عنوان مقاله:

Assessing and simulation of photocatalytic activityof TiO2 films doped by SiO2

محل انتشار:

اولین کنفرانس ملی نانوفناوری در صنایع نفت، گاز و پتروشیمی (سال: 1393)

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خلاصه مقاله:

The aim of the current study is to model the photocatalytic activity of TiO2thin films doped by SiO2 additives with the variations in SiO2 concentrationand MO degradation time. The nano crystalline TiO2:xSiO2 (x: molepercentage) films were prepared by sol-gel method and settled on glasssurface. The final films were achieved after a calcination procedure andUV irradiation in contact with Methyl Orange (MO) solution. Nonlinearbehavior of photocatalytic activity of synthesized films made the authorseager to use Fuzzy Logic (FL) model to simulate and calculate the MOconcentration variation with SiO2 concentration and MO degradation time.The statistical reported values which denote the agreement between thepredicted and experimental data sets were about 96% for all cases. Theresults of modeling approved the excellent agreement between thepredicted values by the model and the experimental .observations.Therefore it can be concluded that FL is an appropriate tool to simulatesuch processes

کلمات کلیدی:

Photocatalytic activity; Sol-Gel; Modeling and simulation; Fuzzy inference system