

DAFTAR PUSTAKA

- Badruk, M., & Matsunaga, I. (2001). Experimental results of silica removal from simulated solutions of geothermal brine of Kizildere field, Turkey. *Geothermics*, 30(5), 561–570. [https://doi.org/10.1016/S0375-6505\(01\)00013-X](https://doi.org/10.1016/S0375-6505(01)00013-X)
- Baindara, P., Gautam, A., Raghava, G., & Korpole, S. (2017). Anticancer properties of a defensin like class IId bacteriocin Laterosporulin10. *Scientific Reports*, 7, 46541.
- Bunani, S., Yoshizuka, K., Nishihama, S., Arda, M., & Kabay, N. (2017). Application of bipolar membrane electrodialysis (BMED) for simultaneous separation and recovery of boron and lithium from aqueous solutions. *Desalination*, 424(August), 37–44. <https://doi.org/10.1016/j.desal.2017.09.029>
- Calixto, E. (2016). Accelerated Life Test, Reliability Growth Analysis, and Probabilistic Degradation Analysis. In *Gas and Oil Reliability Engineering*. <https://doi.org/10.1016/b978-0-12-805427-7.00002-6>
- Chen, Q. B., Ji, Z. Y., Liu, J., Zhao, Y. Y., Wang, S. Z., & Yuan, J. S. (2018). Development of recovering lithium from brines by selective-electrodialysis: Effect of coexisting cations on the migration of lithium. *Journal of Membrane Science*, 548(8), 408–420. <https://doi.org/10.1016/j.memsci.2017.11.040>
- Doi, S. (2019). *Lithium - the Metal of the Future? Ihor A. Kunasz 1 1 TRU Group, 95 Prince Arthur Avenue, Suite 117, Toronto, ON, Canada. 1492*, 3–14.
- Flexer, V., Baspineiro, C. F., & Galli, C. I. (2018). Lithium recovery from brines: A vital raw material for green energies with a potential environmental impact in its mining and processing. *Science of the Total Environment*, 639(December), 1188–1204. <https://doi.org/10.1016/j.scitotenv.2018.05.223>
- Fomenko, M., & Volkovich, Y. (2017). Porous structure of ion exchange membranes investigated by various techniques. *Advances in Colloid and Interface Science*. <https://doi.org/10.1016/j.cis.2017.05.007>
- Fredes, B. (2022). *Mechanism of Electro Dialysis (ED) and its Applications*. 12(1000281), 1–2. <https://doi.org/10.35248/2329-6925.22.12.281.Citation>
- Gmar, S., & Chagnes, A. (2019). Recent advances on electrodialysis for the recovery of lithium from primary and secondary resources. *Hydrometallurgy*, 189, 1–35. <https://doi.org/10.1016/j.hydromet.2019.105124>

- Greenberg, S. A. (1961). REACTION BETWEEN SILICA AND CALCIUM HYDROXIDE SOLUTIONS. I. KINETICS IN THE TEMPERATURE RANGE 30 TO 85°1. *The Journal of Physical Chemistry*, 65(1), 12–16. <https://doi.org/10.1021/j100819a005>
- Guo, Z. Y., Ji, Z. Y., Chen, Q. B., Liu, J., Zhao, Y. Y., Li, F., Liu, Z. Y., & Yuan, J. S. (2018). Prefractionation of LiCl from concentrated seawater/salt lake brines by electrodialysis with monovalent selective ion exchange membranes. *Journal of Cleaner Production*, 193, 338–350. <https://doi.org/10.1016/j.jclepro.2018.05.077>
- Habashi, F. (1997). Handbook of extractive metallurgy volume 3. *Precious Metals, Refractory Metals, Scattered Metals, Radioactive Metals and Rare Earth Metals*, 1649–1684.
- Hassanvand, A., Wei, K., Talebi, S., Chen, G. Q., & Kentish, S. E. (2017). The role of ion exchange membranes in membrane capacitive deionisation. *Membranes*, 7(3). <https://doi.org/10.3390/membranes7030054>
- He, Z., Cui, H., Hao, S., Wang, L., & Zhou, J. (2018). Electric-Field Effects on Ionic Hydration: A Molecular Dynamics Study. *Journal of Physical Chemistry B*, 122(22), 5991–5998. <https://doi.org/10.1021/acs.jpcc.8b02773>
- Herdianita, N. R., Sucipta, I. G. B. E., & Kencana, A. Y. (2019). Lithium in Brine Waters from The Indonesian Geothermal Systems : Could it Meet the National Needs of Making Lithium Batteries ? *The 7th Indonesia International Geothermal Convention & Exhibition (IIGCE), Agustus*.
- Hoshino, T. (2013). Preliminary studies of lithium recovery technology from seawater by electrodialysis using ionic liquid membrane. *Desalination*, 317, 11–16. <https://doi.org/10.1016/j.desal.2013.02.014>
- Hwang, C. W., Jeong, M. H., Kim, Y. J., Son, W. K., Kang, K. S., Lee, C. S., & Hwang, T. S. (2016). Process design for lithium recovery using bipolar membrane electrodialysis system. *Separation and Purification Technology*, 166, 34–40. <https://doi.org/10.1016/j.seppur.2016.03.013>
- İpekçi, D., Altıok, E., Bunani, S., Yoshizuka, K., Nishihama, S., Arda, M., & Kabay, N. (2018). Effect of acid-base solutions used in acid-base compartments for simultaneous recovery of lithium and boron from aqueous solution using bipolar membrane electrodialysis (BMED). *Desalination*, 448(October 2018), 69–75.

<https://doi.org/10.1016/j.desal.2018.10.001>

- Ji, P. Y., Ji, Z. Y., Chen, Q. B., Liu, J., Zhao, Y. Y., Wang, S. Z., Li, F., & Yuan, J. S. (2018). Effect of coexisting ions on recovering lithium from high Mg^{2+}/Li^{+} ratio brines by selective-electrodialysis. *Separation and Purification Technology*, 207(8), 1–11. <https://doi.org/10.1016/j.seppur.2018.06.012>
- Ji, Z. yong, Chen, Q. bai, Yuan, J. sheng, Liu, J., Zhao, Y. ying, & Feng, W. xian. (2017). Preliminary study on recovering lithium from high Mg^{2+}/Li^{+} ratio brines by electrodialysis. *Separation and Purification Technology*, 172, 168–177. <https://doi.org/10.1016/j.seppur.2016.08.006>
- Jiang, C., Wang, Y., Wang, Q., Feng, H., & Xu, T. (2014). Production of lithium hydroxide from lake brines through electro-electrodialysis with bipolar membranes (EEDBM). *Industrial and Engineering Chemistry Research*, 53(14), 6103–6112. <https://doi.org/10.1021/ie404334s>
- Johnston, J. H., Borrmann, T., Rankin, D., Cairns, M., Grindrod, J. E., & Mcfarlane, A. (2008). Nano-structured composite calcium silicate and some novel applications. *Current Applied Physics*, 8(3–4), 504–507. <https://doi.org/10.1016/j.cap.2007.10.060>
- Kara, S., Li, W., & Sadjiva, N. (2017). Life Cycle Cost Analysis of Electrical Vehicles in Australia. *Procedia CIRP*, 61, 767–772. <https://doi.org/10.1016/j.procir.2016.11.179>
- Kavanagh, L., Keohane, J., Cabellos, G. G., Lloyd, A., & Cleary, J. (2018). Global lithium sources-industrial use and future in the electric vehicle industry: A review. *Resources*, 7(3). <https://doi.org/10.3390/resources7030057>
- Kesler, S. E., Gruber, P. W., Medina, P. A., Keoleian, G. A., Everson, M. P., & Wallington, T. J. (2012). Global lithium resources: Relative importance of pegmatite, brine and other deposits. *Ore Geology Reviews*, 48, 55–69. <https://doi.org/10.1016/j.oregeorev.2012.05.006>
- Li, T., Wu, J. J., Wang, X. G., & Huang, H. (2021). Particle Size Effect and Temperature Effect on the Pore Structure of Low-Rank Coal. *ACS Omega*, 6(8), 5865–5877. <https://doi.org/10.1021/acsomega.0c06280>
- Liao, J., Yu, X., Pan, N., Li, J., Shen, J., & Gao, C. (2019). Amphoteric ion-exchange membranes with superior mono- / bi-valent anion separation performance for electrodialysis applications. *Journal of Membrane Science*, 577(February), 153–164.

<https://doi.org/10.1016/j.memsci.2019.01.052>

- Lu, Sophie. (2019). "Will the Real Lithium Demand Please Stand Up? Challenging the 1Mt-by-2025 Orthodoxy". <https://about.bnef.com/blog/will-the-real-lithium-demand-please-stand-up-challenging-the-1mt-by-2025-orthodoxy/>.
- Masigol, M. A., Moheb, A., & Mehrabani-Zeinabad, A. (2012). An experimental investigation into batch electrodialysis process for removal of sodium sulfate from magnesium stearate aqueous slurry. *Desalination*, 300(August 2012), 12–18. <https://doi.org/10.1016/j.desal.2012.05.025>
- Meshram, P., Pandey, B. D., & Mankhand, T. R. (2014). Extraction of lithium from primary and secondary sources by pre-treatment, leaching and separation: A comprehensive review. *Hydrometallurgy*, 150, 192–208. <https://doi.org/10.1016/j.hydromet.2014.10.012>
- Mohr, S. H., Mudd, G. M., & Giurco, D. (2012). Lithium resources and production: Critical assessment and global projections. *Minerals*, 2(1), 65–84. <https://doi.org/10.3390/min2010065>
- Mroczek, E. K., Climo, M., Carey, B., & Li, Y. (2015). Technology review of mineral extraction from separated geothermal water. In *GNS Science Report* (Issue July). [http://www.gns.cri.nz/content/download/11133/59602/file/Technology review of mineral extraction from separated geothermal water.pdf](http://www.gns.cri.nz/content/download/11133/59602/file/Technology_review_of_mineral_extraction_from_separated_geothermal_water.pdf)
- Nie, X. Y., Sun, S. Y., Song, X., & Yu, J. G. (2017). Further investigation into lithium recovery from salt lake brines with different feed characteristics by electrodialysis. *Journal of Membrane Science*, 530, 185–191. <https://doi.org/10.1016/j.memsci.2017.02.020>
- Nie, X. Y., Sun, S. Y., Sun, Z., Song, X., & Yu, J. G. (2017). Ion-fractionation of lithium ions from magnesium ions by electrodialysis using monovalent selective ion-exchange membranes. *Desalination*, 403, 128–135. <https://doi.org/10.1016/j.desal.2016.05.010>
- Ooi, K., Miyai, Y., & Katoh, S. (1986). Recovery of Lithium from Seawater by Manganese Oxide Adsorbent. *Separation Science and Technology*, 21(8), 755–766. <https://doi.org/10.1080/01496398608056148>
- Oswal, M., Paul, J., & Zhao, R. (2010). A Comparative Study of Lithium-Ion Batteries. *University of Southern California*, 31. http://www-scf.usc.edu/~rzhao/LFP_study.pdf

- Ozkul, S., van Daal, J. J., Kuipers, N. J. M., Bisselink, R. J. M., Bruning, H., Dykstra, J. E., & Rijnaarts, H. H. M. (2023). Transport mechanisms in electrodialysis: The effect on selective ion transport in multi-ionic solutions. *Journal of Membrane Science*, 665(March 2022), 121114. <https://doi.org/10.1016/j.memsci.2022.121114>
- Pambudi, N. A., Itoi, R., Yamashiro, R., CSS Syah Alam, B. Y., Tusara, L., Jalilinasrabady, S., & Khasani, J. (2015). The behavior of silica in geothermal brine from Dieng geothermal power plant, Indonesia. *Geothermics*, 54, 109–114. <https://doi.org/10.1016/j.geothermics.2014.12.003>
- Park, S. H., Kim, J. H., Moon, S. J., Jung, J. T., Wang, H. H., Ali, A., Quist-Jensen, C. A., Macedonio, F., Drioli, E., & Lee, Y. M. (2020). Lithium recovery from artificial brine using energy-efficient membrane distillation and nanofiltration. *Journal of Membrane Science*, 598(November 2019), 117683. <https://doi.org/10.1016/j.memsci.2019.117683>
- Parsa, N., Moheb, A., Mehrabani-Zeinabad, A., & Masigol, M. A. (2015). Recovery of lithium ions from sodium-contaminated lithium bromide solution by using electrodialysis process. In *Chemical Engineering Research and Design* (Vol. 98). Institution of Chemical Engineers. <https://doi.org/10.1016/j.cherd.2015.03.025>
- Putera, A. D. P., Wiranda, A., Mergiana, S., Perdana, I., & Olvianas, M. (2018). Assessing silica precipitation using calcium hydroxide addition on Dieng's geothermal brine. *IOP Conference Series: Earth and Environmental Science*, 200(1). <https://doi.org/10.1088/1755-1315/200/1/012022>
- Reinke, N. B., Kynn, M., & Parkinson, A. L. (2019). Conceptual understanding of osmosis and diffusion by Australian first-year biology students. *International Journal of Innovation in Science and Mathematics Education*, 27(9), 17–33. <https://doi.org/10.30722/ijisme.27.09.002>
- Rodrigues, M. A. S., Amado, F. D. R., Xavier, J. L. N., Streit, K. F., Bernardes, A. M., & Ferreira, J. Z. (2008). Application of photoelectrochemical-electrodialysis treatment for the recovery and reuse of water from tannery effluents. *Journal of Cleaner Production*, 16(5), 605–611. <https://doi.org/10.1016/j.jclepro.2007.02.002>
- Rothbaum, H. P., Anderton, B. H., Harrison, R. F., Rohde, A. G., & Slatter, A. (1979). Effect of silica polymerisation and pH on geothermal scaling. *Geothermics*, 8(1), 1–20. [https://doi.org/https://doi.org/10.1016/0375-6505\(79\)90062-2](https://doi.org/https://doi.org/10.1016/0375-6505(79)90062-2)

- Salunkhe, R., Kaneti, Y., & Yamauchi, Y. (2017). Metal–Organic Framework-Derived Nanoporous Metal Oxides toward Supercapacitor Applications: Progress and Prospects. *ACS Nano*, 11, 5293. <https://doi.org/10.1021/acs.nano.7b02796>
- Saracco, G. (1997). Transport properties of monovalent-ion-permselective membranes. *Chemical Engineering Science*, 52(17), 3019–3031. [https://doi.org/10.1016/S0009-2509\(97\)00107-3](https://doi.org/10.1016/S0009-2509(97)00107-3)
- Scrosati, B., & Garche, J. (2010). Lithium batteries: Status, prospects and future. *Journal of Power Sources*, 195(9), 2419–2430. <https://doi.org/10.1016/j.jpowsour.2009.11.048>
- Scrosati, B., Hassoun, J., & Sun, Y. K. (2011). Lithium-ion batteries. A look into the future. *Energy and Environmental Science*, 4(9), 3287–3295. <https://doi.org/10.1039/c1ee01388b>
- Seeton, C. J. (2006). Viscosity–temperature correlation for liquids. *Tribology Letters*, 22(1), 67–78. <https://doi.org/10.1007/s11249-006-9071-2>
- Strathmann, H. (2010). Electrodialysis, a mature technology with a multitude of new applications. *Desalination*, 264(3), 268–288. <https://doi.org/10.1016/j.desal.2010.04.069>
- Swain, B. (2017). Recovery and recycling of lithium: A review. *Separation and Purification Technology*, 172, 388–403. <https://doi.org/10.1016/j.seppur.2016.08.031>
- Szymczyk, A., Labbez, C., Fievet, P., Vidonne, A., Foissy, A., & Pagetti, J. (2003). Contribution of convection, diffusion and migration to electrolyte transport through nanofiltration membranes. *Advances in Colloid and Interface Science*, 103(1), 77–94. [https://doi.org/10.1016/S0001-8686\(02\)00094-5](https://doi.org/10.1016/S0001-8686(02)00094-5)
- Tahil, W. (2008). The Trouble with Lithium 2 Under the Microscope. *Meridian International Research*, May, 1–54.
- Talens Peiró, L., Villalba Méndez, G., & Ayres, R. U. (2013). Lithium: Sources, production, uses, and recovery outlook. *Jom*, 65(8), 986–996. <https://doi.org/10.1007/s11837-013-0666-4>
- Tanaka, Y. (2015). Electrodialysis. In *Progress in Filtration and Separation*. Elsevier Ltd. <https://doi.org/10.1016/B978-0-12-384746-1.00006-9>
- Touir, J., Kitanou, S., Zait, M., Belhamidi, S., Belfaquir, M., Tahaikt, M., Taky, M., & Elmidaoui, A. (2021). The comparison of electrodialysis and nanofiltration in nitrate

- removal from groundwater. *Indonesian Journal of Science and Technology*, 6(1), 17–30. <https://doi.org/10.17509/ijost.v6i1.31477>
- Van Der Hoek, J. P., Rijnbende, D. O., Lokin, C. J. A., Bonn  , P. A. C., Loonen, M. T., & Hofman, J. A. M. H. (1998). Electrodialysis as an alternative for reverse osmosis in an integrated membrane system. *Desalination*, 117(1–3), 159–172. [https://doi.org/10.1016/S0011-9164\(98\)00086-1](https://doi.org/10.1016/S0011-9164(98)00086-1)
- Vikstr  m, H., Davidsson, S., & H   k, M. (2013). Lithium availability and future production outlooks. *Applied Energy*, 110, 252–266. <https://doi.org/10.1016/j.apenergy.2013.04.005>
- Yang, Z.-H. (2015). The size and structure of selected hydrated ions and implications for ion channel selectivity. *RSC Advances*, 5(2), 1213–1219. <https://doi.org/10.1039/C4RA10987B>
- Ying, J., Luo, M., Jin, Y., & Yu, J. (2020). Selective separation of lithium from high Mg/Li ratio brine using single-stage and multi-stage selective electrodialysis processes. *Desalination*, 492(July), 114621. <https://doi.org/10.1016/j.desal.2020.114621>
- Zhang, S., Zhou, J., Fan, L., Qiu, Y., Jiang, L., & Zhao, L. (2016). Investigating the mechanism of nanofiltration separation of glucosamine hydrochloride and N-acetyl glucosamine. *Bioresources and Bioprocessing*, 3(1). <https://doi.org/10.1186/s40643-016-0112-x>
- Zhou, Y., Yan, H., Wang, X., Wu, L., Wang, Y., & Xu, T. (2018). Electrodialytic concentrating lithium salt from primary resource. *Desalination*, 425(September 2017), 30–36. <https://doi.org/10.1016/j.desal.2017.10.013>