

Nanotube shape on the Ti-29Nb-xHf alloys with applied potentials

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초 록 : Over the last years the anodic formation of ordered TiO₂ nanotube layers has created significant scientific interest. Titanium oxide nanotube formation on the titanium or titanium alloy surface is expected to be important to improve cell adhesion and proliferation under clinical conditions. It should be possible to control the nanotube size and morphology for biomedical implant use by controlling the applied voltage, alloying element, current density, anodization time, and electrolyte. TiO₂ nanotubes show excellent biocompatibility, and the open volume in the tubes may be exploited as a drug release platform and so on.

Therefore, in this study, Nanotube shape on the Ti-29Nb-xHf alloys with applied potentials was reserched. TiO₂ nanotube formation on Ti-29Nb-xHf alloys was carried out using anodization technique as a function of applied DC potential (10 V to 30 V and 30 V to 10 V) and anodization time for 60~120 min in 1M H₃PO₄ with small additions of (0.8 wt. %, to 1.2 wt. %) NaF. The morphology change of anodized Ti-29Nb-xHf alloys was determined by FE-SEM, XRD, and EDS. (This research was supported by NRF: 20080062283; hcchoe@chosun.ac.kr).

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