Prediction of the Upper Detonation Limits(UDL) of the Flammable Substances

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The detonability of fuel-air mixture is characterized in terms of detonation limit and ignition sources. The detonation limit is one of the major physical properties used to determine the fire and explosion hazards of the flammable substances. In this study, the upper detonation limits(UDL) of the flammable substances predicted with the appropriate use of the heats of combustion. The A.A.P.E(average absolute percent errors) and the A.A.D.(average absolute deviations) of the reported and the calculated the UDL for the flammable substances were 24.62% and 1.77vol%, and the correlation coefficient was 0.988. From a given results, It is to be hoped that this methodology will contribute to the estimation of the upper detonation limits of flammable substances with improved accuracy and the broader application for other flammable substances. Such prediction method is very important for flammable substances.