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[\[Image PDF \(822K\)\]](#) [\[References\]](#)**Electropolishing of CP Titanium and Its Alloys in an Alcoholic Solution-based Electrolyte**[Kiyoshi TAJIMA](#)<sup>1)</sup>, [Masahisa HIRONAKA](#)<sup>2)</sup>, [Ker-Kong CHEN](#)<sup>3)</sup>, [Yuki NAGAMATSU](#)<sup>1)</sup>, [Hiroshi KAKIGAWA](#)<sup>1)</sup> and [Yoshio KOZONO](#)<sup>1)</sup>

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**Abstract:**

A newly developed electropolishing system, equipped with an original agitation function for an electrolyte and using a safe electrolyte composed of an alcoholic solution, was applied for wrought and cast CP titanium and its alloys. Surface roughness and morphology of the polished surfaces were then examined. Under an electrolytic condition of 70—75 V, 2.0 kA/m<sup>2</sup>, and 30°C, wrought CP Ti and Ti-6Al-4V alloy achieved an apparent mirror-like finishing with an average surface roughness (Ra) of 0.03 and 0.12 μm respectively. Under the same condition, on the other hand, cast CP Ti and Ti-6Al-7Nb alloy produced rougher polished surfaces with average Ra values of 0.67—0.80 μm, and the finishing was apparently shiny, but not mirror-like. SEM observation of the polished surfaces showed that wrought CP Ti was even and completely featureless, while wrought Ti-6Al-4V alloy was pitted. For cast CP Ti, a needle-like phase containing traces of iron was observed on the polished surface.

**Key words:**[Titanium](#), [Electropolishing](#), [Surface roughness](#)

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