

## DAFTAR PUSTAKA

- Agustiani, K., & Mirwan, M. (2024). Analisis Kualitas Air Limbah Domestik Perkantoran Berdasarkan Parameter COD, Amonia, dan TSS. *Scientica, Jurnal Ilmiah Sains dan Teknologi*, 2(7), 55–64.
- Akoglu, H. (2018). User's Guide to Correlation Coefficients. *Turkish Journal of Emergency Medicine*, 18, 91–93. <https://doi.org/10.1016/j.tjem.2018.08.001>
- Al Kholif, M., Subianto, A., & Sutrisno, J. (2025). Effect of Hydraulic Retention Time (HRT) in an Anaerobic Baffled Reactor (ABR) on The Reduction of BOD and COD in Slaughterhouse Industrial Wastewater. *Advances in Environmental Technology*, 11(1), 1–12. <https://doi.org/10.22104/aet.2024.6805.1860>
- Alfiyan, M., Wahyuni, I. R., Rosahdi, T. D., & Fathar, R. (2024). Efisiensi Kombinasi Metode Anaerob dengan Penambahan Koagulan Kapur (CaO) 46 untuk Menurunkan Kadar BOD dan COD pada Limbah Cair Industri Tahu Efisiensi Kombinasi Metode Anaerob dengan Penambahan Koagulan Kapur (CaO) untuk Menurunkan Kadar BOD dan COD pada Limbah Cair Industri Tahu. *Journal of Biological Research*, 11(1), 45–54.
- Andika, B., Wahyuningsih, P., & Fajri, R. (2020). Penentuan Nilai BOD dan COD sebagai Parameter Pencemaran Air dan Baku Mutu Air Limbah di Pusat Penelitian Kelapa Sawit (PPKS) Medan. *Quimica: Jurnal Kimia Sains dan Terapan*, 2(1), 14–22. <https://ejournalunsam.id/index.php/JQ>
- Angraini, N., Agustina, T. E., & Hadiah, F. (2022). Pengaruh pH dalam Pengolahan Air Limbah Laboratorium Dengan Metode Adsorpsi untuk Penurunan Kadar Logam Berat Pb, Cu, dan Cd. *Jurnal Ilmu Lingkungan*, 20(2), 345–355. <https://doi.org/10.14710/jil.20.2.345-355>
- Aniska, S., Hasan, N. Y., & Nurjaman, U. (2022). Penurunan Minyak dan Lemak pada Limbah Cair Kantin Menggunakan Modifikasi Grease Trap Media Zeolit. *Jurnal Kesehatan Siliwangi*, 2(3), 1049–1056. <https://doi.org/10.34011/jks.v2i3.1058>
- Arabgol, R. (2021). *MBBR Produced Solids: Particle Characteristics, Settling Behaviour and Investigation of Influencing Factors*. Ottawa-Carleton Institute for Civil Engineering.
- Asadiya, A., & Karnaningroem, N. (2018). Pengolahan Air Limbah Domestik Menggunakan Proses Aerasi, Pengendapan, dan Filtrasi Media Zeolit-Arang Aktif. *Jurnal Teknik ITS*, 7(1), D18–D22.
- Azmi, K. N., Danumihardja, I. G., & Said, N. I. (2018). Aplikasi Teknologi Pengolahan Air Limbah Domestik Menggunakan Kombinasi Biofilter Aerobik Media Plastik Sarang Tawon dan Biofilter Media Kerikil dengan Aliran ke Atas. *Jurnal Air Indonesia*, 10(2), 42–51. <https://doi.org/10.29122/jai.v10i2.3760>
- Azwari, F., Hadidjah, K., Benedicta, C. E., Wahyuni, R., D3, P. S., Lingkungan, P., Pertanian, P., & Samarinda, N. (2023). Analisis Parameter pH, BOD, TSS, Minyak Dan Lemak Serta Total Coliform Pada Limbah Cair Rumah Sakit Gerbang Sehat

- Long Bagun Mahakam Ulu. *Jurnal Pengendalian Pencemaran Lingkungan (JPPL)*, 5(1), 1–7.
- Bakkara, C. G., & Purnomo, A. (2022). Kajian Instalasi Pengolahan Air Limbah Domestik Terpusat di Indonesia. *Jurnal Teknik ITS*, 11(3), 2301–9271.
- Cai, H., Wang, Y., Wu, K., & Guo, W. (2020). Enhanced Hydrophilic and Electrophilic Properties of Polyvinyl Chloride (PVC) Biofilm Carrier. *Polymers*, 12(1240), 1–17. <https://doi.org/10.3390/POLYM12061240>
- Dewangan, S. K., Shrivastava, S. K., Tigga, V., Lakra, M., Namrata, & Preeti. (2023). Review Paper on The Role of pH in Water Quality Implications for Aquatic Life, Human Health, and Environmental Sustainability. *International Advanced Research Journal in Science, Engineering and Technology ISO*, 10(6), 1–5. <https://doi.org/10.17148/IARJSET.2023.10633>
- Dorji, U., Tenzin, U., Dorji, P., Pathak, N., Johir, M. A. H., Volpin, F., Dorji, C., Chernicharo, C. A. L., Tijing, L., Shon, H., & Phuntsho, S. (2021). Exploring Shredded Waste PET Bottles as a Biofilter Media for Improved on-site Sanitation. *Process Safety and Environmental Protection*, 148, 370–381. <https://doi.org/10.1016/j.psep.2020.09.066>
- Faadhil, M. I. (2022). *Optimalisasi Instalasi Pengolahan Air Limbah Domestik dalam Penurunan Kadar Amonia pada Perkantoran PT X Indonesia, Kawasan Industri Milenium, Tigaraksa Tangerang* [Skripsi]. Institut Teknologi Sepuluh Nopember.
- Fajri, J. A., Fujisawa, T., Trianda, Y., Ishiguro, Y., Cui, G., Li, F., & Yamada, T. (2018). Effect of Aeration Rates on Removals of Organic Carbon and Nitrogen in Small Onsite Wastewater Treatment System (Johkasou). *MATEC Web of Conferences*, 147, 1. <https://doi.org/10.1051/mateconf/201814704008>
- Fauzi, M., Soewondo, P., Handajani, M., Tedjakusuma, T., & Nur, A. (2025). Effect of Polymer Variation as Carrier Media for Microorganism Growth in Biofilm Development Using Aerobic Fixed-Biofilm Reactor System. *Results in Engineering*, 25, 1–11. <https://doi.org/10.1016/j.rineng.2025.104038>
- Funari, R., & Shen, A. Q. (2022, February 25). Detection and Characterization of Bacterial Biofilms and Biofilm-Based Sensors. In *ACS Sensors*. American Chemical Society. <https://doi.org/10.1021/acssensors.1c02722>
- Greenwich, J. L., Fleming, D., Banin, E., Häussler, S., Kjellerup, B. V., Sauer, K., Visick, K. L., & Fuqua, C. (2023). The Biofilm Community Resurfaces: New Findings and Post-Pandemic Progress. *Journal of Bacteriology*, 205(10), 1–26. <https://doi.org/10.1128/jb.00166-23>
- Harahap, M. R., Amanda, L. D., & Matondang, A. H. (2020). Analisis Kadar COD (Chemical Oxygen Demand) dan TSS (Total Suspended Solid) pada Limbah Cair dengan Menggunakan Spektrofotometer UV-Vis. *AMINA*, 2(2), 79–83.
- Hill Laboratories. (n.d.). *Technical Note: Nitrogen Species – Ammonia, Nitrate, Nitrite, and Total Nitrogen*. Retrieved August 19, 2025, from [https://www.hill-labs.co.nz/media/b5sctwwg/34247v3\\_technical-note-nitrogen-species.pdf](https://www.hill-labs.co.nz/media/b5sctwwg/34247v3_technical-note-nitrogen-species.pdf)

- Ishiguro, Y., Cui, G., Fujisawa, T., Yasufuku, K., Okumura, S., Tamagawa, T., Fajri, J. A., & Li, F. (2018). Changes of Microparticles and Bacteria in Gappei-Syori Johkasou and Residual Organic Matter in Water of The Treated Water Tank. *Journal of Environmental Engineering*, 74(7), III 415-III 422.
- Iyo, T., Yoshino, T., Tadokoro, M., Ogawa, T., & Ohno, S. (1996). Advanced Performance of Small-Scale Domestic Sewage Treatment Plants Using Anaerobic-Aerobic Filter Systems with Flow-Equalization and Recirculation. *Environmental Technology (United Kingdom)*, 17(11), 1235–1243. <https://doi.org/10.1080/09593331708616493>
- Kawan, J. A., Suja', F., Pramanik, S. K., Yusof, A., Rahman, R. A., & Hasan, H. A. (2022). Effect of Hydraulic Retention Time on the Performance of a Compact Moving Bed Biofilm Reactor for Effluent Polishing of Treated Sewage. *Water (Switzerland)*, 14(81), 1–18. <https://doi.org/10.3390/w14010081>
- Kementerian Lingkungan Hidup dan Kehutanan. (2022). *Laporan Kinerja Direktorat Pengendalian Pencemaran Air*.
- Kosgey, K., Zungu, P. V., Bux, F., & Kumari, S. (2022). Biological Nitrogen Removal from Low Carbon Wastewater. *Frontiers in Microbiology*, 13, 1–19. <https://doi.org/10.3389/fmicb.2022.968812>
- Lago, A., Rocha, V., Barros, O., Silva, B., & Tavares, T. (2024). Bacterial Biofilm Attachment to Sustainable Carriers as a Clean-up Strategy for Wastewater Treatment: A Review. *Journal of Water Process Engineering*, 63, 1. <https://doi.org/10.1016/j.jwpe.2024.105368>
- Leonard, F., Wahyuni, & Hasanuddin. (2024). Identifikasi Risiko Pencemaran Air Limbah Domestik. *Jurnal Media Teknik Sipil*, 2(1), 33–42.
- Malone, T. C., & Newton, A. (2020). The Globalization of Cultural Eutrophication in the Coastal Ocean: Causes and Consequences. *Frontiers in Marine Science*, 7(670), 1–30. <https://doi.org/10.3389/fmars.2020.00670>
- Na'imah, N., Taryana, D., & Wiyana, P. S. (2024). Mapping the Distribution of Total Suspended Solids (TSS) in Gondang Reservoir, Lamongan Using Multi-Temporal Landsat Imagery. *Future Space: Studies in Geo-Education*, 1(3), 286–306. <https://doi.org/10.69877/fssge.v1i3.31>
- Panjaitan, A. J. R. R., Ulinuha, D., & Ernawati, N. M. (2023). Analisis Total Suspended Solid (TSS) Perairan Danau Toba di Kecamatan Girsang Sipangan Bolon, Sumatera Utara. *Current Trends in Aquatic Science*, VI(2), 139–142.
- PermenLHK No. 68, MenLHK-Setjen Tentang Baku Mutu Air Limbah Domestik, Kementerian Lingkungan Hidup dan Kehutanan Republik Indonesia 1 (2016).
- Petrovich, M., Wu, C.-Y., Rosenthal, A., Chen, K.-F., Packman, A. I., & Wells, G. F. (2017). Nitrosomonas Europaea Biofilm Formation is Enhanced by Pseudomonas aeruginosa. *FEMS Microbiology Ecology*, 93(5), 1–9. <https://doi.org/10.1093/femsec/fix047>
- Pradnyadari, I. G. A. L., Suyasa, I. W. B., & Suastuti, N. G. A. M. D. A. (2018). Penyisihan Amonia, Nitrit, dan Nitrat dengan Biofilter Menggunakan Plastik Bekas sebagai Media Penopang Biofilm. *Jurnal Media Sains*, 2(2), 76–82.

- Public Health Association, A. (1992). *APHA Method 4500-NO3: Standard Methods for the Examination of Water and Wastewater* (M. A. H. Franson, Ed.; 18th ed., Vol. 4). American Public Health Association.
- Qin, S., Chen, W., Lin, Y., Tan, S., Liang, S., Liu, H., & Zhang, Q. (2024). Effect of HRT on The Nitrogen Removal Performance of Pure Biofilm Rotating Biological Contactor System Inoculated with HN-AD Bacteria And its Corresponding Mechanism. *SSRN*, 1–39. <https://ssrn.com/abstract=5066359>
- Ramadani, R., Samsunar, S., & Utami, M. (2021). Analisis Suhu, Derajat Keasaman (pH), Chemical Oxygen Demand (COD), dan Biological Oxygen Demand (BOD) dalam Air Limbah Domestik di Dinas Lingkungan Hidup Sukoharjo. *INDONESIAN JOURNAL OF CHEMICAL RESEARCH*, 6(2), 12–22. <https://doi.org/10.20885/ijcr.vol6.iss1.art2>
- Rawis, L., Mangangka, I. R., & Legrans, R. R. I. (2022). Analisis Kinerja Instalansi Pengolahan Air Limbah (IPAL) di Rumah Sakit Bhayangkara Tingkat III Manado. *TEKNO*, 20(81), 1–11. <https://ejournal.unsrat.ac.id/>
- Rofikoh, V., Zaman, B., & Samadikun, B. P. (2024). Penyisihan BOD, Minyak dan Lemak dalam Air Limbah Domestik dengan Menggunakan Karbon Aktif dari Kulit Pisang. *Jurnal Kesehatan Lingkungan Indonesia*, 23(1), 59–66. <https://doi.org/10.14710/jkli.23.1.59-66>
- Rout, P. R., Shahid, M. K., Dash, R. R., Bhunia, P., Liu, D., Varjani, S., Zhang, T. C., & Surampalli, R. Y. (2021). Nutrient Removal from Domestic Wastewater: A Comprehensive Review on Conventional and Advanced Technologies. *Journal of Environmental Management*, 296(113246), 1–16. <https://doi.org/10.1016/j.jenvman.2021.113246>
- Sabli, N., & Zakaria, N. (2023). Ammonia-Nitrogen Reduction in Low Strength Domestic Wastewater by Polyvinyl Alcohol (PVA) Gel Beads. *Pertanika Journals of Science and Technology*, 31(1), 511–528. <https://doi.org/10.47836/pjst.31.1.30>
- Said, N. I., Hernaningsih, T., Widayat, W., Yudo, S., Septian, A., Setiyono, Rifai, A., Setiadi, I., Sulaeman, O., Wahyono, H. D., Hartaja, D. R. K., Darmawangsa, M. R., & Ikhsan, I. N. (2024). Domestic Wastewater Treatment with Anaerobic-Aerobic Biofilters Using Plastic Honeycomb Media. *IOP Conference Series: Earth and Environmental Science*, 1388(1), 1–13. <https://doi.org/10.1088/1755-1315/1388/1/012058>
- Sari, G. L., Kasasiah, A., Utami, M. R., Sadidan, I., & Amethysia, N. R. (2024). Oil and Grease Contamination of Raw Water for Drinking Purposes in Karawang Regency, Indonesia. *E3S Web of Conferences*, 500(02001), 1–8. <https://doi.org/10.1051/e3sconf/202450002001>
- Sarrazin, F. J., Attinger, S., & Kumar, R. (2024). Gridded Dataset of Nitrogen and Phosphorus Point Sources from Wastewater in Germany (1950–2019). *Earth System Science Data*, 16(10), 4673–4708. <https://doi.org/10.5194/essd-16-4673-2024>
- Sello, M. (2021). Wastewater Fats Oils and Grease Characterisation, Removal and Uses. A Review. *Environmental Science: An Indian Journal Mini Review*, 17(10), 1–9. [www.tsijournals.com](http://www.tsijournals.com)

- Setiabudhi, H., & Nugraha, G. A. (2024). *Analisis Data Penelitian Menggunakan SPSS: Langkah Praktis dan Studi Kasus* (D. S. Retno, E. Sorongan, Gozali, & A. Y. Amsal, Eds.; 1st ed.). Borneo Novelty Publishing.
- Setiyawan, A. S., Nur, A., Fauzi, Mhd., Oginawati, K., & Soewondo, P. (2023). Effects of Different Polymeric Materials on the Bacterial Attachment and Biofilm Formation in Anoxic Fixed-Bed Biofilm Reactors. *Water, Air, & Soil Pollution*, 234, 147. <https://doi.org/10.1007/s11270-023-06174-2>
- Sirajuddin, F. E., & Saleh, M. F. (2020). Efektifitas Biofiltrasi dengan Media Arang Tempurung Kelapa dan Batu Apung Terhadap Penurunan Kadar COD, Nitrat, dan Amoniak dalam Air Limbah Domestik. *MITL Media Ilmiah Teknik Lingkungan*, 5(1), 27–35.
- SNI 06-2479-1991, Pub. L. No. Metode Pengujian Kadar Amonium dalam Air dengan Alat Spektrofotometer Secara Nessler, Badan Standarisasi Nasional 1 (1991).
- Tchobanoglous, G., Stensel, H. D., Tsuchihashi, R., & Burton, F. (2014). *Wastewater Engineering Treatment and Resource Recovery* (L. Buczek, Ed.; 5th ed.). McGraw-Hill Education.
- Trianda, Y., Desmiarti, R., Fujisawa, T., Ishiguro, Y., & Li, F. (2018). Study of Suspended Impurities Origin and Composition in the Treatment Process of Johkasou System. *AJChE*, 18(2), 54–61.
- U.S. Environmental Protection Agency (EPA), Pub. L. No. EPA/600/R-11/088, Land Remediation and Pollution Control Division National Risk Management Research Laboratory Office of Research and Development U.S. Environmental Protection Agency 1 (2011). [www.epa.gov](http://www.epa.gov)
- Va, V., Setiyawan, A. S., Soewondo, P., & Putri, D. W. (2018). The Characteristics of Domestic Wastewater from Office Buildings in Bandung, West Java, Indonesia. *Indonesian Journal of Urban and Environmental Technology*, 1(2), 199–214.
- Wahyuni, M. (2020). *Statistik Deskriptif untuk Penelitian olah Data Manual dan SPSS Versi 25* (R. Rosyid, Ed.). Bintang Pustaka Madani.
- Wang, X., Cheng, S., & Chen, H. (2024). Evaluating the Mechanisms and Efficiency of Johkasou Systems for Decentralized Domestic Effluent Treatment: A Review. In A. G. Capodaglio (Ed.), *Water (Switzerland)* (Vol. 16, Issue 2266, pp. 1–21). Multidisciplinary Digital Publishing Institute (MDPI). <https://doi.org/10.3390/w16162266>
- Zuhra, M. (2022). *Penyisihan Kadar Amonia dengan MBBR Sederhana pada Limbah Industri Pupuk Urea* [Skripsi]. Universitas Islam Negeri Ar-Raniry.
- Zulfikar, Z., Nasrullah, N., Kartini, K., & Aditama, W. (2022). Effect of Hydraulic Retention Time on the Levels of Biochemical Oxygen Demand and Total Suspended Solid with Simple Integrated Treatment as an Alternative to Meet the Household Needs for Clean Water. *Open Access Macedonian Journal of Medical Sciences*, 10(E), 6–11. <https://doi.org/10.3889/oamjms.2022.7828>