

DAFTAR PUSTAKA

1. Doğan, F.; Dehghanpour, H. Characterization and Hydrophobic Surface Study of Silicon-Based TiO₂, ZnO and Recycled Carbon Additives on Cementitious Materials Surface. *J. Build. Eng.* 2021, 40. <https://doi.org/10.1016/j.jobe.2021.102689>.
2. Ray, S. S.; Peddinti, P. R. T.; Soni, R.; Kim, B.; Park, Y.-I.; Kim, I.-C.; Lee, C. Y.; Kwon, Y.-N. Effectiveness of Nanoparticles-Based Ultrahydrophobic Coating for Concrete Materials. *J. Build. Eng.* 2023, 66, 105799. <https://doi.org/10.1016/j.jobe.2022.105799>.
3. Zhang, B.; Li, Q.; Niu, X.; Yang, L.; Hu, Y.; Zhang, J. Influence of a Novel Hydrophobic Agent on Freeze–Thaw Resistance and Microstructure of Concrete. *Constr. Build. Mater.* 2021, 269. <https://doi.org/10.1016/j.conbuildmat.2020.121294>.
4. Shahbazi, R.; Korayem, A. H.; Razmjou, A.; Duan, W. H.; Wang, C. M.; Justnes, H. Integrally Hydrophobic Cementitious Composites Made with Waste Amorphous Carbon Powder. *Constr. Build. Mater.* 2020, 233. <https://doi.org/10.1016/j.conbuildmat.2019.117238>.
5. Zhang, H.; Mu, S.; Cai, J.; Chen, R. The Impact of Carboxylic Acid Type Hydrophobic Agent on Compressive Strength of Cementitious Materials. *Constr. Build. Mater.* 2021, 291. <https://doi.org/10.1016/j.conbuildmat.2021.123315>.
6. Pan, X.; Shi, Z.; Shi, C.; Ling, T. C.; Li, N. A Review on Concrete Surface Treatment Part I: Types and Mechanisms. *Construction and Building Materials.* Elsevier Ltd February 1, 2017, pp 578–590. <https://doi.org/10.1016/j.conbuildmat.2016.12.025>.
7. Haider, A. J.; Jameel, Z. N.; Al-Hussaini, I. H. M. Review on: Titanium Dioxide Applications. In *Energy Procedia*; Elsevier Ltd, 2019; Vol. 157, pp 17–29. <https://doi.org/10.1016/j.egypro.2018.11.159>.
8. Sujiono, E. H.; Zabrian, D.; Zurnansyah; Mulyati; Zharvan, V.; Samnur; Humairah, N. A. Fabrication and Characterization of Coconut Shell Activated Carbon Using Variation Chemical Activation for Wastewater Treatment Application. *Results Chem.* 2022, 4. <https://doi.org/10.1016/j.rechem.2022.100291>.
9. Umerah, C. O.; Kodali, D.; Head, S.; Jeelani, S.; Rangari, V. K. Synthesis of Carbon from Waste Coconutshell and Their Application as Filler in Bioplast Polymer Filaments for 3D Printing. *Compos. Part B Eng.* 2020, 202, 2023. <https://doi.org/10.1016/j.compositesb.2020.108428>.
10. Zhu, Y. G.; Kou, S. C.; Poon, C. S.; Dai, J. G.; Li, Q. Y. Influence of Organosilikone-Based Water Repellent on the Durability Properties of Recycled Aggregate Concrete. *Cem. Concr. Compos.* 2013, 35 (1), 32–38. <https://doi.org/10.1016/j.cemconcomp.2012.08.008>.
11. Wellia, D. V.; Habibillah, M. R.; Syafawi, A.; Rahmadini, R. A New Combination Method of N-Doped TiO₂ Nanoparticles Synthesis for Heavy Metal Ions Cr (VI) Photoreduction Applications. 2023, 26 (2), 70–78.
12. Alexander, M.; Bentur, A.; Mindess, S. *Durability of Concrete: Design and Construction*; Alexander, M., Bentur, A., Mindess, S., Eds.; CRC Press, Taylor & Francis Group: Boca Raton, FL 33487-2742, 2017.
13. Jackson, P. J. Portland Cement: Classification and Manufacture. In *Lea's Chemistry of Cement and Concrete*; Hewlett, P. C., Ed.; 1998; pp 25–94. <https://doi.org/10.1016/B978-075066256-7/50014-X>.
14. Sagel, R.; Kole, P.; Gideon, H. K. *Pedoman Penggerjaan Beton*, 3rd ed.; Indarto,

- P. W., Ed.; Erlangga: Jakarta, 1994.
15. Neville, A. M. *Properties of Concrete*, Fifth Edit.; Trans-Atlantic Publications, Inc., 2012. <https://doi.org/10.4324/9780203967874-11>.
16. Abdi, F. N.; Sutanto, H.; Fitrah, A. Al. Kuat Tekan Beton Dengan Rasio Volume 1 : 2 : 3 Menggunakan Agregat Di Kalimantan Timur (Senoni, Long Iram, Batu Besaung, Penajam Dan Sambera) Berdasarkan SNI 032834-2000. *Semin. Nas. Teknol.* V 2019, 1, 182–190.
17. Kebede Urge, S.; Tiruneh Dibaba, S.; Belay Gemta, A. Green Synthesis Method of ZnO Nanoparticles Using Extracts of Zingiber Officinale and Garlic Bulb (*Allium Sativum*) and Their Synergetic Effect for Antibacterial Activities. *J. Nanomater.* 2023, 2023. <https://doi.org/10.1155/2023/7036247>.
18. Nadeem, M.; Tungmunnithum, D.; Hano, C.; Abbasi, B. H.; Hashmi, S. S.; Ahmad, W.; Zahir, A. The Current Trends in the Green Syntheses of Titanium Oxide Nanoparticles and Their Applications. *Green Chem. Lett. Rev.* 2018, 11 (4), 492–502. <https://doi.org/10.1080/17518253.2018.1538430>.
19. Mbonyiryivuze, A.; Zongo, S.; Diallo, A.; Bertrand, S.; Minani, E.; Lal Yadav, L.; Mwakikunga, B.; Dhlamini, S. M.; Maaza, M.; Yadav, L. L. Titanium Dioxide Nanoparticles Biosynthesis for Dye Sensitized Solar Cells Application: Review. *Phys. Mater. Chem.* 2015, 3 (1), 12–17. <https://doi.org/10.12691/pmc-3-1-3>.
20. Qi, Y.; Xiang, B.; Tan, W.; Zhang, J. Hydrophobic Surface Modification of TiO₂ Nanoparticles for Production of Acrylonitrile-Styrene-Acrylate Terpolymer/TiO₂ Composited Cool Materials. *Appl. Surf. Sci.* 2017, 419, 213–223. <https://doi.org/10.1016/j.apsusc.2017.04.234>.
21. Ali, I.; Suhail, M.; Alothman, Z. A.; Alwarthan, A. Recent Advances in Syntheses, Properties and Applications of TiO₂ Nanostructures. *RSC Adv.* 2018, 8 (53), 30125–30147. <https://doi.org/10.1039/c8ra06517a>.
22. Mohamad, M.; Haq, B. U.; Ahmed, R.; Shaari, A.; Ali, N.; Hussain, R. A Density Functional Study of Structural, Electronic and Optical Properties of Titanium Dioxide: Characterization of Rutile, Anatase and Brookite Polymorphs. *Mater. Sci. Semicond. Process.* 2015, 31, 405–414. <https://doi.org/10.1016/j.mssp.2014.12.027>.
23. Latthe, S. S.; Terashima, C.; Nakata, K.; Fujishima, A. Superhydrophobic Surfaces Developed by Mimicking Hierarchical Surface Morphology of Lotus Leaf. *Molecules* 2014, 19 (4), 4256–4283. <https://doi.org/10.3390/molecules19044256>.
24. Nuraje, N.; Khan, W. S.; Lei, Y.; Ceylan, M.; Asmatulu, R. Superhydrophobic Electrospun Nanofibers, 2013, Vol. 1. <https://doi.org/10.1039/c2ta00189f>.
25. Goldstein, J.; Newbury, D. E.; Joy, D. C.; Lyman, C. E.; Echlin, P.; Lifshin, E.; Sawyer, L.; Michael, J. R. *Scanning Electron Microscopy and X-Ray Microanalysis*, Third Ed.; Springer: New York, 2003. <https://doi.org/10.2307/3225926>.
26. Subramanian, K. S.; Janavi, G. J.; Marimuthu, S.; Kannan, M.; Raja, K.; Haripriya, S.; Jeya Sundara Sharmila, D. Scanning Electron Microscopy: Principle, Components and Applications. In *Textbook on Fundamentals And Applications of Nanotechnology*; Tamil Nadu Agricultural University, 2018; pp 91–90.
27. Bunaciu, A. A.; Udrîștioiu, E. gabriela; Aboul-Enein, H. Y. X-Ray Diffraction: Instrumentation and Applications. *Crit. Rev. Anal. Chem.* 2015, 45 (4), 289–299. <https://doi.org/10.1080/10408347.2014.949616>.
28. Khan, H.; Yerramilli, A. S.; D’Oliveira, A.; Alford, T. L.; Boffito, D. C.; Patience, G. S. Experimental Methods in Chemical Engineering: X-Ray Diffraction

- Spectroscopy—XRD. *Can. J. Chem. Eng.* 2020, 98 (6), 1255–1266. <https://doi.org/10.1002/cjce.23747>.
- 29. Mohamed, M. A.; Jaafar, J.; Ismail, A. F.; Othman, M. H. D.; Rahman, M. A. Fourier Transform Infrared (FTIR) Spectroscopy. In *Membrane Characterization*; Elsevier B.V., 2017; pp 3–29. <https://doi.org/10.1016/B978-0-444-63776-5.00001-2>.
 - 30. Juwita, L. Karakteristik Material Menggunakan XRF, XRD Dan SEM-EDX. *J. Tek. Media Pengemb. Ilmu dan Apl. Tek.* 2003, 2 (2), 177–192. <https://doi.org/10.26874/jt.vol2no2.220>.
 - 31. Liu, X. Y.; Huang, M.; Ma, H. L.; Zhang, Z. Q.; Gao, J. M.; Zhu, Y. L.; Han, X. J.; Guo, X. Y. Preparation of a Carbon-Based Solid Acid Catalyst by Sulfonating Activated Carbon in a Chemical Reduction Process. *Molecules* 2010, 15 (10), 7188–7196. <https://doi.org/10.3390/molecules15107188>.
 - 32. Syuadi, A. F. Sintesis Nanopartikel Titanium Oksida Menggunakan Ekstrak Kulit Aloe Vera (L.) Burm. F. Dan Karakterisasinya, Universitas Andalas, 2021.
 - 33. Al-Kheetan, M. J.; Rahman, M. M.; Chamberlain, D. A. Fundamental Interaction of Hydrophobic Materials in Concrete with Different Moisture Contents in Saline Environment. *Constr. Build. Mater.* 2019, 207, 122–135. <https://doi.org/10.1016/j.conbuildmat.2019.02.119>.
 - 34. Lian, S.; Meng, T.; Wang, M.; Yu, H. Effect of Nano-SiO₂ on the Mechanical Properties, Microstructure, and Hydration Process of Cementitious Materials Incorporating Hydrophobic Admixture. *J. Mater. Civ. Eng.* 2020, 32 (3), 1–8. [https://doi.org/10.1061/\(ASCE\)MT.1943-5533.0003084](https://doi.org/10.1061/(ASCE)MT.1943-5533.0003084).
 - 35. Yilmén, R.; Jäglid, U. Carbonation of Portland Cement Studied by Diffuse Reflection Fourier Transform Infrared Spectroscopy. *Int. J. Concr. Struct. Mater.* 2013, 7 (2), 119–125. <https://doi.org/10.1007/s40069-013-0039-y>.
 - 36. Faisal, M.; Surhartana; Pardoyo. Jurnal Kimia Sains Dan Aplikasi Zeolit Alam Termodifikasi Logam Fe Sebagai Adsorben Fosfat (PO 43-) Pada Air Limbah. *J. Kim. Sains dan Apl.* 2015, 18 (3), 91–95.
 - 37. Yilmén, R.; Jäglid, U.; Steenari, B. M.; Panas, I. Early Hydration and Setting of Portland Cement Monitored by IR, SEM and Vicat Techniques. *Cem. Concr. Res.* 2009, 39 (5), 433–439. <https://doi.org/10.1016/j.cemconres.2009.01.017>.
 - 38. Al-Awabdeh, F. W.; Al-Kheetan, M. J.; Jweihan, Y. S.; Al-Hamaiedeh, H.; Ghaffar, S. H. Comprehensive Investigation of Recycled Waste Glass in Concrete Using Silane Treatment for Performance Improvement. *Results Eng.* 2022, 16 (November). <https://doi.org/10.1016/j.rineng.2022.100790>.
 - 39. Ejenstam, L. Hydrophobic and Superhydrophobic Coatings for Corrosion Protection of Steel, KTH Royal Institute of Technology, 2015.
 - 40. Barati Darband, G.; Aliofkhazraei, M.; Khorsand, S.; Sokhanvar, S.; Kaboli, A. Science and Engineering of Superhydrophobic Surfaces: Review of Corrosion Resistance, Chemical and Mechanical Stability. *Arab. J. Chem.* 2020, 13 (1), 1763–1802. <https://doi.org/10.1016/j.arabjc.2018.01.013>.