

Review on Growth and Characterization of Nonlinear Optical Organometallic Thiocyanate Crystals

Tejaswi Ashok Hegde, Atanu Dutta, Vinitha Gandhiraj*

Division of Physics, School of Advanced Sciences, Vellore Institute of Technology, Chennai, India

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Abstract

Combinations of an inorganic distorted polyhedron with asymmetric conjugate organic molecules yield the organometallic compounds. Among them, organic thiocyanate crystals have attracted a great deal of attention for nonlinear optical device applications. The bimetallic thiocyanates of the type $AB(SCN)_4$ for example, $ZnCd(SCN)_4$, $ZnHg(SCN)_4$, $MnHg(SCN)_4$, and $CdHg(SCN)_4$ are extremely interesting for optoelectronic applications. This article highlights present knowledge on growth parameters, physicochemical properties and nonlinear optical properties of several organometallic thiocyanate crystals. The chemical property and physical stability of these materials are compared, and the best results based on the review were reported. Information about the parameters, which are necessary for crystal growth has been summarized.

Keywords: crystal growth, nonlinear optical, organometallic, bimetallic thiocyanate, single crystal, Z-Scan

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* Corresponding author. E-mail address: vinitha.g@vit.ac.in

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