DIHYDROXYLAMMONIUM 5,5′-BISTETRAZOLE-1,1′-DIOLATE (TKX-50): BREAKTHROUGH OR AN ERROR?

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Abstract: Dihydroxylammonium 5,5′-bistetrazole-1,1′-diolate (TKX-50), a recently synthesized energetic material with most promising performance, has been studied in respect to thermal decomposition and burning behavior. The energies of combustion ($\Delta_c U$) were measured and the standard enthalpy of formation (ΔH_f^0) was derived. The studies have shown that TKX-50 is close to RDX not only in terms of its sensitivity to mechanical stimulus but also in terms of other explosive parameters.

Keywords: dihydroxylammonium 5,5′-bistetrazole-1,1′-diolate (TKX-50); thermal decomposition; kinetics; burning rate; combustion mechanism

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