

### Safety distance for DME filling station

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In order to utilize Renewable energy, it needs a precedent study on the development of safety code. The previous work in safety estimation field, legally LPG and high pressure gas Safety standards consist of logical basement. Recently DimethylEther (DME) is considered as one of the most promising candidates for a substitute for LPG and Diesel fuel. So DME also significantly considered as development of safety standards.

In this paper we focused on safety distance of DME filling station. Hypothetical DME filling station was modeled based on DME-LPG mixed filling station designed by KOGAS. And safety distance was suggested with quantitative risk constraint.

We suggest the quantitative risk estimation approach through individual risk calculation. Individual risk calculation was performed with consequence analysis and failure mode based on various accident scenarios. Subsequently we made comparative study between DME & LPG to estimate DME safety distance. The outcome shows that individual risk has each risk contour to suggest safety distance.

The above mentioned quantitative risk estimation is directly connected to securing safety of DME. And the result of individual risk will be contributed to utilize of DME application in real life.