

Optimization of Propane Precooled Mixed Refrigerant (C3MR) Process Considering Liquefaction Ratio for Energy Saving

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Natural gas liquefaction is energy intensive process due to its cryogenic operation condition. This process is based on the compressing and expansion cooling cycle, thus most of energy is consumed by compressors. Therefore, major objective of natural gas liquefaction process design and optimization is minimizing energy consumption of compressors. This research focused on the minimization of specific power of natural gas liquefaction process through mathematical optimization. Target process is propane precooled mixed refrigerant (C3MR) process. The liquefaction ratio is set as constraint from 85% to 100%. As the result, total energy consumption is decreased by 14.56% and specific power is decreased by 16.25% at 86.9% liquefaction ratio.

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