A Study on Quantitative Risk Analysis for Fire and Explosion in LNG-Liquefaction Process of LNG-FPSO

단승규, 윤인섭*
서울대학교
(esyoon@pslab.snu.ac.kr*)

A large amount of fuel oil and natural gas have been produced from locations from 1950s. Since the energy buried locations are much farther from inland area, floating production systems came to be needed. Especially, LNG-FPSO will play a leading part to satisfy the global demands and gather the natural gas in the near future. LNG-FPSO system is designed to deal with all of the LNG processes near the gas field.
Also, because the LNG-FPSO is limited and complex system compared with a LNG-plant which is installed at inland area and handling flammable oil and gas, it is necessary to manage the risk related with fire and explosion. If the accident is occurred, all facilities in the vessel will have great damage.
In this research, the risk of fire and explosion in LNG-FPSO is assessed by quantitative risk analysis including frequency and consequence analysis. Also, consequence analysis was modeled by using PHAST which can calculate the effects, such as radiation from fire and overpressure from explosion, after release accident.