KINETIC AND THERMOCHEMICAL PROPERTIES OF TRINITROMETHYL DERIVATIVES OF 1,3,5-TRIAZINE

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Abstract: Thermochemical and kinetic properties of some 1,3,5-trazines containing trinitromethyl and azide substituents have been studied. The formation enthalpies of these compounds have been determined. The kinetics of thermal decomposition of 2,4-diazido-6-trinitromethyl-1,3,5-triazine and its derivatives has been described by the equation of the first order. The rate constants, activation energies, and preexponential factors of these reactions have been calculated. The dissociation energies of $C-NO_2$ have been found. The rate determining stage of the reactions is decomposition of trinitromethyl group. In nonisothermic conditions, thermal decomposition proceeds in two macroscopic stages. The first stage of the process is decomposition of trinitromethyl group. Energetic characteristics of 2,4-diazido-6-trinitromethyl-1,3,5-triazine as possible component of propellants have been estimated.

Keywords: energetic compounds; thermal decomposition; kinetics; nitrocompoiunds; azides; triazines; formation enthalpy

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