

PZT Chemical Solution

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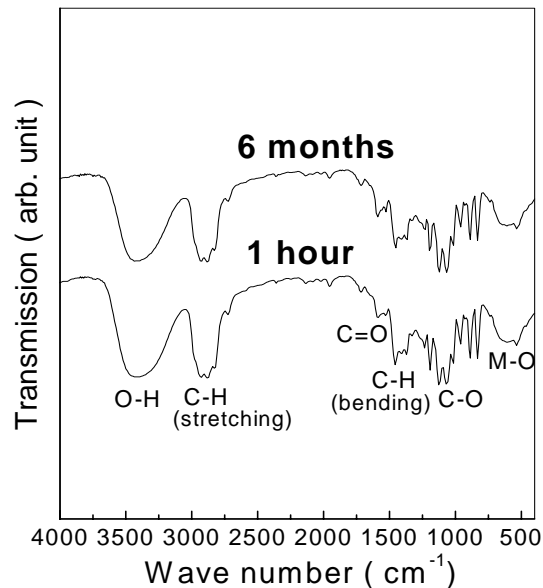
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Reproducibility of Excess PbO

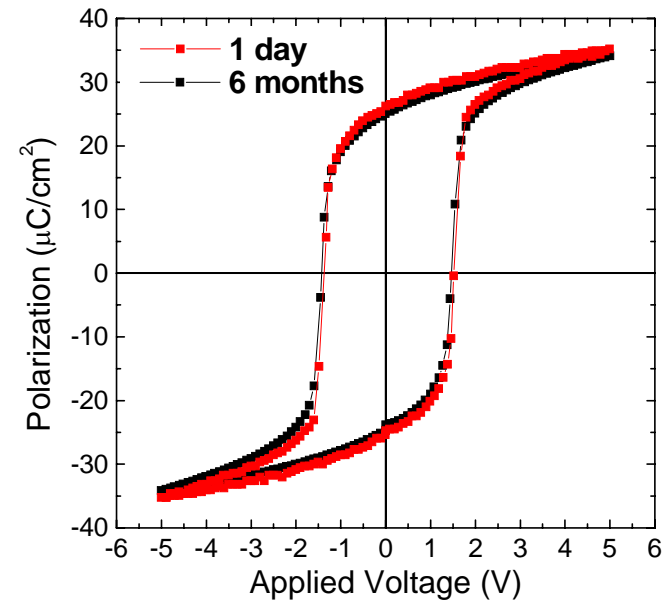
Usually the chemical solution goes through the distillation procedure. However, during that process, the composition of the solution, especially PbO (volatile material) is very difficult to control. It can produce the variation in the properties of the ferroelectric capacitors. The conventional PZT solution shows the reproducibility of excess PbO in the range of $\pm 2\sim 5\%$. Our process doesn't need the distillation process and it enables the more precise and reliable control of the content of excess PbO ($< \pm 1\%$) and the composition of the solution.

Enhanced Shelf Life

The shelf life of the conventional solution is usually from 2 weeks to 1 month. We dramatically enhanced the stability of the solution using modified chelating agent and you can safely store and use our solution for more than 6 months.



FT-IR of PZT Solution



P-V Hysteresis Loops of PZT Films

- **No change of chemical bonding of PZT solution and electrical properties of PZT films up to 6 months**

Composition Control

Applications of PZT films are dependent on Zr/Ti ratio of PZT. Therefore, precise control of film composition is a key parameter for the realization of high quality devices.

Composition	Properties	Applications
Tetragonal (Ti-rich)	high polarization value and squareness low dielectric constant and loss tangent	FeRAMs Pyroelectric devices
MPB (50/50) Rhombohedral (Zr-rich)	high dielectric constant low coercive voltage	Piezoelectric devices