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Estimation of stream compositions in reverse osmosis seawater desalination systems

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ABSTRACT

An algorithm was developed for estimating salinity and compositions of the major constituents in streams of seawater desalination systems using the reverse osmosis. The algorithm implementation is based on the seawater equation state and, except for the salinity (in which it is always valid), it is applicable when the ratio between the composition of an ionic constituent in a stream and its salinity is constant. The study case examined was the Unit 1 of the Desalination Plant of Porto Santo. The solution of the algorithm equations, using the Excel spreadsheet, enabled a good supervising of the salinities and chloride and sodium ionic concentrations in the feed and permeates streams.

Keywords: Reverse osmosis; Electrical conductivity; Salinity; Seawater

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