



Design of an innovative vacuum evaporator system for brine concentration assisted by software tool simulation

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ABSTRACT

In this paper, the design of a novel multi-effect distillation system is described for the concentration of the brine effluent produced from desalination plants. The evaporation process was simulated through the use of a software tool that was developed for the brine treatment process. The results and the simulator tool are also discussed in the paper. The evaporator unit comprises the first treatment stage of a pilot system that was developed in the framework of the SOL-BRINE project. The system is based on the zero liquid discharge principle and is operated through the use of renewable sources and, in particular, solar energy. The system has been installed in Tinos Island, Greece and is operating regularly since January 2013.

Keywords: Evaporator; Brine effluent; Zero liquid discharge; Simulator tool; Design

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