

Prediction of Detonation Performances of Hems According to the Various Stochastic Rules

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Abstract: *The essential step for the development of new energetic compounds is to accurately predict their detonation performances. Among numerous equations, the kamlet-Jacobs (K-J) equation was representative, which can be used to estimate the detonation properties. The N (moles of detonation gases per gram of explosive), M_{ave} (average molecular weight of gases), Q (heat of detonation) parameters of Kamlet-Jacobs (K-J) equations are greatly influenced in the detonation products. In this paper, detonation products was calculated from the various rules(Kamlet-Jacobs, Kistiakowsky-Wilson, Modified Kistiakowsky-Wilson, Springall-Roberts rules) to predict a more accurate detonation performances(detonation velocity, detonation pressure). Also, the reliability of various rules has been demonstrated by comparing with the experimental value, and the deviations of these various rules have been determined. Therefore, the results predicted by all four rules are quite similar. The detonation velocity and pressure predicted by Kamlet-Jacobs rule show good agreement with respect to experimental values as compared to computed results.*

Keywords: HEMs, detonation products, detonation performances, stochastic rules