Prediction of the Lower Explosion Limits Using the Normal Boiling Points and the Flash Points for Ester Compounds

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n oder to evaluate the fire and explosion involved and to ensure safe and optimized operation of chemical processes, it is necessary to know combustion properties. The lower explosion limit(LEL) is one of the major combustion properties used to determine the fire and explosion hazards of the flammable substances. In this study, the lower explosion limits of ester compounds were predicted by using the normal boiling points and the flash points based on solution thermodynamic theory. The values calculated by the proposed equations were agreement with literature data within a few percent. The average absolute percent error(A.A.P.E.) and the average absolute deviations(A.A.D.) by using proposed equation are 8.80vol% and 0.18vol%. From a given results, by the use of the proposed methodology, it is possible to predict the lower explosione limits of the other flammable substances.