

## عنوان مقاله:

Computational Modeling of Toluene Removal in a Photocatalytic Membrane-based Reactor

## محل انتشار:

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## خلاصه مقاله:

Volatile Organic Compounds (VOCs) are a large group of chemicals that are found in many products. The VOCs emission has become a serious challenge due to their adverse effects on human health and the ecological environment. Consequently, the development of various technologies to eliminate VOCs is an undeniable necessity. To develop an effective elimination technique, computational modeling is a powerful tool for process assessment. In this study, computational modeling was conducted to analyze the transport phenomena during the photocatalytic degradation of toluene, in a supported ionic liquid membrane reactor. The mass transfer coefficient and reaction rate constant were estimated and the flux magnitude and flux streamlines were also determined and analyzed. Furthermore, the membrane permeance was also determined as a function of membrane channel length and time. The accuracy of the model was confirmed by fitting the actual average concentration of the toluene and the values predicted by the model over time.

## کلمات کلیدی:

Membrane reactor, Modeling, Volatile organic carbon, Photocatalyst

## لینک ثابت مقاله در پایگاه سیویلیکا:

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