

전해액의 농도가 Cu 전극의 전기화학적 특성에 미치는 영향

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Effects of Concentration of Electrolytes on the Electrochemical Properties of Copper

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Abstract : The chemical mechanical polishing (CMP) process has been widely used to obtain global planarization of multilevel interconnection process for ultra large scale integrated circuit applications. Especially, the application of copper CMP has become an integral part of several semiconductor device and materials manufacturers. However, the low-k materials at 65nm and below device structures because of fragile property, requires low down-pressure mechanical polishing for maintaining the structural integrity of under layer during their fabrication. In this paper, we studied electrochemical mechanical polishing (ECMP) as a new planarization technology that uses electrolyte chemistry instead of abrasive slurry for copper CMP process. The current-voltage (I-V) curves were employed we investigated that how this chemical affect the process of voltage induced material removal in ECMP of Copper. This work was supported by grant No. (R01-2006-000-11275-0) from the Basic Research Program of the Korea Science.

Key Words : electrochemical mechanical polishing (ECMP), HNO₃, electrolyte, copper