

Synthesis of tio₂ nanotube in ti-10ta-10nb thin film by anodization

Ahmad Ivan Karayan, author

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Abstrak

The purpose of this research was to study the synthesis of TiO₂ nanotubes on Ti-10Ta-10Nb thin film and the effect of applied potential on the tube size, length and morphology. The Ti-10Ta-10Nb thin film was deposited by dc magnetron sputtering on the CP Ti substrate. The anodization of this Ti-10Ta-10Nb thin film was performed in the solution containing 1M H₃PO₄ + 1.5wt.% HF at the potential readings of 4, 6, 8 and 10 V for 10 minutes. The results showed that there was a slight increase in the tube diameter from approximately 25 nm at 4 V to 50 nm at 8 V. The length of nanotube varied from 700-900 nm. Interestingly, at the potential of 10 V, the nanotube diameters were damaged with slight decreases in nanotube lengths (500 nm).