

Thermal multi-effect desalination와 LiBr/H₂O absorption 통합시스템에서 열교환기 온도에 따른 결정화 위험도 평가

Tayerani Charmchi Amir Saman, 유창규[†], Pouya Ifaei
경희대학교
(ckyo@khu.ac.kr[†])

Seawater desalination is a viable alternative to clean water supply to adapt climate change in dry regions. An integrated absorption heat pump and a low thermal multi-effect distillation system has shown a good performance compared to other integrated systems. However, the integration of a MED and a LiBr/H₂O chiller is restricted to crystallization phenomenon at the absorber outlet. In this study, the crystallization is investigated under various conditions such as temperature of the effects, absorber, and evaporators as well as the integrating heat exchangers. The results showed that the crystallization occurred at the outlets of expansion valve and the absorber at higher first effect temperatures. Moreover, the lower temperature and effectiveness of heat exchangers increased the risk of crystallization.

This work was supported by Korea Research Fellowship Program through the National Research Foundation of Korea(NRF) funded by the Ministry of Science and ICT (2019H1D3A1A02071051), the National Research Foundation(NRF) grant funded by the Korean government (MSIT)(No.NRF-2017R1E1A1A03070713), and Korea Ministry of Environment (MOE) as Graduate School specialized in Climate Change.