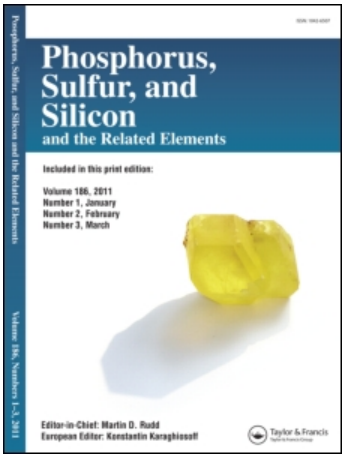

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SYNTHESIS AND PROPERTIES OF SOME NEW, STABLE THIETES (THIACYCLOBUTENES)

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SYNTHESIS AND PROPERTIES OF SOME NEW, STABLE THIETES (THIACYCLOBUTENES)

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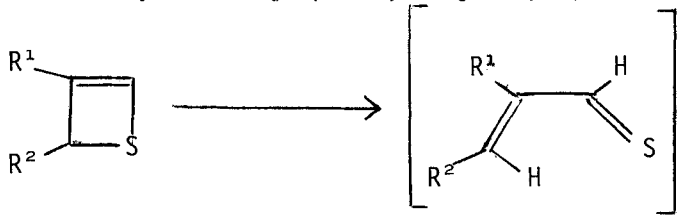
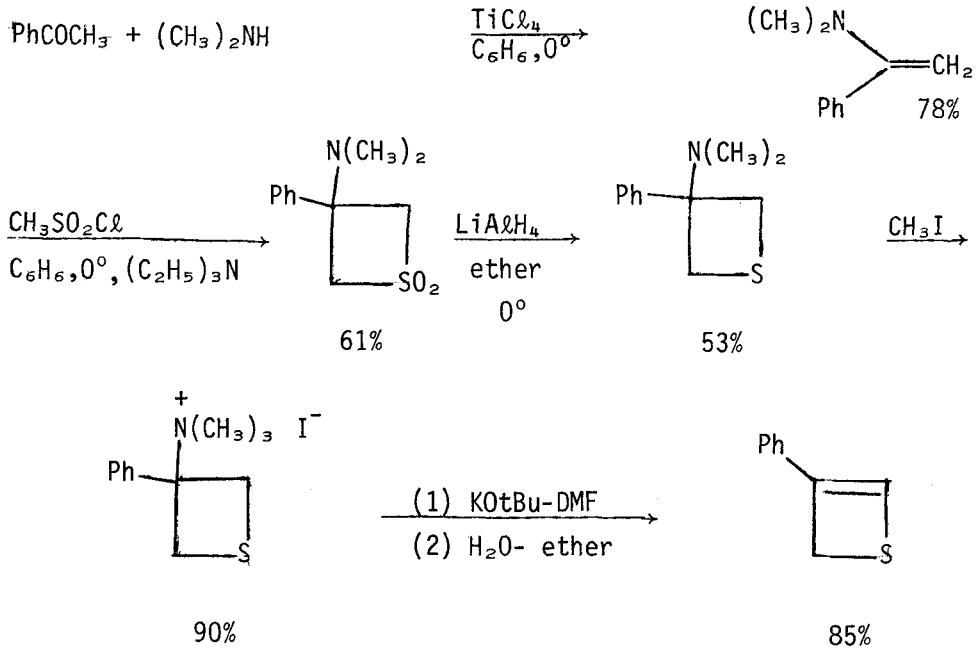
Simple alkyl substituted thietes are liquids which decompose at room temperature presumably via electrocyclic ring opening to give polymeric material.



Introduction of an aromatic substituent on the carbon-carbon double bond (R^1 = phenyl, 2-naphthyl, 2-thienyl; R^2 = H) yields thietes which are stable solids (mp 89-90°, 125° and 65°, respectively).

The synthesis of 3-phenylthiete illustrates the general method.



The phenylthiete can be purified by sublimation (60°, 0.02 mm) without decomposition. Its ring opening appears to be catalyzed by zero-valent cobalt since treatment of 3-phenylthiete with cyclopentadienyl cobalt dicarbonyl affords a stable complex best formulated, according to the spectroscopic data, as a derivative of 2-phenylpropenethial.