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## Synthesis of Alkene-Terminated Acyl Ferrocene Derivatives

The co-functionalization of silicon nanoparticles (SiNPs) utilizing ferrocene derivatives has been an area of interest.<sup>1</sup> The hydrosilation (functionalization) requires a terminal alkene. A recent report detailed a facile Friedel-Crafts acylation on ferrocene to generate a number of aliphatic acyl ferrocene derivatives.<sup>2</sup> In an extension of this method, two novel alkene-terminated acylferrocenes were synthesized and subsequently characterized.

The reaction conditions for the Friedel-Crafts acylation of ferrocene with 4-pentenoyl chloride and 10-undecenoyl chloride were investigated and optimized. These results, along with the optimized conditions for product purification, will be presented. Both species were characterized using FT-IR, NMR, and UV-Visible spectroscopies. Details regarding the spectroscopic analysis of each species, as well as a comparison of the two products, will be provided. Additionally, an X-ray crystal structure of the 4-pentenoyl species was obtained as final confirmation of this product.

1. Deutsch, K., Electronic and Optical Properties of Functionalized Silicon Nanocrystals, MSc Thesis, University of Alberta, 2016.

2. Donahue, C. J.; Donahue, E. R. Beyond Acetylferrocene: The Synthesis and NMR Spectra of a Series of Alkanoylferrocene Derivatives. J. Chem. Educ. 2013, 90 (12), 1688-1691.

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