The electrophoretic deposition process has gained wide attention as a novel technique for the preparation of thin films, one dimensional nanostructures, monolayers and other nanostructures, due to its low cost, formation of homogeneous coatings and high versatility of application of the formed materials. In this work, nickel hydroxide particles were prepared from NiCl₂ and NH₄OH solutions, by heating 90 s in a conventional microwave oven. The resulting dispersions were mixed with aluminum acetate solutions at different concentrations in order to produce nickel-aluminum layered double hydroxide. After 24 h of reaction at room temperature, the mixture were filtered and washed with distilled water and ethanol, and the powder products were dried at room temperature. Finally, the powders were dispersed in isopropanol and electrophoretically deposited on aluminum plates at 12 V during 15 min. The resulting coatings were characterized by X-ray diffraction, diffuse reflectance spectroscopy, FTIR measurements and scanning electron microscopy. The characterization results show that a composite of Ni(OH)₂ / Ni-Al layered double hydroxide was obtained with typical laminar morphology, and the characteristic reflections of Ni(OH)₂ phase and Ni-Al layered double hydroxide.

Keywords: Electrophoretic Deposition, LDH, Nickel-Aluminum

Presenting author’s email: abner_aguillon@hotmail.com