

# Structural Characterization of TiO<sub>2</sub> Thin Films on Aluminum Substrates Obtained by Sol-Gel Process

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**Abstract :** In this work, TiO<sub>2</sub> thin films were prepared by dip-coating Sol-Gel process on aluminum substrates. The deposition process allows having layers of good quality (homogeneity, adhesion). The layers thus prepared have undergone annealing at 550 °C for 1\2h and 2h and characterized by different techniques: Differential scanning calorimetric (DSC), X-ray diffraction (XRD), Raman spectroscopy and scanning electronic microscopy (SEM). The DSC curve shows an exothermic peak corresponding to the crystallization of TiO<sub>2</sub>. XRD and Raman results indicate that TiO<sub>2</sub> layers deposited on aluminum crystallize in tetragonal anatase phases of TiO<sub>2</sub> by annealing at 550 °C, the grain size depend on the annealing time. Then observing the cavities of TiO<sub>2</sub> randomly formed on aluminum by SEM.

**Keywords :** Aluminum substrate, TiO<sub>2</sub>Thin films, anatase