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Synthesis and Properties of High-nitrogen Energetic Compounds Based on Azotetrazolate Nonmetallic Salts

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Abstract: The azotetrazolate high-nitrogen energetic materials is a kind of energetic materials that reported widely. The new two-step synthesis method of some azotetrazolate nonmetallic salts was introduced, including guanidinium, aminoguanidinium, diaminoguanidinium, and triaminoguanidinium etc. The physical, chemical properties and explosive performance of production and ammonium salt, hydrazium salt were also studied. It shows that these materials have high heat of formation, large gas production, good thermal stability and high reaction heat, and they may have possible applications as gas generants, low signature propellants, low-smoke or non-smoke pyrotechnics and high performance explosives.

Key words: organic chemistry; azotetrazolate salt; high-nitrogen energetic materials; synthesis; performance



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