

Calculation and Comparison of Activation Energy by Kissinger's method and Iso-conversional method for RDX

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This work is related to study the thermal decomposition of 1,3,5-trinitro-1,3,5-triazacyclohexane(RDX) by differential scanning calorimeter and thermogravimetry with Kissinger's & Iso-conversional method under nonisothermal conditions, with heating rate from 5 to 20°C/min or given heating rate. We calculated and compared activation energy with these two methods. Iso-conversional method is better than Kissinger's method to study decomposition mechanism. We also studied the influence of particle size and type (Insensitive RDX and normal RDX) was investigated by the peak temperature shift methods. The activation energy was calculated by Kissinger method. There is no significant trend in the results according to the range of the particle size used, the critical temperature for thermal explosion of each sample was also calculated.