STI-CMP공정에서 슬러리 연마입자가 dishing에 미치는 영향

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Effect of slurry abrasive particle on dishing in Shallow Trench Isolation Chemical Mechanical Polishing

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Abstract

Recently, STI(Shallow Trench Isolation)process has attracted attention for high density of semiconductor device as a essential isolation technology. In this paper, the variation of step height and dishing amounts in STI pattern has been investigated with respect to polishing time using three kinds of ceria slurry which were different particle size. For this research, line type, checker type and square type STI patterns were introduced. SEM, AFM and alpha-step were used in order to detect step hight and dishing amounts. Removing time of step heights increased with size of abrasive increased. At over-polishing time as compared with A and B type ceria abrasive, C type ceria abrasive showed larger removal rate of step heights. The size of ceria abrasive affected removal of step-height and dishing of various patterns.

Key Words : CMP, STI CMP, slurry, ceria abrasive, step height, dishing