



Contribution ID: 309

Type: Oral Presentation

The photocatalytic degradation study of Rhodamine B using zinc oxide as an alternative catalyst to titanium dioxide

Tuesday, 5 July 2016 15:00 (20 minutes)

Abstract content (Max 300 words) http://events.saip.org.za/getFile.py/?target=_blank **Formatting & Special chars**

Colored dye waste waters are released in huge quantities to the environment and cause negative effects to living organisms. As a result, a technique called advanced oxidation processes has been developed to effectively degrade such pollutants. In this study, rod-like and spherical ZnO nano-particles are synthesized and their photocatalytic activity is investigated. Photocatalytic degradation of Rhodamine B was carried out by irradiating an aqueous solution of the dye containing ZnO using solar light. The effect of dye concentration (5 – 50 mg/L) and pH (2 – 12) are reported. Degradation was followed by measuring absorbance of aliquots spectrophotometrically. Experimental results indicated that an increase in catalyst amount or decrease in dye concentration resulted to high degradation rate. A pH study showed that the dyes were degraded efficiently under neutral and basic conditions and a significant decrease in the degradation efficiency was seen under acidic conditions, with maximum degradation observed at pH 8.

Apply to be considered for a student award (Yes / No)?

Yes

Level for award (Hons, MSc, PhD, N/A)?

MSc

Main supervisor (name and email) and his / her institution

Dr Zikhona Tetana (zikhona.tetana@wits.ac.za), University of the Witwatersrand

Would you like to submit a short paper for the Conference Proceedings (Yes / No)?

No

Please indicate whether this abstract may be published online (Yes / No)

No

Primary author: Mr NKABINDE, Siyabonga (University of the Witwatersrand)

Co-author: Dr TETANA, Zikhona (Microscopy and Microanalysis Unit (MMU), University of the Witwatersrand)

Presenter: Mr NKABINDE, Siyabonga (University of the Witwatersrand)

Session Classification: Division for Physics of Condensed Matter and Materials (2)

Track Classification: Track A - Division for Physics of Condensed Matter and Materials