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STRUCTURAL PROPERTIES OF PHOTOCATALYTIC COPPER PIGMENTED ANODIZED TITANIUM

Peter c. Owino^{1*}, Maurice M. Mwamburi¹, Nuru R. Mlyuka², Margaret E. Samiji², Grace A. Kinunda², David Waswa¹, Christopher Maghanga³

¹Department of Physics, University of Eldoret, P. O. Box 1125 – 30100, Eldoret, Kenya

²Department of Physics, Department of Chemistry, University of Dar es Salaam, P. O. Box 35063, Dar es Salaam, Tanzania

³Department of Physical & biological Sciences, Kabarak University, P.O. Private bag-20157, Kabarak, Kenya.

*Corresponding author e-mail: owinop3@gmail.com

Titanium dioxide (TiO₂) photocatalysis is an advanced oxidation process with key advantages over other water treatment technologies including the lack of mass transfer limitations, operation at ambient conditions and the potential use of solar radiation. In this study, commercial pure grade 1 titanium substrate was anodized at 200V for different anodization times, pigmented and annealed for a period of 450 °C for 4 hours. Structural properties of the samples was done using AFM, XRD and SEM. Prolonging anodization time engineered the formation of pores and pores merging of the TiO₂ film thereby significantly influencing the surface morphology and crystallinity of the sample. The XRD measurements confirmed the coexistence of both rutile and anatase phases in the samples.

Keywords

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Primary author: Mr OWINO, Peter C. (University of Eldoret)

Co-authors: Dr MAGHANGA, Christopher M. (Kabarak University); Dr WASWA, David (University of Eldoret); Dr KINUNDA, Grace A. (University of Daresalaam); Dr SAMIJI, Margaret E (University of Daresalaam); Prof. MWAMBURI, Maurice M. (University of Eldoret); Dr MLYUKA, Nuru R. (University of Daresalaam)

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