

Asesor: Dr. Luis Armando Díaz Torres

Sinodales: Dr. Carlos Eduardo Rodríguez García
(Sinodal Externo – Universidad Autónoma de Coahuila, Secretario)

Dra. Gloria Verónica Vázquez García
(Sinodal Interno, Vocal)

Dr. Luis Armando Díaz Torres
(Asesor de Tesis, Presidente)

Tesis: "SYNTHESIS, CHARACTERIZATION AND EVALUATION OF BARIUM AND MAGNESIUM ALUMINATES SINGLE DOPED WITH NEODYMIUM OR TANTALUM IN PHOTOCATALYTIC DYE DEGRADATION"

Resumen:

This work presents synthesized Barium and Magnesium aluminates as hosts and doped with Neodymium or Tantalum. The materials were prepared by combustion synthesis and calcined in either air oxidizing atmosphere or graphite vapor reductive atmosphere. They were evaluated as photocatalysts in the degradation of 15 ppm methylene blue by the use of a solar simulator. Characterization of these materials was done by X-ray Diffraction, Scanning Electron Microscopy, UV-VIS Spectroscopy, Luminescence Spectroscopy and Electrochemical Impedance Spectroscopy.

Active redox species were investigated for their degree of participation in the photocatalytic process. The air calcined barium aluminate doped with the least concentration of neodymium was found to be the best photocatalyst in the degradation of methylene blue and a potential candidate for active oxidation processes (AOPs).