

DAFTAR PUSTAKA

1. Rahmayeni, Wendari TP, Ramadani S, Stiadi Y, Sofyan N, Zulhadjri. CuFe₂O₄ /hydroxyapatite magnetic nanocomposite synthesized using pensi clam shells as a source of calcium for degradation of dye and anti-bacterial applications. *Case Studies in Chemical and Environmental Engineering* 2023;8.
2. Naaz F, Dubey HK, Kumari C, Lahiri P. Structural and magnetic properties of MgFe₂O₄ nanopowder synthesized via co-precipitation route. *SN Appl Sci* 2020;2(5).
3. Suharyadi E, Hermawan A, Puspitarum DL. Crystal Structure and Magnetic Properties of Magnesium Ferrite (MgFe₂O₄) Nanoparticles Synthesized by Coprecipitation Method. In: *Journal of Physics: Conference Series*. Institute of Physics Publishing, 2018;
4. Setiadi EA, Rahmat, Simbolon S, et al. The Effect of Synthesis Temperature on Physical and Magnetic Properties of Manganese Ferrite (MnFe₂O₄) based on Natural Iron Sand. In: *Journal of Physics: Conference Series*. Institute of Physics Publishing, 2018;
5. Ali R, Mahmood A, Khan MA, et al. Impacts of Ni-Co substitution on the structural, magnetic and dielectric properties of magnesium nano-ferrites fabricated by micro-emulsion method. *J Alloys Compd* 2014;584:363–368.
6. Matsuda S, KM, NT, OT. Synthesis and in Vitro Evaluation of Magnesium Ferrite Nanoparticles for Application to Magnetic Hyperthermia. *ECS Meeting Abstracts* 2016;Volume MA2016-02.
7. Patil JY, Khandekar MS, Mulla IS, Suryavanshi SS. Combustion synthesis of magnesium ferrite as liquid petroleum gas (LPG) sensor: Effect of sintering temperature. *Current Applied Physics* 2012;12(1):319–324.
8. Hussein SI, Elkady AS, Rashad MM, Mostafa AG, Megahid RM. Structural and magnetic properties of magnesium ferrite nanoparticles prepared via EDTA-based sol-gel reaction. *J Magn Magn Mater* 2015;379:9–15.
9. Verma S, Joy PA, Kholam YB, Potdar HS, Deshpande SB. Synthesis of nanosized MgFe₂O₄ powders by microwave hydrothermal method. *Mater Lett* 2004;58(6):1092–1095.
10. Shen YF, Tang J, Nie ZH, Wang YD, Ren Y, Zuo L. Tailoring size and structural distortion of Fe₃O₄ nanoparticles for the purification of contaminated water. *Bioresour Technol* 2009;100(18):4139–4146.
11. Patil JY, Khandekar MS, Mulla IS, Suryavanshi SS. Combustion synthesis of magnesium ferrite as liquid petroleum gas (LPG) sensor: Effect of sintering temperature. *Current Applied Physics* 2012;12(1):319–324.
12. Shen Y, Wu Y, Li X, Zhao Q, Hou Y. One-pot synthesis of MgFe₂O₄ nanospheres by solvothermal method. *Mater Lett* 2013;96:85–88.
13. Tarigan SNK, Humaidi S, Rianna M, Nasution NMR. Effect of NaOH Concentration on Magnetic Properties and Structural Studies of MgFe₂O₄ Based on Natural Iron Sand Synthesized by Co-Precipitation Method. *Prisma Sains : Jurnal Pengkajian Ilmu dan Pembelajaran Matematika dan IPA IKIP Mataram* 2023;11(2):636.
14. Niarti L. Karakterisasi Sifat Magnet Dan Kandungan Mineral Pasir Besi Sungai Batang Kuranji Padang Sumatera Barat. *Jurnal Ilmu Fisika* 2013;5.
15. Saputra C, Cahyoutomo H, Sendong J, Togibasa O. Sintesis Magnesium Ferit Berbasis Pasir Besi dari Sarmi menggunakan Metode Kopresipitasi. *Jurnal Fisika Flux: Jurnal Ilmiah Fisika FMIPA Universitas Lambung Mangkurat* 2020;17(2):94.
16. Puspita E, Melinia LA, Naibaho M, Ramlan R, Ginting M. Sintesis dan Karakterisasi Pasir Besi Sungai Musi Sumatera Selatan Menggunakan Metode Kopresipitasi. *Jurnal Penelitian Sains* 2022;24(3):160.
17. Khairil. Khairil. *Bahan Bakar dan Tanur*. Aceh: Syiah Kuala University Press.2018. Syiah Kuala University Press, 2018;
18. Rianna M, Hamid M, Handayani F, et al. Study and characterization of Fe₃O₄ synthesized from natural iron sand in Sumatera Utara. *Journal of Aceh Physics Society* 2022;11(2):45–48.

19. Rahmayeni R, Oktavia Y, Stiadi Y, Arief S, Zulhadjri Z. Spinel ferrite of $MnFe_2O_4$ synthesized in Piper betle Linn extract media and its application as photocatalysts and antibacterial. *J Dispers Sci Technol* 2021;42(3):465–474.
20. Galvão WS, Netob DMA, Freirec RM, Fehined PBA. Super-paramagnetic nanoparticles with spinel structure: A review of synthesis and biomedical applications. *Solid State Phenomena* 2016;241:139–176.
21. Rewatkar K, Nanoti V. Soft Ferrite: A Brief Review on Structural, Magnetic Behavior of Nanosize Spinel Ferrites [Homepage on the Internet]. 2018; Available from: <https://www.researchgate.net/publication/325558365>
22. I Putu Tedy Indrayana. Review Fe_3O_4 Dari Pasir Besi : Sintesis, Karakterisasi, Dan Fungsionalisasi Hingga Aplikasinya Dalam Bidang Nanoteknologi Maju. *Jurnal UNIERA* 2019;
23. Dhillon G, Kumar N, Chitkara M, Sandhu IS. Effect of A-site substitution and calcination temperature in Fe_3O_4 spinel ferrites. *Journal of Materials Science: Materials in Electronics* 2020;31(21):18903–18912.
24. Vaish G, Kripal R, Kumar L. EPR and optical studies of pure $MgFe_2O_4$ and ZnO nanoparticles and $MgFe_2O_4$ - ZnO nanocomposite. *Journal of Materials Science: Materials in Electronics* 2019;30(17):16518–16526.
25. Hoyos-Sifuentes DH De, Reséndiz-Hernández PJ, Díaz-Guillén JA, Ochoa-Palacios RM, Altamirano-Guerrero G. Synthesis and characterization of $MgFe_2O_4$ nanoparticles and PEG-coated $MgFe_2O_4$ nanocomposite. *Journal of Materials Research and Technology* 2022;18:3130–3142.
26. Setiadi EA, Sebayang P, Ginting M, et al. The synthesization of Fe_3O_4 magnetic nanoparticles based on natural iron sand by co-precipitation method for the used of the adsorption of Cu and Pb ions. In: *Journal of Physics: Conference Series*. Institute of Physics Publishing, 2016;
27. Salih SJ, Mahmood WM. Review on magnetic spinel ferrite (MFe_2O_4) nanoparticles: From synthesis to application. *Heliyon* 2023;9(6).
28. Pratiwi ARFI dkk. *Nanoteknologi Kedokteran Gigi*. Malang: Universitas Brawijaya Press, 2023;
29. Aritonang HF, Harry J Koleangan dan S. Sintesis Nanopartikel Cobalt Ferrite ($CoFe_2O_4$) dengan Metode Kopresipitasi dan Aplikasinya sebagai Fotokatalis. *Chem Prog* 2019;12(1):49.
30. Said L.Muh. Analisis Sifat Konduktivitas Listrik pada Beberapa Jenis Material dengan Metode Potensial Jatuh. *Jurnal Teknosains* 2013;7:66–77.
31. Pattipaka S, Lim Y, Son YH, Bae YM, Peddigari M, Hwang GT. Ceramic-Based Dielectric Materials for Energy Storage Capacitor Applications. *Materials*. 2024;17(10).
32. Sry Putri N, Rahim A, Patiung O, et al. Pengujian X-Ray Fluorescence Terhadap Kandungan Mineral Logam Pada Endapan Sedimen di Sungai Amamapare Kabupaten Mimika, Papua Tengah. *Jurnal Teknik AMATA* 2023;04(1).
33. Setiabudi A, Hardian R, Mudzakir A, et al. UPI PRESS. Bandung: UPI Press, 2012;
34. A.B.D. Nandiyanto dkk. *Pengantar Sains dan Teknologi Nano*. Bandung: UPI Press, 2017;
35. Alfarisa S, Rifai DA, Toruan PL. Studi Difraksi Sinar-X Struktur Nano Seng Oksida (ZnO). *Risalah Fisika* 2018;2(2):53–57.
36. Sutrisna PDoddyENGarindriALaurensia. Potensi Membran Matriks Campuran Dalam Pengolahan Air Limbah Tekstil. Indramayu: PENERBIT ADAB, 2023;
37. Raghumani S. Ningthoujam AKT. *Handbook of Materials Science, Volume 2: Magnetic Materials*. Germany: Springer Nature Singapore, 2024;
38. Wendari TP, Rizki A, Zulhadjri, et al. Structure, ferroelectric, magnetic, and energy storage performances of lead-free $Bi_4Ti_2.75(FeNb)O_{12}$ Aurivillius ceramic by doping Fe^{3+} ions extracted from Padang beach sand. *Case Studies in Chemical and Environmental Engineering* 2024;9.
39. Nengsih S, Nur Abdulmajid S, Mursal M, Jalil Z. Photocatalytic performance of Fe_3O_4 - TiO_2 in the degradation of methylene blue dye: Optimizing the usability of natural iron sand. *Mater Sci Energy Technol* 2024;7:374–380.

40. Rianna M, Talanda A, Pratama Y, et al. Evaluation of $\text{Co}_0,7\text{Ni}_0,3\text{Fe}_2\text{O}_4$ nano-particle on structural, morphological, and magnetic properties as a heavy metal adsorbent in Cu, Cr. *Mater Sci Energy Technol* 2023;6:77–80.
41. Syafriani N. Sintesis Nanomaterial $\text{Co}_x\text{Zn}_{(1-x)}\text{Fe}_2\text{O}_4$ Dengan Metode Hidrotermal Dan Kopresipitasi Dimediasi Ekstrak Daun Sirih Hijau (*Piper betle*, L.) Sebagai Capping Agent. 2025;
42. Tatinting GD, Aritonang HF, Wuntu AD. Sintesis Nanopartikel Fe_3O_4 - Polietilen Glikol (PEG) 6000 dari Pasir Besi Pantai Hais sebagai Adsorben Logam Kadmium (Cd). *Chemistry Progress* 2021;14(2):131.
43. Putu N, Kristina D, Arjana G, Yasa P. Magnetite Nanomaterials in Tianyar Iron Sand Using Co-precipitation Method. *Indonesian Physical Review* 2024;7(3):398–413.
44. Puspitarum DL, Safitri G, Ardiyanti H, Anrokhi MS. Karakterisasi dan Sifat Kemagnetan Pasir Besi di Wilayah Lampung Tengah. *Jurnal Pendidikan Fisika* 2019;7(2):236.
45. Faiyas APA, Vinod EM, Joseph J, Ganesan R, Pandey RK. Dependence of pH and surfactant effect in the synthesis of magnetite (Fe_3O_4) nanoparticles and its properties. *J Magn Magn Mater* 2010;322(4):400–404.
46. Swastika PE, Hardheyanti F, Prasetyowati R, Ariswan W. Pengaruh Konsentrasi HCl Terhadap Mikrostruktur Dan Sifat Kemagnetan Nanopartikel Fe_3O_4 Yang Disintesis Dari Pasir Besi Pantai Glagah Kulonprogo Effect Of Hcl Concentration On Microstructure And Magnetic Properties Of Fe_3O_4 Nanoparticles Synthesized From Iron Sand In Glagah Beach Kulonprogo. *J Sains Dasar* 2021;2021(1):24–29.
47. Sukandar D, Adawiah A, Rohman S, et al. Synthesis of MgFe_2O_4 Nanoparticles and its Application for Photodegradation of Methylene Blue. *Bulletin of Chemical Reaction Engineering and Catalysis* 2024;19(4):548–559.
48. Cheng W, Tang K, Qi Y, Sheng J, Liu Z. Supporting information One-Step Synthesis of Superparamagnetic Monodisperse Porous Fe_3O_4 Hollow and Core-Shell Spheres 2Theta (degree) (440) (511). 2010;
49. Restianingsih T, Mutia Anggraini R, Deswardani F. Analisis Struktur Kristal Dan Morfologi Nanokomposit $\text{Fe}_3\text{O}_4/\text{TiO}_2$ Berbasis Pasir Besi Sungai Batanghari. *JoP* 2024;9(2):12–17.
50. Kiswanto H, Prima Yuniarto AH, Istiqomah NI, Suharyadi E. Struktur Kristal dan Sifat Kemagnetan Nanopartikel Mn-Ferrite yang Disintesis dari Bahan Alam Pasir Besi. *Jurnal Fisika Unand* 2021;10(4):413–420.
51. Dewi Tawainella R, Riana Y, Fatayati R, Kato T, Iwata S, Edi Suharyadi. Sintesis Nanopartikel Manganese Ferrite (MnFe_2O_4) dengan Metode Kopresipitasi dan Karakterisasi Sifat Kemagnetannya. 2014;(52).
52. Novella I. Material Magnetik $\text{Cu}_x\text{Zn}_{(1-x)}\text{Fe}_2\text{O}_4$ Yang Disintesis Dengan Metode Hidrotermal Dan Uji Aktivitas Sebagai Sistem Penghantar Obat. 2021;
53. Syahfina R; SB; YSD; IA; SN; AF; HMH. Studi Awal Sintesis Dan Karakterisasi Bi(Pb)-Sr-Ca-Cu-O Dengan Penambahan Carbon Nanotube Dan TiO_2 Menggunakan Metoda Reaksi Padatan Dan Proses Sintering Berulang. *Maj Metal* 2017;3:137–142.
54. Taherkhani M, Hossein Ehsani M, Zarei Moghadam R, Javadian A. Exploring the Effects of pH on the Morphology and Optical Characteristics of ZnFe_2O_4 Nanoparticles. *Progress in Physics of Applied Materials* 2025;5(1):53–59.
55. Mongia Nishant AK, S. Effect of pH on Magnetic and Structural Properties of Low Temperature Synthesized MgFe_2O_4 Nanoparticles. 2010;440.
56. Aneesh Kumar KS, Bhowmik RN. Micro-structural characterization and magnetic study of $\text{Ni}_{1.5}\text{Fe}_{1.5}\text{O}_4$ ferrite synthesized through coprecipitation route at different pH values. *Mater Chem Phys* 2014;146(1–2):159–169.
57. Vaish G, Kripal R, Kumar L. Comprehensive study of magnetic and optoelectronic properties of $\text{MgFe}_2\text{O}_4\text{-TiO}_2$ nanocomposites. *Mater Chem Phys* 2021;271.
58. Argish V, Chithra M, Anumol CN, Sahu BN, Sahoo SC. Magnetic studies of magnesium ferrite nanoparticles prepared by sol-gel technique. In: *AIP Conference Proceedings*. American Institute of Physics Inc., 2015;
59. Asri L, Didik LA. Sintesis Dan Analisis Kandungan Mineral Dan Karakteristik Sifat Listrik Nanopartikel Pasir Besi Pantai Telindung Kabupaten Lombok Timur. *Jurnal Sains dan Teknologi* 2021;

60. Araújo JCR, Araujo-Barbosa S, Souza ALR, et al. Tuning structural, magnetic, electrical, and dielectric properties of MgFe_2O_4 synthesized by sol-gel followed by heat treatment. *Journal of Physics and Chemistry of Solids* 2021;154.
61. Jabbar R, Shahatha SH, Taieh NK, Magid B, Showard AF. Preparation and study of the effect of pH value on structural, morphological, electrical and magnetic properties of CoFe_2O_4 nanoparticles prepared by sol-gel precipitation method. *Ceram Int* 2024;50(17):31114–31123.
62. Parray IA, Somvanshi A, Naseem S, Hashim M, Khan W, Ali SA. Microstructural and dielectric relaxation study of Gd^{3+} ion substituted MgFe_2O_4 . *AIP Conf Proc* 2020;2265.
63. Sebastian MT. *Dielectric Materials for Wireless Communication*. Elsevier Science, 2010;
64. Murugesan C, Okrasa L, Chandrasekaran G. Structural, AC conductivity, impedance and dielectric study of nanocrystalline MFe_2O_4 (M = Mg, Co or Cu) spinel ferrites. *Journal of Materials Science: Materials in Electronics* 2017;28(17):13168–13175.
65. Kamar EM, Khairy M, Mousa MA. Effect of morphology and particle size on the electrical properties of nano-nickel ferrite. *Journal of Materials Research and Technology* 2023;24:7381–7393.

