Maleimides, Amines and Isocyanates (Isothiocyanates) in the Synthesis of Hydantoins (Thiohydantoins)

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On the basis of the reaction of N-substituted maleimides with thioureas a large number of 1,3-thiozolidinone derivatives were synthesized. As a starting compounds for the construction of the 3D library maleimides and thiourea, were obtained through the reaction of different isothiocyanates with amines. We suggested to synthesize N-(3-succinimido)ureas (II) using the similar set of maleimides, amines and iso-(thio-) cyanates. However during our experiments is has been shown, that the reaction of 3-alkylaminopyrrolidinediones with iso(thio)cyanates at 100-110°C leads to the building of imidazolidinones (-thiones) (III) as a recyclisation products. In this way more then 1500 compounds were synthesized.

X=O, S; R,R1,R2: Alk, Ar