Operability study on BOG (Boil-off gas) liquefaction process

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LNG (Liquefied Natural gas) as an alternative for environment-friendly resource has been widely used. LNG tank maintained at around -160°C produces BOG (Boil-off gas) due to the heat exchange with the environment, in which BOG prevents LNG tank from sustaining its pressure. BOG might be purged from the tank but liquefaction of BOG followed by re-injection into the LNG tank is more effective for economic reasons.
This research aims at achieving enhanced operability of the liquefaction process, which is based on the economically optimized process. Control logic to accomplish the complete liquefaction of BOG is built, on which operability is tested by applying various disturbances. Furthermore, several scenarios are designed to predict actual operation conditions to hinder unexpected results. With the full consideration of the limitations caused by the operation, this operability study enables the process to be more energy-efficient.
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