

Statement of novelty:

- Crucial role of the synthesis procedure to obtain photocatalytically active titania powders produced by low-cost TiCl_4 precursor via the sol-gel route is presented; substitution of HCl with H_2SO_4 decreases the size of crystallites, changes phase composition and increases the surface area of the powders.
- Varying the type/amount of acid and dopants used improves the characteristics and activity of the prepared powders.
- Photocurrent measurements indicate the optimal content of platinum in relation to TiO_2 , which was confirmed by the photocatalytic efficiency.
- Photocatalytic activities of some samples exceed the activity of commercially available pure anatase nanopowder Hombikat UV 100 (DE).