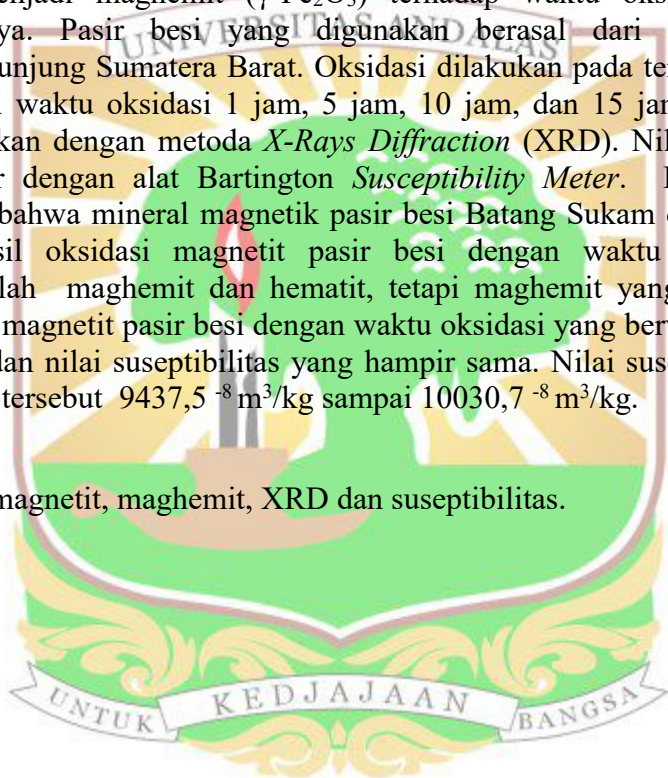


KARAKTERISASI STRUKTUR KRISTAL DAN SIFAT MAGNETIK MAGHEMIT ($\gamma\text{-Fe}_2\text{O}_3$) YANG DIOKSIDASI DARI MAGNETIT (Fe_3O_4) DARI PASIR BESI BATANG SUKAM KABUPATEN SIJUNJUNG SUMATERA BARAT DENGAN VARIASI WAKTU OKSIDASI

ABSTRAK

Telah dilakukan penelitian tentang karakterisasi hasil oksidasi magnetit (Fe_3O_4) pasir besi menjadi maghemit ($\gamma\text{-Fe}_2\text{O}_3$) terhadap waktu oksidasi dan nilai suseptibilitasnya. Pasir besi yang digunakan berasal dari Batang Sukam Kabupaten Sijunjung Sumatera Barat. Oksidasi dilakukan pada temperatur 400°C dengan variasi waktu oksidasi 1 jam, 5 jam, 10 jam, dan 15 jam. Karakterisasi sampel dilakukan dengan metoda *X-Rays Diffraction* (XRD). Nilai suseptibilitas sampel diukur dengan alat Bartington *Susceptibility Meter*. Hasil penelitian menunjukkan bahwa mineral magnetik pasir besi Batang Sukam didominasi oleh magnetit. Hasil oksidasi magnetit pasir besi dengan waktu oksidasi yang bervariasi adalah maghemit dan hematit, tetapi maghemit yang mendominasi. Hasil oksidasi magnetit pasir besi dengan waktu oksidasi yang bervariasi memiliki pola difraksi dan nilai suseptibilitas yang hampir sama. Nilai suseptibilitas hasil oksidasi tersebut $9437,5 \cdot 10^{-8} \text{ m}^3/\text{kg}$ sampai $10030,7 \cdot 10^{-8} \text{ m}^3/\text{kg}$.

Kata kunci : magnetit, maghemit, XRD dan suseptibilitas.



CHARACTERIZATION THE CRYSTAL STRUCTURE AND MAGNETIC PROPERTIES OF MAGHEMIT ($\gamma\text{-Fe}_2\text{O}_3$) OXIDATION FROM MAGNETITE (Fe_3O_4) FROM IRON SANDS BATANG SUKAM KABUPATEN SIJUNJUNG SUMATERA BARAT WITH OXIDATION TIME

ABSTRACT

A research on the characterization of the crystal structure and magnetic properties result of oxidized magnetite (Fe_3O_4) of iron sand into maghemite ($\gamma\text{-Fe}_2\text{O}_3$) against oxidation time and value susceptibility has been done. Iron sand came from Batang Sukam Kabupaten Sijunjung Sumatera Barat. Oxidation was performed at a temperature of 400°C with a variation of the oxidation of 1 hour, 5 hours, 10 hours, and 15 hours. Characterization of samples was carried out by X-Rays Diffraction method. Susceptibility value of samples was measured by Bartington Susceptibility Meter. The results shows that the magnetic mineral of iron sands of Batang Sukam iron was dominated by magnetite. The result of the oxidation of magnetite of iron sands with varying oxidation time is maghemite and hematite , but maghemite dominates. The result of the oxidation of magnetite iron sands with varying oxidation time has diffraction patterns and susceptibility values are almost the same . Value susceptibility of results of the oxidation are from $9437.5 \times 10^{-8} \text{ m}^3 / \text{kg}$ to $10030.7 \times 10^{-8} \text{ m}^3 / \text{kg}$.

Keywords : magnetite, maghemite, XRD, and susceptibility

