

DAFTAR PUSTAKA

- 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>
- Anggriani, U. M., Hasan, A., & Purnamasari, I. (2021). Kinetika Adsorpsi Karbon Aktif Dalam Penurunan Konsentrasi Logam Tembaga (Cu) dan Timbal (Pb). *Kinetika*, 12(02), 29–37. <https://jurnal.polsri.ac.id/index.php/kimia/article/view/3435>
- Apriliani, A. (2010). Pemanfaatan Arang Ampas Tebu sebagai Adsorben Ion Logam Cd, Cr, Cu dan Pb dalam Air Limbah. *Repositoy UIN*, 1–91.
- Asip, F., Mardhiah, R., & Husna. (2008). Uji Efektifitas Cangkang Telur dalam Mengadsorpsi Ion Fe dengan Proses Batch. *Jurnal Teknik Kimia*, 15(2), 22–26.
- Atkins, P., & Paula, J. de. (2009). *Physical Chemistry (9th Edition)*.
- Auliyah, Y. A. (2021). *Fitoremediasi Logam Tembaga (Cu) Oleh Mikroalga Chorea Sp Hasil Kultivasi Media Ekstrak Tauge Berdasarkan Variasi Konsentrasi*. <https://emea.mitsubishielectric.com/ar/products-solutions/factory-automation/index.html>
- Baidho, Z. El, Lazuardy, T., Rohmania, S., & Hartati, I. (2013). *Adsorpsi Logam Berat Pb Dalam Larutan Menggunakan Senyawa Xanthate Jerami Padi*. 1–6.
- Darmayanti, L., Notodarmodjo, S., & Damanhuri, E. (2018). Penyisihan Logam Cu (II) dari Larutan dengan Fly Ash Batu Bara. *Jurnal Neo Teknika*, 4(1), 30–38.
- Fard, A. K., Mckay, G., Chamoun, R., Rhadfi, T., Preud'Homme, H., & Atieh, M. A. (2017). Barium removal from synthetic natural and produced water using MXene as two dimensional (2-D) nanosheet adsorbent. *Chemical*

Engineering Journal, 317, 331–342.
<https://doi.org/10.1016/j.cej.2017.02.090>

Febriani, H., Puspitasari, D. J., Ruslan, & Sosidi, H. (2021). Adsorpsi Ion Logam Cu (II) Menggunakan Biomassa Daun Genjer (*Limnocharis flava*). *KOVALEN: Jurnal Riset Kimia*, 7(2), 131–136.
<https://doi.org/10.22487/kovalen.2021.v7.i2.14009>

Feng, W., Luo, H., Wang, Y., Zeng, S., Tan, Y., Zhang, H., & Peng, S. (2018). Ultrasonic assisted etching and delaminating of Ti₃C₂ MXene. *Ceramics International*, 44(6), 7084–7087.
<https://doi.org/10.1016/j.ceramint.2018.01.147>

Gan, D., Huang, Q., Dou, J., Huang, H., Chen, J., Liu, M., Wen, Y., Yang, Z., Zhang, X., & Wei, Y. (2020). Bioinspired functionalization of MXenes (Ti₃C₂TX) with amino acids for efficient removal of heavy metal ions. *Applied Surface Science*, 504(October), 144603.
<https://doi.org/10.1016/j.apsusc.2019.144603>

Harinaldi. (2005). *Prinsip-Prinsip Statistik Untuk Teknik dan Sains* (Erlangga).

Hidayah, N., Deviyani, E., & Wicakso, D. R. (2012). ADSORPSI LOGAM BESI (Fe) SUNGAI BARITO MENGGUNAKAN ADSORBEN DARI BATANG PISANG. *Konversi*, 1(1), 19. <https://doi.org/10.20527/k.v1i1.83>

Ibnu Hajar, E. W., Sitorus, R. S., Mulianingtias, N., & Welan, F. J. (2018). Efektivitas Adsorpsi Logam Pb²⁺ dan Cd²⁺ Menggunakan Media Adsorben Cangkang Telur Ayam. *Konversi*, 5(1), 1.
<https://doi.org/10.20527/k.v5i1.4771>

Indah, D. R., & Safnowandi. (2018). Upaya Menurunkan Kadar Logam Tembaga (Cu) Pada Limbah Kerajinan Perakdi Lombok Tengah dengan Memanfaatkan Karbon Baggase Teraktivasi Dahlia. *Seminar Nasional Lembaga Penelitian Dan Pendidikan (LPP) Mandala, September*, 1–14.

Irwan, D. K., & Santoso, A. (2013). Studi Akumulasi Logam Tembaga (Cu) dan

Efeknya terhadap Struktur Akar Mangrove (*Rhizophora mucronata*).
Diponegoro Journal of Marine Research, 2(4), 8–15.
<https://doi.org/10.14710/jmr.v2i4.3678>

Istighfarini, S. A. E., Daud, S., & Hs, E. (2017). *Pengaruh Massa dan Ukuran Partikel Adsorben Sabut Kelapa Terhadap Efisiensi Penyisihan Fe Pada Air Gambut. 1*, 29–31.

Jun, B. M., Heo, J., Taheri-Qazvini, N., Park, C. M., & Yoon, Y. (2020). Adsorption of selected dyes on Ti₃C₂T_x MXene and Al-based metal-organic framework. *Ceramics International*, 46(3), 2960–2968.
<https://doi.org/10.1016/j.ceramint.2019.09.293>

Jun, B. M., Her, N., Park, C. M., & Yoon, Y. (2020). Effective removal of Pb(ii) from synthetic wastewater using Ti₃C₂T_x MXene. *Environmental Science: Water Research and Technology*, 6(1), 173–180.
<https://doi.org/10.1039/c9ew00625g>

Li, S., Wang, L., Peng, J., Zhai, M., & Shi, W. (2019). Efficient thorium(IV) removal by two-dimensional Ti₂CT_x MXene from aqueous solution. *Chemical Engineering Journal*, 366(December 2018), 192–199.
<https://doi.org/10.1016/j.cej.2019.02.056>

Liu, T., Yang, X., Wang, Z. L., & Yan, X. (2013). Enhanced chitosan beads-supported Fe₀-nanoparticles for removal of heavy metals from electroplating wastewater in permeable reactive barriers. *Water Research*, 47(17), 6691–6700. <https://doi.org/10.1016/j.watres.2013.09.006>

Lumunon, E. I., Riogilang, H., & Supit, C. J. (2021). Evaluasi Kinerja Instalasi Pengolahan Air Limbah Komunal Kiniar Di Kota Tondano. *Jurnal Ilmiah Teknik Sipil*, 25(1), 30. <https://doi.org/10.24843/jits.2021.v25.i01.p04>

Nafi'ah R. (2016). Kinetika Adsorpsi Pb (II) dengan Adsorben Arang Aktif Dari Sabut Siwalan. *Jurnal Farmasi Sains Dan Praktis*, 1(2), 28–37.

Nasution, A., Ibrahim, A., Jufriadi, J., & Syamsuar, S. (2021). Analisa Paduan Cu-Zn

Tanpa timbal Setelah Proses Annealing. *Jurnal Mesin Sains Terapan*, 5(1), 38. <https://doi.org/10.30811/jmst.v5i1.2142>

Nuryadi, Astuti, T. D., Utami, E. S., & Budiantara, M. (2017). *Dasar-Dasar Statistik Penelitian* (Issue Januari).

Pandey, R. P., Rasool, K., Rasheed, P. A., & Mahmoud, K. A. (2018). Reductive Sequestration of Toxic Bromate from Drinking Water using Lamellar Two-Dimensional Ti₃C₂TX (MXene). *ACS Sustainable Chemistry and Engineering*, 6(6), 7910–7917. <https://doi.org/10.1021/acssuschemeng.8b01147>

Peng, Q., Guo, J., Zhang, Q., Xiang, J., Liu, B., Zhou, A., Liu, R., & Tian, Y. (2014). Unique lead adsorption behavior of activated hydroxyl group in two-dimensional titanium carbide. *Journal of the American Chemical Society*, 136(11), 4113–4116. <https://doi.org/10.1021/ja500506k>

Permata, M. A. D., Purwiyanto, A. I. S., & Diansyah, G. (2018). Kandungan Logam Berat Cu (Tembaga) Dan Pb (Timbal) Pada Air Dan Sedimen Di Kawasan Industri Teluk Lampung, Provinsi Lampung. *Journal of Tropical Marine Science*, 1(1), 7–14. <https://doi.org/10.33019/jour.trop.mar.sci.v1i1.667>

Reynolds, T. D., & Richards, P. A. (1996a). *Unit Operations and Processes in Environmental Engineering- Tom D. Reynolds.pdf*.

Reynolds, T. D., & Richards, P. A. (1996b). Unit operations and processes in environmental engineering 2nd ed. In *PWS series in engineering*. (p. 25,350,749).

Saragih, S. A. (2008). *Pembuatan dan Karakterisasi Karbon Aktif dari Batubara Riau Sebagai Adsorben*. Universitas Indonesia.

Saththasivam, J., Wang, K., Yiming, W., Liu, Z., & Mahmoud, K. A. (2019). A flexible Ti₃C₂Tx (MXene)/paper membrane for efficient oil/water separation. *RSC Advances*, 9(29), 16296–16304. <https://doi.org/10.1039/c9ra02129a>

- Shahzad, A., Rasool, K., Miran, W., Nawaz, M., Jang, J., Mahmoud, K. A., & Lee, D. S. (2017). Two-Dimensional Ti₃C₂T_x MXene Nanosheets for Efficient Copper Removal from Water. *ACS Sustainable Chemistry and Engineering*, 5(12), 11481–11488. <https://doi.org/10.1021/acssuschemeng.7b02695>
- Sitorus, D. O. (2014). *Peningkatan Potensi Campuran Serat Sabut Kelapa dan Serbuk Kayu Gergaji Teraktivasi H₂SO₄ sebagai Media Adsorben Zat Warna Terhadap Limbah Kain Songket*.
- Song, G., Kang, R., Guo, L., Ali, Z., Chen, X., Zhang, Z., Yan, C., Lin, C. Te, Jiang, N., & Yu, J. (2020). Highly flexible few-layer Ti₃C₂MXene/cellulose nanofiber heat-spreader films with enhanced thermal conductivity. *New Journal of Chemistry*, 44(17), 7186–7193. <https://doi.org/10.1039/d0nj00672f>
- Syauqiah, I., Amalia, M., & Kartini, H. A. (2011). Analisis Variasi Waktu dan Kecepatan Pengaduk Pada Proses Adsorpsi Limbah Logam Berat dengan Arang Aktif. *Info Teknik*, 12(1), 11–20.
- Tandy, E., Hasibuan, I. F., & Harahap, H. (2012). Kemampuan Adsorben Limbah Lateks Karet Alam Terhadap Minyak Pelumas Dalam Air. *Jurnal Teknik Kimia USU*, 1(2), 34–38.
- Tang, Y., Yang, C., & Que, W. (2018). A novel two-dimensional accordion-like titanium carbide (MXene) for adsorption of Cr(VI) from aqueous solution. *Journal of Advanced Dielectrics*, 8(5). <https://doi.org/10.1142/S2010135X18500352>
- Tarigan, I. L., Ramadhani, Susanti, D., Iqbal, M., & Silaban, R. (2021). *Pemanfaatan Kitosan Cangkang Bekicot Sebagai Adsorben Logam Tembaga (Cu) Pencemaran Lingkungan*. 5, 1128–1141.
- Tchobanoglous, G., Burton, F. L., & Stensel, H. D. (2014). *Wastewater Engineering: Treatment and Resource Recovery*. McGraw Hill. <https://doi.org/10.1016/j.resconrec.2016.05.012>
- Utama, S., Kristianto, H., & Andreas, A. (2016). Adsorpsi Ion Logam Kromium (Cr (

Vi)) Menggunakan Karbon Aktif dari Bahan Baku Kulit Salak. *Prosiding Seminar Nasional Teknik Kimia "Kejuangan," Yogyakarta*(17 Maret 2016), 1–6.

Uwamariya, V. (2013). *Adsorptive Removal of Heavy Metals from Groundwater by Iron Oxide based adsorbents.*

Voigt, C. A., Ghidui, M., Natu, V., & Barsoum, M. W. (2018). Anion Adsorption, Ti₃C₂T_z MXene Multilayers, and Their Effect on Claylike Swelling. *Journal of Physical Chemistry C*, 122(40), 23172–23179. <https://doi.org/10.1021/acs.jpcc.8b07447>

Wei, Z., Peigen, Z., Wubian, T., Xia, Q., Yamei, Z., & ZhengMing, S. (2018). Alkali treated Ti₃C₂T_x MXenes and their dye adsorption performance. *Materials Chemistry and Physics*, 206, 270–276. <https://doi.org/10.1016/j.matchemphys.2017.12.034>

Widiyanto, A. F., Yuniarno, S., & Kuswanto. (2015). Land Water Pollution From Industrial Waste and. *Jurnal Kesehatan Masyarakat*, 10(2), 246–254.

Wisnu, I. M., Putra, A., & Widhiantara, I. G. (2015). *Adsorption of Linear Alkylbenzene Sulfonate (LAS) on Eggshell Powder*. 3(2), 143–149.

Ying, Y., Liu, Y., Wang, X., Mao, Y., Cao, W., Hu, P., & Peng, X. (2015). Two-dimensional titanium carbide for efficiently reductive removal of highly toxic chromium(VI) from water. *ACS Applied Materials and Interfaces*, 7(3), 1795–1803. <https://doi.org/10.1021/am5074722>

Zeng, M., Chen, M., Huang, D., Lei, S., Zhang, X., Wang, L., & Cheng, Z. (2021). Engineered two-dimensional nanomaterials: An emerging paradigm for water purification and monitoring. *Materials Horizons*, 8(3), 758–802. <https://doi.org/10.1039/d0mh01358g>

Zhang, Y., Wang, L., Zhang, N., & Zhou, Z. (2018). Adsorptive environmental applications of MXene nanomaterials: A review. *RSC Advances*, 8(36), 19895–19905. <https://doi.org/10.1039/c8ra03077d>

Zhao, Q., Wang, J., Li, Z., Guo, Y., Tang, B., Abudula, A., & Guan, G. (2021). Two-dimensional Ti₃C₂TX-nanosheets/Cu₂O composite as a high-performance photocatalyst for decomposition of tetracycline. *Carbon Resources Conversion*, 4(May), 197–204. <https://doi.org/10.1016/j.crcon.2021.05.002>

