Energy efficiency improvement in the NGL Recovery Process by utilizing Self-Heat Recuperation

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An innovative self-heat recuperation technology, in which not only latent heat but also sensible heat are circulated in the thermal process, was studied and applied to the natural gas liquid(NGL) recovery process. Column grand composite curve was used to indicate the thermodynamic feasibility of the implementation of heat pump system and self-heat recuperation technology into conventional column. The proposed self-heat recuperation technology shows the energy can reduce dramatically by compressing the effluent stream, whose temperature is increased to provide the minimum temperature difference for heat exchanger, and stream heat is circulated in the process, leading to a reduction in the energy requirement of the process.

Acknowledgement

This research was supported by a grant from the Gas Plant R&D Center funded by the Ministry of Land, Transportation and Maritime Affairs (MLTM) of the Korean government.