

Lower Explosion Limits of Flammable Binary Systems by Liquid Mixture Theory

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In this paper, Raoult's law and van Laar equation(activity coefficient model) are shown to be applicable for the prediction of the explosion limits in the flammable ethylacetate-ethanol and ethanol+ toluene systems. In the ethylacetate-ethanol system, the predictive curves based on the Raoult's law described the reference data more effectively than those based on the van Laar. However, in the ethanol+ toluene system, the predictive curves based on the van Laar described the reference data more effectively than those based on the Raoult's law. It is hoped eventually that this method will permit the estimation of the explosive properties of flammable mixtures with improved accuracy and the broader application for other flammable substances.