# OXIME-ESTERS AS EFFICIENT PHOTOINITIATORS: NEW CONCEPT & ADVANCED APPLICATIONS

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Photopolymerization technology has attracted increasing attention due to its unique "5E" advantages. Photoinitiators are key components in photocuring systems because they have a significant influence on the photopolymerization rate and the performance of photopolymerized materials. Oxime-esters are a class of highly efficient Norrish Type I photoinitiators, which undergo direct cleavage of the N-O bond under irradiation, followed by a fast and irreversible decarboxylation to generate active species. The initiation efficiency of oxime-esters is determined by the photon absorption ability and the quantum yields of radical generation, as well as the initiating ability of the formed radicals. In this report, we will present the recent advances in the molecular design to adjust the photosensitivity of oxime-esters to different wavelengths, from visible to near-infrared light [1,2]. Considering the oxime-ester produces only one active species after photodecarboxylation because the formed iminyl radical is an inefficient initiating species, some novel concepts to potentially break the bottleneck of quantum yields of active radical generation will be discussed. Additionally, the application of oxime-esters in 3D printings will be presented [3, 4].

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