

Photocatalytic Membranes: What Does the Future Hold in Integrated Photocatalysis/Membrane Technology Applications?

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The use of photocatalysts in slurry systems has several merits. However, separating the photocatalysts from the treated presents a challenge which hinders practical application. Membrane processes which combine the physical separation through filtration and pollutant degradation through photocatalysis in a single unit are gaining popularity as wastewater treatment alternatives. There has been considerable progress in the development of photocatalytic membranes through incorporation of photocatalysts to enhance the performance of the membranes. Photocatalytic membranes generally outperform conventional membranes in terms of reducing membrane fouling and improving permeate quality. Several parameters need to be optimised to realise reasonable photocatalytic activity with minimal consequences on the membrane properties. This presentation highlights the recent progress in development of photocatalytic membranes, reactor configuration and future perspectives in photocatalytic membrane application in disinfection and pollutant removal from wastewater.