VirginiaTech
Invent the Future

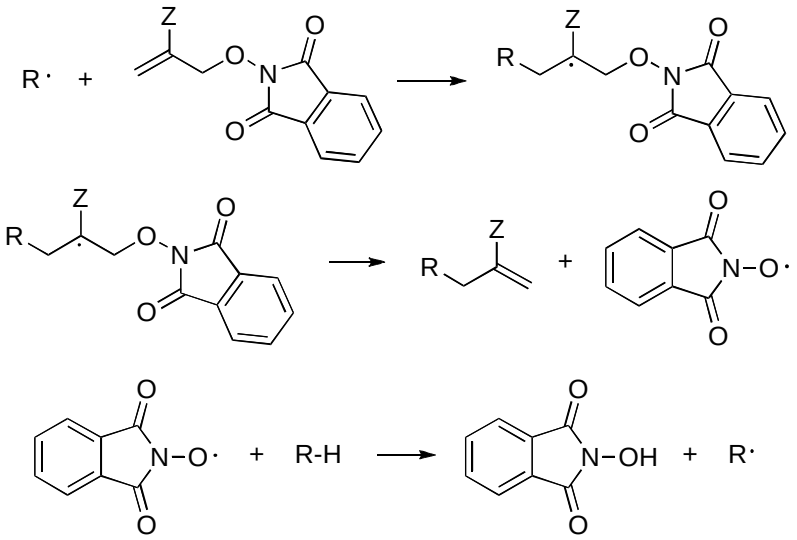
Radically "Green" Approaches to Hydrocarbon, Ether and Thioether Functionalization via Allyl Transfer

This research involves the development and application of a recently discovered chemical process which effects the conversion RH + C=C-C-X · R-C-C=C + HX. This *allyl transfer* reaction is especially noteworthy because it achieves *both* C-H bond functionalization and C-C bond formation, in a single step, via a free radical chain process (addition/elimination) based upon the chemistry of hydrogen abstractors such as bromine atom or the phthalimide-N-oxyl radical. Notably, this radical-based allyl transfer process is "tin-free" in that C-C bond formation is accomplished without the use of toxic reagents such as *n*-Bu_3SnH.

References:

Tanko, J. M.; Sadeghipour, M., *Hydrocarbon Functionalization via a New Free Radical –Based Condensation Reaction. Angew. Chem.* **1999**, 111, 219-222

Struss, J. A.; Sadeghipour, M.; Tanko, J. M. *Radical Additions to Allyl Bromides. A Synthetically Useful, 'Tin-Free' Method for Carbon–Carbon Bond Formation. Tetrahedron Lett.* **2009**, *50*, 2119 – 2120.



J. M. Tanko (jtanko@vt.edu)
Department of Chemistry
Virginia Polytechnic Institute and State University
Blacksburg, VA 24061