ENTHALPY OF NITROCELLULOSE FORMATION

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Abstract: The difference in enthalpies of nitrocellulose formation depending on the nitrogen content in samples obtained by different authors varies up to 60 kcal/kg. This is due to its origin, its composition, molecular weight distribution, degree of crystallization, and other factors. The enthalpy of combustion for 6 samples of nitrocellulose with a nitrogen content of 10.24% to 13.65%, obtained from high-purity cotton, were determined by combustion calorimetry. The optimal conditions for sample preparation, excluding the effect of moisture on the energy of combustion under high vacuum at 110 °C, were determined. The enthalpy of formation of the test samples were evaluated.

Keywords: nitrocellulose; formation enthalpy; calorimetry; combustion energy; nitrogen content

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