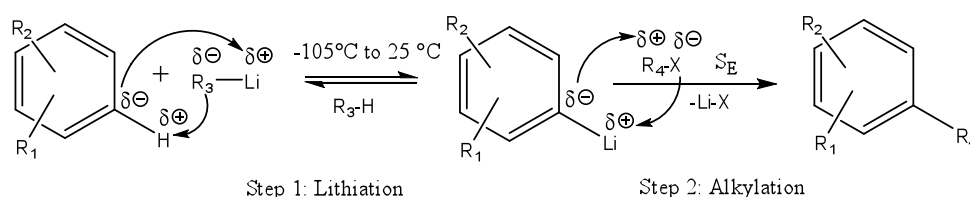


High Performance Reaction Calorimetry with In-situ ATR-IR Spectroscopy for Tracking Lithiation and Alkylation/Acylation Reactions

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In fine chemical industry, the use of organolithium compounds is a modern and powerful technique for selective C-C bond formation. Lithiation reactions are generally performed at low temperature; they can range from as low as -105°C up to $+25^{\circ}\text{C}$ [1].



It is of great importance to optimally schedule the dosing of the alkylation/acylation electrophile (Step 2 in the Figure) to avoid recombination with the nucleophilic lithiation agent (e.g. n-BuLi) possibly remaining from Step 1. For a relevant case study, we show how our novel low-temperature (-60°C) dedicated reaction calorimeter with in-situ ATR-IR detection can be used to follow the course of the reaction [2], and provide complementary information useful for reaction optimization.

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- [1] Rappoport Z. and Marek I. *The chemistry of organolithium compounds*. Wiley Chichester **2004**.
- [2] Puxty G., Fischer U., Jecklin M., Hungerbühler K. *Chimia* **2006**, 60, 605.