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# **A Green and Facile Approach to the Efficient Surface Modification of Alumina Nanoparticles with Fatty Acids**

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## **ABSTRACT**

A general, green and facile approach to the efficient surface modification of alumina and other metal oxide nanoparticles with fatty acids have been proposed. In this process, only water was used as the dispersing medium, the modified metal oxide nanoparticles were automatically separated from water, and water can be recycled. The modification efficiency, using oleic acid as an example, of this water alone method was 36% higher than that of the water-ethanol method, which is a result of higher opportunity of interfacial reaction between oleic acid and  $\text{Al}_2\text{O}_3$  molecules on the surface of alumina nanoparticles dispersed in water only. The modification efficiency increases with increasing chain length of the fatty acids. After modification with fatty acids, the crystalline structure of alumina remains unchanged, the

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