

KNO₃와 HNO₃ 전해액이 Cu에 미치는 영향

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Effect of copper surface to HNO₃ and KNO₃ electrolyte

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Abstract : In this paper, the current-voltage (I-V) curves, such as linear sweep voltammetry (LSV) and cyclic voltammetry (CV), were employed to evaluate the effect of electrolyte concentration on the electrochemical reaction trend. From the I-V curve, the electrochemical states of active, passive, transient and trans-passive could be characterized. And then, we investigated that how this chemical affect the process of voltage-induced material removal in electrochemical mechanical polishing (ECMP) of Copper. The scanning electron microscopy (SEM) and energy dispersive spectroscopy (EDS) analyses were used to observe the surface profile. Finally, we monitored the oxidation and reduction process of the Cu surface by the repetition of anodic and cathodic potential from cyclic voltammetry (CV) method in acid- and alkali-based electrolyte. From these analyses, it was important to understand the electrochemical mechanisms of the ECMP technology.

Key Words : Electrochemical mechanical polishing (ECMP); Linear sweep voltammetry (LSV); Cyclic voltammetry (CV); HNO₃, KNO₃electrolyte.