

## Post Ru CMP Cleaning에서 연마입자의 흡착과 제거에 대한 chemical의 첨가제에 따른 영향

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### Effect of chemical in post Ru CMP Cleaning solutions on abrasive particle adhesion and removal

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**Abstract** : Ruthenium (Ru) is a white metal and belongs to platinum group which is very stable chemically and has a high work function. It has been widely studied to apply Ru as an electrode material in memory devices and a Cu diffusion barrier metal for Cu interconnection due to good electrical conductivity and adhesion property to Cu layer. To planarize deposited Ru layer, chemical mechanical planarization (CMP) was suggested. However, abrasive particle can induce particle contamination on the Ru layer surface during CMP process. In this study, zeta potentials of Ru and interaction force of alumina particles with Ru substrate were measured as a function of pH. The etch rate and oxidation behavior were measured as a function of chemical concentration of several organic acids and other acidic and alkaline chemicals. PRE (particle removal efficiency) was also evaluated in cleaning chemical.

**Key Words** : Ruthenium, CMP, post CMP cleaning