Continuous flow photochemical reactor for solar decontamination of water using immobilized TiO_2

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Abstract

A photochemical reactor is designed for solar decontamination of organic pollutants in water, where the nanocrystalline photocatalyst TiO_2 is immobilized on glass. The reactor modules could be connected in series and/or parallel to achieve desired flow rates under different conditions of illumination and degree of contamination. Methyl violet and phenol was found to completely degrade under solor irradiation and flow rates of 102–138 ml/h.

Keywords: Titanium dioxide; Decontamination of water; Photochemistry; Photocatalyst; Organic pollutants