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PHOTOCATALYTIC DEGRADATION OF TRIBUTYLTIN BY N-DOPED TIO_2

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ABSTRACT

The photo catalytic degradation of organ tin compounds (TBT, DBT and MBT) in aqueous N-doped TiO_2 suspension was studied. The N-doped TiO_2 photo catalyst was prepared via the sol-gel method using titanium (IV) tetra iso pro poxide as a precursor. The prepared photo catalyst was characterized by XPD, SEM, TEM, UV-Vis/DRS and elemental analysis. Under UV-light irradiation, P-25–TiO_2 was able to degrade TBT with the highest degradation efficiency than UN doped and N-doped TiO_2. Under visible light and sunlight illumination, N-doped TiO_2 gave the best catalytic efficiency for TBT, DBT and MBT compared with others photo catalysts. The rate constant for the degradation of TBT, DBT and MBT by the N-doped TiO_2 were 0.1532 h^{-1}, 0.2973 h^{-1} and 0.3950 h^{-1} respectively. The degradation of TBT should be in line with the debutylation process to generate DBT and MBT as by product.

KEYWORDS: Organ Tin Compounds, Tri butyl tin, Titanium Dioxide, Photo Degradation