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Factors affecting preparation of photocatalytic TiO_2 metal membrane with reactive nano-structured tubes

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ABSTRACT

A photocatalytic TiO_2 metal membrane embedded with large surface area of anatase crystallites was successfully fabricated by anodization technique. The nano-structured anodized TiO_2 membrane was characterized using SEM and XRD techniques and the operational parameters to fabricate such as anodization time and applied anodic potential were also investigated. Regular nanotubular arrays were obtained using a KH_2PO_4 electrolyte with 0.35 wt. % NH_4F and 25 V of applied potential by anodization. By the SEM and XRD patterns, the anodized TiO_2 membrane showed the enhanced photocatalytic properties of anatase phase.

Keywords: Photocatalytic; Nanotubular; Anodization; TiO_2 membrane, Anatase; Organics removal

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