

- A. M. Neville, 2011. Properties of Concrete Fifth Edition, Fifth Edition. ed. Pitman Publishing Limited, England, Edinburgh Gate.
- Ahmad, J., Kontoleon, K.J., Majdi, A., Naqash, M.T., Deifalla, A.F., Ben Kahla, N., Isleem, H.F., Qaidi, S.M.A., 2022. A Comprehensive Review on the Ground Granulated Blast Furnace Slag (GGBS) in Concrete Production. Sustainability (Switzerland) 14. <https://doi.org/10.3390/su14148783>
- Al-Hamrani, A., Kucukvar, M., Alnahhal, W., Mahdi, E., Onat, N.C., 2021. Green concrete for a circular economy: A review on sustainability, durability, and structural properties. Materials. <https://doi.org/10.3390/ma14020351>
- Arifatunurrillah, A., Saputra, A., Sulistyo, D., 2019. PENGARUH AIR LAUT PADA MASA PERAWATAN TERHADAP INFILTRASI ION KLOORIDA PADA BETON DENGAN MENGGUNAKAN SEMEN PORTLAND TIPE V. Jurnal Riset Rekayasa Sipil 3, 1. <https://doi.org/10.20961/jrrs.v3i1.30504>
- Ariningsih, Y.S., Nuralinah, D., Saputra, A.W.W., 2021. Diffusion of chloride from seawater into the concrete analysis: A literature review on implemented approaches, dalam: IOP Conference Series: Earth and Environmental Science. IOP Publishing Ltd. <https://doi.org/10.1088/1755-1315/930/1/012015>
- Ariyo, A., Falade, F., Olutaiwo, A., 2020. Microstructural Analysis of Concrete Using Cow Bone Ash for Alkali-Silica Reaction (ASR) Suppression. Journal of Casting & Materials Engineering 4, 34–40. <https://doi.org/10.7494/jcme.2020.4.2.34>
- Bheel, N., Abbasi, S.A., Awoyera, P., Olalusi, O.B., Sohu, S., Rondon, C., Echeverriá, A.M., 2020. Fresh and hardened properties of concrete incorporating binary blend of metakaolin and ground granulated blast furnace slag as supplementary cementitious material. Advances in Civil Engineering 2020. <https://doi.org/10.1155/2020/8851030>
- Binod Kumar, L.S.L.R.M., 2018. INFLUENCE OF GROUND GRANULATED BLAST FURNACE SLAG ON PROPERTIES OF CONCRETE PAEMENT. Int J Res Eng Technol 07, 25–31. <https://doi.org/10.15623/ijret.2018.0713004>

Cahyani, R.A.T., Rusdianto, Y., 2020. Concrete Performance with Ground Granulated Blast Furnace Slag as Supplementary Cementitious Materials, dalam: IOP Conference Series: Materials Science and Engineering. Institute of Physics Publishing. <https://doi.org/10.1088/1757-899X/771/1/012062>

Choi, S.J., Kang, S.P., Kim, S.C., Kwon, S.J., 2015. Analysis technique on water permeability in concrete with cold joint considering micro pore structure and mineral admixture. *Advances in Materials Science and Engineering* 2015. <https://doi.org/10.1155/2015/610428>

Duan, P., Shui, Z., Chen, W., Shen, C., 2012. Influence of metakaolin on pore structure-related properties and thermodynamic stability of hydrate phases of concrete in seawater environment. *Constr Build Mater* 36, 947–953. <https://doi.org/10.1016/j.conbuildmat.2012.06.073>

Etxeberria, M., Gonzalez-Corominas, A., Pardo, P., 2016. Influence of seawater and blast furnace cement employment on recycled aggregate concretes' properties. *Constr Build Mater* 115, 496–505. <https://doi.org/10.1016/j.conbuildmat.2016.04.064>

European Committee for Standardization., British Standards Institution., 2000. *Cement. Part 1, Composition, specifications and conformity criteria for common cements.* BSI.

Haha, M. Ben, Lothenbach, B., Le Saout, G., Winnefeld, F., 2012. Influence of slag chemistry on the hydration of alkali-activated blast-furnace slag - Part II: Effect of Al<sub>2</sub>O<sub>3</sub>. *Cem Concr Res* 42, 74–83. <https://doi.org/10.1016/j.cemconres.2011.08.005>

Huang, C.H., Wu, C.H., Lin, S.K., Yen, T., 2019. Effect of slag particle size on fracture toughness of concrete. *Applied Sciences (Switzerland)* 9. <https://doi.org/10.3390/app9040805>

Indriyanto, L.A., Saputra, A., Sulisty, D.D., t.t. PENGARUH AIR LAUT PADA MASA PERAWATAN TERHADAP INFILTRASI ION KLOORIDA PADA BETON DENGAN PENAMBAHAN FLY ASH 12,5%, *Jurnal Riset Rekayasa Sipil Universitas Sebelas Maret*.

Lee, J., Lee, T., Choi, H., Lee, D.E., 2020. Assessment of optimum cao content range for high volume fa based concrete considering durability properties. *Applied Sciences (Switzerland)* 10, 1–16. <https://doi.org/10.3390/app10196944>

Lukowski, P., Salih, A., 2015. Durability of mortars containing ground granulated blast-furnace slag in acid and sulphate environment, dalam: *Procedia Engineering*. Elsevier Ltd, hlm. 47–54. <https://doi.org/10.1016/j.proeng.2015.06.118>

Lukowski, P., Salih, A., Sokołowska, J.J., 2018. Frost resistance of concretes containing ground granulated blast-furnace slag, dalam: *MATEC Web of Conferences*. EDP Sciences. <https://doi.org/10.1051/mateconf/201816305001>

Mehta, P.K.; M.P.J.M., 2006. *Microstructure, Properties, and Materials*, 3rd ed. McGraw-Hill, New York.

Mohd, M., Zainon, O., Rasib, A.W., Majid, Z., 2016. The study on the durability of submerged structure displacement due to concrete failure, dalam: *International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences - ISPRS Archives*. International Society for Photogrammetry and Remote Sensing, hlm. 345–350. <https://doi.org/10.5194/isprs-archives-XLII-4-W1-345-2016>

Muhammad Kemal Rafif, Alfinna Mahya Ummati, 2023. Pengaruh pasang surut air laut terhadap kekuatan beton komposit material Ground Granulated Blast Furnace Slag (GGBFS). *PADURAKSA: Jurnal Teknik Sipil Universitas Warmadewa* 12, 218–227. <https://doi.org/10.22225/pd.12.2.6518.218-227>

Nath, P., Sarker, P.K., 2014. Effect of GGBFS on setting, workability and early strength properties of fly ash geopolymer concrete cured in ambient condition. *Constr Build Mater* 66, 163–171. <https://doi.org/10.1016/j.conbuildmat.2014.05.080>

Navarro, I.J., Yepes, V., Martí, J. V., 2018. Life cycle cost assessment of preventive strategies applied to prestressed concrete bridges exposed to chlorides. *Sustainability (Switzerland)* 10. <https://doi.org/10.3390/su10030845>

Nazari, A., Rafieipour, M.H., Riahi, S., 2011. The effects of CuO nanoparticles on properties of self compacting concrete with GGBFS as binder. *Materials Research* 14, 307–316. <https://doi.org/10.1590/S1516-14392011005000061>

Nobuaki Otsuki, Aung Kyaw Min, Tomohiro Nagata, Cheng Yi, 2016. Durability of Seawater Mixed Concrete with Different Replacement Ratio of BFS (Blast Furnace Slag) and FA (Fly Ash). *Journal of Civil Engineering and Architecture* 10. <https://doi.org/10.17265/1934-7359/2016.05.006>

Pillay, D.L., Olalusi, O.B., Awoyera, P.O., Rondon, C., Echeverría, A.M., Kolawole, J.T., 2020. A Review of the Engineering Properties of Metakaolin Based Concrete: Towards Combatting Chloride Attack in Coastal/Marine Structures. *Advances in Civil Engineering*. <https://doi.org/10.1155/2020/8880974>

Price, S.J., Figueira, R.B., 2017. Corrosion protection systems and fatigue corrosion in offshore wind structures: Current status and future perspectives. *Coatings*. <https://doi.org/10.3390/coatings7020025>

Qu, Z., Liu, Z., Si, R., Zhang, Y., 2022. Effect of Various Fly Ash and Ground Granulated Blast Furnace Slag Content on Concrete Properties: Experiments and Modelling. *Materials* 15. <https://doi.org/10.3390/ma15093016>

Safie Mahdi Oleiwi, S., 2021. Compressive Strength of Mortar with Partial Replacement of Cement by Fly Ash and GGBFS. *Diyala Journal of Engineering Sciences* 14, 146–155. <https://doi.org/10.24237/djes.2021.14412>

Santhanam, M.; C.M.D.; O.J., 2003. Mechanism of sulfate attack: A fresh look. Part 2: Proposed mechanisms. *Cem Concr Res* 33, 341–346.

Sariman, S., M, Abd.R.N.R., 2022. White Cement and Concrete Compressive Strength in Sea Water Curing. *International Journal of Advanced Engineering Research and Science* 9, 433–440. <https://doi.org/10.22161/ijaers.912.47>

Shariq, M., Prasad, J., Masood, A., 2010. Effect of GGBFS on time dependent compressive strength of concrete. *Constr Build Mater* 24, 1469–1478. <https://doi.org/10.1016/j.conbuildmat.2010.01.007>

Sonali Sri Durga, C.S.S.D., Chava, V., Priyanka, M., Chaitanya, B.K., Rao, B.N.M., Rao, T.M., 2024. Synergistic effects of GGBFS addition and oven drying on the physical and mechanical properties of fly ash-based geopolymer aggregates. *Journal of*

<https://doi.org/10.47481/jscmt.1501001>

Song, H.W., Saraswathy, V., 2006. Studies on the corrosion resistance of reinforced steel in concrete with ground granulated blast-furnace slag-An overview. *J Hazard Mater.* <https://doi.org/10.1016/j.jhazmat.2006.07.022>

Standardisasi, B., Bsn, N., t.t. Standar Nasional Indonesia Tata cara pembuatan rencana campuran beton normal.

Subagdja, A., Sofyan, A., Rusmanto, A., 2020. Compressive strength and permeability of concrete by using GGBFS against seawater, dalam: *IOP Conference Series: Materials Science and Engineering*. Institute of Physics Publishing. <https://doi.org/10.1088/1757-899X/830/2/022045>

Subarkah, M.G., Sjah, J., Maknun, I.J., 2020. Effects of Ground Granulated Blast Furnace Slag and Recycled Coarse Aggregates in Compressive Strength of Concrete, dalam: *IOP Conference Series: Earth and Environmental Science*. Institute of Physics Publishing. <https://doi.org/10.1088/1755-1315/498/1/012045>

Tarek Uddin Mohammed, H.H. and T.Y., 2003. Marine Durability of 30-Year Old Concrete Made with Different. *Journal of Advanced Concrete Technology* Vol. 1.

Ting, M.Z.Y., Wong, K.S., Rahman, M.E., Selowara Joo, M., 2020. Mechanical and durability performance of marine sand and seawater concrete incorporating silicomanganese slag as coarse aggregate. *Constr Build Mater* 254. <https://doi.org/10.1016/j.conbuildmat.2020.119195>

Wang, X.S., Wu, B.S., Wang, Q.Y., 2005. Online SEM investigation of microcrack characteristics of concretes at various temperatures. *Cem Concr Res* 35, 1385–1390. <https://doi.org/10.1016/j.cemconres.2004.07.015>

Yalçinkaya, Ç., Çopuroğlu, O., 2021. Hydration heat, strength and microstructure characteristics of UHPC containing blast furnace slag. *Journal of Building Engineering* 34. <https://doi.org/10.1016/j.jobbe.2020.101915>

Yang, H.M., Kwon, S.J., Myung, N.V., Singh, J.K., Lee, H.S., Mandal, S., 2020. Evaluation of strength development in concrete with ground granulated blast furnace

Zaki, A., Husnah, 2023. Evaluation of fly ash concrete in salt environment, dalam: E3S Web of Conferences. EDP Sciences. <https://doi.org/10.1051/e3sconf/202342905030>

Zhao, G., Shi, M., Guo, M., Fan, H., 2020. Degradation mechanism of concrete subjected to external sulfate attack: Comparison of different curing conditions. Materials 13. <https://doi.org/10.3390/ma13143179>

Zhen Li, S.D.A.A.X.W.V.K.T.B.H. and S.P.S., 2022. On the incorporation of nano TiO<sub>2</sub> to inhibit concrete deterioration in the marine environment. Nanotechnology 33.