

Photocatalysis for Green Synthesis

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ABSTRACT

Heterogeneous Photocatalysis (HP) by polycrystalline semiconductor oxides is an unconventional technology that has been applied mainly to degrade organic and inorganic pollutants both in vapour and liquid phase. It is generally accepted that TiO_2 is the most reliable photocatalyst, due to its low cost and (photo)stability under irradiation. Applications of HP for synthetic purposes are rare especially by using water as the solvent. The reasons can be found (i) in the fact that the photocatalytic reactions are unselective processes and the presence of water, both as vapour and liquid phases, induces the production of OH radicals, highly oxidant species, under irradiation of the photocatalyst; (ii) many organic molecules (reagents and/or products) are not very soluble in water or are virtually insoluble. The present work deals with a short review of some application of photocatalysis to green organic synthesis.