

Flash Point Prediction of Liquid Hydrocarbon Mixtures Using UNIFAC and COSMO Method

김태현, 황선유, 강정원[†]

고려대학교

(jwkang@kroea.ac.kr[†])

Flash point indicates the lowest temperature that makes the combustible component ignite. The flash point classification of hydrocarbons or other organic solvents is crucial for safety issues such as operating and storing the flammable mixtures. Thus, the present study focused on exhibiting the maximum flash point behaviors when a solvent is added to the liquid hydrocarbon mixtures. The group contribution model (GCM) and conductor-like screening model (COSMO) calculation predict the mixture's non-ideal behavior, which can be applicable for predicting the flash points. The pseudo-component mixtures optimum ratio to surrogate the hydrocarbon mixture is determined, and it is mixed with different classes of solvents to measure the variation of the flash points behavior. This work emphasized that it is inherently safer to design chemical processes when the flash point behavior of hydrocarbon liquid mixtures with specific solvents classes is presented.