

Oxidation of phenols using catalytic amounts of solid-supported IBS-based catalysts in Continuous Flow

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As reactive intermediates, 1,2-quinones (o-quinones) have gained importance in organic synthesis. They can undergo many kinds of follow-up reactions like [4+2]-cycloadditions[2], formal [3+2]-photoadditions with vinyl ethers[3] or 1,4-additions with nitrogen-centered nucleophiles, respectively 1,6-additions with thiols as nucleophiles[4]. A reliable method for the synthesis of o-quinones is the application of λ^5 -Iodanes which show a remarkable regioselectivity favouring the formation of 1,2-quinones compared to 1,4-quinones[7]. Catalytic applications of λ^5 -Iodanes for the dearomatization of phenols were first described by Ishihara and co-workers in 2012. They discovered the suitability of 2-Iodosulfonic acid (IBS)-derived catalysts which are superior to their IBX-analogues[5]. Based on this work and the solid-supported IBX (SP-IBX)-catalyzed oxidation of alcohols in flow, first published by Kirsch et al.[6], we are now developing a method for the oxidation of phenols to 1,2-quinones in flow using solid-supported IBS-based catalysts and tetrabutyl ammonium Oxone (nBu₄NHSO₅) as co-oxidant.

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