

O 89. MODIFICATIONS ON TiO₂ FOR IMPROVING PHOTOCATALYTIC ACTIVITY

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ABSTRACT: TiO₂ is one of the mostly used photocatalyst for providing the photocatalytic oxidation process in which hydroxyl radicals arise from cleavage of water for decomposition of the air pollutants. Mainly organic air pollutants are removed successfully with this method. Photocatalyst is the fundamental part of photocatalytic oxidation because it triggers the electron movement and formation of hydroxyl radicals for the removal process. TiO₂ has some disadvantages such as limitations to use under high wavelengths and reduction of photonic activity although it is cost effective, easy to produce and highly stable. Therefore, for effective photocatalytic activity some modifications are necessary for improving TiO₂. Especially morphological and electronic design are suggested by the researchers. Morphological modifications supplies increasing the surface area of TiO₂ so usage of nano materials may be helpful. Moreover, electronical modifications like metal, non-metal and composite doping are more effective when its used together with the morphological changes. In this study, modifications which may be used to improve photocatalytic activity of TiO₂ were investigated to remove organic air pollutants and results from previous studies were given for the comparison purposes to evaluate performance of modified TiO₂.

Keywords: TiO₂, photocatalytic activity, photocatalyst, modification