

Abstract Submitted
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Crystallization of titania nanotubes powders synthesized by anodization in chloride ions containing solutions EUGEN PANAITESCU, LATIKA MENON, Physics Department, Northeastern University — Titanium oxide nanotubes show good promise in solar energy harvesting for photovoltaic cells and photocatalysis. Pristine anodic titania nanotubes are amorphous, and annealing procedures are employed for their crystallization. We investigated the crystallization process of titania nanotubes powders - obtained by anodization of titanium foils in chloride ions containing solutions - by means of differential scanning calorimetry. We analyzed the influence of parameters such as annealing temperature, annealing time, and temperature scan rate on the phase transition, and on the crystalline properties of the final product. The crystalline powders have been characterized using XRD, RAMAN and diffuse reflection measurements. SEM and TEM imaging has been employed for the investigation of structural properties before and after annealing, and optimal annealing conditions have been identified.

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