

Daftar Pustaka

- [1] E. L. Sisworo, K. Idris, A. Citraresmini, dan I. Sugoro, *Teknik Nuklir Untuk Penelitian Hubungan Tanah – Tanaman: Perhitungan dan Interpretasi Data*. Jakarta: Badan Tenaga Nuklir Nasional, 2006. Diakses: 29 November 2022. [Daring]. Tersedia pada: <http://repo-nkm.batan.go.id/9305/>
- [2] P. W. Miller, K. Kato, dan B. Långström, “Carbon-11, Nitrogen-13, and Oxygen-15 Chemistry,” dalam *The Chemistry of Molecular Imaging*, John Wiley & Sons, Ltd, 2014, hlm. 79–103. doi: 10.1002/9781118854754.ch4.
- [3] F. Goudou, A. D. Gee, dan S. Bongarzone, “Carbon-11 carboxylation of terminal alkynes with $[^{11}\text{C}]\text{CO}_2$,” *Journal of Labelled Compounds and Radiopharmaceuticals*, vol. 64, no. 6, hlm. 237–242, 2021, doi: 10.1002/jlcr.3907.
- [4] J. R. de Boer dkk., “Carbon-11 tyrosine PET for visualization and protein synthesis rate assessment of laryngeal and hypopharyngeal carcinomas,” *Eur J Nucl Med*, vol. 29, no. 9, hlm. 1182–1187, Sep 2002, doi: 10.1007/s00259-002-0863-9.
- [5] Z. Tu dan R. H. Mach, “ ^{11}C Radiochemistry in Cancer Imaging Applications,” *Current Topics in Medicinal Chemistry*, vol. 10, no. 11, hlm. 1060–1095.
- [6] B. Nosslin, L. Johansson, S. Leide-Svegborn, J. Liniecki, S. Mattsson, dan D. M. Taylor, “A generic model for ^{11}C labelled radiopharmaceuticals for imaging receptors in the human brain,” *Radiat Prot Dosimetry*, vol. 105, no. 1–4, hlm. 587–591, 2003, doi: 10.1093/oxfordjournals.rpd.a006308.
- [7] K. Kairemo dan A. Kangasmäki, “Imaging of Accidental Contamination by Fluorine-18 Solution: A Quick Troubleshooting Procedure,” *Asia Ocean J Nucl Med Biol*, vol. 4, no. 1, hlm. 51–54, 2016, doi: 10.7508/aojnmb.2016.04.008.
- [8] A. K. Cheetham dan P. Day, Ed., *Solid State Chemistry: Compounds*. Oxford, New York: Oxford University Press, 1992.
- [9] L. Kurniasari, M. Djaeni, dan A. Purbasari, “Aktivasi Zeolit Alam Sebagai Adsorben Pada Alat Pengereng Bersuhu Rendah,” *Reaktor*, vol. 13, no. 3, Art. no. 3, Apr 2011, doi: 10.14710/reaktor.13.3.178-184.
- [10] A. Yamliha, B. Dwiargo, dan W. A. Nugroho, “Pengaruh Ukuran Zeolite Terhadap Penyerapan Karbondioksida (CO_2) Pada Aliran Biogas,” *Jurnal Bioproses Komoditas Tropis*, vol. 1, no. 2, Art. no. 2, Nov 2013.
- [11] S. Suhartana dan P. Pardoyo, “Activation of Natural Zeolite and Its Application for Adsorbents in Domestic Wastewater Treatment in Tembalang



District, Semarang City,” *Jurnal Kimia Sains dan Aplikasi*, vol. 23, no. 1, Art. no. 1, Jan 2020, doi: 10.14710/jksa.23.1.28-33.

[12] Y. D. Ngapa, “Study of The Acid-Base Effect on Zeolite Activation and Its Characterization as Adsorbent of Methylene Blue Dye,” *JKPK*, vol. 2, no. 2, hlm. 90, Sep 2017, doi: 10.20961/jkpk.v2i2.11904.

[13] H. S. Tira dan Y. A. Padang, “Removal of CO₂ and H₂S from raw biogas using activated natural zeolite: AIP Conference Proceedings: Vol 1778, No 1.” <https://aip.scitation.org/ezproxy.ugm.ac.id/doi/abs/10.1063/1.4965740> (diakses 6 September 2021).

[14] S. Sumarni, N. Hindryawati, dan A. Alimuddin, “Activation And Characterization Of Natural Zeolite Using NaOH,” *JURNAL ATOMIK*, vol. 3, no. 2, hlm. 106–110, Agu 2018.

[15] M. L. T. Ayu Putranti, S. K. Wirawan, dan I. M. Bendiyasa, “Adsorption of Free Fatty Acid (FFA) in Low-Grade Cooking Oil Used Activated Natural Zeolite as Adsorbent,” *IOP Conf. Ser.: Mater. Sci. Eng.*, vol. 299, hlm. 012085, Jan 2018, doi: 10.1088/1757-899X/299/1/012085.

[16] R. Fazlia Inda Rahmayani, Y. Arryanto, dan I. Kartini, “The effect of alkaline activation on the zeolite binding properties toward dissolved irons,” dipresentasikan pada Journal of Physics: Conference Series, Mar 2020. doi: 10.1088/1742-6596/1460/1/012084.

[17] M. Ghaedi, “Adsorption: Fundamental Processes and Applications,” 2021.

[18] Q. Qu, G. Zhou, Y. Ding, S. Feng, dan Z. Gu, “Adjustment of the morphology of MCM-41 silica in basic solution,” *Journal of Non-Crystalline Solids*, vol. 405, hlm. 104–115, Des 2014, doi: 10.1016/j.jnoncrysol.2014.09.012.

[19] R. Maryanti, A. B. D. Nandiyanto, T. I. B. Manullang, A. Hufad, dan Sunardi, “Adsorption of dye on carbon microparticles: physicochemical properties during adsorption, adsorption isotherm and education for students with special needs - UKM Journal Article Repository,” 2020. <http://journalarticle.ukm.my/16162/> (diakses 14 November 2022).

[20] D. M. Ruthven, S. Farooq, dan K. S. Knaebel, *Pressure swing adsorption*. New York: VCH, 1994. Diakses: 14 November 2022. [Daring]. Tersedia pada: <http://catalogue.bnf.fr/ark:/12148/cb37442172g>

[21] S. E. B. Purba, “Dealuminasi dan/atau Desilikasi Zeolit Alam Klaten Dengan Perlakuan HCl dan/atau NaOH Sebagai Katalis Hidrorengkah Minyak Goreng Bekas Menjadi Biogasolin,” Universitas Gadjah Mada, 2019. Diakses: 27 November 2022. [Daring]. Tersedia pada: <http://etd.repository.ugm.ac.id/penelitian/detail/173354>



- [22] S. Wang dan Y. Peng, "Natural zeolites as effective adsorbents in water and wastewater treatment," *Chemical Engineering Journal*, vol. 156, no. 1, hlm. 11–24, Jan 2010, doi: 10.1016/j.cej.2009.10.029.
- [23] P. A. Jacobs, E. M. Flanigen, J. C. Jansen, dan H. van Bekkum, "Introduction to Zeolite Science and Practice, Volume 137 - 2nd Edition," 2001. <https://www.elsevier.com/books/introduction-to-zeolite-science-and-practice/jacobs/978-0-444-82421-9> (diakses 11 Juni 2022).
- [24] M. S. A. Pohan, S. Sutarno, dan S. Suyanta, "Studi Adsorpsi-Desorpsi Anion Fosfat pada Zeolit Termodifikasi CTAB," *Jurnal Penelitian Sains*, vol. 18, no. 3, Art. no. 3, Sep 2017, doi: 10.56064/jps.v18i3.20.
- [25] W. Trisunaryanti, Nanik, Anton, dan Sembayun, "Material Katalis Dan Karakternya," 2015. <https://www.semanticscholar.org/paper/Material-Katalis-Dan-Karakternya-Trisunaryanti-Nanik/ea79b1ae19c1af2db3adbd5939f6891c1355da94> (diakses 20 Juni 2022).
- [26] R. F. Lobo, "Introduction to the Structural Chemistry of Zeolites," dalam *Handbook of Zeolite Science and Technology*, CRC Press, 2003.
- [27] F. Morante-Carballo, N. Montalvan-Burbano, P. Carrión-Mero, dan K. Jácome-Francis, "Worldwide Research Analysis on Natural Zeolites as Environmental Remediation Materials," 2021, doi: 10.3390/SU13116378.
- [28] Kusdarto, "Potensi Zeolit di Indonesia," vol. 7, Nov 2008, [Daring]. Tersedia pada: <https://media.neliti.com/media/publications/219596-potency-of-zeolite-in-indonesia.pdf>
- [29] Dr. S. Miskiyah M. Si., "Zeolit Alam Termodifikasi Setiltrimetilamonium Bromida Sebagai Adsorben Multifungsi Anion SO_4^{2-} , Kation NH_4^+ , dan Senyawa Nonpolar Benzena," Universitas Gadjah Mada, 2016. Diakses: 20 Juni 2022. [Daring]. Tersedia pada: <http://etd.repository.ugm.ac.id/penelitian/detail/96713>
- [30] S. L. Aini, "Aktivasi Zeolit Alam Dengan Perlakuan Hidrotermal Dan Karakterisasinya Serta Uji Aktivitas Adsorpsi Air Dalam Campuran Air-Etanol," Universitas Gadjah Mada, 2011. Diakses: 20 Juni 2022. [Daring]. Tersedia pada: <http://etd.repository.ugm.ac.id/penelitian/detail/51444>
- [31] M. Adriati, A. Suseno, dan T. Taslimah, "Modifikasi Zeolit Alam Menggunakan Besi (Fe) dan Kobalt (Co) untuk Katalis Degradasi Fenol," *Jurnal Kimia Sains dan Aplikasi*, vol. 16, hlm. 1, Apr 2013, doi: 10.14710/jksa.16.1.1-5.
- [32] K. D. Nugrahaningtyas, D. M. Widjonarko, W. Trisunaryanti, dan Triyono, "Preparasi Dan Karakterisasi Katalis Bimetal NiMo/Zeorlit Alam : 1. Pengembangan Logam Ni dan Mo secara koimpregnasi," Universitas Sebelas Maret, 2008. Diakses: 20 Juni 2022. [Daring]. Tersedia pada:



https://repository.ugm.ac.id/digitasi/index.php?module=cari_hasil_full&idbuku=3229

[33] R. Frezer, “Percobaan adsorpsi nitrogen dan metana di dalam zeolit pada tekanan tinggi serta pemodelannya,” Universitas Indonesia. [Daring]. Tersedia pada: <https://lib.ui.ac.id/file?file=pdf/abstrak-20249672.pdf>

[34] G. Nurliati, Y. Krisnandi, R. Sihombing, dan Z. Salimin, “Studies of Modification of Zeolite by Tandem Acid-Base Treatments and its Adsorptions Performance Towards Thorium,” *Atom Indonesia*, vol. 41, hlm. 87, Okt 2015, doi: 10.17146/aij.2015.382.

[35] M. Pimsuta, A. Neramittagapong, S. Prayoonpokarach, dan J. Wittayakun, “Desilication of NaZSM-5 and Utilization as Support of Fe for Phenol Hydroxylation,” *International Journal of Chemical Engineering and Applications*, vol. 3, hlm. 86–91, Jan 2012, doi: 10.7763/IJCEA.2012.V3.166.

[36] N. Hwang dan A. R. Barron, “2.3: BET Surface Area Analysis of Nanoparticles,” *Chemistry LibreTexts*, 13 Juli 2016. [https://chem.libretexts.org/Bookshelves/Analytical_Chemistry/Physical_Methods_in_Chemistry_and_Nano_Science_\(Barron\)/02%3A_Physical_and_Thermal_Analysis/2.03%3A_BET_Surface_Area_Analysis_of_Nanoparticles](https://chem.libretexts.org/Bookshelves/Analytical_Chemistry/Physical_Methods_in_Chemistry_and_Nano_Science_(Barron)/02%3A_Physical_and_Thermal_Analysis/2.03%3A_BET_Surface_Area_Analysis_of_Nanoparticles) (diakses 9 November 2022).

[37] K. S. Gunawan, “Optimisasi Desain Pressure Swing Adsorption sebagai Carbon Capture pada Studi Kasus PLTU Paiton dan PLTG Muara Tawar,” Undergraduate, Institut Teknologi Sepuluh Nopember, 2017. Diakses: 11 Juli 2022. [Daring]. Tersedia pada: <https://repository.its.ac.id/44980/>

[38] V. Cviklovič, M. Kisev, V. Madola, dan D. Hruby, “The impact of dynamic characteristics of oxygen gas sensors to measurement accuracy in systems with rapidly changing conditions,” *IEEE Access*, vol. PP, hlm. 1–1, Agu 2021, doi: 10.1109/ACCESS.2021.3106824.

[39] W. Bolton, “Instrumentation and Control Systems - 3rd Edition,” 2021. <https://www.elsevier.com/books/instrumentation-and-control-systems/bolton/978-0-12-823471-6> (diakses 6 April 2023).

[40] A. Reza Rahman, “Pengaruh proses pengeringan , anil, dan hidrothermal terhadap kristalinitas nanopartikel TiO₂ hasil proses sol - gel = The effects of drying, annealing, and hidrothermal to the cristalinity of TiO₂ from sol-gel process,” *Universitas Indonesia Library*, 2008. <https://lib.ui.ac.id> (diakses 11 Juli 2022).

[41] J. Syvitski, “Principles, Methods and Application of Particle Size Analysis,” Jul 1991, doi: 10.1017/CBO9780511626142.



- [42] Microtrac, "Particle Analysis Techniques Compared :: Microtrac.com." <https://www.microtrac.com/applications/knowledge-base/different-particle-analysis-techniques-compared/> (diakses 3 Oktober 2022).
- [43] PT. Andaru Persada Mandiri, "Particle Size Analyzer - Pengertian dan Fungsinya," *Distributor Alat Lab*, 4 April 2022. <https://andarupm.co.id/particle-size-analyzer-lab/> (diakses 14 November 2022).
- [44] M. S. Shackley, "X-Ray Fluorescence Spectrometry in Twenty-First Century Archaeology," dalam *X-Ray Fluorescence Spectrometry (XRF) in Geoarchaeology*, M. S. Shackley, Ed., New York, NY: Springer New York, 2011, hlm. 1–6. doi: 10.1007/978-1-4419-6886-9_1.
- [45] T. Sumantry dan T. Sumantry, "Aplikasi XRF Untuk Identifikasi Lempung Pada Kegiatan Penyimpanan Lestari Limbah Radioaktif," *Buletin Limbah*, vol. 13, no. 2, Art. no. 2, Nov 2013, Diakses: 14 November 2022. [Daring]. Tersedia pada: <http://jurnal.batan.go.id/index.php/bl/article/view/983>
- [46] Dr. R. V. Murphy, Dr. H. Maharaj, J. Lachapelle, dan P. K. Yuen, "Operator of Portable X-ray Fluorescence Analyzer," 2010. [Daring]. Tersedia pada: https://natural-resources.canada.ca/sites/www.nrcan.gc.ca/files/mineralsmetals/files/pdf/ndt-end/2_3%20-%20Operator_of_Portable_X-ray_Fluorescence_Analyzers-eng.pdf
- [47] A. Awaluddin, Padil, dan S. Wahyuningsih, "Making biodiesel from coconut oil by reaction metanolisis heterogeneous catalyst," dalam *Proceedings of the International Conference on Energy and Sustainable Development: Issues and Strategies (ESD 2010)*, Jun 2010, hlm. 1–5. doi: 10.1109/ESD.2010.5598785.
- [48] G. D. Pirngruber dan D. Leinekugel-le-Cocq, "Design of a Pressure Swing Adsorption Process for Postcombustion CO₂ Capture," *Ind. Eng. Chem. Res.*, vol. 52, no. 17, hlm. 5985–5996, Mei 2013, doi: 10.1021/ie400015a.
- [49] M. Sari, D. N. Santi, dan I. Chahaya, "Analisa Kadar CO dan NO₂ di Udara dan Keluhan Gangguan Saluran Pernapasan pada Pedagang Kaki Lima di Pasar Sangkumpul Bonang Kota Padangsidimpuan Tahun 2013," *Lingkungan dan Keselamatan Kerja*, vol. 3, no. 1, hlm. 14469, 2014.
- [50] R. Juniansyah, D. Suhendar, dan E. Hadisantoso, "Studi Transformasi Zeolit Alam Asal Sukabumi dengan Menggunakan Air Zamzam sebagai Sumber Akuades," *al-Kimiya*, vol. 4, hlm. 23–30, Jun 2019, doi: 10.15575/ak.v4i1.5080.
- [51] D. H. Olson dan H. S. Sherry, "X-ray study of strontium-sodium ion exchange in Linde X. Example of a two-phase zeolite system," *ACS Publications*, 1 Mei 2002. <https://pubs.acs.org/doi/pdf/10.1021/j100858a025> (diakses 6 Maret 2023).



- [52] Z. Adila, "Ammonium Chloride Activated Klaten Natural Zeolite as A Catalyst of Ethanol Dehydration to Diethyl Ether," Universitas Gadjah Mada, 2022. Diakses: 22 Januari 2023. [Daring]. Tersedia pada: <http://etd.repository.ugm.ac.id/penelitian/detail/216837>
- [53] G. D. Gatta dan P. Lotti, "Chapter 1 - Systematics, crystal structures, and occurrences of zeolites," dalam *Modified Clay and Zeolite Nanocomposite Materials*, M. Mercurio, B. Sarkar, dan A. Langella, Ed., dalam Micro and Nano Technologies. Elsevier, 2019, hlm. 1–25. doi: 10.1016/B978-0-12-814617-0.00001-3.
- [54] M. Criado, A. Palomo, dan A. Fernández-Jiménez, "Alkali activation of fly ashes. Part 1: Effect of curing conditions on the carbonation of the reaction products," *Fuel*, vol. 84, no. 16, hlm. 2048–2054, Nov 2005, doi: 10.1016/j.fuel.2005.03.030.
- [55] I. Wilińska dan B. Pacewska, "Comparative investigation of reactivity of different kinds of fly ash in alkaline media," *J Therm Anal Calorim*, vol. 138, no. 6, hlm. 3857–3872, Des 2019, doi: 10.1007/s10973-019-08296-4.
- [56] K. Wijaya, A. K. Amin, L. Hauli, M. Utami, A. Nadia, dan T. Sekarningrum, *Sains Material: Struktur, Sifat, Sintesis dan Aplikasinya*, Pertama. Yogyakarta: deepublish, 2022. [Daring]. Tersedia pada: <https://deepublishstore.com/shop/buku-sains-2/>

