A environmentally friendly process for boron acid and sodium hydroxide production from borax; bipolar membrane electrodialysis

Jülide Erkmen a,*, Sinan Yapıcı b

aFaculty of Engineering and Architecture, Chemical Engineering Department, Kafkas University, Kars 36300, Turkey, Tel. +90 474 2257717; Fax: +90 474 2251279; email: jerkmen@hotmail.com
bEngineering Faculty, Chemical Engineering Department, Atatürk University, Erzurum 25240, Turkey, email: syapici@atauni.edu.tr

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ABSTRACT

In this study, the production of boric acid from borax was carried out by electrodialysis with bipolar membranes. The current efficiencies for boric acid and sodium hydroxide production by bipolar membrane electrodialysis were determined to be between 93.13 and 99.53%. In addition, the products with purity up to 99.52% (in weight) H₃BO₃ and 99.12% (in weight) NaOH were obtained. This method gives a facility of producing of sodium hydroxide and boric acid without any harmful waste material and offers an alternative process to commercial production methods for boric acid and sodium hydroxide.

Keywords: Borax; Boric acid; Sodium hydroxide; Electrodialysis; Bipolar membrane

*Corresponding author.

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