

A Project Report On
SYNTHESIS AND CHARACTERISATION OF
ZINC FERRITE NANO-PARTICLES

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1. ABSTRACT

In the present study we report the synthesis of zinc ferrite nano-particles by chemical co-precipitation method without any calcination step. Zinc ferrite was synthesised at two different temperatures, 30°C and 70°C and studied for its nano size. Magnetic properties of zinc ferrite are sensitive to average crystalline size (d) which can be varied by altering the synthesis condition.

The synthesised zinc ferrite nano particles were characterised using X-ray diffraction. The XRD pattern proved that nano-particles are single phase cubic spinel zinc ferrite mixture of normal and inverse spinel structure. Spinel zinc ferrite are formed when the molar ratio of Fe:Zn is 2:1. Furthermore, the synthesised zinc ferrite had crystallite size in the range 10 to 11 nm, as confirmed by FWHM study.

Keywords: Zinc ferrite, Co-precipitation, Nano-particles