

Preparation of photocatalytic TiO₂ thin films by atomic layer deposition using TDMAT and H₂O₂

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Titanium dioxide thin films were grown by atomic layer deposition (ALD) using tetrakis-dimethylamido titanium (TDMAT) and H₂O₂ as precursor and reactant, respectively. The films were grown at deposition temperature 100–250°C. Firstly, the characteristics of the ALD preparation of TiO₂ films, as a function of the growth temperature, precursor, reactant and purge time, were studied. Secondly, the photo catalytic activity of thin films was studied by the decomposition of methylene blue. Various analysis methods were used to investigate the film properties, ellipsometer, X-ray diffractometer and Auger electron spectrometer.