

The study of Two-zone pool fire in PHAST simulation

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If a hydrocarbon is accidentally released from a process plant storage tank, firstly pool is formed. And if the pool is ignited, pool fire is happened. PHAST is Process Hazard Analysis Tool developed from DNV-GL, provides luminous and Two-zone results for pool fire according to carbon/hydrogen ratio. The Two-zone pool fire consists of two layers: Luminous and Smoky. The base layer is luminous part, no obscuration area and assumed to release thermal radiation at the maximum level for the fuel at the pool diameter. The upper layer is smoky and assumed to be obscured by smoke. However, those results have quite different trends and this can lead to big difference when the material is near the boundary value that define luminous and Two-zone pool fire or only slight change of mixture composition. Since there is no significant change in fire geometry, a smoother transition is needed between luminous and Two-zone pool fire range. This work was supported by the "Program of Fostering Innovative Global Leaders" of the Korea Institute for Advancement of Technology (KIAT) with financial support by the Ministry of Trade, Industry & Energy(MOTIE), Republic of Korea (P0008747).