

Uncertainty quantification and dimensional reduction sensitivity analysis of dual mixed refrigerant LNG process

Muhammad Abdul Qyyum, 카딜 킨자, Junaid Haider, 이문용[†]
영남대학교
(mynlee@ynu.ac.kr[†])

This study investigates the uncertainty levels in the overall energy consumption and minimum internal temperature approach (MITA) inside LNG heat exchangers with variations in the operational variables of the DMR processes. Moreover, a global sensitivity analysis is conducted to identify the influence of random inputs on the process performance parameters. The required energy is significantly influenced by the variations in the variables in the cold mixed refrigerant (approximately 63%), while changes in the warm mixed refrigerant (WMR) section only slightly affect the uncertainty of the required specific energy. This research was supported by the Basic Science Research Program Foundation of Korea (NRF) funded by the Ministry of Education (2018R1A2B6001566), the Priority Research Centers Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education (2014R1A6A1031189).