

Safety Analysis on large-scale DME plant

DARICI, 양시엽, 한종훈[†]

서울대학교

(chhan@snu.ac.kr[†])

Gas-to-Liquids (GTL) Technologies has emerged as a viable industry over the past thirty years offering market diversification to remote natural gas resource holders. GTL technologies includes more than Fischer-Tropsch technology and extends to other liquid fuels, especially in the oxygenate family (methanol, dimethyl ether, etc.). This study is a safety analysis on a DME plant. Currently, efforts are to commercialize DME as a high-quality diesel alternative. KOGAS has developed a process in which syngas is produced from natural gas and converted to DME using a single reactor, unlike the conventional 2 stage processes having methanol as intermediate. The purpose of this study is to first obtain the most updated simulation of the plant using Aspen Plus[®] based on the already existing simulation results and then to apply risk analysis to quantify the individual and societal risks of operating such a large scale DME plant by making use of Phast and Safeti QRA software and suggest necessary changes in case the risks are above the acceptable limits.