

ABSTRACT

Electrodeionization device and method comprising control of the electric current by measurement of ion-exchange material expansion

Device (2) for the removal of ions from a polar liquid (F), e.g. water, comprising at least one compartment (14') which comprises at least one inlet for an entering polar liquid flow and at least one outlet for an outgoing deionized liquid flow (D), in which said compartment (14') an electrochemically regenerable ion-exchange material fills a zone through which zone a liquid flow is able to pass, the device (2) being characterized in that it comprises one sensor (1) of at least one dimensional change of the ion-exchange material. The sensor can comprise a photo-sensor or a sensor of mechanical stress. Preferably an apparatus (100, 10, 11) connected to the sensor is able to analyze this dimensional change and to control the electric current.

Method of using said device (2), whereby the electrical current applied to the device (2) is controlled according to the expansion of the resin.

(Figure 1)