



## DAFTAR PUSTAKA

- Andrés, N.F., Francisco, M.S., 2008. Effects of sewage sludge application on heavy metal leaching from mine tailing's impoundments. *Bioresour Technol* 99, 7521–7530. <https://doi.org/10.1016/j.biortech.2008.02.022>
- Asriati, A., Rianda, S., Prakasa, D., Putra, E., Wilopo, W., 2019. Groundwater Flow Modeling at Sejorong Watershed, Sumbawa, West Nusa Tenggara, Indonesia. *Journal of Applied Geology* 4, 43–57. <https://doi.org/10.22146/jag.51624>
- Bazdanis, G., Komnitsas, K., Sahinkaya, E., Zaharaki, D., n.d. Removal of heavy metals from leachates using permeable reactive barriers filled with reactive organic/inorganic mixtures.
- Book, ·, 2021. Pemanfaatan Fly Ash dan Bottom Ash untuk Pengelolaan Batuan dan Air Asam di Tambang Batubara Environment Indicators on Sustainability Report of Mining Industries View project Candra Nugraha.
- Church, C.D., Wilkin, R.T., Alpers, C.N., Rye, R.O., Mccleskey, R.B., 2007. Microbial sulfate reduction and metal attenuation in pH 4 acid mine water. <https://doi.org/10.1186/1467-4866-8-10>
- Clyde, E.J., Champagne, P., Jamieson, H.E., Gorman, C., Sourial, J., 2016. The use of a passive treatment system for the mitigation of acid mine drainage at the Williams Brothers Mine (California): Pilot-scale study. *J Clean Prod* 130, 116–125. <https://doi.org/10.1016/j.jclepro.2016.03.145>
- de Lima, A.C.A., Nascimento, R.F., de Sousa, F.F., Filho, J.M., Oliveira, A.C., 2012. Modified coconut shell fibers: A green and economical sorbent for the removal of anions from aqueous solutions. *Chemical Engineering Journal* 185–186, 274–284. <https://doi.org/10.1016/j.cej.2012.01.037>
- Deutsch, W.J., 1997. GROUNDWATER GEOCHEMISTRY; Fundamentals and Applications to Contamination. <https://doi.org/10.4324/9781003069942>
- Doshi, S.M., 2006. Bioremediation of Acid Mine Drainage Using Sulfate-Reducing Bacteria.
- Epa, U., 1998. Permeable Reactive Barrier Technologies for Contaminant Remediation.
- Gibert, O., de Pablo, J., Cortina, J.L., Ayora, C., 2002. Treatment of acid mine drainage by sulphate-reducing bacteria using permeable reactive barriers: A review from laboratory to full-scale experiments. *Rev Environ Sci Biotechnol*. <https://doi.org/10.1023/A:1023227616422>
- Gibert, O., Rötting, T., Cortina, J.L., de Pablo, J., Ayora, C., Carrera, J., Bolzicco, J., 2011. In-situ remediation of acid mine drainage using a permeable reactive barrier in Aznalcóllar (Sw Spain). *J Hazard Mater* 191, 287–295. <https://doi.org/10.1016/j.jhazmat.2011.04.082>
- Gusek, J.J., 2009. A periodic table of passive treatment for mining influenced water, in: 26th Annual Meetings of the American Society of Mining and Reclamation and 11th Billings Land Reclamation Symposium 2009. pp. 544–556. <https://doi.org/10.21000/jasmr09010550>
- Higgins, M.R., Olson, T.M., 2009. Life-cycle case study comparison of permeable reactive barrier versus pump-and-treat remediation. *Environ Sci Technol* 43, 9432–9438. <https://doi.org/10.1021/es9015537>
- Itrc, 2011. Prepared by The Interstate Technology & Regulatory Council PRB: Technology Update Team.
- Johnson, D.B., Hallberg, K.B., 2005. Acid mine drainage remediation options: A review. *Science of the Total Environment* 338, 3–14. <https://doi.org/10.1016/j.scitotenv.2004.09.002>



- Jones, S.N., Cetin, B., 2017. Evaluation of waste materials for acid mine drainage remediation. *Fuel* 188, 294–309. <https://doi.org/10.1016/j.fuel.2016.10.018>
- Kefeni, K.K., Msagati, T.A.M., Mamba, B.B., 2017. Acid mine drainage: Prevention, treatment options, and resource recovery: A review. *J Clean Prod.* <https://doi.org/10.1016/j.jclepro.2017.03.082>
- Kijjanapanich, P., n.d. Sulfate reduction for remediation of gypsiferous soils and solid wastes.
- Komnitsas, K., Bartzas, G., Paspaliaris, I., 2006. Modeling of reaction front progress in fly ash permeable reactive barriers. *Environ Forensics* 7, 219–231. <https://doi.org/10.1080/15275920600840552>
- KUSUMAWATI, E., SUDRAJAT, S., PURNAMASARI, I., PANGGABEAN, B.C., APRIYANTI, M., 2017. Short Communication: The potential of Sulfate Reducing Bacteria of ex-coal mine sediment pond as sulfate reducing agents of acid land in Samarinda, Indonesia. *Bonorowo Wetlands* 7, 79–82. <https://doi.org/10.13057/bonorowo/w070204>
- Liu, C., Chen, X., Mack, E.E., Wang, S., Du, W., Yin, Y., Banwart, S.A., Guo, H., 2019. Evaluating a novel permeable reactive bio-barrier to remediate PAH-contaminated groundwater. *J Hazard Mater* 368, 444–451. <https://doi.org/10.1016/j.jhazmat.2019.01.069>
- Lizama Allende, K., Fletcher, T.D., Sun, G., 2012a. The effect of substrate media on the removal of arsenic, boron and iron from an acidic wastewater in planted column reactors. *Chemical Engineering Journal* 179, 119–130. <https://doi.org/10.1016/j.cej.2011.10.069>
- Lizama Allende, K., Fletcher, T.D., Sun, G., 2012b. The effect of substrate media on the removal of arsenic, boron and iron from an acidic wastewater in planted column reactors. *Chemical Engineering Journal* 179, 119–130. <https://doi.org/10.1016/j.cej.2011.10.069>
- Lottermoser, B.G., 2010. Mine Wastes (third edition): Characterization, treatment and environmental impacts, Mine Wastes (Third Edition): Characterization, Treatment and Environmental Impacts. Springer Berlin Heidelberg. <https://doi.org/10.1007/978-3-642-12419-8>
- Luptakova, A., Macingova, E., 2012. Alternative substrates of bacterial sulphate reduction suitable for the biological-chemical treatment of acid mine drainage, *Acta Montanistica Slovaca Ročník*.
- McCullough, C.D., Lund, M.A., 2011. Bioremediation of Acidic and Metalliferous Drainage (AMD) through organic carbon amendment by municipal sewage and green waste. *J Environ Manage* 92, 2419–2426. <https://doi.org/10.1016/j.jenvman.2011.04.011>
- Mondal, P.K., Lima, G., Zhang, D., Lomheim, L., Tossell, R.W., Patel, P., Sleep, B.E., 2016. Evaluation of peat and sawdust as permeable reactive barrier materials for stimulating in situ biodegradation of trichloroethene. *J Hazard Mater* 313, 37–48. <https://doi.org/10.1016/j.jhazmat.2016.03.049>
- Moodley, I., Sheridan, C.M., Kappelmeyer, U., Akcil, A., 2018. Environmentally sustainable acid mine drainage remediation: Research developments with a focus on waste/by-products. *Miner Eng.* <https://doi.org/10.1016/j.mineng.2017.08.008>
- Obiri-Nyarko, F., Grajales-Mesa, S.J., Malina, G., 2014. An overview of permeable reactive barriers for in situ sustainable groundwater remediation. *Chemosphere*. <https://doi.org/10.1016/j.chemosphere.2014.03.112>



Park, J.-B., Lee, S.-H., Lee, J.-W., Lee, C.-Y., 2002. Lab scale experiments for permeable reactive barriers against contaminated groundwater with ammonium and heavy metals using clinoptilolite (01-29B), *Journal of Hazardous Materials*.

Peraturan Pemerintah Republik Indonesia Nomor 22 Tahun 2021 tentang Penyelenggaraan Perlindungan dan Pengelolaan Lingkungan Hidup, <https://www.hukumonline.com/pusatdata/detail/lt6031ffa046533/peraturan-pemerintah-nomor-22-tahun-2021>

Prokkola, H., Nurmesniemi, E.T., Lassi, U., 2020. Removal of metals by sulphide precipitation using na<sub>2</sub>s and hs-solution. *ChemEngineering* 4, 1–10. <https://doi.org/10.3390/chemengineering4030051>

PT Amman Mineral Nusa Tenggara: Laporan Pelaksanaan RKL/RPL Semester 2 Juli Desember 2020 (unpublished record)

Rambabu, K., Banat, F., Pham, Q.M., Ho, S.-H., Ren, N.-Q., Show, P.L., 2020a. Biological remediation of acid mine drainage: Review of past trends and current outlook. *Environmental Science and Ecotechnology* 2, 100024. <https://doi.org/10.1016/j.ese.2020.100024>

Rambabu, K., Banat, F., Pham, Q.M., Ho, S.-H., Ren, N.-Q., Show, P.L., 2020b. Biological remediation of acid mine drainage: Review of past trends and current outlook. *Environmental Science and Ecotechnology* 2, 100024. <https://doi.org/10.1016/j.ese.2020.100024>

Retnaningrum, E., Wilopo, W., 2017. Removal of sulphate and manganese on synthetic wastewater in sulphate reducing bioreactor using indonesian natural zeolite. *Indonesian Journal of Chemistry* 17, 203–210. <https://doi.org/10.22146/ijc.22710>

Saha, S., Sinha, A., 2018. A review on treatment of acid mine drainage with waste materials: A novel approach. *Global Nest Journal*. <https://doi.org/10.30955/gnj.002610>

Sasaki, K., Nukina, S., Wilopo, W., Hirajima, T., 2008. Removal of arsenate in acid mine drainage by a permeable reactive barrier bearing granulated blast furnace slag: Column study. *Mater Trans* 49, 835–844. <https://doi.org/10.2320/matertrans.M-MRA2008801>

Seyler, J., Figueroa, L., Ahmann, D., Wildeman, T.R., Robustelli, M., 2003. Effect Of Solid Phase Organic Substrate Characteristics On Sulfate Reducer Activity And Metal Removal In Passive Mine Drainage Treatment Systems. *Journal American Society of Mining and Reclamation* 2003, 1112–1130. <https://doi.org/10.2100/jasmr03011112>

Shabalala, A.N., Basitere, M., 2020. Interactive relationship between cementitious materials and acid mine drainage: Their effects on chromium Cr(VI) removal. *Minerals* 10, 1–17. <https://doi.org/10.3390/min10110932>

Shabalala, A.N., Ekolu, S.O., 2019. Quality of water recovered by treating acid mine drainage using pervious concrete adsorbent. *Water SA* 45, 638–647. <https://doi.org/10.17159/wsa/2019.v45.i4.7545>

Shukor, A., Aziz, A., Manaf, L.A., Man, H.C., Siva Kumar, N., n.d. Kinetic Modeling and Isotherm Studies for Copper (II) Adsorption onto Palm Oil Boiler Mill Fly Ash (POFA) as a Natural Low-Cost Adsorbent.

Singh, R., Chakma, S., Birke, V., 2020. Numerical modelling and performance evaluation of multi-permeable reactive barrier system for aquifer remediation susceptible to chloride contamination. *Groundw Sustain Dev* 10, 100317. <https://doi.org/10.1016/J.GSD.2019.100317>

Skousen, J., n.d. Review of Passive Systems for Acid Mine Drainage Treatment. <https://doi.org/10.1007/s10230-016-0417-1/Published>



- Song, J., Huang, G., Han, D., Hou, Q., Gan, L., Zhang, M., 2021. A review of reactive media within permeable reactive barriers for the removal of heavy metal(loid)s in groundwater: Current status and future prospects. *J Clean Prod* 319, 128644. <https://doi.org/10.1016/j.jclepro.2021.128644>
- Tanchuling, M.A., Resurreccion, A.C., Ong, D., n.d. A RESEARCH PROJECT REMOVING HEAVY METALS FROM WASTEWATER OF SMALL-SCALE GOLD MINERS OF CAMARINES NORTE (PHILIPPINES) USING COCO-PEAT AS SORBENT MATERIAL.
- Thakur, A.K., Vithanage, M., Das, D.B., Kumar, M., 2020. A review on design, material selection, mechanism, and modelling of permeable reactive barrier for community-scale groundwater treatment. *Environ Technol Innov*. <https://doi.org/10.1016/j.eti.2020.100917>
- Thiruvenkatachari, R., Vigneswaran, S., Naidu, R., 2008. Permeable reactive barrier for groundwater remediation. *Journal of Industrial and Engineering Chemistry*. <https://doi.org/10.1016/j.jiec.2007.10.001>
- Thisani, S.K., Kallon, D.V. von, Byrne, P., 2020. Geochemical classification of global mine water drainage. *Sustainability (Switzerland)* 12, 1–16. <https://doi.org/10.3390/su122410244>
- Tigue, A.A., Malenab, R.A., Promentilla, M.A., 2019. A systematic mapping study on the development of permeable reactive barrier for acid mine drainage treatment. *MATEC Web of Conferences* 268, 06019. <https://doi.org/10.1051/matecconf/201926806019>
- Vadapalli, V., Felicia Petrik, L., Gitari, W., n.d. Neutralization of Acid Mine Drainage using Fly Ash and Strength Development of the Resulting Solid Residues.
- van den Brand, T.P.H., Roest, K., Chen, G.H., Brdjanovic, D., van Loosdrecht, M.C.M., 2015. Occurrence and activity of sulphate reducing bacteria in aerobic activated sludge systems. *World J Microbiol Biotechnol* 31, 507–516. <https://doi.org/10.1007/s11274-015-1807-4>
- Vasquez, Y., Escobar, M.C., Neculita, C.M., Arbeli, Z., Roldan, F., 2016. Selection of reactive mixture for biochemical passive treatment of acid mine drainage. *Environ Earth Sci* 75. <https://doi.org/10.1007/s12665-016-5374-2>
- Walker, W.J., Montoy, J., Chatriand, T., 2015. SULFATE REMOVAL FROM COAL MINE WATER IN WESTERN PENNSYLVANIA: REGULATORY REQUIREMENTS, DESIGN, AND PERFORMANCE. *Journal American Society of Mining and Reclamation* 4, 73–93. <https://doi.org/10.21000/JASMR15010073>
- Wilopo, W., Sasaki, K., Hirajima, T., Yamanaka, T., 2008. Immobilization of arsenic and manganese in contaminated groundwater by permeable reactive barriers using zero valent iron and sheep manure. *Mater Trans* 49, 2265–2274. <https://doi.org/10.2320/matertrans.M-MRA2008827>
- Yim, G., Ji, S., Cheong, Y., Neculita, C.M., Song, H., 2015. The influences of the amount of organic substrate on the performance of pilot-scale passive bioreactors for acid mine drainage treatment. *Environ Earth Sci* 73, 4717–4727. <https://doi.org/10.1007/s12665-014-3757-9>
- Younger, P.L., Banwart, S.A., Hedin, R.S., 2002. Environmental Pollution, Environmental Pollution. Springer Netherlands, Dordrecht. <https://doi.org/10.1007/978-94-010-0610-1>
- Zagury, G.J., Kulnieks, V.I., Neculita, C.M., 2006. Characterization and reactivity assessment of organic substrates for sulphate-reducing bacteria in acid mine drainage treatment. *Chemosphere* 64, 944–954. <https://doi.org/10.1016/j.chemosphere.2006.01.001>



- Zhang, M., Wang, H., 2016. Preparation of immobilized sulfate reducing bacteria (SRB) granules for effective bioremediation of acid mine drainage and bacterial community analysis. Miner Eng 92, 63–71. <https://doi.org/10.1016/j.mineng.2016.02.008>
- Zhou, D., Li, Y., Zhang, Y., Zhang, C., Li, Xiongfei, Chen, Z., Huang, J., Li, Xia, Flores, G., Kamon, M., 2014. Column test-based optimization of the permeable reactive barrier (PRB) technique for remediating groundwater contaminated by landfill leachates. J Contam Hydrol 168, 1–16. <https://doi.org/10.1016/j.jconhyd.2014.09.003>