

MODIFIED NANO TITANIUM DIOXIDE FOR GREEN CHEMISTRY

Rempel A.A.

*Institute of metallurgy of the Ural Branch of the Russian Academy of Sciences,
Amundsen str., 101 Ekaterinburg 620016, Russia
e-mail: rempel.imet@mail.ru*

Controlled photocatalytic reactions for organic synthesis, photocatalytic oxidation of organic compounds, and photocatalytic hydrogen production under visible light have become of special significance for green chemistry [1]. Nowadays, modified nanostructured TiO₂ is the most widely studied photocatalyst of such reactions because in case of hybrid [2,3] or nonstoichiometric nanoparticles [4] the lower boundary of the light sensitivity range can be shifted from 360 to even 450-510 nm. This leads to a considerable enhancement of the photocatalytic activity of TiO₂, which enables the photocatalytic reactions without special ultra violet illumination.

In present talk the review and the discussion will focus on the synthesis of visible light photocatalysts based on modified TiO₂ nanoparticles, on their nanostructure and morphology and on the catalytic properties and applications of such photocatalysts. Special attention is given to sol-gel synthesis of TiO₂ nanoparticles, modification of stoichiometric titanium dioxide to a nonstoichiometric one, structural characterization techniques including small-angle scattering, degradation problems and mechanism of catalytic activity.

References

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