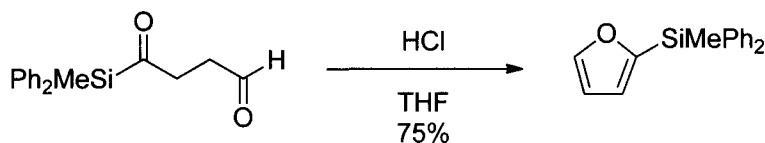
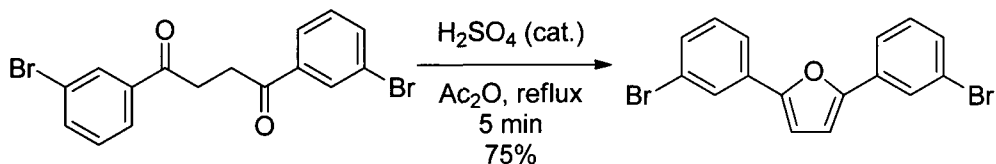


Only a single example employing the Paal–Knorr synthesis for the generation of mono-substituted furans has been reported to date. Molander demonstrated that 2-(methyldiphenylsilyl)furan could be prepared in good yield via treatment of 4-(methyldiphenylsilyl)-4-oxobutanal with hydrochloric acid in THF.³⁹



The Paal–Knorr synthesis is more commonly used for the synthesis of 2,5-disubstituted furans, especially 2,5-diaryl furans, which have shown significant antiviral activity against RNA viruses. For example, Wilson and co-workers demonstrated that diaryl-substituted diones treated with hydrochloric acid could be used to generate the corresponding 2,5-disubstituted furans in good yields.⁴⁰



The Paal–Knorr synthesis was also used to prepare 2,5-disubstituted furans that were investigated as potential enzyme inhibitors. Reaction of a highly substituted 1,4-dione with catalytic sulfuric acid produced the corresponding furan, which was evaluated for its ability to bind to a retenoic acid receptor.⁴¹