

Damascene 공정으로 제조된 PZT 캐패시터의 전기 특성을 고려한 세정 공정 최적화

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The post-CMP cleaning process was very important in a chemical mechanical polishing (CMP) process when the CMP process was firstly applied to fabricate a ferroelectric PZT capacitor instead of using a plasma etching process for the vertical profile without plasma damage in our previous study. Therefore, we investigated the effects of the post-CMP cleaning process on the ferroelectric properties of a PZT thin film capacitor. An optimized post-CMP cleaning process was proposed using a SC-1 chemical, DHF treatment, and an ultrasonic cleaning process considering the electrical properties of PZT capacitor fabricated by damascene process of CMP process. The slurry residues on the surface of the PZT thin films were removed in this condition. The polarization-voltage (P - V) characteristics showed the typical hysteresis loop of PZT thin films after a post-CMP cleaning process with the optimized conditions while the ferroelectric characteristics could not be observed in the specimen without the post-CMP cleaning process. The remanent polarization (P_r) and coercive voltage (V_c) of the PZT thin films after the post-CMP process with the optimized condition were also sufficient. Acknowledgement: This work was supported by Korea Research Foundation Grant (KRF-2007-412-J02003).