

DAFTAR PUSTAKA

- Ahmaruzzaman, M. (2010). A Review on The Utilization of Fly Ash. *Progress in Energy and Combustion Science*, 36(3), 327–363.
- Al-Ghouthi, M. A., & Da'ana, D. A. (2020). Guidelines for The Use and Interpretation of Adsorption Isotherm Models: A Review. *Journal of Hazardous Materials*, 393, 122383.
- Anggraeni, N. D. (2008). Analisa SEM (Scanning Electron Microscopy) dalam Pemantauan Proses Oksidasi Magnetite Menjadi Hematite. *Seminar Nasional - VII Rekayasa dan Aplikasi Teknik Mesin di Industri*, 50–56.
- Astuti, W. (2018). *Buku Adsorpsi Menggunakan Material Berbasis Lignoselulosa*. Semarang: Undip Press.
- Atkins, P. W. (1996). *Physical Chemistry (Kimia Fisik Jilid 2)*. Penerjemah: Irma Kartohadiprodjo. Jakarta: Erlangga.
- Bansal, R.C. (2005). Three-Phase Self-Excited Induction Generators: An Overview. *IEEE Transactions On Energy Conversion*.
- Beck. (1977). *Principles Af Sconning Electron Microscopy*. Jepang: Jeol Hightech co.
- Bonilla-Petriciolet, A., Mendoza-Castillo, D. I., & Reynel-Ávila, H. E. (Eds.). (2017). *Adsorption Processes for Water Treatment and Purification*. Springer Cham
- Choi, H. J., & Yu, S. W. (2019). Biosorption of Methylene Blue from Aqueous Solution by Agricultural Bioadsorbent Corncob. *Environmental Engineering Research*, 24(1), 99–106.
- Cornell, R. M. & Schwertmann, U. (2003). *The Iron Oxides: Structure, Properties, Reactions, Occurences and Uses, Second Edition*. Weinheim: Wiley-VCH Verlag GmbH & Co. KGaA.
- Day, R. A. & Underwood, A. L. (1986). *Analisis Kimia Kuantitatif*. Jakarta: Erlangga.
- Day, R. A. & Underwood, A. L. (2002). *Analnsis Kimia Kuantitatif Edisi Keenam*. Jakarta: Erlangga.
- Dimonie, D., Dima, S.O., & Petrache, M. (2013). Influence of Centrifugation on The Molecular Parameters of Chitosan Solubilized in Weakly Acidic Aqueous Solutions, *Dig. J. Nanomater. Biostruct.*, 8 (4), 1799–1809.

- Fathana, H., Rahmi, Susilawati, Adlin, M., & Lubis, S. (2021). Modified Chitosan for Methylene Blue Adsorption. *Rasayan J. Chem*, 14(4).
- Fisli, A., Safitri, R. D., Nurhasani, & Deswita. (2018). Analisis Struktur dan Porositas Komposit Fe₃O₄-Karbon Aktif dari Limbah Kertas Sebagai Adsorben Magnetik. *Jurnal Sains Materi Indonesia*, 19(4), 179–187.
- Gao, M., Ma, Q., Lin, Q., Chang, J., & Ma, H. (2017). A Novel Approach to Extract SiO₂ From Fly Ash and Its Considerable Adsorption Properties. *Materials & Design*, 116, 666–675.
- Gawande, P. S. M., Belwalkar, N. S., & Mane, A. A. (2017). Adsorption and Its Isotherm – Theory. *International Journal of Engineering Research*, 6(6), 312–316.
- Haldorai, Y., Kharismadewi, D., Tuma, D., & Shim, J. J. (2015). Properties of Chitosan/Magnetite Nanoparticles Composites for Efficient Dye Adsorption and Antibacterial Agent. *Korean Journal of Chemical Engineering*, 32(8), 1688–1693.
- Halwax, E., & Petras. L. (2000). Quantitative Phase Analysis: Rietveld Method Versus Full-Pattern Method with Whole Observed Standard Profiles. *Material Science Forum*, 2.
- Hamdaoui, O., & Chiha, M. (2007). Removal of Methylene Blue from Aqueous Solutions by Wheat Bran. *Acta Chim. Slov.*, 54, 407–418.
- Handayani, Astuti, P., Nurjanah, E., & Rengga, W. D. P. (2014). Pemanfaatan Limbah Sekam Padi menjadi Silika Gel. *Jurnal bahan alam terbarukan*.
- Handayani, M., & Sulistiyono, E. (2009). Uji Persamaan Langmuir dan Freundlich pada Penyerapan Limbah Chrom (VI) oleh Zeolit. *PTNBR –BATAN*, 130 - 136.
- Harimu, L., Wahyuni, S., Nasrudin, N., Baari, M. J., & Permana, D. (2022). Fabrication of Chitosan/Fe₃O₄ Nanocomposite as Adsorbent for Reduction Methylene Blue Contents. *Indones. J. Chem.*, 22 (3), 878 - 886
- Hendayana, S. (1994). *Kimia Analitik Instrumen*. Semarang: IKIP Semarang. Press.
- Hendrawati, Sumarni, S., & Nurhasani. (2015). Penggunaan Kitosan sebagai Koagulan Alami dalam Perbaikan Kualitas Air Danau. *Jurnal Kimia VALENSI*, 1(1), 1-11.
- Hong, R. Y., Feng, B., Chen, L. L., Liu, G. H., Li, H. Z., Zheng, Y., & Wei, D. G. (2008). Synthesis, Characterization and MRI Application of Dextran-Coated Fe₃O₄ Magnetic Nanoparticles. *Biochem Eng J*, 42:290–300.
- Hong, S., Wen, C., He, J., Gan, F., & Ho, Y. S. (2009). Adsorption

- Thermodynamics of Methylene Blue on to Bentonite. *Journal of Hazardous Materials*, 167, 630-633.
- Inkson, B. J. (2016). Scanning Electron Microscopy (SEM) and Transmission Electron Microscopy (TEM) for Materials Characterization. *Materials Characterization Using Nondestructive Evaluation (NDE) Methods*, 17-43.
- Jain, N., Dwivedi, M. K., & Waskle, A. (2016). Adsorption Of Methylene Blue Dye From Industrial Effluents Using Coal Fly Ash, *Int. J. Adv. Eng. Res. Sci.*, 3 (4), 9–16
- Kamari, S., & Shahbazi, A. (2021). High-Performance Nanofiltration Membrane Blended by $\text{Fe}_3\text{O}_4@ \text{SiO}_2$ -CS Bionanocomposite for Efficient Simultaneous Rejection of Salts/Heavy Metals Ions/Dyes With High Permeability, Retention Increase And Fouling Decline. *Chemical Engineering Journal*, 417.
- Kheloufi, A., Berbar, Y., Kefaifi, A., Medjahed, S. A., & Kerkar, F. (2009). *Improvement of Impurities Removal from Silica Sand by Leaching Process*. Algeria: Silicon Technology Development Unit.
- Kuang, Y., Zhang, X., & Zhou, S. (2020). Adsorption of Methylene Blue in Water Onto Activated Carbon by Surfactant Modification, *Water*, 12 (2), 587.
- Kumar, P., Gihar, S., Kumar, B., & Kumar, D. (2019). Synthesis and Characterization of Crosslinked Chitosan for Effective Dye Removal Antibacterial Activity. *International Journal of Biological Macromolecules*, 139, 752–759.
- Kurniasih, M., Riyani, K., Setyaningtyas, T., & Sufyana, I. (2018). Adsorpsi Ion Ni(II) Menggunakan Crosslink Kitosan Tripolifosfat. *Jurnal Rekayasa Kimia dan Lingkungan*, 13(2), 174-181.
- Kurniasih, M., Setyaningtyas, T., Kartika, D., Badriyah, E.H., & Riyani, K. (2017). Adsorpsi Kolesterol Lemak Sapi dengan N-Metil Kitosan. *Jurnal Rekayasa Kimia dan Lingkungan*, 12(2): 103-111
- Kusumastuti, A. (2011). Pengenalan Pola Gelombang Khas dengan. Interpolasi. *Jurnal CAUCHY*, 2(1): 7-12.
- Langenati, R., Mordiono, R., Mustika, D., Wasito, B., & Ridwan. (2012). Pengaruh Jenis Adsorben dan Konsentrasi Uranium Terhadap Pemungutan Uranium dari Larutan Uranil Nitrat. *Pusat Teknologi Bahan Bakar Nuklir*, 8(2), 67–122.
- Mahmuda, D., Sakinah, N., & Suharyadi, E. (2014). Adsorpsi Logam Tembaga (Cu), Mangan (Mn) dan Nikel (Ni) dalam Artificial Limbah Cair dengan Menggunakan Nanopartikel Magnetit (Fe_3O_4). *Indonesian Journal of Applied Physics*, 4(2), 126–133.

- Manurung, R., Hasibuan, R., & Irvan. (2004). Perombakan Zat Warna Azo Secara Anaerob dan Aerob. *Skripsi*. Universitas Sumatera Utara.
- Mashkooor, F., Nasar, A. & Jeong, C. (2022). Magnetized Chitosan Nanocomposite as an Effective Adsorbent for The Removal of Methylene Blue and Malachite Green Dyes. *Biomass Conv. Bioref.*
- Mi, F. L., Shyu, S. S., Lee, S. T., & Wong, T. B. (1999). Kinetic Study of Chitosan-Tripolyphosphate Complex Reaction and Acid-Resistive Properties of The Chitosan- Tripolyphosphate Gel Beads Prepared by In Liquid Curing Method. *Journal of Polymer Science Part B: Polymer Physics*, 37(14), 1551–1564.
- Mi, F. L., Sung, H. W., Shyu, S. S., Su, C. C., & Peng, C. K. (2003). Synthesis and Characterization of Biodegradable TPP/Genipin Co-Crosslinked Chitosan Gel Beads. *Polymer*, 44(21), 6521–6530.
- Mohammed, M. A., Shitu, A., & Ibrahim, A. (2014). Removal of Methylene Blue Using Low Cost Adsorbent: A Review. *Research Journal of Chemical Sciences*, 4, 91-102.
- Mushtaq, F., Zahid, M., Bhatti, I. A., Nasir, S., & Hussain, T. (2019). Possible Applications of Coal Fly Ash in Wastewater Treatment. *Journal of Environmental Management*, 240, 27–46.
- Nasrazadani, S., & Hassani, S. (2016). *Handbook of Materials Failure Analysis with Case Studies from the Oil and Gas Industry*. Texas: Engineering Technology Department, University of North Texas.
- Nasaj, M., Faramany, A., Shokoozadeh, L., Jalilian, F. A., Mahjoub, R., Roshanaei, G., Nourian, A., Shayesteh, O. H., & Arabestani, R. (2022). Development of Chitosan-Assisted Fe₃O₄@SiO₂ Magnetic Nanostructures Functionalized with Nissin as Topical Combating System againts Vancomycin-Intermediate Staphylococcus aureus (VISA) Skin Wound Infection in Mice. *Journal of Nanomaterials*, 2022.
- Nengsih, S. (2019). Karakteristik Nanopartikel Magnetit Besi Oksida Sri Lampanah Aceh Besar Melalui Metode Kopresipitasi. *Journal of Islamic Science and Technology*, 5(1), 76–85.
- Nikmah, A., Taufiq, A., & Hidayat, A. (2019). Synthesis and Characterization of Fe₃O₄/SiO₂ Nanocomposites. *IOP Conference Series: Earth and Environmental Science*, 276(1).
- Nurhasni, Hendrawati, & Saniyyah, N. (2014). Sekam Padi untuk Menyerap Ion Logam Tembaga dan Timbal dalam Air Limbah. *Jurnal Kimia Valensi*, 4(1), 36-44.
- Omidi, M., Fatehinya, A., Farahani, M., Akbari, Z., Shahmoradi, S., Yazdian, F., &

- Vashaee, D. (2017). Characterization of Biomaterials. *Biomaterials for Oral and Dental Tissue Engineering*, 97-115.
- Palupi, E. (2006). Degradasi Metilen Biru dengan Metode Fotokatalisis dan Fotoelektrokatalisis Menggunakan Film TiO₂. *Skripsi*. Institut Pertanian Bogor.
- Pandey, S., Do, J.Y., Kim, J., & Kang, M. (2020). Fast and Highly Efficient Removal of Dye From Aqueous Solution Using Natural Locust Bean Gum Based Hydrogels as Adsorbent. *Int. J. Biol. Macromol.*
- Pekdur, Ö. S., Yidirim, S.Ö., & Büyükmumcu, Z. (2020). Synthesis and Thermal Properties of Magnetite Nano Structures and DFT Analysis of Fe₃O₄ Cluster as Its Smallest Representative Unit. *Journal of Molecular Structure*, 1222, 128895.
- Rahimah, Fadli, A., Yelmida, Nurfajriani, & Zakwan. (2019). Synthesis and Characterization Nanomagnetite by Co-precipitation. *Indonesian Journal of Chemical Science and Technology*, 2(2), 90–96.
- Rahmi, Ismaturrahmi, & Mustafa, I. (2019). Methylene Blue Removal from Water Using H₂SO₄ Crosslinked Magnetic Chitosan Nanocomposite Beads. *Microchemical Journal*.
- Rahmalia, S., Aziz, Y., Zahrina, I. (2019). Efisiensi Adsorpsi Beberapa Zat Warna Sintetis Golongan Azo Menggunakan Hidroksiapatit. *Jom FTEKNIK*, Vol. 6(2).
- Rakhmawati, E. (2007). Pemanfaatan Kitosan Hasil Deasetilasi Kitin Cangkang Bekicot Sebagai Adsorben Zat Wana Remazol Yellow. *Skripsi*. Universitas Sebelas Maret.
- Riyanto. (2016). *Metode Spektroskopi*. Yogyakarta: Universitas Islam Indonesia.
- Roto, R., Yusran, Y., & Kuncaka, A. (2016). Magnetic Adsorbent of Fe₃O₄@SiO₂ core-shell nanoparticles modification with thiol group of chloroauric ion adsorption. *Applied Surface Science*, 377, 30–36.
- Sanati, A. M., Kamari, S., & Ghorbani, F. (2019). Application of Response Surface Methodology for Optimization of Cadmium Adsorption from Aqueous Solutions by Fe₃O₄@SiO₂@APTMS Core–Shell Magnetic Nanohybrid. *Surfaces and Interfaces*.
- Sari, M. (2011). Identifikasi Protein Menggunakan Fourier Transform Infrared (FTIR). *Skripsi*. Universitas Indonesia.
- Sastrohamidjojo. (2007). *Spektroskopi*. Yogyakarta: Liberty.

- Setiabudi, A., Hardian, R., & Mudzakir, A. (2012). *Karakterisasi Material: Prinsip dan Aplikasinya dalam Penelitian Kimia*. Bandung: UPI Press.
- Shaumbwa, V. R., Liu, D., Archer, B., Li, J., & Su, F. (2021). Preparation and Application of Magnetic Chitosan in Environmental Remediation and Other Fields: A review. *Journal of Applied Polymer Science*, 138(42), 1–25.
- Shcherban, S., Rayzman, V., & Pevzner, I. (1995). Technology of Coal Fly Ash Processing into Metallurgical and Silicate Chemical Products. *Paper presented at 210th ACS National Meeting Chicago, IL*, Volume 40, No.4, p. 863-867.
- Simatupang, L., & Devi. (2016). The Preparation and Characterization of Sinabung Volcanic Ash as Silica Based Adsorbent. *Jurnal Pendidikan Kimia*, 8 (3): 159-163.
- Skogg, D. A. & West, D. M. (1980). *Principle of Instrumental Analysis, 2nd Edition*. Philadelphia: Saunders College.
- Skoog, D. A., & West, D. M. (1971). *Principles of Instrumental Analysis*. New York: Holt, Rinehart dan Winston, Inc.
- Smallman, R. E., & Bishop, R. J. (2000). *Metalurgi Fisik Modern dan Rekayasa Material*. Jakarta: Erlangga.
- Suart, B. (2004). *Infrared Spectroscopy: Fundamental and Applications*. England: John Wiley and Sons Ltd.
- Sudjajadi. (1985). *Penentuan Struktur senyawa organik*. Bandung: Ghalia Indonesia.
- Sugita, P. Tuti, W., Ahmad, S., & Dwi, W. (2009). *Kitosan: Sumber Biomaterial*.
- Sujatno, A., Salam, R., Dimiyati, A., & Bandriyana. (2015). Studi Scanning Electron Microscopy (SEM) untuk Karakterisasi Proses Oksidasi Paduan Zirkonium. *Jurnal Forum Nuklir (JFN)*, 9(2), 44–50.
- Sulungbudi, G.T., Mujamilah & Handayani, A. (2012). Sintesis Nanopartikel Magnetik Core/Shell Fe/Oksida Fe dengan Metode Reduksi Kimia. *Jurnal Sains Materi Indonesia*, Vol 3(3), 182-187.
- Sun, L., Hu, S., Sun, H., Guo, H., Zhu, H., Liu, M., & Sun, H. (2013). Malachite green Adsorption onto Fe₃O₄@SiO₂-NH₂: Isotherms, Kinetic and Process Optimization. *Royal Society Chemistry*
- Szymańska, E., & Winnicka, K. (2015). Stability of Chitosan - A challenge for pharmaceutical and biomedical applications. *Mar. Drugs*, 13 (4), 1819–1846.

- Tanhaei, B., Ayati, A., Iakovleva, E., & Sillanpää, M. (2020). Efficient Carbon Interlayered Magnetic Chitosan Adsorbent for Anionic Dye Removal: Synthesis, Characterization and Adsorption Study. *International Journal of Biological Macromolecules*, 164, 3621–3631.
- Thomas, S., Thomas., R, Zachariah, A.K., Mishra, R.K. (2017). Microscopy Methods in Nanomaterial Characterization. *Elsevier*.
- Tran, H. V., Bui, L. T., Dinh, T.T., Le, D.H., Huynh, C.D., & Trinh, A. X. (2017). Graphene oxide/Fe₃O₄/chitosan nanocomposite: a recoverable and recyclable adsorbent for organic dyes removal. Application to methylene blue. *Mater. Res. Express*, 4, 03570.
- Triyati, E. (1985). Spektrofotometer Ultra-Violet dan Sinar Tampak Serta Aplikasinya dalam Oseanologi. *Oseana*, 10(1), 39-47.
- Wang, W. J., Cui, Q. Y., Qin, T., & Sun, H. H. (2018). Preparation of Fe₃O₄@SiO₂@chitosan for The Adsorption of Malachite Green Dye. *IOP Conference Series: Earth and Environmental Science*, 186.
- Wu, W., Wu, Z., Yu, T., Jiang, C., & Kim, W. S. (2015). Recent Progress on Magnetic Iron Oxide Nanoparticles: Synthesis, Surface Functional Strategies and Biomedical Applications. *Science and Technology of Advanced Materials*, 16(2), 023501.
- Yanlinastuti, & Fatimah, S. (2016). Pengaruh Konsentrasi Pelarut untuk Menentukan Paduan U-Zr dengan Menggunakan Metode Spektrofotometri UV-Vis. *Pusat Teknologi Bahan Bakar Nuklir*, 17, 22–33.
- Zhang, J., Zhang, Y., Lei, Y., & Pan, C. (2011). Photocatalytic and Degradation Mechanisms of Anatase TiO₂: A HRTEM Study, *Catal. Sci. Technol.*, 1 (2), 273–278.