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Property and Characterization of 3,3-Bis(difluoroaminomethyl) oxetane

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Abstract: 3,3-Bis(difluoroaminomethyl) oxetane (BDFAO) is a new energetic compound. BDFAO was synthesized from 3,3-bis(chloromethyl) oxetane (BCMO) by amination, esterification and fluorination. Total yield is about 43%. Synthesized compounds were characterized by IR, ¹H NMR, ¹³C NMR, GC (gas chromatograph) and elemental analysis. It was proved to be BDFAO and its purity is above 97%. The thermal properties of synthesized BDFAO were investigated by TG-DTA (thermogravimetry and differential thermal analysis). Results show it has better thermal stability and its melting point is about 43.5 °C. The sensitivities of BDFAO were determined by GJB772A–1997. The impact sensitivity H_{50} is about 28.5 cm (5 kg hammer), the friction sensitivity is 100% (90° angle, 3.92 MPa) and it is insensitive to impact but sensitive to friction.

Key words: organic chemistry; difluoroamino; characterization; BDFAO; propellant

CLC number: TJ55; O62

Document code: A

DOI: 10.3969/j.issn.1006-9941.2012.03.011



会 讯 II

第三届中国国际纳米技术产业发展论坛暨纳米技术成果展纳米材料与纳米器件国际研讨会

会议时间: 2012年9月12~15日

会议地点: 中国苏州

主办单位: 科学技术部、中国科学院、江苏省人民政府

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第六届上海国际分析化学研讨会

会议时间: 2012年10月16~18日

会议地点: 上海新国际博览中心

会议主题: 分析化学与我们的生活

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