



Investigations on Growth, structural, mechanical and conductivity Measurements of Nitric acid (HNO₃) doped Triglycine Phosphate (TGP) Single Crystals for NLO applications

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Abstract

Single crystals of ferroelectric material triglycine phosphate (TGP) have been grown by slow evaporation method. The effect of Nitric acid (HNO₃) addition on the growth of TGP crystal has been studied for various concentrations (0.25, 0.50, 0.75 and 1.0 mol %). Solubility of the grown samples was found to be increasing with increase in temperature. The grown TGP crystal is observed to be crystallizing in monoclinic structure. Functional groups present in the grown pure and HNO₃ doped TGP crystals were confirmed from the vibrational frequencies of recorded FTIR and FT-Raman spectra. Kurtz-Perry powder technique was used to check the nonlinear optical activity of the pure and HNO₃ doped TGP crystals. Physical properties such as conductivity and mechanical studies have been performed for the pure and HNO₃ doped TSP crystals. The obtained results are presented and discussed.

Keywords: Growth from solution; FT-IR, Raman spectra; Microhardness, SHG efficiency, Dc conductivity.

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