

## **Electrophoretic deposition of TiO<sub>2</sub> nanoparticles coating on the glass fabric**

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Among the titanium dioxide (TiO<sub>2</sub>) nanoparticles physical and chemical properties the photocatalytic properties take substantial place. The set of chemical, thermal and mechanical properties of glass fabrics is a good base for photo catalytic membrane creation.

In current research the special circular electrophoresis cell has been made and the methodologies of electrophoretic coating deposition have been developed.

TiO<sub>2</sub> coatings were obtained from TiO<sub>2</sub> suspension by electrophoretic deposition. The obtained TiO<sub>2</sub> nanoparticle coatings were characterized by SEM, XRD and Raman spectra of as-obtained and heat treated in air for 2 h at 500 °C. From SEM images followed that as-obtained titanium dioxide coatings were formed of 500 nm TiO<sub>2</sub> particles while the heated titanium dioxide coatings were formed as three-dimensional network of dumbbell-shaped 1500 nm TiO<sub>2</sub> particles. From the Raman spectra follows that the heat treatment of as-obtained anatase TiO<sub>2</sub> nanoparticle coating converts it to anatase and rutile phase mixture. Heat treatment shifts XRD spectrum lines by 0.5 (°) to higher 2θ (°) value direction.

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