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CATALYSTS FOR HETEROGENEOUS PHOTOCATALYSIS PART II. METHODS FOR SYNTHESIS

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Abstract

Selection of the preparation method is an important aspect that leads to synthesis of photocatalysts with optimal properties for the desired applications, which, furthermore, have to be obtained in a reliable and cost-effective manner. At present, conventional methods such as salt precipitation, calcinations or solid phase reactions still are the most widely used processes for fabrication of the commercial metallic oxide catalysts powder even these ones have disadvantages related to the uniformity of the powder or the repeatability and the cost of the process. This paper is a literature survey carried out in order to identify some methods to prepare photocatalytic materials including powders, thin films or nanostructured materials, taking into account the advantages and disadvantages of the studied techniques. There are presented some possibilities to modify and improve the conventional methods but also some non-conventional processes (magnetron sputtering, chemical vapour deposition) for synthesizing catalysts used for photocatalytic applications. A nanosphere lithography approach to produce quantum size titanium dioxide particles with uniform size and shape is also described.

Keywords: heterogeneous photocatalysis, magnetron sputtering, CVD, nanosphere lithography

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