The development of electrodialysis modules for specific applications

Lukáš Václavíka, Natália Káňavovab,*, Lubomír Machučab, Marek Doleželb, Michal Amrichb, David Tvrzníkb

aMEGA a.s., Pod Vinicí 87, 471 27 Straž pod Ralskem, Czech Republic, Tel. +420 606 671 828; email: lukas.vaclavik@mega.cz
bMemBrain s.r.o., Pod Vinicí 87, 471 27 Straž pod Ralskem, Czech Republic, Tel. +420 725 862 562; email: natalia.kanavova@membrain.cz (N. Káňavová), Tel. +420 602 506 423; email: lubomir.machuca@membrain.cz (L. Machuča), Tel. +420 727 942 655; email: marek.dolezel@membrain.cz (M. Doležel), Tel. +420 601 384 729; email: michal.amrich@membrain.cz (M. Amrich), Tel. +420 607 518 428; email: david.tvrznik@membrain.cz (D. Tvrzník)

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ABSTRACT

In presence, there is a crucial demand to produce electrodialysis (ED) modules customized for specific applications in order to take full advantage of membrane modifications and different module constructions and arrangements. Goal of this work was to examine and describe ways to develop ED modules and their components with the emphasis on the special use they are intended for. The possibilities of how to do this are e.g. the use of low-cost alternatives of ion-exchange membranes and other materials, unusual structuring of membrane stack or hydraulic streams, the use of tortuous spacers to achieve deep desalination in single-pass flow regime, or stack modification in order to get high concentration in concentrate stream. These modifications could help to optimize efficiency and costs of the ED technology and performance, and to extend the application field of the process of ED.

Keywords: Desalination; Electrodialysis; Low-cost materials; ED module design

*Corresponding author.

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