**Photocatalytic applications of LaxSr1-xTiO3 perovskiteimmobilized on Ni foam: Fotodegradation of the Acid Orange 7**

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The term perovskite is used to classify ceramic materials with a structure ABX3, where A and B are cations (being B smaller than A) and X is an anion, like O2-. The oxides perovskite LaxSr1-xTiO3, obtained by doping the SrTiO3 perovskite with La, are considered promising materials to be use in photocatalysis (Jia et al, 2010; Tonda et al, 2014) due to its high catalytic activity and chemical and photochemical stability (Howard et al., 2004). However, the energy conversion efficiency is low due to the high value of the band gap (~ 3.2 eV), which restricts the absorption to the ultraviolet region (Aiura et al., 1996; Jia et al, 2010; Tonda et al, 2014). To improve the efficiency of SrTiO3 perovskite and be able to use radiation in the visible range, it is necessary to reduce the value of the band gap, for instance, by doping it with other elements. The objective of this study was to prepare and characterize perovskitepowders from the LaxSr1-xTiO3 familyand use them as photocatalysts in the degradation of Acid Orange 7 (AO7).

The LaxSr1-xTiO3 perovskites powders, with x between 0 and 0.4, were prepared via the solid-state reaction method at 1200ºC. The samples were structurally characterized by XRD, and the existence of a predominant phase of LaxSr1-xTiO3 was observed. The powders were characterized morphologically by SEM and TEM, verifying the nanomeric nature of the crystallites (≅ 40 nm). In order to improve the utilization of the powders as catalyst, nickel foam plates were immersed in a suspension of the perovskite powder on TritonX, allowing the homogeneous impregnation of the nickel support´s surface with the powder. After that, a thermal treatment to decompose the solution and to form a perovskite layer over the Ni support, in an extremely homogeneous form, was carried out. The oxide loading was controlled.

The photocatalysis tests were performed using UV light to irradiate Acid Orange 7 (25 ppm) aqueous solutions. Blank photocatalysis assays with Ni foam were also tested. After 6 h of assay, almost complete color removal was obtained for all the tested films, having the photodegradation efficiency (expressed as mg AO7 removed / g of photocatalyst immobilized) increased with the increase in the substitution degree of Sr by La.

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