



A New Low-Expansion Composite in Lead Iron Niobate-Lead Titanate System

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A composite prepared between lead titanate (PT) and lead iron niobate (PFN) exhibits low thermal expansion coefficient (α) over the temperature range 300–673K. X-ray, DTA, and dilatometric measurements have been used to identify the optimum sintering condition, retaining the individual constituent identity, to achieve overall low bulk thermal expansion. The composite, PFN_{0.35}PT_{0.65} sintered at 1223K for 15 min. and at 1253K for 60 min. are sufficiently dense and show an overall α of $-0.3 \times 10^{-6}/\text{K}$ and $-1.2 \times 10^{-6}/\text{K}$, respectively, in the temperature range 300–673K.

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