

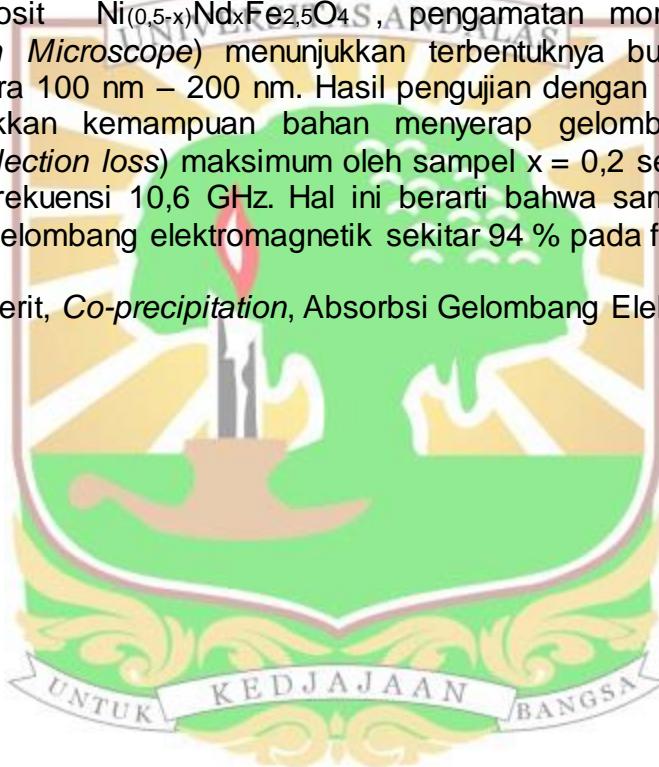
## INTISARI

### SIFAT ABSORBSI GELOMBANG ELEKTROMAGNET $Ni_{(0,5-x)}Nd_xFe_{2,5}O_4$ HASIL SINTESIS DENGAN METODE CO-PRECIPITATION

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Telah dilakukan sintesis senyawa  $Ni_{(0,5-x)}Nd_xFe_{2,5}O_4$  dengan metode co-precipitation, dengan komposisi bahan  $(0,5-x)NiCl_2 : xNdCl_3 : 2,5FeCl_3$  dalam perbandingan mol bahan. Identifikasi fasa dengan XRD (*X-ray diffraction*) menunjukkan telah terbentuknya komposit  $Ni_{(0,5-x)}Nd_xFe_{2,5}O_4$ , pengamatan morfologi dengan SEM (*Scanning Electron Microscope*) menunjukkan terbentuknya butiran yang homogen dengan ukuran antara 100 nm – 200 nm. Hasil pengujian dengan VNA (*Vector Network Analyzer*) menunjukkan kemampuan bahan menyerap gelombang elektromagnetik dengan nilai RL (*reflection loss*) maksimum oleh sampel  $x = 0,2$  sebesar sekitar -24 dB yang terjadi pada frekuensi 10,6 GHz. Hal ini berarti bahwa sampel  $Ni_{0,3}Nd_{0,2}Fe_{2,5}O_4$  mampu menyerap gelombang elektromagnetik sekitar 94 % pada frekuensi 10,6 GHz.

Kata Kunci : Nikel Ferit, Co-precipitation, Absorbsi Gelombang Elektromagnetik.



## ABSTRACT

### ELECTROMAGNETIC WAVE ABSORPTION PROPERTIES OF $\text{Ni}_{(0,5-x)}\text{Nd}_x\text{Fe}_{2,5}\text{O}_4$ SYNTHESIZED BY A CO-PRECIPITATION METHOD

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$\text{Ni}_{(0,5-x)}\text{Nd}_x\text{Fe}_{2,5}\text{O}_4$  was synthesized by a co-precipitation method with composition  $(0,5-x)\text{NiCl}_2 : x\text{NdCl}_3 : 2,5\text{FeCl}_3$  in mole ratio. X-ray diffraction pattern indicates that in this stage the sample is  $\text{Ni}_{(0,5-x)}\text{Nd}_x\text{Fe}_{2,5}\text{O}_4$  composites, according to the morphological observation with SEM (Scanning Electron Microscope) shows the formation of a homogeneous structure with particle size is 100-200 nm. VNA (Vector Network Analyzer) characterization show the ability to absorb electromagnetic waves with maximum RL value by the sample  $x = 0.2$  at about -24 dB which occurred at a frequency of 10.6 GHz. It mean that the  $\text{Ni}_{(0,5-x)}\text{Nd}_x\text{Fe}_{2,5}\text{O}_4$  samples can absorb electromagnetic wave by 94 % at 10.6 GHz.

Keywords : Nickel ferrite, Co-precipitation, Electromagnetic wave absorption.

