

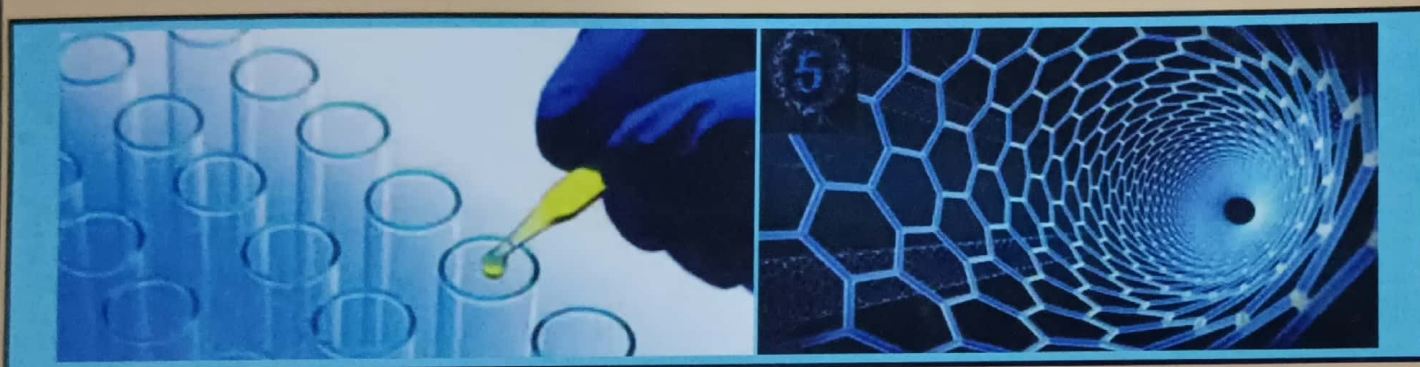
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Growth and Characterizations of Pure and L-Alanine Doped**Zinc Tris-Thiourea Sulphate Single Crystals**

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Email id- pratikkadam1508@gmail.com**Abstract:**

The Grown single crystals of Pure Zinc Tris-Thiourea Sulphate at Temperature 37°C and 24°C and L-alanine doped ZTS have been analyzed by different characterization techniques. The crystals were confirmed by single crystal X-ray diffraction analysis using Bruker D8-Advanced Diffractometer. Single crystal ZTS is conveniently grown by employing slow evaporation technique. The transparency of the grown crystal is good enough in comparison with the crystal grown by the other technique. Also we get the structure of Crystal and lattice parameter and also observed the change in particle size. UV-Visible absorption spectra were recorded by Double Beam UV-Visible Spectrophotometer (Systronics-AU-2701) in the wavelength range 200-1000 nm. From this using Cut off Wavelength .we calculate the band gap of given crystal sample. The functional groups were identified by using FT-IR Spectrophotometer with ATR (Shimatzu Japan- ISWL) in the wavenumber range 500-4500 cm^{-1} . SEM shows the cubical morphology. It confirms the uniform distribution of particles.

Introduction:

Thiourea molecules are an interesting inorganic matrix modifier due to its large dipole moment and its ability to form an extensive network of hydrogen bonds. The nonlinear optical properties of some of the complexes of thiourea, such as bis (thiourea) cadmium chloride (BTCC), bis (thiourea) zinc chloride (BTZC), tris (thiourea) zinc sulphate (ZTS), tris (thiourea) cadmium sulphate (CTS), potassium thiourea bromide (PTB) have gained significant attention in

the last few years because both organic and inorganic components in it contribute specifically to the process of second harmonic generation. The centrosymmetric thiourea molecule, when combine with inorganic salt yield noncentrosymmetric complexes, which has the nonlinear optical properties .Zinc (tris) thiourea sulphate (ZTS) is a good nonlinear optical semi organic material for second harmonic generation. ZTS has high laser damage threshold, low angular sensitivity, wide range of transparency and low dielectric