操作條件與背景離子對 NF 薄膜去除環境荷爾蒙的影響

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摘 要

中文摘要 本研究探討不同操作條件(操作壓力及溶液溫度、進流濃度)和背景離子(NaCl、Na2SO4、MgSO4)，對環境荷爾蒙(包括Bisphenol-A、Dimethyl Phthalate、Di-n-Butyl Phthalate)分離成效的影響。NF-270薄膜對Bisphenol-A、Dimethyl Phthalate、Di-n-Butyl Phthalate的去除率分別為75%、92%、30%。若增加壓力，Bisphenol-A的去除率會略為增加。若增加溫度會使得溶質擴散係數上升，因此環境荷爾蒙的去除率會下降。當環境荷爾蒙分子量及分子半徑差異不明顯時，空間阻礙效應與辛醇-水分配係數是影響本研究去除率高低的主要因素；NF-270薄膜對辛醇-水分配係數較小之物質有較高去除率。在背景離子存在時，使得薄膜結構變得更緊密，因此穩態清水通量會下降。NaCl、Na2SO4存在時，對Bisphenol-A、Dimethyl Phthalate的去除率影響較明顯。Na2SO4及MgSO4之去除率與單獨存在時差異不大，因為其主要去除機制為靜電效應。

關鍵詞 : NF270薄膜 ; 環境荷爾蒙 ; 背景離子

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