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

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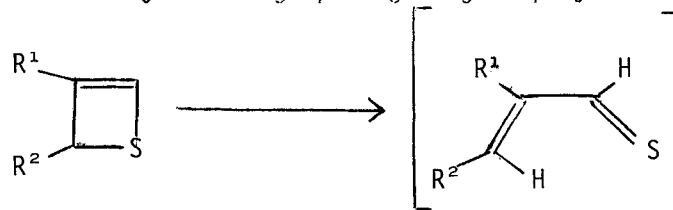
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# SYNTHESIS AND PROPERTIES OF SOME NEW, STABLE THIETES (THIACYCLOBUTENES)

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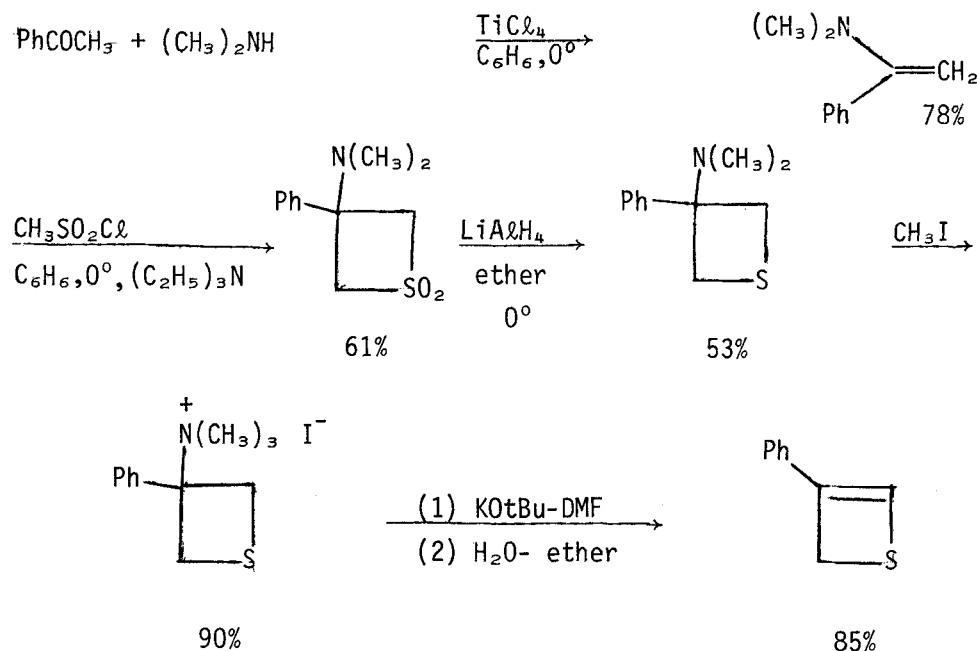
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Simple alkyl substituted thietes are liquids which decompose at room temperature presumably via electrocyclic ring opening to give polymeric material.



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  $89-90^\circ$ ,  $125^\circ$  and  $65^\circ$ , respectively).

The synthesis of 3-phenylthiete illustrates the general method.



The phenylthiete can be purified by sublimation ( $60^\circ$ , 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.

