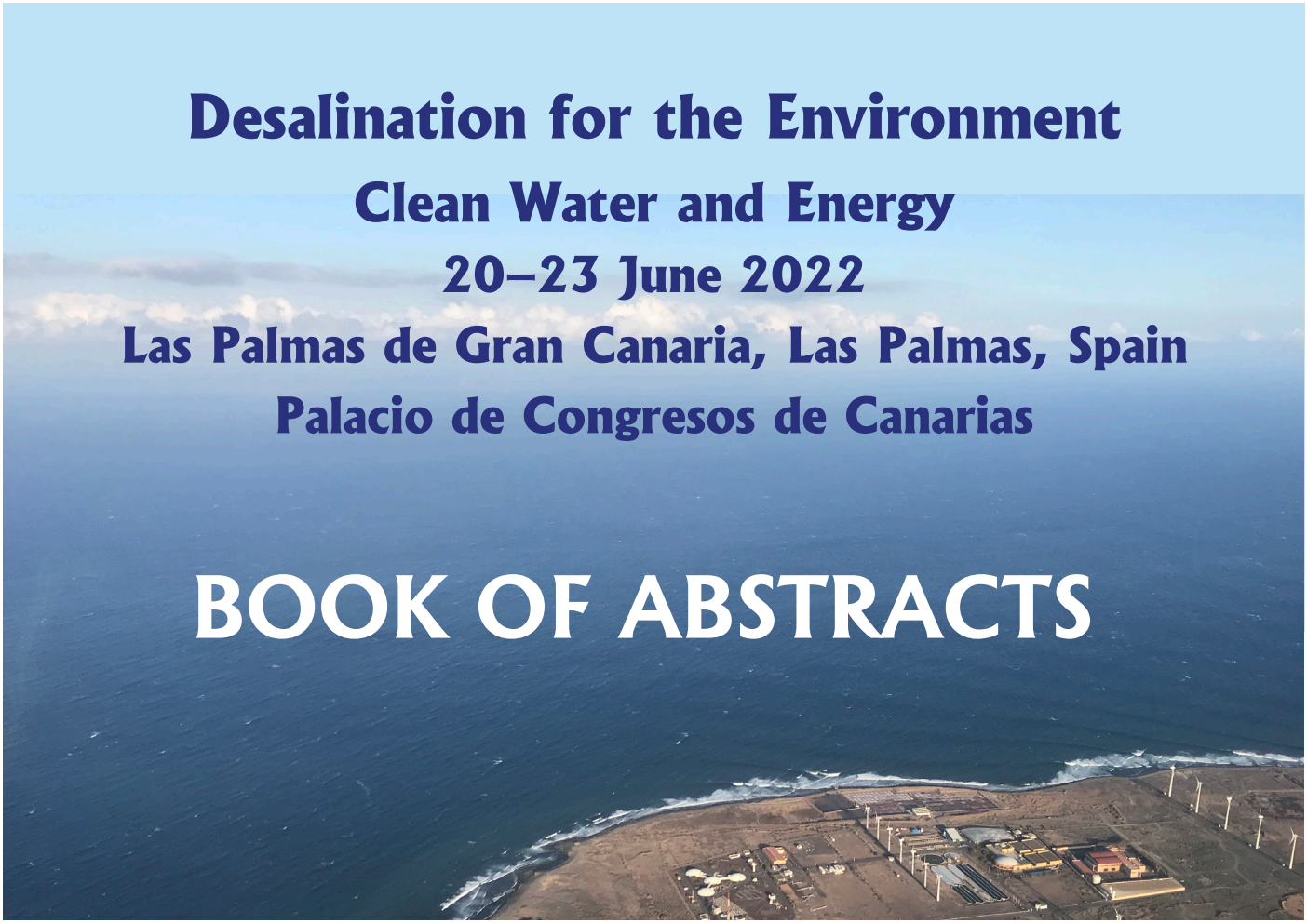
BOOK OF ABSTRACTS



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ABSTRACTS — CONTENTS

During the operation, parameters like temperature, conductivity, ionic composition and concentration of micropollutants were monitored for the different streams. These values allowed to calculate the transport rates of salts and micropollutants under different process conditions. Ultimately, we analyze the economy of the process with the improved water recovery and the retrieval of minerals from the groundwater, and present our suggestions for future developments in the field.

Keywords: Donnan dialysis; Drinking water; Softening; Remineralization; High-recovery RO

LP 212

Reuse of reverse osmosis elements of the desalination processes

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This study is based on the study for the evaluation of the processes of reuse and recycling of reverse osmosis components and membranes in the Canary Islands and Macaronesia, within the DESAL+ project and in the framework of the DESAL+ LIVING LAB platform, coordinated by the Canary Islands Technological Institute (ITC) and the Canary Islands Agency for Research, Innovation and Information Society (ACIISI), with the support of the Interreg-MAC Programme. Reverse osmosis membranes could be reused in the same or another desalination plant by replacing the membranes in the first, dirtier positions with those in the last, less damaged positions. Also, by changing the best first-stage membranes to the second and vice versa, the useful life of these membranes could be extended through chemical cleaning and a second life could be given in tertiary treatment plants, reuse in industrial processes where they use special reverse osmosis membranes and degrade rapidly, in processes with leachate from landfill waste and also an interesting option is the oxidation of reverse osmosis elements to obtain nanofiltration, ultrafiltration or micro-filtration membranes for the removal of physical dirt. The main categories of thermal processing recycling commonly used in industry include incineration and pyrolysis to produce energy, gas and fuel. These processes can be applied to mixed plastic waste, such as the combination of materials used in the manufacture of reverse osmosis membranes. The recycling of reverse osmosis elements from desalination plants is shown as an opportunity, nowadays existing pioneering initiatives in Europe. Energy recovery, via incineration, is feasible but is not considered in accordance with the environmental, social and political problems that this may generate. However, the recycling of the reverse osmosis elements via pyrolytic industry for fuel production can be centralized in a new industry already planned in the Canary Islands and all the osmosis membranes that are obsolete can be sent there. This is a technically and economically viable business opportunity with a promising future in today's recycling market as studied in the study.

Keywords: Recycling; Reverse osmosis; Membranes reuse; Valorization