



ChemTech

International Journal of ChemTech Research

CODEN (USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555

Vol.9, No.05 pp 926-931, 2016

## Solution Combustion Synthesis of Single Phase Blue-White Phosphor $\text{Sr}_2\text{CeO}_4$

Shekhar D. Bhame\*, Rishi Prasad

Symbiosis Institute of Technology, Symbiosis International University, Lavale,  
Pune 411042, India

**Abstract :**  $\text{Sr}_2\text{CeO}_4$  is a blue white phosphor which has been recently identified by combinatorial technique and is proposed to be one of the potential candidates as a phosphor for use in lamps and field emission displays. There have been many reports on the preparation of  $\text{Sr}_2\text{CeO}_4$  by various chemical methods in recent past. Here we report the synthesis and characterization of this blue white phosphor  $\text{Sr}_2\text{CeO}_4$  using glycine- nitrate solution combustion method. X-ray powder diffraction confirms the formation of pure  $\text{Sr}_2\text{CeO}_4$  phase crystallizing in orthorhombic structure after annealing at  $1000^\circ\text{C}$  for 12 hrs without any trace of impurities. The crystallite size calculated by using Scherrer formula revealed the presence of formation of nano crystallites. The SEM study revealed the presence of distributed particle sizes in the range of 0.4 to 2.0 micron with an average particle size of around  $0.8\mu$ . The photo luminescence spectra confirmed the formation of  $\text{Sr}_2\text{CeO}_4$  phase with maximum emission intensity for sample prepared at 1000 at 470 nm. The present work shows that the phosphor can be prepared at relatively lower temperatures and can be used for many display applications.

**Keywords:** Combustion Synthesis, Photoluminescence, X-Ray Diffraction, Scanning Electron Microscopy.

Shekhar D. Bhame *et al* /International Journal of ChemTech Research, 2016,9(5),pp 926-931.

\*\*\*\*\*