# Preparation and magnetic properties of Ni-Cr doped strontium hexaferrite

## ABSTRACT

The Ni-Cr-substituted M-type Strontium Hexaferrite such as SrFe12-2xNixCrxO19, with x =0.2, 0.4, 0.6, 0.8 mol% has been successfully prepared by the sol-gel process. The ferrites were systematically investigated by using powder X-Ray diffractometer (XRD), High Resolution Scanning Electron Microscope (HR-SEM) and Vibrating Sample Magnetometer (VSM). The XRD analysis confirms the single phase and lattice constants (a and c), have been calculated from the XRD data using powderX software. The lattice parameter was found to increase with increasing nickel-chromium concentration. Values of coercivity are found to increase up to the substitution level of x = 0.0-0.2 and then decrease slightly while that of saturation decrease continuously with increase in Ni-Cr concentration.

**Keyword:** Ceramics; Magnetic properties; Scanning electron microscopy (SEM); Sol-gel