

DAFTAR PUSTAKA

- Anggara, F. *et al.* (2018) 'The Composition and mode of occurrence of rare earth elements and yttrium in fly ash and bottom ash from coal-fired plants in Java, Indonesia', in *The Society for Organic Petrology Annual Meeting*.
- Astuti, W. *et al.* (2016) 'Comparison of atmospheric citric acid leaching kinetics of nickel from different Indonesian saprolitic ores', *Hydrometallurgy*. Elsevier B.V., pp. 1–14. doi: 10.1016/j.hydromet.2015.12.015.
- Atmani, R. *et al.* (2016) 'Study of the Effect of Temperature on Diffusion of a Liquid of Simulation inside the Polyethylene Vinyl Acetate', *International Journal of Advances in Chemical Engineering and Biological Sciences*, 3(1), pp. 81–84. doi: 10.15242/ijacebs.ae0416117.
- Aughenbaugh, K. L., Stutzman, P. and Juenger, M. C. G. (2016) 'Identifying glass compositions in fly ash', *Frontiers in Materials*, 3(January), pp. 1–10. doi: 10.3389/fmats.2016.00001.
- Bac, B. H. *et al.* (2012) 'Characterization of a Vietnamese coal fly ash and its possible utilizations', in, pp. 1–6.
- BBTE (2015) *PLTU Batu Bara Superkritikal yang Efisien*. Edited by Cahyadi. Banten: BPPT Press.
- Brown, M. A., Kropf, A. J. and Gelis, A. V. (2014) 'Aqueous complexation of citrate with neodymium(III) and americium(III): a study by potentiometry, absorption spectrophotometry, microcalorimetry, and XAFS', *Dalton Trans*, 43, pp. 6446–6454. doi: 10.1039/c4dt00343h.
- Cao, Y. *et al.* (2006) 'Kinetic Study on the Leaching of Pt, Pd and Rh from Automotive Catalyst Residue by Using Chloride Solutions', *Materials Transactions*, 47(8), pp. 2015–2024. doi: 10.2320/matertrans.47.2015.
- Channei, D. *et al.* (2017) 'Aqueous and Surface Chemistries of Photocatalytic Fe-Doped CeO₂ Nanoparticles', *Catalysts*, 7(45), pp. 1–23. doi: 10.3390/catal7020045.
- Cotton, S. (2006) *Lanthanide and Actinide Chemistry*. West Sussex: John Wiley & Sons, Ltd. Available at: https://books.google.co.id/books?id=Au-xs_B-Lp0C&pg=PT17&lpg=PT17&dq=citric+acid+manhattan+project+lanthanides&source=bl&ots=ko1k1fzHq2&sig=ACfU3U28wtfzJAidSwpz1QdFZPoiP4FIhQ&hl=en&sa=X&ved=2ahUKEwj20ImMprfgAhXBpI8KHbGuDIEQ6AEwAHoECA YQAQ#v=onepage&q=citri.
- Dai, S. *et al.* (2010) 'Abundances and distribution of minerals and elements in high-alumina coal fly ash from the Jungar Power Plant, Inner Mongolia, China', *International Journal of Coal Geology*. Elsevier B.V., 81(4), pp. 320–332. doi: 10.1016/j.coal.2009.03.005.
- Damayanti, R. (2018) 'Abu batubara dan pemanfaatannya: Tinjauan teknis karakteristik secara kimia dan toksikologinya', *Jurnal Teknologi Mineral dan Batubara*, 14(3), pp. 213–231. doi: 10.30556/jtmb.vol14.no3.2018.966.
- Dickinson, C. F. and Heal, G. R. (1999) 'Solid–liquid diffusion controlled rate equations', *Thermochimica Acta*, 340–341(October), pp. 89–103. doi: 10.1016/S0040-6031(99)00256-7.
- Edstrom, C. (2010) *Wet Etching of Optical Thin Films*. Jonkoping Institute of Technology. doi: 10.13140/RG.2.2.23533.90083.
- Essington, M. E. (2015) *Soil and Water Chemistry: An Integrative Approach*. 2nd edn. Boca Raton: CRC Press. Available at: <https://books.google.co.id/books?id=CXN3CAAQBAJ&printsec=frontcover&s>

- source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false.
- Flora, S. J. S. and Pachauri, V. (2010) 'Chelation in metal intoxication', *International Journal of Environmental Research and Public Health*, 7(7), pp. 2745–2788. doi: 10.3390/ijerph7072745.
- Franus, W., Wiatros-motyka, M. M. and Wdowin, M. (2015) 'Coal fly ash as a resource for rare earth elements', *Environ Sci Pollut Res*, 22, pp. 9464–9474. doi: 10.1007/s11356-015-4111-9.
- Gargul, K., Jarosz, P. and Małeck, S. (2018) 'Leaching of Lead and Copper by Citric Acid from Direct-to-Blister Copper Flash Smelting Slag', (November). doi: 10.20944/preprints201811.0209.v1.
- Gergoric, M. *et al.* (2018) 'Leaching and Recovery of Rare-Earth Elements from Neodymium Magnet Waste Using Organic Acids', *Metals*, 8, pp. 1–17. doi: 10.3390/met8090721.
- Golmohammadzadeh, R., Rashchi, F. and Vahidi, E. (2017) 'Recovery of lithium and cobalt from spent lithium-ion batteries using organic acids: Process optimization and kinetic aspects', *Waste Management*. Elsevier Ltd, 64, pp. 244–254. doi: 10.1016/j.wasman.2017.03.037.
- Handoyo, H. (2019) *Pelindian Logam Tanah Jarang dalam Magnetik Coal Fly Ash Menggunakan Asam Asetat Sebagai Pelindi*. Universitas Gadjah Mada.
- Hower, J. C. (2012) 'Petrographic examination of coal-combustion fly ash', *International Journal of Coal Geology*. Elsevier B.V., 92, pp. 90–97. doi: 10.1016/j.coal.2011.12.012.
- Hower, J. C. *et al.* (2017) 'Coal-derived unburned carbons in fly ash: A review', *International Journal of Coal Geology*. Elsevier, 179(May), pp. 11–27. doi: 10.1016/j.coal.2017.05.007.
- Hulbert, S. F. and Popowich, M. J. (1969) *Kinetics of Reactions in Ionic Systems*. Edited by T. J. Gray and V. D. Fréchet. Boston, MA: Springer US. doi: 10.1007/978-1-4899-6461-8.
- Jander, W. (1930) 'Reaktionen im festen Zustande bei höheren Temperaturen. Säureplatzwechsel bei einigen Wolframaten und Molybdaten', *Zeitschrift für anorganische und allgemeine Chemie*, 190(1), pp. 397–406. doi: 10.1002/zaac.19301900139.
- Kakhia, T. (no date) *Organic Acids Chelating Agents*. Available at: http://tarek.kakhia.org/books_eng/Organic_Acids_Chelating_Agents.Tarek_Kakhia.pdf.
- Kashiwakura, S. *et al.* (2013) 'Dissolution of Rare Earth Elements from Coal Fly Ash Particles in a Dilute H₂SO₄ Solvent', *Open Journal of Physical Chemistry*, 03(02), pp. 69–75. doi: 10.4236/ojpc.2013.32009.
- Kayal, P. B. (1976) *Reaction of alkalimetal nitrates RbNO₃ CsNO₃ with silica and aluminosilicates*. University of Calcutta. Available at: https://shodhganga.inflibnet.ac.in/bitstream/10603/160167/11/11_chapter5.pdf.
- Keong, T. W. (2003) *Bioleaching of Heavy Metals from Electronic Scrap Material (ESM) by Aspergillus niger and Penicillium simplicissimum*. National University of Singapore.
- Kirk-Othmer (1998) *Chemical Technology*. 4th edn. John Wiley & Sons, Inc.
- Laidler, K. J. (1984) 'The Development of the Arrhenius Equation', *Chemical Education*, 61(6), pp. 494–498.
- Levenspiel, O. (1999) *Chemical Reaction Engineering*. 3rd edn. New York: John Wiley & Sons, Inc.
- Li, L. *et al.* (2010) 'Recovery of cobalt and lithium from spent lithium ion batteries using

- organic citric acid as leachant', *Journal of Hazardous Materials*, 176(1–3), pp. 288–293. doi: 10.1016/j.jhazmat.2009.11.026.
- Manurung, H. (2019) *Studi Pelindian Logam Tanah Jarang dari Limbah Padat Batubara (Fly Ash) dengan Asam Organik Asam Asetat*. Universitas Gadjah Mada.
- Mcdonald, R. G. and Whittington, B. I. (2008) 'Atmospheric acid leaching of nickel laterites review . Part II . Chloride and bio-technologies', *Hydrometallurgy*, 91, pp. 56–69. doi: 10.1016/j.hydromet.2007.11.010.
- Molinari, R., Poerio, T. and Argurio, P. (2005) 'Polymer assisted ultrafiltration for copper-citric acid chelate removal from wash solutions of contaminated soil', *Journal of Applied Electrochemistry*, 35(4), pp. 375–380. doi: 10.1007/s10800-005-0795-8.
- Muller, B., Klager, W. and Kubitzki, G. (1997) 'Metal chelates of citric acid as corrosion inhibitors for zinc pigment', *Corrosion Science*, 39(8), pp. 1481–1485.
- Nguyen, R. T. and Imholte, D. D. (2016) 'China's Rare Earth Supply Chain: Illegal Production, and Response to new Cerium Demand', *JOM*, 68(7), pp. 1948–1956. doi: 10.1007/s11837-016-1894-1.
- Nurhayati, C. and Susanto, T. (2015) 'Pemanfaatan Fly Ash Batubara Sebagai Bahan Membran Keramik pada Unit Pengolah Air Gambut', *Jurnal Dinamika Penelitian Industri*, 26(2), pp. 95–106.
- Peterson, R. *et al.* (2017) 'Recovery of Rare Earth Elements from Coal Ash with a Recycling Acid Leach Process', in *2017 World of Coal Ash (WOCA)*. Lexington, pp. 1–27.
- PT Perusahaan Listrik Negara (Persero) (2015) *Rencana Usaha Penyediaan Tenaga Listrik (RUPTL) 2015 - 2024*. Jakarta.
- Rafiuddin (1987) *Studies on the interaction of mercury halides and silver molybdate in Solid State*. Aligarh Muslim University. Available at: https://shodhganga.inflibnet.ac.in/bitstream/10603/53903/7/07_chapter1.pdf.
- Ramezaniapour, A. A. (2014) *Cement Replacement Materials*. Berlin: Springer. doi: 10.1007/978-3-642-36721-2.
- Rao, C. N. R. and Gopalakrishnan, J. (1997) *New Directions in Solid State Chemistry*. 2nd edn. Cambridge: Cambridge University Press. Available at: [https://books.google.co.id/books?id=t40RiVbgWQQC&lpg=PA1&dq=Tammann 1920%3A Parabolic growth kinetics&pg=PP1#v=onepage&q=Tammann 1920: Parabolic growth kinetics&f=false](https://books.google.co.id/books?id=t40RiVbgWQQC&lpg=PA1&dq=Tammann+1920%3A+Parabolic+growth+kinetics&pg=PP1#v=onepage&q=Tammann+1920:Parabolic+growth+kinetics&f=false).
- Rosita, W. *et al.* (2020) 'Sequential particle-size and magnetic separation for enrichment of rare-earth elements and yttrium in Indonesia coal fly ash', *Journal of Environmental Chemical Engineering*. Elsevier, 8(1), p. 103575. doi: 10.1016/j.jece.2019.103575.
- Roth, E. *et al.* (2017) 'Distributions and Extraction of Rare Earth Elements from Coal and Coal By-Products', in *World of Coal Ash (WOCA)*. Lexington. Available at: <http://www.flyash.info/>.
- Saadah, K. and Kusuma, S. E. (2014) 'Kebijakan Cina Membatasi Ekspor Logam Tanah Jarang (LTJ) ke Amerika Serikat (China's Policy to Restrict Rare Earth Metal Export to United State of America)', *e-SOSPOL*, 1(1), pp. 46–60.
- Safitri, E. and Djumari (2009) 'Kajian Teknis Dan Ekonomis Pemanfaatan Limbah Batu Bara (Fly Ash) Pada Produksi Paving Block', *Media Teknik Sipil*, IX(Januari), pp. 36–40.
- Seredin, V. V. and Dai, S. (2012) 'Coal deposits as potential alternative sources for lanthanides and yttrium', *International Journal of Coal Geology*. Elsevier B.V., 94, pp. 67–93. doi: 10.1016/j.coal.2011.11.001.

- Shannon, R. D. (1976) 'Revised Effective Ionic Radii and Systematic Studies of Interatomic Distances in Halides and Chalcogenides', *Acta Crystallographica*, A32, p. 751. Available at: <http://journals.iucr.org/a/issues/1976/05/00/a12967/a12967.pdf>.
- Smith, J. M., Van Ness, H. C. and Abbott, M. M. (2001) *Introduction to Chemical Engineering Thermodynamics*. 6th edn. New York: The McGraw-Hill Companies, Inc.
- Srinivasan, N. S., Jakobsson, A. and Seetharaman, S. (1994) 'A diffusion model for dissolution phenomena in oxide powder mixtures', *Powder Technology*, 79(1), pp. 11–16. doi: 10.1016/0032-5910(94)02808-7.
- Stevenson, P. C. and Nervik, W. E. (1961) *The Radiochemistry of the Rare Earths: Scandium, Yttrium, and Actinium*. Oak Ridge: National Academy of Sciences - National Research Council. Available at: [https://books.google.co.id/books?id=ApUrAAAAYAAJ&pg=PA173&lpg=PA173&dq=citric+acid+yttrium&source=bl&ots=kux9XapaJS&sig=ACfU3U0UN-RZR6a2X_hDy6R4Ggb8zIV40A&hl=en&sa=X&ved=2ahUKewiylca77-noAhWCT30KHZ82DJ44FBDoATABegQICxAo#v=onepage&q=citric acid yttrium&f=false](https://books.google.co.id/books?id=ApUrAAAAYAAJ&pg=PA173&lpg=PA173&dq=citric+acid+yttrium&source=bl&ots=kux9XapaJS&sig=ACfU3U0UN-RZR6a2X_hDy6R4Ggb8zIV40A&hl=en&sa=X&ved=2ahUKewiylca77-noAhWCT30KHZ82DJ44FBDoATABegQICxAo#v=onepage&q=citric%20acid%20yttrium&f=false).
- Suarez-Ruiz, I. *et al.* (2017) 'Development of a petrographic classification of fly-ash components from coal combustion and co-combustion. (An ICCP Classification System, Fly- Ash Working Group – Commission III.)', *International Journal of Coal Geology*. Elsevier, 183, pp. 188–203. doi: 10.1016/j.coal.2017.06.004.
- Taggart, R. K. *et al.* (2016) 'Trends in the Rare Earth Element Content of U.S.-Based Coal Combustion Fly Ashes', *Environmental Science and Technology*, 50(11), pp. 5919–5926. doi: 10.1021/acs.est.6b00085.
- Tang, H. *et al.* (2016) 'Extraction of rare earth elements from a contaminated cropland soil using nitric acid, citric acid, and EDTA', *Environmental Technology*. Taylor & Francis, pp. 1–7. doi: 10.1080/09593330.2016.1244563.
- Wahyudi, T. (2015) 'Reviewing The Properties of Rare Earth Element-Bearing Minerals, Rare Earth Elements and Cerium Oxide Compound', *Indonesian Mining Journal*, 18(2), pp. 92–108. Available at: <https://jurnal.tekmira.esdm.go.id/index.php/imj/article/view/293/178>.
- Wang, Z. *et al.* (2019) 'Rare earth elements and yttrium in coal ash from the Luzhou power plant in Sichuan, Southwest China: Concentration, characterization and optimized extraction', *International Journal of Coal Geology*. Elsevier, 203(January), pp. 1–14. doi: 10.1016/j.coal.2019.01.001.
- Wanta, K. C. *et al.* (2017) *Studi Kinetika Proses Leaching Nikel Laterit dalam Suasana Asam pada Kondisi Atmosferis*. Bandung. Available at: [http://repository.unpar.ac.id/bitstream/handle/123456789/4726/lpdsc194_KevinClearyWanta_Studi kinetika proses leaching-p.pdf?sequence=1&isAllowed=y](http://repository.unpar.ac.id/bitstream/handle/123456789/4726/lpdsc194_KevinClearyWanta_Studi%20kinetika%20proses%20leaching-p.pdf?sequence=1&isAllowed=y).
- Wills, B. A. and Napier-munn, T. (2006) *Mineral Processing Technology*. 7th edn. Elsevier Science & Technology Books.
- Yao, Z. T. *et al.* (2015) 'A comprehensive review on the applications of coal fly ash', *Earth-Science Reviews*, 141, pp. 105–121. doi: 10.1016/j.earscirev.2014.11.016.
- Zhang, K., Kleit, A. N. and Nieto, A. (2016) 'An economics strategy for criticality – Application to rare earth element Yttrium in new lighting technology and its sustainable availability', *Renewable and Sustainable Energy Reviews*. Elsevier, 77(December), pp. 899–915. doi: 10.1016/j.rser.2016.12.127.
- Zhou, B., Li, Z. and Chen, C. (2017) 'Global potential of rare earth resources and rare earth demand from clean technologies', *Minerals*, 7(11). doi: 10.3390/min7110203.