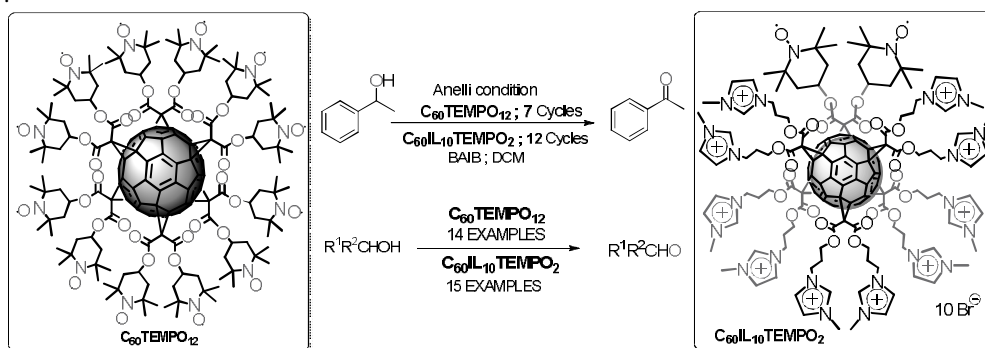


# ALCOHOL OXIDATION PROMOTED BY NOVEL RECYCLABLE C<sub>60</sub>-TEMPO ORGANOCATALYSTS

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Oxidation of alcohols to carbonyl compounds plays an important role in both the industrial synthesis and laboratory research.<sup>1</sup> In this process, use of metal free nitroso radical TEMPO (2,2,6,6-tetramethyl piperidine-1-oxyl) as a catalyst has gained much attention in the selective oxidation of primary and secondary alcohols to carbonyl compounds.<sup>2</sup> However, the relatively high prices of such derivatives prevent their large scale employment, making recovery of the catalyst highly desirable. Herein, we show for the first time the use of [60]fullerene as a molecular platform for supporting several organocatalytic TEMPO moieties to be used in the quantitative oxidation of alcohols to their corresponding carbonyl compounds (Scheme 1).



Scheme 1

1-Phenylethanol was oxidized and recycled up to 7 cycles using highly loaded C<sub>60</sub>TEMPO<sub>12</sub> catalyst (1 mol%) and quickly isolated by short chromatography whereas, ionic liquid tagged C<sub>60</sub>IL<sub>10</sub>TEMPO<sub>2</sub> catalyst (1 mol%) was recycled up to 12 cycles by using new class of multilayered covalently supported IL phase (mlc-SILP) materials with 'release and catch' approach.<sup>3</sup> Such catalysts gave good to excellent yields in the oxidation of a wide series of different alcohols to carbonyl compounds with a loading of catalyst between 0.05 and 1 mol% with TON of up to 3000.

## References:

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