

## PIEZOELECTRIC PROPERTIES OF SAMARIUM-MODIFIED LEAD TITANATE/POLYMER 0-3 COMPOSITES

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*(Received in final form August 3, 2001)*

Composites containing 30 volume % of samarium-modified lead titanate (PST) powder dispersed in a vinylidene fluoride-trifluoroethylene copolymer [P(VDF-TrFE)] matrix were prepared. The PST powders had been prepared using a sol-gel process and annealed at 600°C, 900°C, 1000°C and 1200°C, respectively. The crystallite diameters of the powders were about 70 nm, 139 nm, 417 nm and 1 µm, respectively. The PST phase of the composites was polarized under various dc electric fields for 2 h at 60°C and 120°C, respectively. The piezoelectric and dielectric properties of the composites were investigated.

**Keywords** PT; PST; P(VDF-TrFE); 0-3 Composites; piezoelectric coefficients

### INTRODUCTION

Recently, 0-3 composites containing ferroelectric ceramic powder dispersed in a ferroelectric polymer matrix, such as vinylidene fluoride-trifluoroethylene copolymer [P(VDF-TrFE)] have received considerable