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## Comparative study of the photocatalytic destruction efficiencies of TiO<sub>2</sub> nanoparticles and nanofibers

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A comparative study of the H<sub>2</sub>S gas destruction efficiencies of TiO<sub>2</sub> nanoparticles and nanofibers has been carried out. Effects of sulphur doping have also been incorporated to assess the maximum destruction potential of the nanomaterials. An analysis has been made in this paper to evaluate and compare the performance of pure and sulphur doped TiO<sub>2</sub> nanoparticles and nanofibers for the destruction of H<sub>2</sub>S gas using photocatalysis under laboratory conditions. Nanoparticles have been synthesized using co-precipitation method while electrospinning technique was used to prepare the nanofibers. Regression modeling has been performed to ascertain the individual degradation rates of the nanoparticles and nanofibers. Oxidation rates which give a relationship between gram moles of H<sub>2</sub>S converted per minute per gram of catalyst have also been used to compare the destruction efficiencies of both the nanoparticles and nanofibers.

### Biography

Naeem Shahzad completed his PhD in 2012 in Environmental Engineering from Institute of Environmental Sciences and Engineering, National University of Sciences and Technology (NUST), Pakistan. His research focuses on environmental applications of nanotechnology. Presently he is serving as Assistant Professor at NUST. He has published his research work in reputed International Journals and is on the editorial board of few International and National Journals as well.

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## Study of microstructural characteristics and mechanical properties of vacuum induction melted cast Al-Mg-Sc alloys

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Al-Mg alloys are widely used in aerospace and transportation industries because of their low density, high strength to weight ratio, excellent corrosion resistance and good formability. As solution-strengthened alloys, Al-Mg alloys can only be strengthened by work-hardening and microalloying. Micro-alloying has shown to be one of the effective methods to improve the microstructure and mechanical properties of aluminium alloys. Up to now, the most effective micro-alloying element reported for aluminium alloys is scandium. Microstructural examination revealed that the presence of the dispersoid Al<sub>3</sub>Sc responsible for the improvement of the properties. Mechanical properties such as tensile properties, ductility, and hardness were evaluated at room temperature. There was significant increase in the yield and tensile strength and the microhardness of the Al-Mg-Sc alloy relative to its Sc-free counterpart. The vacuum induction melted Scandium containing alloy exhibited enhanced mechanical properties in comparison to the other Cast Al-Mg-Sc alloys.

### Biography

K Subbaiah has completed his PhD recently in March-2014 from VIT University, Vellore in Tamil Nadu-India. He is working as Associate Professor in the Department of Mechanical Engineering, SSN Engineering College at Chennai in Tamil Nadu, India. He has published 14 papers in reputed journals and conferences. He has 30 years of teaching experience at graduate level and 9 years of research experience.

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