

Simulation of open rack vaporizer by using computational fluid dynamics

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Open rack vaporizer (ORV) is a seawater heat exchanger that vaporizes LNG into natural gas using seawater as a heat medium and is widely used around the world. Inside the ORV, LNG vaporizes into natural gas by undergoing heat exchange with external seawater through an aluminum alloy material. This study aims at the development of original technology to domesticate the ORV. The process was simulated using CFD (computational fluid dynamics), from which fluid and heat flow were analyzed, and structural design factors were extracted. The study results are expected to help understand the characteristics and tendencies of the process and are further predicted to help develop programs to be used in preliminary performance evaluation.