N-Chloroimides as Novel Multifaceted Amination Reagents: Enabling C–H Aminations and Deoxyaminations

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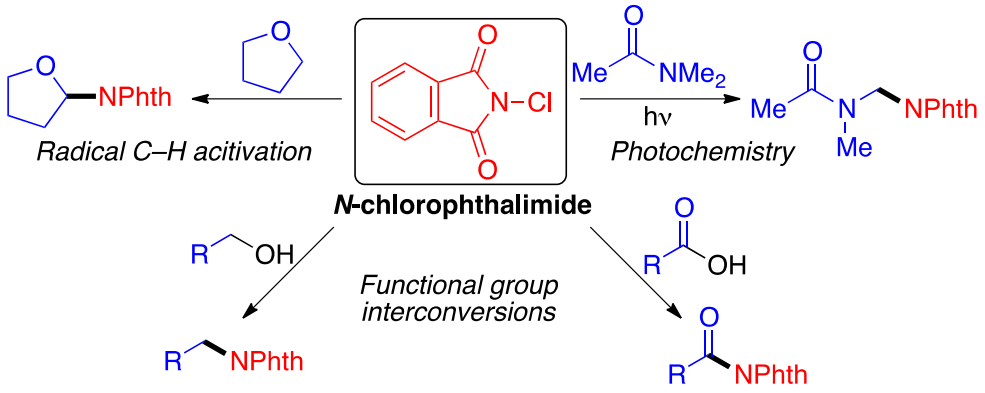

The formation of C–N bonds is of crucial importance to the pharmaceutical, agrochemical, and material science industries. Traditionally, these C–N bonds have been synthesized via SN2 substitutions, reductive amination, or other metal-catalyzed transformations. Deoxyamination of alcohols and carboxylic acids, such as the Mitsunobu reaction or peptide coupling reactions, are also used to generate alkyl amines and amides, but these reactions require the use of highly toxic and explosive activating reagents. Herein, we propose to use *N*-chloroimides to perform efficient and atom-economical amination reactions *via* both radical C–H activation and deoxyamination strategies. In detail, we have developed various methodologies that afford alkyl amines and amides using *N*-chloroimides both as our activating agent and as our nitrogen source. Such transformations are more atom-economical and safer than current strategies since the reagents used are significantly less toxic and are fully incorporated in the final products.