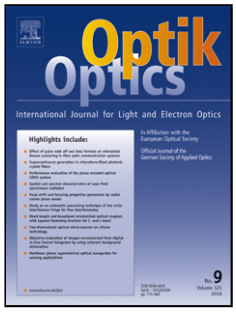

Title: Growth and low temperature Raman studies on a Non Linear optical potassium thiourea chloride single crystals

Author: S. Raju R. Muralidharan H. Krishnan

PII: S0030-4026(16)00032-2
DOI: http://dx.doi.org/doi:10.1016/j.ijleo.2016.01.020
Reference: IJLEO 57100

To appear in:

Received date: 30-10-2015
Accepted date: 6-1-2016

Please cite this article as: S. Raju, R. Muralidharan, H. Krishnan, Growth and low temperature Raman studies on a Non Linear optical potassium thiourea chloride single crystals, *Optik - International Journal for Light and Electron Optics* (2016), http://dx.doi.org/10.1016/j.ijleo.2016.01.020

Growth and low temperature Raman studies on a Non Linear optical potassium thiourea chloride single crystals

S.Raju[1,a], R.Muralidharan[1,*] and H.Krishnan[2].

1. Department of Science and Humanities, Vel Tech High Tech Dr.Rangarajan Dr.Sakunthala Engineering College, Avadi, Chennai-61

2. Department of Science and Humanities, Valliammai Engineering College, Kattankulathur, Chennai

a. Research Centre, Bharathiyar University, Coimbatore

*. Corresponding Author: muralicgc@gmail.com Phone :+91-9488336735

Abstract

The Raman spectra of solution grown Potassium thiourea chloride (KTC) crystals were studied in the temperature range of 125 K C to 400 K and in the wave length region of 100 to 4000 cm^{-1}. The vibrational frequencies of the thiourea metal complex were identified and assigned. The temperature dependence Raman spectra shows discontinuities, which we infer is due to modifications of bonds associated to C=S. Based on the evolution of thermosensitive bands the transitions were identified around 250 K. The modifications observed in the vibration spectra of KTC shows strong interaction of the metal complex with sulfur atom of thiourea. The second harmonic generation was confirmed by Kurtz Perry powder technique and the efficiency was found to be 1.5 times as that of the KDP sample used as reference.

Key words: Non linear optical materials, Crystal Growth, Raman spectra and crystal structure