

SYNTHESES OF HETEROCYCLES BY PHOTOREACTION OF THE
NITROGEN-THIOCARBONYL SYSTEMS

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General photochemical behavior of cyclic thioimides, a nitrogen-thiocarbonyl system, was studied. It was found that certain thioimides were inert, formally to the Norrish type I and type II processes, one representative photoreaction of the parent imide system. Further we have initiated a broadly targeted study of the photochemical behavior of aromatic and aliphatic thioimides possessing aralkyl group in their side chains.

The irradiation of a series of *N*- ω -phenylalkyl-thio and dithiophthalimides 1 results in the formation of products 2-4 which are expected from the type II cyclization initiated by δ - or ϵ -hydrogen abstraction. It is noteworthy that the γ -hydrogen definitely reactive in the ketones is inert in the thioimide system. Similar irradiation of the analogous thiosuccinimides 5 gave two cyclized products, isomeric pyrrolizidinethiols 6, 7. Thus, these results demonstrate that cyclic thioimides undergo the Norrish type II cyclization at least if a benzylic hydrogen is available at the δ - or ϵ - position of the thiocarbonyl group.

