

# **Effects of Oxygen Partial Pressure in Cooling after Deposition of PZT Thin Films by Reactive Sputtering**

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We studied the phase formation and the effect of electrical properties of PZT thin films with changing the oxygen partial pressure in cooling after deposition of PZT thin film by reactive sputtering method. The roughness of thin film increased with decreasing the oxygen partial pressure in cooling due to the evaporation on the surface of thin films and the grain size was not changed very much. The hysteresis property of PZT thin film was improved toward having a good squareness with increasing the cooling oxygen partial pressure. We observed the decrease of remanent polarization, retained polarization and coercive field with decreasing the oxygen partial pressure. Dielectric constant decreased gradually and internal bias field increased in the measurement of dielectric constant-voltage property with decreasing cooling oxygen partial pressure. We observed the increase of nonswitched polarization in the measurement of field accelerated retention and the decrease of nonswitched polarization with increasing the bias time.