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## **Synthesis and characterization of strontium zinc oxide nano-composite via soft chemical process**

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Nanostructured materials provide many benefits due to their enhanced properties, the promising applications of nanostructured materials have generated innovative method to synthesis new materials with high performance to enhance their use as Nano devices, Nano catalysts and Nano sensors. Although the use of Nano materials in industry is limited, their use in industry has already started and is expected to be extensive in the next few years. In the present study Strontium Zinc Oxide (SrZnO<sub>2</sub>) Nanocomposite was synthesized by soft chemical approach by using Strontium Oxide with Zinc Oxide. Soft chemical approach helps for the synthesis of colloidal dispersion organic and inorganic materials at relatively low temperatures and with simple set up.

The synthesis was carried out at moderate temperature 90 °C and then finally dried in the laboratory oven at 100 °C for 24 hours and then followed by calcination at 1000 °C in a furnace with the heating rate of 5 °C/min for 6 hours to get a phase selective product. The concept of Soft chemical approach depends on the balanced synthesis-structural relationship based on electro negativity. The structure, morphology and properties of the particles were characterized by XRD, SEM and FT-IR. The mean particle size was calculated by using X-ray diffraction pattern by using Scherer's Equation,  $t=0.9\lambda / B \cos\theta$ . The results obtained from different characterization techniques showed that nanostructured materials where formed with small sizes of particles, with good crystallinity and clean environment which can be used for appropriate technologies like Nano devices, Nano catalysts, Nano sensors, etc.

### **Biography**

Etakula Nagabhushan has completed his PhD from Osmania University. He completed his B-Tech in Chemical Engineering and M-Tech in Ceramic Engineering from Osmania University, India. He has guided about 30 M-Tech theses. He has 25 years of teaching and research experience. Presently, he is the Professor and Head, Dept. of Ceramic Engineering & Materials Science Technology, Osmania University. His areas of interest are ceramics, polymers and nano-materials.

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