DAFTAR PUSTAKA

[1] "Perusahaan manufaktur Indonesia: Penggerak pertumbuhan ekonomi di masa depan." Accessed: Jul. 31, 2025. [Online]. Available: https://east.vc/id/berita/insights/perusahaan-manufaktur-indonesia

[2] "Indonesia, Pasar Mobil Terbesar di Asia Tenggara hingga Agustus 2023." Accessed: Jul. 31, 2025. [Online]. Available: https://databoks.katadata.co.id/teknologi-telekomunikasi/statistik/f587668196e63cb/indonesia-pasar-mobil-terbesar-di-asia-tenggara-hingga-agustus-2023

[3] G. F. L. Pinto, F. J. G. Silva, R. D. S. G. Campilho, R. B. Casais, A. J. Fernandes, and A. Baptista, "Continuous improvement in maintenance: A case study in the automotive industry involving Lean tools," *Procedia Manuf.*, vol. 38, no. 2019, pp. 1582–1591, 2019, doi: 10.1016/j.promfg.2020.01.127.

[4] H. Cao *et al.*, "The stress concentration mechanism of pores affecting the tensile properties in vacuum die casting metals," *Materials (Basel).*, vol. 13, no. 13, 2020, doi: 10.3390/ma13133019.

[5] F. Alshmri, "Lightweight material: Aluminium high silicon alloys in the automotive industry," *Adv. Mater. Res.*, vol. 774–776, no. September 2013, pp. 1271–1276, 2013, doi: 10.4028/www.scientific.net/AMR.774-776.1271.

[6] Y. Amalia, S. Sudaryanto, F. A. Mardhatila, R. Kristiardi, and Y. J. Kuncoro, "Paduan Aluminium Berdasarkan Sifat Mekanik," *Sang Pencerah J. Ilm. Univ. Muhammadiyah But.*, vol. 8, no. 3, pp. 722–732, 2022, doi: 10.35326/pencerah.v8i3.2479.

[7] W. Ding *et al.*, "Refinement Mechanism of the Hypoeutectic Al–7Si Alloy by Adding a Novel La-Rich Rare-Earth *Grain refiner*," *Metall. Mater. Trans. A*, vol. 55, no. 9, pp. 3617–3626, 2024, doi: 10.1007/s11661-024-07510-9.

[8] T. Ma, Z. CHEN, Z. NIE, and H. HUANG, "Microstructure of Al-Ti-B-Er

refiner and its grain refining performance," *J. Rare Earths*, vol. 31, pp. 622–627, Jun. 2013, doi: 10.1016/S1002-0721(12)60331-7.

[9] C. Choudhary, K. Sahoo, H. Roy, and D. Mandal, "Effect of *Grain refiner* on Microstructural Feature Influence Hardness and Tensile Properties of Al-7Si Alloy," *J. Mater. Eng. Perform.*, vol. 31, Nov. 2021, doi: 10.1007/s11665-021-06413-9.

[10] W. Shi, L. Chen, B. He, B. Lu, and J. Yang, "Effect of Al-5Ti-2B on the Microstructure and Mechanical Properties of Recycled Al-7Si-0.3Mg-1Fe Alloy," *Crystals*, vol. 15, no. 7, p. 584, 2025, doi: 10.3390/cryst15070584.

[11] B. A. Badia, M. H. Asiri, P. Aksar, and J. S. D. Saputra, "Inovasi Material: Meningkatkan Kualitas Aluminium (Al) Limbah Piston Daur Ulang dengan Penambahan Timah (Sn) dengan Proses Pengecoran Ulang," *J. Mekanova Mek. Inov. dan Teknol.*, vol. 10, no. 2, p. 410, 2024, doi: 10.35308/jmkn.v10i2.10504.

[12] A. K. Dahle, P. A. Tøndel, C. J. Paradies, and L. Arnberg, "Effect of grain refinement on the fluidity of two commercial Al-Si foundry alloys," *Metall. Mater. Trans. A*, vol. 27, no. 8, pp. 2305–2313, 1996, doi: 10.1007/BF02651885.

[13] S. Kori, B. Murty, and M. Chakraborty, "Development of an efficient *grain refiner* for Al–7Si alloy and its modification with strontium," *Mater. Sci. Eng. A*, vol. 283, pp. 94–104, May 2000, doi: 10.1016/S0921-5093(99)00794-7.

[14] H. M. Ahmed, H. A. M. Ahmed, M. Hefni, and E. B. Moustafa, "Effect of Grain Refinement on the Dynamic, Mechanical Properties, and Corrosion Behaviour of Al-Mg Alloy," 2021. doi: 10.3390/met11111825.

[15] M. Kayat, V. Jain, J. Patil, and F. Qureshi, "Filling Analysis of Spiral Fluidity Standard using ProCast Simulation," *Int. J. Eng. Trends Technol.*, vol. 46, no. 8, pp. 437–441, 2017, doi: 10.14445/22315381/ijett-v46p276.

[16] T. Lipiński, "Effect of Al5TiB Master Alloy with P on Microstructure and

Mechanical Properties of AlSi7Mg Alloy," 2023. doi: 10.3390/met13091560.

[17] M. S. Mehranpour, A. Heydarinia, M. Emamy, H. Mirzadeh, A. Koushki, and R. Razi, "Enhanced mechanical properties of AZ91 magnesium alloy by inoculation and hot deformation," *Mater. Sci. Eng. A*, vol. 802, p. 140667, 2021, doi: https://doi.org/10.1016/j.msea.2020.140667.

[18] J. Kim, K. Lee, L. Hoodam, T. Lee, H. Park, and H. Park, "Effects of Titanium and Boron Additions with Mechanical Stirring on Mechanical Properties in Al-Si Alloys," *Mater. Trans.*, vol. 56, Feb. 2015, doi: 10.2320/matertrans.L-M2014848.

[19] S. Zhang, G. Zhang, D. Teng, J. Li, and R. Guan, "Effect of Al-Ti-B Refiner on Microstructure and Properties of A356 Alloy by Continuous Rheo-Extrusion BT - Light Metals 2023," S. Broek, Ed., Cham: Springer Nature Switzerland, 2023, pp. 599–604.

[20] J. E. Hatch, A. Association, and A. S. Metals, *Aluminum: Properties and Physical Metallurgy*. in Aluminum / J.E. Hatch Hrsg. American Society for Metals. American Society for Metals, 1984. [Online]. Available: https://books.google.co.id/books?id=dUgzGsEMhoUC

[21] I. Polmear, D. StJohn, J. F. Nie, and M. Qian, *Light Alloys : Metallurgy of the Light Metals*. 2017.

[22] B. Stojanovic, M. Bukvic, and I. Epler, "Application of Aluminum and Aluminum Alloys in Engineering," vol. 3, Oct. 2018, doi: 10.18485/aeletters.2018.3.2.2.

[23] J. G. Kaufman, E. L. Rooy, and A. F. Society, *Aluminum Alloy Castings: Properties, Processes, and Applications*. ASM International, 2004. [Online]. Available: https://books.google.co.id/books?id=JM0u1vwrS5UC

[24] A. Taub, E. De Moor, A. Luo, D. Matlock, J. Speer, and U. Vaidya, "Materials for Automotive Lightweighting," *Annu. Rev. Mater. Res.*, vol. 49, pp. 327–359, Jul. 2019, doi: 10.1146/annurev-matsci-070218-010134.

[25] D. Mehdi, "Effect of Silicon content on the Mechanical Properties of Aluminum Alloy," *Int. Res. J. Eng. Technol.*, vol. 2, pp. 1326–1330, Jul. 2015.

[26] I. P. Nanda, "Pengaruh Penambahan Fe Terhadap Sifat mekanik dan Struktur Mikro pada Paduan Aluminium 7% Silikon (Al-7%Si)," *Proceeding Semin. Nas. Tah. Tek. Mesin XIII*, no. Snttm Xiii, pp. 976–980, 2014.

[27] S. Terzi *et al.*, "In situ study of nucleation and growth of the irregular α-Al/β-Al5FeSi eutectic by 3-D synchrotron X-ray microtomography," *Acta Mater.*, vol. 58, no. 16, pp. 5370–5380, Sep. 2010, doi: 10.1016/J.ACTAMAT.2010.06.012.

[28] L. F. B. T.-A. A. Mondolfo, Ed., "Acknowledgments," Butterworth-Heinemann, 1976, p. vii. doi: https://doi.org/10.1016/B978-0-408-70932-3.50006-1.

[29] G. N. Haidemenopoulos, H. Kamoutsi, and A. D. Zervaki, "Simulation of the transformation of iron intermetallics during homogenization of 6xxx series extrudable aluminum alloys," *J. Mater. Process. Technol.*, vol. 212, no. 11, pp. 2255–2260, 2012, doi: https://doi.org/10.1016/j.jmatprotec.2012.06.026.

[30] J. Taylor, *The effect of iron in Al-Si casting alloys*. 2004.

[31] C. M. Dinnis, J. A. Taylor, and A. K. Dahle, "As-cast morphology of iron-intermetallics in Al–Si foundry alloys," *Scr. Mater.*, vol. 53, no. 8, pp. 955–958, 2005, doi: https://doi.org/10.1016/j.scriptamat.2005.06.028.

[32] A. K. Dahle and M. Hillert, "Discussion of 'Nucleation mechanism of eutectic phases in aluminum-silicon hypoeutectic alloys,'" *Metall. Mater. Trans. A*, vol. 36, no. 6, pp. 1612–1613, 2005, doi: 10.1007/s11661-005-0253-6.

[33] P. S. Mohanty and J. E. Gruzleski, "Mechanism of grain refinement in aluminium," *Acta Metall. Mater.*, vol. 43, no. 5, pp. 2001–2012, 1995, doi: https://doi.org/10.1016/0956-7151(94)00405-7.

[34] D. G. McCartney, "Grain refining of aluminium and its alloys using

inoculants," *Int. Mater. Rev.*, vol. 34, no. 1, pp. 247–260, Jan. 1989, doi: 10.1179/imr.1989.34.1.247.

[35] L. Wang *et al.*, "Effect of Al–5Ti–1B *grain refiner* on microstructure and properties of arc-additive-manufactured Al–Mg alloy," *Vacuum*, vol. 200, p. 111012, 2022, doi: https://doi.org/10.1016/j.vacuum.2022.111012.

[36] S. Irawan and K. Tampubolon, "Pengaruh Unsur Fe dan Penambahan *Grain refiner* Al-5TiB Terhadap Morfologi Fasa Intermetalik dan Sifat Mekanis Pada Paduan Zamak 3," *J. Mech. Eng. Manuf. Mater. Energy*, vol. 5, no. 2, pp. 96–114, 2021, doi: 10.31289/jmemme.v5i2.4629.

[37] B. Began and P. Careil, "Theory and Practice of Grain Refining for Aluminium Alloys-Utilizing Coveral Mts 1582," *AFS 123rd Met. Congr. Proceeding*, no. 268, pp. 4–12, 2019.

[38] B. Han and Z. Xu, "Grain refinement under *multi*-axial forging in Fe–32%Ni alloy," *J. Alloys Compd.*, vol. 457, no. 1, pp. 279–285, 2008, doi: https://doi.org/10.1016/j.jallcom.2007.03.067.

[39] M. Riestra, E. Ghassemali, T. Bogdanoff, and S. Seifeddine, "Interactive effects of grain refinement, eutectic modification and solidification rate on tensile properties of Al-10Si alloy," *Mater. Sci. Eng. A*, vol. 703, pp. 270–279, 2017, doi: https://doi.org/10.1016/j.msea.2017.07.074.

[40] Y. Li *et al.*, "Insight into Si poisoning on grain refinement of Al-Si/Al-5Ti-B system," *Acta Mater.*, vol. 187, pp. 51–65, 2020, doi: https://doi.org/10.1016/j.actamat.2020.01.039.

[41] M. Easton and D. StJohn, "An analysis of the relationship between grain size, solute content, and the potency and number density of nucleant particles," *Metall. Mater. Trans. A*, vol. 36, no. 7, pp. 1911–1920, 2005, doi: 10.1007/s11661-005-0054-y.

[42] E. Efzan, H. Kong, and C. K. Kok, "Review: Effect of Alloying Element on Al-Si Alloys," *Adv. Mater. Res.*, vol. 845, pp. 355–359, Dec. 2013, doi: 10.4028/www.scientific.net/AMR.845.355.

[43] X. Xing, Y. Liu, J. Hu, and W. Li, “Effect of Al content on microstructure and wear properties of FeCrNiMnAlx high-entropy alloys,” *Mater. Res. Express*, vol. 9, no. 3, p. 36510, 2022, doi: 10.1088/2053-1591/ac5a9c.

[44] V. Bhardwaj *et al.*, “Effect of Al addition on the microstructure, mechanical and wear properties of TiZrNbHf refractory high entropy alloys,” *Tribol. Int.*, vol. 160, p. 107031, 2021, doi: https://doi.org/10.1016/j.triboint.2021.107031.

[45] S. G. Shabestari, A. Gholizadeh, and S. Naghdali, “Effect of Al-5Ti-1B and Zr *grain refiner*s on the solidification characteristics and microstructure of Al-6Mg alloy studied through thermal analysis,” *Thermochim. Acta*, vol. 711, p. 179200, 2022, doi: https://doi.org/10.1016/j.tca.2022.179200.

[46] E. Kocaman, “Effect of Al5Ti1B and Al8B on the microstructure, wear and corrosion behavior of CuZn19Al6 bronze alloy,” *Mater. Today Commun.*, vol. 36, p. 106551, 2023, doi: https://doi.org/10.1016/j.mtcomm.2023.106551.

[47] O. Asghar, M. da Silva, R. Busqué, and F. Bonollo, “Fluidity of Aluminium Foundry Alloys for Thin Wall Castings: Designing an Operating Methodology,” 2025. doi: 10.3390/met15030229.

[48] I. P. Nanda, H. Ghandvar, M. H. Idris, and A. Arafat, “Influence of superheating melt treatment on microstructure of Gd-modified Al-15wt. % Mg2Si in-situ composite,” *Int. J. Automot. Mech. Eng.*, vol. 17, no. 2, pp. 7967–7973, 2020, doi: 10.15282/ijame.17.2.2020.15.0596.

[49] A. Wang, K. Kang, and D. Li, “Effect of compound treatment of rotating magnetic field and Al-5Ti-1B refiner on microstructure and properties of Al-5Cu alloy,” *China Foundry*, vol. 20, no. 3, pp. 225–233, 2023, doi: 10.1007/s41230-023-2123-5.

[50] S. Saxena and P. P. K. Sharma, “Casting Fluidity of Metals and Alloys,” *Int. J. Innov. Res. Sci. Eng. Technol.*, vol. 6, no. 2, pp. 3018–3032, 2017, doi: 10.15680/IJIRSET.2017.0602171.

[51] M. Schöbel, R. Fernandez, and H. P. Degischer, “Study of elasto-plastic deformation in a cast AlCu7 alloy,” *IOP Conf. Ser. Mater. Sci. Eng.*, vol. 529, p. 12074, May 2019, doi: 10.1088/1757-899X/529/1/012074.

[52] S. Hegde and K. N. Prabhu, “Modification of eutectic silicon in Al–Si alloys,” *J. Mater. Sci.*, vol. 43, no. 9, pp. 3009–3027, 2008, doi: 10.1007/s10853-008-2505-5.

[53] M. C. Flemings, “Solidification Processing,” in *Materials Science and Technology*, 2006. doi: https://doi.org/10.1002/9783527603978.mst0173.

[54] I. Prima and A. Gibran, “Modifikasi Alat Uji Fluiditas Metode Vakum Menggunakan Tungku Induksi Modification of Vacuum Fluidity Test Using Induction Furnace,” *Proceeding Semin. Nas. Tah. Tek. Mesin XI (SNTTM XI) Thermofluid IV Univ. Gadjah Mada*, no. Snttm Xi, pp. 16–17, 2012.