

Separation of Succinate from Organic Acid Salts Using Nanofiltration Membranes

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Abstract

The fermentative production of bio-based succinic acid is often accompanied by organic acid byproducts. In this study, the separation of succinate from organic acid salts (acetate and formate) using pressure-driven nanofiltration (NF) was studied. The performances of three nanofiltration membranes were compared and discussed. The influence of feed ratio on the succinate recovery was not significant given that succinate rejections of greater than 81.9 % were obtained in all cases. A comparison between monovalent rejection and divalent rejection suggests that the separation of multi-salt solution was influenced by the Donnan-steric effects. Taking into account the permeation fluxes and organic acid salt retentions, the NFW membrane manufactured by Synder Filtration was considered the most appropriate membrane for the separation of divalent succinate from other organic acid salts. This study strongly supports the use of NF technology for the downstream recovery of high valuable products. Copyright © 2017, AIDIC Servizi S.r.l..

Author keywords

Byproducts Filtration Microfiltration Nanofiltration Organic acids Salts Separation

Feed ratios Fermentative production Organic acid salts Permeation fluxes Pressure-driven Salt solution Steric effect Succinic acids

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