

## BIBLIOGRAPHY

- Anjum, F., Shahid, M., & Akcil, A. (2012). Bio-hydrometallurgy techniques of low grade ores: A review on black shale. *Hydrometallurgy*, 117–118, pp. 1–12.
- Baron, P. (2017). Chapter 10 - Transition state theory. In *Reaction Rate Theory and Rare Events Simulations*, pp. 227–271.
- Chen, D., Rao, S., Wang, D., Cao, H., Xie, W., & Liu, Z. (2020). Synergistic leaching of valuable metals from spent Li-ion batteries using sulfuric acid- L -ascorbic acid system. *Chemical Engineering Journal*, 388(February), pp. 124321.
- Chen, L., Tang, X., Zhang, Y., Li, L., Zeng, Z., & Zhang, Y. (2011). Process for the recovery of cobalt oxalate from spent lithium-ion batteries. *Hydrometallurgy*, 108(1–2), pp. 80–86.
- Chen, X., Cao, L., Kang, D., Li, J., Zhou, T., & Ma, H. (2018). Recovery of valuable metals from mixed types of spent lithium ion batteries. Part II: Selective extraction of lithium. *Waste Management*, 80, pp. 198–210.
- Chen, X., Chen, Y., Zhou, T., Liu, D., Hu, H., & Fan, S. (2015). Hydrometallurgical recovery of metal values from sulfuric acid leaching liquor of spent lithium-ion batteries. *Waste Management*, 38, pp. 349–356.
- Chen, X., Kang, D., Cao, L., Li, J., Zhou, T., & Ma, H. (2019). Separation and recovery of valuable metals from spent lithium ion batteries: Simultaneous recovery of Li and Co in a single step. *Separation and Purification Technology*, 210(August 2018), pp. 690–697.
- Deng, D. (2015). Li-ion batteries: basics, progress and challenges. *Energy Science & Engineering*, 3(5), pp. 385–418.
- Deng, D., Kim, M. G., Lee, J. Y., & Cho, J. (2009). Green energy storage materials: Nanostructured TiO<sub>2</sub> and Sn-based anodes for lithium-ion batteries. *Energy & Environmental Science*, 2(8), pp. 818–837.
- Dewulf, J., Vorst, G. Van Der, Kim, D., Langenhove, H. Van, Ghyoot, W., Tytgat, J., & Vandeputte, K. (2010). Recycling rechargeable lithium ion batteries: Critical analysis of natural resource savings. *Resources, Conservation and Recycling*, 54(4), pp. 229–234.
- Fan, E., Li, L., Zhang, X., Bian, Y., Xue, Q., Wu, J., Wu, F., & Chen, R. (2018). Selective recovery of Li and Fe from spent lithium-ion batteries by an environmentally friendly mechanochemical approach. *ACS Sustainable Chemistry & Engineering*, pp. 1–24.
- Gaines, L. (2014). The future of automotive lithium-ion battery recycling: Charting a sustainable course. *Sustainable Materials and Technologies*, 1–2, pp. 2–7.

Gaies, L. (2018). Lithium-ion battery recycling processes: Research towards a sustainable course ☆. *Sustainable Materials and Technologies*, 17, pp. e00068.

Gallego, N. C., Contescu, C. I., Meyer III, H., & Howe, J. (2014). Advanced surface and microstructural characterization of natural graphite anodes for lithium ion batteries. *Carbon*, 72(1), pp. 393–401.

Golmohammadzadeh, R., Faraji, F., & Rashchi, F. (2018). Recovery of lithium and cobalt from spent lithium ion batteries (LIBs) using organic acids as leaching reagents: A review. *Resources, Conservation & Recycling*, 136, pp. 418–435.

Golmohammadzadeh, R., Rashchi, F., & Vahidi, E. (2017). Recovery of lithium and cobalt from spent lithium-ion batteries using organic acids: Process optimization and kinetic aspects. *Waste Management*, 64, pp. 244–254.

Huang, B., Pan, Z., Su, X., & An, L. (2018). Recycling of lithium-ion batteries: Recent advances and perspectives. *Journal of Power Sources*, 399(July), pp. 274–286.

Hutchinson, T. C., & Collins, F. W. (1978). Effect of H<sup>+</sup> ion activity and Ca<sup>2+</sup> on the toxicity of metals in the environment. *Environmental Health Perspectives*, 25, pp. 47–52.

Jaskula, B. W. (2020). Lithium. *U.S. Geological Survey, Mineral Commodity Summaries*, (703), pp. 648–4908.

Kang, D. H. P., Chen, M., & Ogunseitan, O. A. (2013). Potential environmental and human health impacts of rechargeable lithium batteries in electronic waste. *Environmental Sciences & Technology*, 47(10), pp. 5495–5503.

Karuppasamy, R. (2015). Re: Why is activation energy less than 40 kJ/mol is better?

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(57).

Keshan, H., Thornburg, J., & Ustun, T. S. (2016). Comparison of lead-acid and lithium ion batteries for stationary storage in off-grid energy systems. In *4th IET Clean Energy and Technology Conference* (pp. 1–7).

Levenspiel O. Chemical reaction engineering. John Wiley & Sons. 1999: pp. 566-586.

Li, H., Xing, S., Liu, Y., Li, F., Guo, H., & Kuang, G. (2017). Recovery of Lithium, Iron, and Phosphorus from Spent LiFePO<sub>4</sub> Batteries Using Stoichiometric Sulfuric Acid Leaching System. *ACS Sustainable Chemistry & Engineering*, 5, pp. 8017–8024.

Li, J., Shi, P., Wang, Z., Chen, Y., & Chang, C.-C. (2009). A combined recovery process of metals in spent lithium-ion batteries. *Chemosphere*, 77(8), pp. 1132–1136.

- Li, L., Bian, Y., Zhang, X., Yao, Y., Xue, Q., Fan, E., Wu, F., Chen, R. (2019). A green and effective room-temperature recycling process of LiFePO<sub>4</sub> cathode materials for lithium-ion batteries. *Waste Management*, 85, pp. 437–444.
- Li, L., Qu, W., Zhang, X., Lu, J., Chen, R., Wu, F., & Amine, K. (2015). Succinic acid-based leaching system: A sustainable process for recovery of valuable metals from spent Li-ion batteries. *Journal of Power Sources*, 282, pp. 544–551.
- Li, Y. K., Guo, S., & Yan, A. (2014). Study on recycling economy of vehicle power battery. *Chin. Recycle*, 24, pp. 48–51.
- Mohanty, U. S., Rintala, L., Halli, P., Taskinen, P., & Lundstrom, M. (2018). Hydrometallurgical approach for leaching of metals from copper rich side stream originating from base metal production. *Metals*, 8, pp. 40.
- National Center for Biotechnology Information. PubChem Database. Sulfuric acid, CID=1118, <https://pubchem.ncbi.nlm.nih.gov/compound/Sulfuric-acid> (accessed on Apr. 23, 2020)
- Nayl, A. A., Elkhashab, R. A., Badawy, S. M., & El-Khateeb, M. A. (2017). Acid leaching of mixed spent Li-ion batteries. *Arabian Journal of Chemistry*, 10, pp. S3632–S3639.
- Niu, Z., Zou, Y., Xin, B., Chen, S., Liu, C., & Li, Y. (2014). Process controls for improving bioleaching performance of both Li and Co from spent lithium ion batteries at high pulp density and its thermodynamics and kinetics exploration. *Chemosphere*, 109, pp. 92–98.
- Or, T., Gourley, S. W. D., Kaliyappan, K., Yu, A., & Chen, Z. (2020). Recycling of mixed cathode lithium-ion batteries for electric vehicles: Current status and future outlook. *Carbon Energy*, pp. 1–38.
- Ordenez, J., Gago, E. ., & Girard, A. (2016). Processes and technologies for the recycling and recovery of spent lithium-ion batteries. *Renewable and Sustainable Energy Reviews*, 60, pp. 195–205.
- Padhi, A. K., Nanjundaswamy, K. S., & Goodenough, J. B. (1997). Phospho-olivines as positive-electrode materials for rechargeable lithium batteries. *Journal of the Electrochemical Society*, 144(4).
- Peiro, L. T., Mendez, G. V., & Ayres, R. U. (2013). Lithium: Sources, Production, Uses, and Recovery Outlook, 65(8), pp. 986–996.
- Peng, C., Hamuyuni, J., Wilson, B. P., & Lundström, M. (2018). Selective reductive leaching of cobalt and lithium from industrially crushed waste Li-ion batteries in sulfuric acid system. *Waste Management*, 76, pp. 582–590.
- Richa, K., Babbitt, C. W., Gaustad, G., & Wang, X. (2014). A future perspective on lithium-ion battery waste flows from electric vehicles. *Resources, Conservation and Recycling*, 83, pp. 63–76.

Rongguo, C., Juan, G., Liwen, Y., Huy, D., & Liedtke, M. (2016). Supply and Demand of Lithium and Gallium.

Safari, V., Arzpeyma, G., Rashchi, F., & Mostoufi, N. (2009). A shrinking particle-shrinking core model for leaching of a zinc ore containing silica. *International Journal of Mineral Processing*, 93, pp. 79–83.

Shin, S. M., Kim, N. H., Sohn, J. S., Yang, D. H., & Kim, Y. H. (2005). Development of a metal recovery process from Li-ion battery waste. *Hydrometallurgy*, 79(3–4), pp. 172–181.

Song, Y., & Zhao, Z. (2018). Recovery of lithium from spent lithium-ion batteries using precipitation and electro-dialysis techniques. *Separation and Purification Technology*, 206, pp. 335–342.

Stan, A.-I., Swierczynski, M., Stroe, D.-I., & Teodorescu, R. (2014). A comparative study of lithium ion to lead acid batteries for use in UPS applications. In *INTELEC, International Telecommunications Energy Conference* (pp. 1–8).

Swain, B. (2017). Recovery and recycling of lithium: A review. *Separation and Purification Technology*, 172, pp. 388–403.

Swain, B., Jeong, J., Lee, J.-C., Lee, G.-H., & Sohn, J.-S. (2007). Hydrometallurgical process for recovery of cobalt from waste cathodic active material generated during manufacturing of lithium ion batteries. *Journal of Power Sources*, 167(2), pp. 536–544.

Tan, Q., Wang, M., Deng, Y., Yang, H., Rao, R., & Zhang, X. (2014). The cultivation of electric vehicles market in China: Dilemma and solution. *Sustainability*, 6, pp. 5493–5511.

Tarascon, J.-M., & Armand, M. (2001). Issues and challenges facing rechargeable lithium batteries. *Nature*, 414, pp. 359–367.

Torkaman, R., Asadollahzadeh, M., Torab-mostaedi, M., & Maragheh, M. G. (2017). Recovery of cobalt from spent lithium ion batteries by using acidic and basic extractants in solvent extraction process. *Separation and Purification Technology*, 186, pp. 318–325.

Venkatachalam, S. (1998). *Hydrometallurgy*. In *Narosa Publishing House* (pp. 27–70).

Wang, J., & Sun, X. (2015). Olivine LiFePO<sub>4</sub>: The remaining challenges for future energy storage. *Energy & Environmental Science*, pp. 1–26. DOI: 10.1039/C4EE04016C.

Wang, W., & Wu, Y. (2017). An overview of recycling and treatment of spent LiFePO<sub>4</sub> batteries in China. *Resources, Conservation & Recycling*, 127(100), pp. 233–243.

Wang, X., Gaustad, G., Babbitt, C. W., & Richa, K. (2014). Economies of scale for future lithium-ion battery recycling infrastructure. *Resources, Conservation and Recycling*, 83, pp. 53–62.

- Wu, Y., Pei, F., Jia, L. L., & Tian, X. (2014). Recovery of aluminum, iron and lithium from spent lithium iron phosphate batteries. *China Journal of Power Source*, 38(4), pp. 629–631.
- Xu, J., Thomas, H. R., Francis, R. W., Lum, K. R., Wang, J., & Liang, B. (2008). A review of processes and technologies for the recycling of lithium-ion secondary batteries. *Journal of Power Sources*, 177(2), pp. 512–527.
- Xu, W., Wang, Z., Shi, L., Ma, Y., Yuan, S., Sun, L., Zhao, Y., Zhang, M., Zhu, J. (2015). Layer by layer deposition of organic-inorganic hybrid multilayer on microporous polyethylene separator to enhance the electrochemical performance of lithium-ion battery. *ACS Applied Materials & Interfaces*, 7(37), pp. 20678–20686.
- Yang, Y., Meng, X., Cao, H., Lin, X., Liu, C., Sun, Y., Zhang, Y., Sun, Z. (2018). Selective Recovery of Lithium from Spent Lithium Iron Phosphate Batteries: A Sustainable Process. *Green Chemistry*, 20(13), pp. 3121–3133.
- Yong-Jia, L., Ting, L., & Zeng, G. (2011). Hydrometallurgical process for recovery and synthesis of LiCoO<sub>2</sub> from spent lithium-ion batteries. In *2011 International Conference on Electric Technology and Civil Engineering, ICETCE 2011* (pp. 6009–6011).
- Yu, H., Zhang, T. Z., Yuan, J., & Li, C. D. (2012). Trial study on EV battery recycling standardization Development. *Advanced Materials Research*, 610–613, pp. 2170–2173.
- Yuan, L., Wang, Z., Zhang, W., Hu, X., Chen, J., Huang, Y., & Goodenough, J. B. (2011). Development and challenges of LiFePO<sub>4</sub> cathode material for lithium-ion batteries. *Energy & Environmental Science*, 4, pp. 269–284.
- Zeng, X., Li, J., & Singh, N. (2014). Recycling of spent lithium-ion battery: A critical review. *Critical Reviews in Environmental Science and Technology*, 44(10), pp. 1129–1165.
- Zhan, R., Oldenburg, Z., & Pan, L. (2018). Recovery of active cathode materials from lithium-ion batteries using froth flotation. *Sustainable Materials and Technologies*, 17, pp. e00062.
- Zhang, P., Yokohama, T., Itabashi, O., Suzuki, T. M., & Inoue, K. (1998). Hydrometallurgical process for recovery of metal values from spent lithium-ion secondary batteries. *Hydrometallurgy*, 47(2–3), pp. 259–271.
- Zhang, W., Xu, C., He, W., & Li, G. (2018). A review on management of spent lithium ion batteries and strategy for resource recycling of all components from them. *Waste Management & Research*, 36(2), pp. 99–112.
- Zheng, R., Zhao, L., Wang, W., Liu, Y., Ma, Q., Mu, D., Li, R., Dai, C. (2016). Optimized Li and Fe recovery from spent lithium-ion batteries via a solution-precipitation method. *RSC Advances*, 6(49), pp. 43613–43625.