

Boil-off gas formation inside large scale liquefied natural gas (LNG) tank based on specific parameters

Abstract

Liquefied Natural Gas (LNG) fleets are coasting with various condition and behavior. These variable leads to different type of LNG fleets build every year with unavoidable generated Boil-off Gas (BOG). Estimation of BOG generated inside LNG tank play significant role in determines the ship specification and management method of BOG including venting, propulsion or requalification. Hence, in the present study, the right choices of boundary condition and parameter have been implementing in order to have good estimation amount of BOG evaporates for specific LNG tank. Three dimensional model of cargo with capacity 160000 m³ LNG carrier are simulate using ANSYS Fluent with specific ambient air temperature of 5oC and ambient seawater temperature of 0oC have been chosen as a calculation case, gain the total heat transfer rate and Boiloff Rate (BOR). The result shows that the calculation model and simulation are feasible with typical LNG fleet specification and International Marine Organization (IMO) standard.