

DAFTAR PUSTAKA

- Ahmaruzzaman, M. 2010. "A Review on the Utilization of Fly Ash." *Progress in Energy and Combustion Science* 36 (3): 327–63. <https://doi.org/10.1016/j.pecs.2009.11.003>.
- Araucz, Katarzyna, Andreas Aurich, and Dorota Kołodyńska. 2020. "Novel Multifunctional Ion Exchangers for Metal Ions Removal in the Presence of Citric Acid." *Chemosphere* 251 (July 2020): 126331. <https://doi.org/10.1016/j.chemosphere.2020.126331>.
- Balaram, V. 2019. "Rare Earth Elements: A Review of Applications, Occurrence, Exploration, Analysis, Recycling, and Environmental Impact." *Geoscience Frontiers* 10 (4): 1285–1303. <https://doi.org/10.1016/j.gsf.2018.12.005>.
- Balaram, Vysetti. 2023. "Potential Future Alternative Resources for Rare Earth Elements: Opportunities and Challenges." *Minerals* 13 (3): 425. <https://doi.org/10.3390/min13030425>.
- Banerjee, Riya, Ashok Mohanty, Sanchita Chakravarty, Saswati Chakladar, and Paromita Biswas. 2021. "A Single-Step Process to Leach out Rare Earth Elements from Coal Ash Using Organic Carboxylic Acids." *Hydrometallurgy* 201 (September 2020): 105575. <https://doi.org/10.1016/j.hydromet.2021.105575>.
- Bastuğ, A. Seza, Sinem Göktürk, and Tuba Şişmanoğlu. 2007. "1:1 Binary Complexes of Citric Acid with Some Metal Ions: Stability and Thermodynamic Parameters." *Reviews in Inorganic Chemistry* 27 (1): 53–65. <https://doi.org/10.1515/REVIC.2007.27.1.53>.
- Behrsing, Thomas, Victoria L. Blair, Florian Jaroschik, Glen B. Deacon, and Peter C. Junk. 2024. "Rare Earths—The Answer to Everything." *Molecules* 29 (3): 688. <https://doi.org/10.3390/molecules29030688>.
- Besari, Dea Anisa Ayu, Ferian Anggara, Widya Rosita, and Himawan T.B.M. Petrus. 2022. "Characterization and Mode of Occurrence of Rare Earth Elements and Yttrium in Fly and Bottom Ash from Coal-Fired Power Plants in Java, Indonesia." *International Journal of Coal Science and Technology* 9 (1): 20. <https://doi.org/10.1007/s40789-022-00476-2>.
- Boehm, Andreas, Gerald Hartig, and Georg Schinnerl. 2023. "Citric Acid Leaching of Industrial BOF Slags." *BHM Berg- Und Hüttenmännische Monatshefte* 168 (4): 148–55. <https://doi.org/10.1007/s00501-023-01341-8>.



Columbus Chemical Industries. “Nitric acid 65% solution; Safety Data Sheet.” Columbus, WI, 1 Oktober 2022 (revisi ketiga).

<https://www.columbuschemical.com/MSDS/SDS/Nitric%20Acid%2065%25%20Solution%206142.pdf>

(diakses 21 Maret 2025)

Constantine, Jason, Jenni Lie, and Jhy Chern Liu. 2022. “Recovery of Rare Earth Elements from Spent NiMH Batteries Using Subcritical Water Extraction with Citric Acid.”

Journal of Environmental Chemical Engineering 10 (3): 108000.

<https://doi.org/10.1016/j.jece.2022.108000>.

Dodbiba, Gjergj, and Toyohisa Fujita. 2023. “Trends in Extraction of Rare Earth Elements from Coal Ashes: A Review.” *Recycling* 8 (1): 17.

<https://doi.org/10.3390/recycling8010017>.

Dow. 2021. “Chelation Chemistry General Concepts of the Chemistry of Chelation Structural Properties.” The Dow Chemical Company. <https://www.dow.com/en-us/document-viewer.html?randomVar=7126414594238130346&docPath=/content/dam/dcc/documents/113/113-01388-01-chelation-chemistry-general-concepts-of-the-chemistry-of-chelation.pdf>.

Fan, John Hua, Akihiro Omura, and Eduardo Roca. 2023. “Geopolitics and Rare Earth Metals.” *European Journal of Political Economy* 78 (November 2021): 102356.

<https://doi.org/10.1016/j.ejpoleco.2022.102356>.

Ferreira, Gustavo, and Jamie Critelli. 2022. “China’s Global Monopoly on Rare-Earth Elements.” *Parameters* 52 (1): 57–72. <https://doi.org/10.55540/0031-1723.3129>.

Fisher Scientific. “Citric Acid, Monohydrate, ACS; Safety Data Sheet according to 29CFR1910/1200 and GHD Rev 3.” Hanover, PA, 19 Maret 2015 (tanggal perubahan).

https://www.fishersci.com/content/dam/fishersci/en_US/documents/programs/education/regulatory-documents/sds/chemicals/chemicals-c/S25254A.pdf (diakses 21 Maret 2025)

Fisher Scientific. “Sulfuric Acid, Concentrated, ACS; Safety Data Sheet according to 29CFR1910/1200 and GHD Rev 3.” Nazareth, PA, 30 Mei 2015 (tanggal perubahan).

<https://www.fishersci.com/store/msds?partNumber=S25597&productDescription=sulfuric-acid-conc-m&vendorId=VN00115888&keyword=true&countryCode=US&language=en>

(diakses 21 Maret 2025)



Gao, Ruize, Haisen Peng, Qiongqiong He, Zhen Meng, Pengxu Xiang, Lihua Hou, and

Zhenyong Miao. 2024. "Simultaneous Leaching of Li, Ga, and REEs from Coal Fly Ash and a Novel Method for Selective Leaching of Li and Ga." *Journal of Environmental Chemical Engineering* 12 (2). <https://doi.org/10.1016/j.jece.2024.112022>.

Gergoric, Marino, Christophe Ravaux, Britt Marie Steenari, Fredrik Espegren, and Teodora Retegan. 2018. "Leaching and Recovery of Rare-Earth Elements from Neodymium Magnet Waste Using Organic Acids." *Metals* 8 (9): 1–17.
<https://doi.org/10.3390/met8090721>.

Grigoras, Cristina, Lucian Gavrilă, and Andrei Ionuț Simion. 2014. "Modelling of the Thermophysical Properties of Citric Acid Aqueous Solutions. Density and Viscosity." *Annals. Food Science and Technology* 15 (1): 193–202. www.afst.valahia.ro.

Hidayat, Danang Arif. 2016. "Kebijakan Industri Rare Earth China." Universitas Gadjah Mada.

Kim, T.Y., Gould, T. 2021. "The Role of Critical Minerals in Clean Energy Transitions." *The Role of Critical Minerals in Clean Energy Transitions*. France: IEA (International Energy Agency). <https://doi.org/10.1787/f262b91c-en>.

King, Jack F., Ross K. Taggart, Ryan C. Smith, James C. Hower, and Heileen Hsu-Kim. 2018. "Aqueous Acid and Alkaline Extraction of Rare Earth Elements from Coal Combustion Ash." *International Journal of Coal Geology* 195 (March): 75–83.
<https://doi.org/10.1016/j.coal.2018.05.009>.

Kumari, Aarti, Dipali, Navneet S. Randhawa, and Sushanta K. Sahu. 2021. "Electrochemical Treatment of Spent NdFeB Magnet in Organic Acid for Recovery of Rare Earths and Other Metal Values." *Journal of Cleaner Production* 309 (October 2020): 127393.
<https://doi.org/10.1016/j.jclepro.2021.127393>.

Lima, Ana T., and Lisbeth M. Ottosen. 2022. "Rare Earth Elements Partition and Recovery During Electrodialytic Treatment of Coal Fly Ash." *Journal of The Electrochemical Society* 169 (3): 033501. <https://doi.org/10.1149/1945-7111/ac56a6>.

Liu, Pan, Simin Zhao, Nan Xie, Lufeng Yang, Qian Wang, Yinghao Wen, Hailong Chen, and Yuanzhi Tang. 2023. "Green Approach for Rare Earth Element (REE) Recovery from Coal Fly Ash." *Environmental Science and Technology* 57 (13): 5414–23.
<https://doi.org/10.1021/acs.est.2c09273>.



- Liu, Shuang Liang, Hong Rui Fan, Xuan Liu, Jianyin Meng, Alan R. Butcher, Lahaye Yann, Kui Feng Yang, and Xiao Chun Li. 2023. "Global Rare Earth Elements Projects: New Developments and Supply Chains." *Ore Geology Reviews* 157 (June 2023): 105428. <https://doi.org/10.1016/j.oregeorev.2023.105428>.
- NOAA. 2024. "Hydrochloric Acid, Solution." CAMEO Chemicals. 2024. [https://cameochemicals.noaa.gov/chemical/3598#:~:text=Reacts with sulfides%2C carbides%2C borides,841\(1946-1947\)%5D](https://cameochemicals.noaa.gov/chemical/3598#:~:text=Reacts with sulfides%2C carbides%2C borides,841(1946-1947)%5D).
- Nurhayati dan Tri Susanto, Chasri. 2015. "Pemanfaatan Fly Ash Batubara Sebagai Bahan Membran Keramik Pada Unit Pengolah Air Gambut." *Jurnal Dinamika Penelitian Industri* 26 (2): 95–105.
- Oviedo, Claudia, and Jaime Rodríguez. 2003. "EDTA: The Chelating Agent under Environmental Scrutiny." *Quimica Nova* 26 (6): 901–5. <https://doi.org/10.1590/S0100-40422003000600020>.
- Pan, Jinhe, Lei Zhang, Zhiping Wen, Tiancheng Nie, Ningning Zhang, and Changchun Zhou. 2023. "The Mechanism Study on the Integrated Process of NaOH Treatment and Citric Acid Leaching for Rare Earth Elements Recovery from Coal Fly Ash." *Journal of Environmental Chemical Engineering* 11 (3): 109921. <https://doi.org/10.1016/j.jece.2023.109921>.
- Poggio, Claudio, Matteo Ceci, Riccardo Beltrami, Marco Colombo, and Alberto Dagna. 2015. "Viscosity of Endodontic Irrigants: Influence of Temperature." *Dental Research Journal* 12 (5): 425–30. <https://doi.org/10.4103/1735-3327.166189>.
- Prihutami, Pramesti. 2020. "Recovery Elemen Tanah Jarang Dari Limbah Abu Terbang Batu Bara: Pemungutan Serium Dan Itrium Menggunakan Asam Sitrat." Universitas Gadjah Mada.
- Qualls, Robert G., Lindsay J. Sherwood, and Curtis J. Richardson. 2009. "Effect of Natural Dissolved Organic Carbon on Phosphate Removal by Ferric Chloride and Aluminum Sulfate Treatment of Wetland Waters." *Water Resources Research* 45 (9). <https://doi.org/10.1029/2008WR007287>.
- Rosita, Widya. 2021. "Pemungutan Logam Tanah Jarang Dari Abu Layang Batubara Indonesia Dengan Proses Sequential Leaching Menggunakan NaOH Dan Asam." Universitas Gadjah Mada.



- Serpell, Oscar, Benjamin Paren, and Wan-Yi Chu. 2021. "Rare Earth Elements: A Resource Constraint of the Energy Transition." *Kleinman Center for Energy Policy*, no. May, 12. <https://kleinmanenergy.upenn.edu/research/publications/rare-earth-elements-a-resource-constraint-of-the-energy-transition/>.
- Sheidi, Ammar S.A. Al, Laurence G. Dyer, and Bogale Tadesse. 2024. "Leaching Efficacy of Ethylenediaminetetraacetic Acid (EDTA) to Extract Rare-Earth Elements from Monazite Concentrate." *Crystals* 14 (10): 829. <https://doi.org/10.3390/cryst14100829>.
- Somad, Abdus. 2023. "Derita Mereka Yang Menghirup Abu PLTU Banten." *Jaring.Id*. <https://jaring.id/derita-mereka-yang-menghirup-abu-pltu-banten/>.
- Taftazani, Agus, Roto Roto, Novitasari Restu Ananda, and Sri Murniasih. 2017. "Comparison of NAA XRF and ICP-OES Methods on Analysis of Heavy Metals in Coals and Combustion Residues." *Indonesian Journal of Chemistry* 17 (2): 228–37. <https://doi.org/10.22146/ijc.17686>.
- Tang, Hailong, Weitao Shuai, Xiaojing Wang, and Yangsheng Liu. 2017. "Extraction of Rare Earth Elements from a Contaminated Cropland Soil Using Nitric Acid, Citric Acid, and EDTA." *Environmental Technology (United Kingdom)* 38 (16): 1980–86. <https://doi.org/10.1080/09593330.2016.1244563>.
- Valudor. "Safety Data Sheet 29 CFR 1910.1200 App D EDTA-2Na." Jasper, GA, USA, tidak bertanggal. <https://www.valudor.com/wp-content/uploads/2022/04/EDTA-Disodium-EDTA-2Na.pdf>. (diakses 7 April 2024)
- Wan, Jialin, Zhixu Chen, Xueming Liu, Zhenghua Tang, and Hong Deng. 2024. "Enhanced Heavy Metal Leaching from Volcanic Muds: Synergistic Effects of Citric Acid and EDTA Composite System." *Surfaces and Interfaces* 48 (March): 104287. <https://doi.org/10.1016/j.surfin.2024.104287>.
- Yang, Jon, Scott Montross, and Circe Verba. 2021. "Assessing the Extractability of Rare Earth Elements from Coal Preparation Fines Refuse Using an Organic Acid Lixiviant." *Mining, Metallurgy and Exploration* 38 (4): 1701–9. <https://doi.org/10.1007/s42461-021-00439-2>.
- Zhang, Lei, Hangchao Chen, Jinhe Pan, Fan Yang, Xin Long, Yan Yang, and Changchun Zhou. 2025. "Rare Earth Elements Recovery and Mechanisms from Coal Fly Ash by Column Leaching Using Citric Acid." *Separation and Purification Technology* 353 (PB): 128471. <https://doi.org/10.1016/j.seppur.2024.128471>.