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Vibrational Study of a New Eight-Membered Si-O- λ^{54} -P Heterocycle

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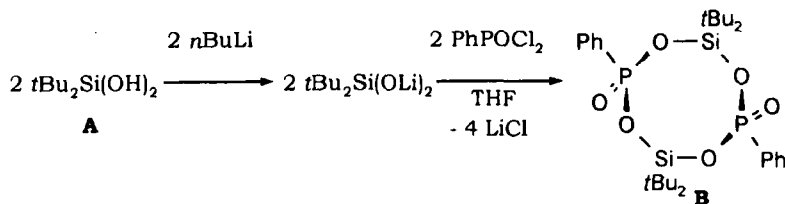
Vibrational Study of a New Eight-Membered $\text{Si-O-}\lambda^5\sigma^4\text{-P}$ Heterocycle

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Inorganic heterocycles as potential precursors for polymers or solids enjoy continuing interest. Eight-membered heterocycle with a $\text{Si}_3\text{O-}\lambda^5\text{-P}$ or $\text{Si}_2\text{O}_4\text{-}\lambda^5\text{P}$ skeleton have already been described in the literature¹⁻². The synthesis, structure, and properties of heterocycles of the $\text{Si-O-}\lambda^5\text{-P}$ type have been intensively investigated. We present here a simple and convenient synthesis of an eight membered $\text{Si}_2\text{O}_4\text{-}\lambda^5\text{P}$ heterocycle and report both its structure and the corresponding vibrational study.³⁻⁴



An eight-membered compound containing Si-O-P ring has been synthesised by using a simple condensation reaction between di-ter-butylsilandiol (A) and $\text{PhP}(\text{O})\text{Cl}_2$. This new compound which have a good thermal stability, was characterised by several spectroscopic techniques such as mass and NMR spectroscopy and X. ray diffraction. A study by vibrational spectroscopy IR and Raman, performed for the first time on the compound (B), has allowed us to give a complete assignment of the vibrational modes.

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