

CO₂ liquefaction Process for Ship Transportation

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In this study, alternative CO₂ liquefaction processes were proposed and evaluated. These alternative processes used multi-stage expansion and multi stream heat exchanger in order to lower the input stream temperature for the compressor. In addition, the system was operated in a more efficient manner by operating the process with an optimized compression ratio. Evaluation of the economic feasibility was also done in this study for a complete assessment of the alternative processes. As a result, about 98.1 kWh/Tonne CO₂ was consumed for alternative process 2 which was only 91.8% of total operation energy of existing CO₂ liquefaction process and CO₂ liquefaction cost for alternative process 2 was reduced by 5.9%.

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