

ENERGETIC PROPERTIES OF DERIVATIVES OF 1,2,4-TRIAZOLE

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Abstract: Energies of combustion of dinitropyrazole, modelling and energy-intensive derivatives of 1,2,4-triazole have been measured by the method of bombing calorimetry. On the basis of experimental data, the enthalpies of formation of the specified compounds in a standard condition have been determined. The obtained data along with available data in the literature allowed the values of contributions of 1,2,4-triazole and functional groups in the enthalpy of formation of compounds to be calculated. In the literature, there are publications in which synthesis of salt structures on the basis of 1,2,4-triazole is described, their enthalpies of formation and explosive characteristics are calculated. In authors' opinion, for some compounds, the resulted enthalpies of formation are considerably overestimated that has led to appreciable exaggeration of the explosive properties. Using the determined contributions for the same salt compounds, the enthalpies of formation have been calculated and based on the obtained values, their explosive characteristics have been estimated. The obtained results are compared with the data from the literature.

Keywords: calorimetry; combustion enthalpy; enthalpy of formation; derivative of 1,2,4-triazole; explosive characteristics

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