A straightforward synthesis of cationic nitrile ligated transition metal complexes with the \( \text{B(C6F5)(4) (-)} \) anion

Nitrile ligated transition metal complexes bearing polyfluorinated tetra(aryl) borates as counter anions are highly active initiators/mediators for various polymerization reactions. However, the methods for their preparation are still far too inefficient for widespread use in applied research or in industry. Accordingly, an improved synthesis for two of the most promising species in this assemblage of complexes, namely \([\text{Cu(C6H5CN)(5)}][\text{B(C6F5)(4)}](2)\) and \([\text{Zn(CH3CN)(4/6)}][\text{B(C6F5)(4)}](2)\), has been developed. This route provides easy access to pure products on a gram scale, by the reaction of copper(II) acetate and diethyl zinc with \([\text{H(OEt2)(2)}][\text{B(C6F5)(4)}]\). Additionally, a new route for the synthesis of the oxonium acid as precursor has been developed, allowing a fast preparation of this compound. Elementary analysis and X-ray crystal structures are in accordance with earlier results on the ease of solvent loss and theoretical studies dealing with acetonitrile-exchange reactions. (C) 2011 Published by Elsevier B.V.
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