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Preparation of TiO₂ film as nanocatalyst for functionalization of styrene-butadiene rubber**Kanpitcha Amornjirasak and Jitladda Sakdapipanich**
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Styrene Butadiene Rubber (SBR) has wide variety of applications such as footwear, conveyor belts and especially tires. However, their usage is limited due to their inert hydrocarbon nature. A method used for improving properties of rubber latex is an introduction of some polar reactive like hydroxyl group onto the molecular main chain. A chemical modification herein was offered to prepare functionalized rubber latex via photo catalytic reaction using TiO₂ film as a catalyst. The appropriate TiO₂ film was prepared by spin-coating technique, followed by calcination at 550 °C. The efficiency, crystalline form and topology of TiO₂ were analyzed by the degradation of Methylene Blue (MB), XRD and AFM respectively. The photo catalytic activity of TiO₂ film decreased in each time of use, nevertheless performance of TiO₂ film could be recovered under a long period of UV-cleaning. Subsequently, the functionalization of SBR was investigated under UV irradiation with presentation of TiO₂ film. Several techniques were used for characterization of modified SBR: FT-IR, ATR and ¹H-NMR spectroscopy. The hydroxyl functional group of SBR was observed after 3 hours of irradiation, using 20% H₂O₂ and UV 80W.

Biography

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