
References

- [1]. Applications – Power train – Engine blocks, Aluminum Automotive Manual, Version 2011 © European Aluminium Association.
- [2]. Applications – Power train – Cylinder linings, Aluminum Automotive Manual, Version 2011 © European Aluminium Association.
- [3]. Javidani, Mousa, and Daniel Larouche. "Application of cast Al–Si alloys in internal combustion engine components." *International Materials Reviews* 59.3 (2014): 132-158.
- [4]. John Lenny Jr., Replacing the Cast Iron Liners for Aluminum Engine Cylinder Blocks: A Comparative Assessment of Potential Candidates, M.Tech.Thesis, Dept. of Mechanical Engg., Rensselaer Polytechnic Institute Hartford, Connecticut April 2011.
- [5]. Shibata, Kazuo, and Hideaki Ushio. "Tribological application of MMC for reducing engine weight." *Tribology International* 27.1 (1994): 39-44.
- [6]. Kieback, B., A. Neubrand, and H. Riedel. "Processing techniques for functionally graded materials." *Materials Science and Engineering: A* 362.1-2 (2003): 81-106.
- [7]. Sobczak, Jerzy J., and Ludmil Drenchev. "Metallic functionally graded materials: a specific class of advanced composites." *Journal of Materials Science & Technology* 29.4 (2013): 297-316.
- [8]. Naebe, Minoo, and Kamyar Shirvanimoghaddam. "Functionally graded materials: A review of fabrication and properties." *Applied Materials Today* 5 (2016): 223-245.
- [9]. Jin, G., Takeuchi, M., Honda, S., Nishikawa, T., & Awaji, H., "Properties of multilayered mullite/Mo functionally graded materials fabricated by powder metallurgy processing." *Materials Chemistry and Physics* 89.2-3 (2005): 238-243.
- [10]. Ma, J., and G. E. B. Tan. "Processing and characterization of metal–ceramics functionally gradient materials." *Journal of Materials Processing Technology* 113.1-3 (2001): 446-449.
- [11]. W.A. Gooch, B.H.C. Chen, M.S. Burkins, R. Palicka, J.J. Rubin, R. Ravichandran, "Development and ballistic testing of a functionally gradient ceramic/metalaplique," *Mater. Sci. Forum*, 308–311 (1999) 614–621.
- [12]. Übeyli, Mustafa, et al. "The ballistic performance of SiC–AA7075 functionally graded composite produced by powder

References

- metallurgy." *Materials & Design (1980-2015)* 56 (2014): 31-36.
- [13]. K. Zhang, Q. Shen, Q. Fang, Z. Wang, Design and optimization of Al₂TiO₅/Al₂O₃ system functionally graded materials, *Key Eng. Mater.* 492 (2003) 141-144.
- [14]. H. Brinkman, J. Duszczek, L. Kategerman, Reactive hot pressing of functional graded metal matrix composites, *Mater. Sci. Forum*, vol. 308-311, (1999) 140-145.
- [15]. M. Nygren, Z. Shen, Spark plasma sintering: Possibilities and limitations, *Key Eng. Mater.*, vol. 264-268, (2004) 719-724.
- [16]. A. Ohtsuka, A. Kawasaki, R. Watanabe, Fabrication of Cu/Al₂O₃/Cu symmetrical functionally graded material by spark plasma sintering process, *J. Jpn. Soc. Powder Metall.*, 45, (1998) 220-224.
- [17]. Kikuchi K., Kang Y., Kawasaki A., Optimization and fabrication of Ni/Al₂O₃/Ni symmetric functionally graded materials, *J. Jpn. Soc. Powder Metall.*, vol. 47, (2000) 347-353.
- [18]. S. Jin, H. Zhang, S. Jia, J. Li, TiB₂/AlN/Cu functionally graded materials (FGMs) fabricated by spark plasma sintering (SPS) method, *Key Eng. Mater.*, vol. 280-283, pp. 1881-1885, 2005.
- [19]. S. Jin, H. Zhang, S. Jia, J. Li, "TiB₂/Cu electrode material fabricated via SPS", *Mater. Sci. Forum*, vol. 475- 479, pp. 1555-1558, 2005.
- [20]. K. Khor, K. Cheng, L. Yu, F. Boey, "Thermal conductivity and dielectric constant of spark plasma sintered aluminum nitride", *Mater. Sci. Eng. A*, vol. 347, pp. 300-308, 2003.
- [21]. H. Zhang, J. Li, "Preparation of functionally graded Cu/AlN/Cu electrode materials for thermoelectric devices", *Key Eng. Mater.*, vol. 336-338, pp. 2613-2615, 2007.
- [22]. Arsha, A. G., et al. "Design and fabrication of functionally graded in-situ aluminium composites for automotive pistons." *Materials & Design* 88 (2015): 1201-1209.
- [23]. Y. Watanabe, N. Yamanaka, Y. Fukui, Control of composition gradient in a metal-ceramic functionally graded material manufactured by the centrifugal method, *Composites A: Appl. Sci. Manuf.* 29 (5-6) (1998) 595-601.
- [24]. T.R. Prabhu, Processing and properties evaluation of functionally continuousgraded 7075 Al alloy/SiC composites, *Arch. Civil Mech. Eng.* 17 (1) (2017)20-31.

References

- [25]. Y. Watanabe, et al., Fabrication of fiber-reinforced functionally graded materials by a centrifugal in situ method from Al–Cu–Fe ternary alloy, *Composites A: Appl. Sci. Manuf.* 37 (12) (2006) 2186–2193.
- [26]. L. Drenchev, J. Sobczak, S. Malinov, W. Sha, Numerical simulation of macrostructure formation in centrifugal casting of particle reinforced metal matrix composites. Part 1: model description, *Model. Simul. Mater. Sci. Eng.* 11 (2003) 635–649.
- [27]. L. Drenchev, J. Sobczak, S. Malinov, W. Sha, Numerical simulation of macrostructure formation in centrifugal casting of particle reinforced metal matrix composites. Part 2: simulations and practical applications, *Model. Simul. Mater. Sci. Eng.* 11 (4) (2003) 651–674.
- [28]. J.W. Gao, C.Y. Wang, Modeling the solidification of functionally graded materials by centrifugal casting, *Mater. Sci. Eng. A* 292 (2) (2000) 207–215.
- [29]. L. Lajoie, M. Suery, in: S.G. Fishman, A.K. Dhingra (Eds.), *Cast Reinforced Metal Composites*, ASM, 1988.
- [30]. Fu, P. X., Kang, X. H., Ma, Y. C., Liu, K., Li, D. Z., & Li, Y. Y, "Centrifugal casting of TiAl exhaust valves." *Intermetallics* 16.2 (2008): 130-138.
- [31]. Y. Fukui, Fundamental investigation of functionally gradient material manufacturing system using centrifugal force, *JSME Int. J.* 34 (1) (1991)144–148.
- [32]. T.P.D. Rajan, R.M. Pillai, B.C. Pai, Characterization of centrifugal cast functionally graded aluminum-silicon carbide metal matrix composites, *Mater. Charact.* 61 (10) (2010) 923–928.
- [33]. R. Rodríguez-Castro, R.C. Wetherhold, M.H. Kelestemur, High-temperature thermo-mechanical behavior of functionally graded materials produced by plasma sprayed coating: experimental and modeling results, *Met. Mater. Int.* 323 (1–2) (2002) 445–456.
- [34]. Y. Watanabe, Y. Inaguma, H. Sato, Cold model for process of aNi-aluminide/steel clad pipe by a reactive centrifugal casting method, *Mater. Lett.* 65 (3) (2011) 467–470.
- [35]. P.D. Sequeira, Y. Watanabe, L.A. Rocha, Particle distribution and orientation in Al/Al₃Zr and Al/Al₃Ti FGMs produced by the centrifugal method, *Mater. Sci. Forum* 492–493 (2005) 609–614.
- [36]. P.D. Sequeira, Y. Watanabe, L.A. Rocha, Aluminium matrix texture and

References

- particle characterization in Al/Al₃Ti FGMs produced by a centrifugal solid-particle method, *Solid State Phenom.* 105 (2005) 415-420.
- [37]. YY. Watanabe, S. Oike, I. Kim, “Formation of Compositional Gradient during Fabrication of FGMs by a Centrifugal in-situ Method”, *Mater. Sci. Forum*, vol. 492-493, pp. 693-698, 2005.
- [38]. Y. Watanabe, S. Oike, Formation mechanism of graded composition in Al–Al₂Cu functionally graded materials fabricated by a centrifugal in situ method, *Acta Mater.* 53 (2005) 1631-1641.
- [39]. F. Zhang, K. Trumble, K. Bowman, “Functionally graded Boron Carbide – Aluminum composites”, *Mater. Sci. Forum*, vol. 423-425, pp. 73-76, 2003.
- [40]. S. Kumar, V. Subramaniya Sarma, B.S. Murty, Functionally Graded Al Alloy Matrix In-Situ composites, *Met. Mater. Trans. A*, 41A,(2010) 242-254.
- [41]. Z. Humberto Melgarejo, O. Marcelo Sua´rez, Kumar Sridharan, Wear resistance of a functionally-graded aluminium matrix composite, *Scripta Mater.* 55 (2006) 95–98.
- [42]. Changjiang Song, Zhenming Xu, Xiangyang Liu, Gaofei Liang, Jianguo Li, In situ multi-layer functionally graded materials by Electromagnetic Separation method, *Mater. Sci. Eng. A* 393 (2005) 164–169.
- [43]. Changjiang Song, Zhenming Xu, Jianguo Li, Structure of in situ Al/Si functionally graded materials by electromagnetic separation method, *Mater. Des.*28 (2007) 1012–1015.
- [44]. C. Song, Z. Xu, X. Liu, G. Liang, J. Li, In-situ multi-layer functionally graded materials by electromagnetic separation method, *Mater. Sci. Eng. A* 424 (2006) 6-16.
- [45]. Chang-Jiang Song, Zhen-Ming Xua, Jian-Guo Li, In-situ Al/Al₃Ni functionally graded materials by electromagnetic separation method, *Mater. Sci. Eng. A* 445–446 (2007) 148–154.
- [46]. R. Etemadi, B. Wang, K. M. Pillai, B. Niroumand, E. Omrani, P. Rohatgi, Pressure infiltration processes to synthesize metal matrix composites – A review of metal matrix composites, the technology and process simulation, *Mater.Manufact Processes*, 33,12(2018) 1261-1290.
- [47]. J.L. Hilden, K.P. Trumble, in: W.A. Kaysser (Ed.), *Functionally Graded Materials 1998*, Proceedings of the 5th International Symposium on FGM

References

- 1998, Trans Tech Publications, Switzerland, 1999, pp. 157–162.
- [48]. M. Takahashi, Y. Itoh, M. Miyazaki, H. Takano, T. Okuhata, in: H. Bildstein, R. Eck (Eds.), Proceedings of the 13th International Plansee Seminar, Metallwerk Plansee, Reutte, 1993, pp. 17–28.
- [49]. Henning, W., C. Melzer, and S. Mielke. "Keramische Gradientenwerkstoffe für Komponenten in Verbrennungsmotoren." *Metall* 46.5 (1992): 436-439.
- [50]. Montgomery, J. K., and K. T. Faber. "Processing of stepped-density alumina via gelcasting and reaction bonding techniques." *Scripta materialia* 42.3 (2000): 283-287.
- [51]. Sabatello, S., N. Frage, and M. P. Dariel. "Graded TiC-based cermets." *Materials Science and Engineering: A* 288.1 (2000): 12-18.
- [52]. Abd-Elwahed M. Assar, Fabrication of metal matrix composite by infiltration process—part 2: experimental study, *J.Mater. Process Technol.* 86 (1999) 152–158.
- [53]. T. Wang, M. Shozaki, M. Yamamoto, A. Kagawa, Synergy effect of reinforcement particle, fiber and matrix on wear resistance of hybrid metal matrix composite fabricated by low pressure infiltration process, *Mater. Des.* 66 (2015) 498–503.
- [54]. Zhang J, Fan Z, Wang YQ, Zhou BL. Microstructural development of Al–15wt.%Mg₂Si in situ composite with mischmetal addition, *Mater Sci Eng A* 2000;281:104-112.
- [55]. C. Li, Y.Y. Wu, H. Li, X.F. Liu, Morphological evolution and growth mechanism of primary Mg₂Si phase in Al–Mg₂Si alloys, *Acta Materialia* 59 (2011) 1058–1067.
- [56]. Q.D. Qin, Y.G. Zhao, Nonfaceted growth of intermetallic Mg₂Si in Al melt during rapid solidification, *J. Alloys Compd.* 462 (2008) L28–L31.
- [57]. Zhang J, Fan Z, Wang YQ, Zhou BL. Effect of cooling rate on the microstructure of hypereutectic Al–Mg₂Si alloy. *J Mater Sci Lett* 2000;19:1825–8.
- [58]. Ourfali MF, Todd I, Jones H. Effect of solidification cooling rate on the morphology and number per unit volume of primary Mg₂Si particles in a hypereutectic Al–Mg–Si Alloy. *J Metall Mater Trans A* 2005; 36:1368.
- [59]. Hu-Tian Li, Geoff Scamans and Zhongyun Fan, Refinement of the Microstructure of an Al-Mg₂Si Hypereutectic Alloy by Intensive Melt

References

- Shearing, *Mater Sci Forum*, 765 (2013) 97-101.
- [60]. Nur Azmah Nordin, Tuty Asma Abubakar, Esah Hamzah, Saeed Farahany, Ali Ourdjini, Effect of superheating Melt Treatment on Mg₂Si Particulate Reinforced in Al-Mg₂Si-Cu In situ Composite, *Procedia Engineering* 184 (2017) 595 – 603.
- [61]. Q.D. Qin, Y.G. Zhao, Y.H. Liang, Q. Zhou, Effect of Melt Superheating Treatment on Microstructure of Mg₂Si/Al-Si-Cu Composite. *J. Alloys Compd.* 399 (2005) 106-109.
- [62]. Q.D. Qin, Y.G. Zhao, P.J. Cong, W. Zhou, B. Xu, Semisolid microstructure of Mg₂Si/Al composite by cooling slope cast and its evolution during partial remelting process, *Mater. Sci. Eng. A* 444 (2007) 99–103.
- [63]. J. Zhang, Z. Fan, Y.Q. Wang, B.L. Zhou, Microstructural evolution of the in situ Al-15wt.%Mg₂Si composite with extra Si contents, *Scripta mater.* 42 (2000) 1101–1106.
- [64]. Jian Zhang, Yu-qing Wang, and Bing Yang, Effects of Si content on the microstructure and tensile strength of an in situ Al-Mg₂Si composite, *J. Mater. Res.*, Vol. 14, No. 1, Jan 1999, 68-72.
- [65]. N. Nasiri, M. Emamy, A. Malekan, Microstructural evolution and tensile properties of the in situ Al–15%Mg₂Si composite with extra Si contents, *Mater. Des.* 37 (2012) 215–222.
- [66]. Chong Li, YuyingWu, Hui Li, Xiangfa Liu, Microstructural formation in hypereutectic Al–Mg₂Si with extra Si, *J. Alloys Compd.* 477 (2009) 212–216.
- [67]. M. Tebib, F. Ajersch, A.M. Samuel, X.-G. Chen, Solidification and Microstructural Evolution of Hypereutectic Al-15Si-4Cu-Mg Alloys with High Magnesium Contents, *Metall. Mater. Trans.*, 44A, 2013, 4282-4295.
- [68]. Feng Yan, Shouxun Ji, Zhongyun Fan, Effect of Excess Mg on the Microstructure and Mechanical Properties of Al-Mg₂Si High Pressure Die Casting Alloys, *Mater. Sci. Forum*, 765 (2013) 64-68.
- [69]. M.R. Ghorbani, M. Emamy, N. Nemati, Microstructural and mechanical characterization of Al–15%Mg₂Si composite containing chromium, *Mater. Des.* 32 (2011) 4262–4269.
- [70]. Chong Li, Yaping Wu, Hui Li, Yuying Wu, Xiangfa Liu, Effect of Ni on eutectic structural evolution in hypereutectic Al–Mg₂Si cast alloys, *Mater. Sci. Eng. A* 528 (2010) 573–577.

References

- [71]. Qin QD, Liu C, Zhao YG, Cong PJ, Zhou W. Strontium modification and formation of cubic primary Mg₂Si crystals in Mg₂Si/Al composite. *J Alloys Compd* 2008;142–6:454.
- [72]. Liao H, Sun Y, Sun G. Restraining effect of strontium on the crystallization of Mg₂Si phase during solidification in Al/Si/Mg casting alloys and mechanisms. *Mater Sci Eng A*2003;358:164–70.
- [73]. Nur Azmah Nordin, Saeed Farahany, Ali Ourdjini, Tuty Asma Abu Bakar, Esah Hamzah, Refinement of Mg₂Si reinforcement in a commercial Al–20%Mg₂Si in-situ composite with bismuth, antimony and strontium, *Mater Charact.* 86 (2013) 97 – 107.
- [74]. Zhao YG, Qin QD, Liang YH, Zhou W, Jiang QC. In-situ Mg₂Si/Al–Si–Cu composite modified by strontium. *J Mater Sci* 2005;40:1831–3.
- [75]. Saeed Farahany, Hamidreza Ghandvar, Nur Azmah Nordin, Ali Ourdjini, Mohd Hasbullah Idris, Effect of Primary and Eutectic Mg₂Si Crystal Modifications on the Mechanical Properties and Sliding Wear Behavior of an Al–20Mg₂Si–2Cu–xBi Composite, *J. Mater. Sci. Technol.* 32 (2016) 1083–1097.
- [76]. S.-P. Li , S.-X. Zhao, M.-X. Pan, D.-Q. Zhao, X.-C. Chen, Eutectic reaction and microstructural characteristics of Al (Li)-Mg₂Si alloys, *J. Mater. Sci.* 36 (2001) 1569 – 1575.
- [77]. R. Hadian, M. Emamy, J. Campbell, Modification of Cast Al-Mg₂Si Metal Matrix Composite by Li, *Metall. Mater. Trans. B*, 40B, December 2009,822-832.
- [78]. R. Hadian, M. Emamy, N. Varahram, N. Nemati, The effect of Li on the tensile properties of cast Al–Mg₂Si metal matrix composite, *Mater. Sci. Eng. A* 490 (2008) 250–257.
- [79]. R. Khorshidi, A. Honarbakhsh Raouf, M. Emamy, J. Campbell, The study of Li effect on the microstructure and tensile properties of cast Al–Mg₂Si metal matrix composite, *J. Alloys Compds* 509 (2011) 9026–9033.
- [80]. Zhao YG, Qin QD, Zhou W, Liang YH. Microstructure of the Ce-modified in-situ Mg₂Si/Al–Si–Cu composite. *J Alloys Compd* 2005;389:1–4.
- [81]. Nur Azmah Nordin, Saeed Farahany, Tuty Asma Abu Bakar, Esah Hamzah, Ali Ourdjini, Microstructure development, phase reaction characteristics and mechanical properties of a commercial Al–

References

- 20%Mg₂Si-xCe in situ composite solidified at a slow cooling rate, *J. Alloys Compds* 650 (2015) 821-834.
- [82]. M. Emamy, H.R. Jafari Nodooshan, A. Malekan, The microstructure, hardness and tensile properties of Al-15%Mg₂Si in situ composite with yttrium addition, *Mater. Des.* 32 (2011) 4559-4566.
- [83]. H.R. Jafari Nodooshan, Wencai Liu, Guohua Wu, A. Bahrami, M.I. Pech-Canul, M. Emamy, Mechanical and Tribological Characterization of Al-Mg₂Si Composites After Yttrium Addition and Heat Treatment, *J. Mater. Eng. Perform.* (2014) 23:1146-1156.
- [84] Jiang QC, Wang HY, Wang Y, Ma BX, Wang JG. Modification of Mg₂Si in Mg-Si alloys with yttrium. *J Mater Sci Eng A* 2005;392:130-5.
- [85]. Xiao-Feng Wu, Guan-Gan Zhang, Fu-Fa Wu, Microstructure and dry sliding wear behavior of cast Al-Mg₂Si in-situ metal matrix composite modified by Nd, *Rare Met.* (2013) 32(3):284-289.
- [86]. A. Akhlaghi, M. Noghani, M. Emamy, The Effect of La-Intermetallic Compounds on Tensile Properties of Al-15%Mg₂Si In-Situ Composite, *Procedia Mater Sci* 11 (2015) 55 – 60.
- [87]. Zhang J, Fan Z, Wang YQ, Zhou BL. Microstructural development of Al-15 wt.%Mg₂Si in-situ composite with mischmetal addition. *J Mater Sci Eng A* 2000;281:104-12.
- [88]. LIU Zheng, LIN Jixing, and JING Qingxiu, Effect of mixed rare earth oxides and CaCO₃ modification on the microstructure of an in-situ Mg₂Si/Al-Si composite, *Rare Metals*, 28,(2), 2009,169-174.
- [89]. Hamidreza Ghandvar, Mohd Hasbullah Idris, Norhayati Ahmad, Massoud Emamy, Effect of gadolinium addition on microstructural evolution and solidification characteristics of Al-15%Mg₂Si in-situ composite, *Mater Character* 135 (2018) 57-70.
- [90]. Qin QD, Zhao YG, Zhou W, Cong PJ. Effect of phosphorus on microstructure and growth manner of primary Mg₂Si crystal in Mg₂Si/Al composite, *Mater Sci Eng A* 2007;447:186-91.
- [91]. Li C, Liu X, Wu YJ. Refinement and modification performance of Al-P master alloy on primary Mg₂Si in Al-Mg-Si alloys. *J Alloys Compd* 2008;465:145-50.
- [92]. J. Zhang, Z. Fan, Y. Wang, B. Zhou, Microstructural refinement in Al-Mg₂Si in situ composites, *J. Mater. Sci. Lett.* 18 (1999) 783-784.

References

- [93]. Zhao YG, Qin QD, Zhao YQ, Liang YH, Jiang QC. In-situ Mg₂Si/Al–Si composite modified by K₂TiF₆. *J Mater Lett* 2004;58:2192–4.
- [94]. Jian Zhang, Yu-Qing Wang, Ben-Lian Zhou, Xing-Qiang Wu, Functionally graded Al-Mg₂Si in-situ composites, prepared by centrifugal casting, *J. Mater Sci Letters* 17 (1998) 1677-1679.
- [95]. Jian Zhang, Zhongyun Fan, Yuqing Wang, Benlian Zhou, Hypereutectic aluminium alloy tubes with graded distribution of Mg Si particles prepared by centrifugal casting, *Mater Des.* 21(2000) 149-153.
- [96]. XIE Yong, LIU Changming, ZHAI Yanbo, WANG Kai, and LING Xuedong, Centrifugal casting processes of manufacturing in situ functionally gradient composite materials of Al-19Si-5Mg alloy, *Rare Metals* 28, (4) 2009, 405-410.
- [97]. Zhai Yan-bo, LIU Chang-ming, WANG Kai, ZOU Mao-hua, XIE Yong, Characteristics of two Al based functionally gradient composites reinforced by primary Si particles and Si/ in situ Mg₂Si particles in centrifugal casting, *Trans. Nonferrous Met Soc. China*,20(2010)361-370.
- [98]. Zhai Yanbo, Ma Xiuteng, Mei Zhen, Centrifugal Forming Mechanism of Al Gradient Composites Reinforced with Complementary Primary Si and Mg₂Si Particles, *Rare Metal Mater Eng*, 2014, 43(4): 0769-0774.
- [99]. HAO Xuhong, LIU Changming, PAN Dengliang, Microstructure and Mechanical Behavior of in Situ Primary Si/Mg₂Si Locally Reinforced Aluminum Matrix Composites Piston by Centrifugal Casting, *Chinese Journal Of Mechanical Engineering*, 22(5) 2011,1-5.
- [100]. Xuedong Lin, Changming Liu, Haibo Xiao, Fabrication of Al–Si–Mg functionally graded materials tube reinforced with in situ Si/Mg₂Si particles by centrifugal casting, *Composites: Part B* 45 (2013) 8–21.
- [101]. Bo LI, Kai WANG, Ming-xiang LIU, Han-song XUE, Zi-zong ZHU, Chang-ming LIU, Effects of temperature on fracture behavior of Al-based in-situ composites reinforced with Mg₂Si and Si particles fabricated by centrifugal casting, *Trans. Nonferrous Met. Soc. China* 23(2013) 923-930.
- [102]. Masoud Mohammadi Rahvard, Morteza Tamizifar, Seyed Mohammad Ali Boutorabi, Sajad Gholami Shiri, Characterization of the graded distribution of primary particles and wear behavior in the A390 alloy ring with various Mg contents fabricated by centrifugal casting, *Mater Des.* 56 (2014) 105–114.

References

- [103]. Sjölander E, Seifeddine S. The heat treatment of Al–Si–Cu–Mg casting alloys. *J.Mater Proc Technol* 2010;210:1249–59.
- [104]. F. Paray, J. Gruzleski, “Modification - A Parameter to Consider in the Heat Treatment of Al-Si Alloys”, *Cast Metals*, 1993, vol. 5(4), pp. 187-198.
- [105]. Z.D. Li, C. Li, Y.C. Liu, L.M. Yu, Q.Y. Guo, H.J. Li, Effect of heat treatment on microstructure and mechanical property of Al-10%Mg₂Si alloy, *J. Alloy. Compd.* 663 (2016) 16–19.
- [106]. Wenqiang Jiang, Xiaofeng Xu, Yuguang Zhao, Zhe Wang, Chao Wu, Dong Pan, Zhaoyuan Meng, Effect of the addition of Sr modifier in different conditions on microstructure and mechanical properties of T6 treated Al-Mg₂Si in-situ composite, *Materials Science & Engineering A* 721 (2018) 263–273.
- [107]. M. Emamy, A.R.Emami, K.Tavighi, The effect of Cu addition and solution heat treatment on the microstructure, hardness and tensile properties of Al–15%Mg₂Si–0.15%Li composite, *Mater Sci Eng A* 576(2013)36–44.
- [108]. A.M.A. Mohamed, F.H. Samuel, A Review on the Heat Treatment of Al-Si-Cu/Mg Casting Alloys, in *Heat Treatment – Conventional and Novel Applications*, INTECH Open Science Publication, <http://dx.doi.org/10.5772/79832,55-72>.
- [109]. A.-Q. Wang, H.-D. Guo, H.-H. Han, J.-P. Xie, Effect of Solid Solution and Ageing Treatments on the Microstructure and Mechanical Properties of the SiCp/Al-Si-Cu-Mg Composite, 66 (7-8) (2017) 345–351.
- [110]. M. F. Ibrahim, A. M. Samuel, H. W. Doty, F. H. Samuel, Effect of aging conditions on precipitation hardening in Al–Si–Mg and Al–Si–Cu–Mg alloys, *Int. J. Metal-cast.* 11 (2) (2016) 274– 286, doi: <https://doi.org/10.1007/s40962-016-0057-z>.
- [111]. Qin QD, Li WX, Zhao KW, Qiu SL, Zhao YG, Effect of modification and aging treatment on mechanical properties of Mg₂Si/Al composite. *J Mater Sci Eng A* 2010; 527:2253–7.
- [112]. A. Malekan, M. Emamy, J. Rassizadehghani, A.R. Emami, The effect of solution temperature on the microstructure and tensile properties of Al–15%Mg₂Si composite, *Mater.Des.* 32 (2011) 2701–2709.
- [113]. N. Nasiri, M.Emamy, A. Malekan, M.H. Norouzi, Microstructure and tensile properties of cast Al–15%Mg₂Si composite: Effects of phosphorous addition and heat treatment, *Mater Sci Eng A* 556 (2012)

References

446–453.

- [114]. Chong Li, Jiayue Sun, Zedi Li, Zhiming Gao, Yongchang Liu, Liming Yu, Huijun Li, Microstructure and corrosion behavior of Al–10%Mg₂Si cast alloy after heat treatment, *Mater Charact.* 122 (2016) 142–147.
- [115]. X.D. Lin, C.M. Liu, Y.B. Zhai, K. Wang, Influences of Si and Mg contents on microstructures of Al-xSi-yMg functionally gradient composites reinforced with in situ primary Si and Mg₂Si particles by centrifugal casting, *J. Mater Sci.* 46 (4) (2011) 1058-1075.
- [116]. Xuedong Lin, Changming Liu, Haibo Xiao, Fabrication of Al-Si-Mg functionally graded materials tube reinforced with in situ Si/Mg₂Si particles by centrifugal casting, *Compos. Part B* 45 (2013) 8-21.
- [117]. M. Emamy, A.R. Emami, R. Khorshidi, M.R. Ghorbani, The effect of Fe-rich intermetallics on the microstructure, hardness and tensile properties of Al-Mg₂Si die-cast composite, *Mater. Des.* 46 (2013) 881-888.
- [118]. M.V. Kral, P.N.H. Nakashima, D.R.G. Mitchell, Electron microscope studies of Al-Fe-Si intermetallics in an Al-11 pct Si alloy, *Metall. Mater. Trans.* 37A (2006) 1987-1997.
- [119]. S.G. Shabestari, The effect of iron and manganese on the formation of intermetallic compounds in aluminum-silicon alloys, *Mater. Sci. Eng.* 383 (2004) 289-298.
- [120]. X. Cao, J. Campbell, The solidification characteristics of Fe-Rich intermetallics in Al-11.5Si-0.4Mg cast alloys, *Metall. Mater. Trans.* 35A (2004) 1425-1435.
- [121]. C.M. Dinnis, J.A. Taylor, A.K. Dahle, As-cast morphology of iron-intermetallics in Al-Si foundry alloys, *Scr. Mater* 53 (2005) 955-958.
- [122]. E.A. Elsharkawi, E. Samuel, A.M. Samuel, F.H. Samuel, Effects of Mg, Fe, Be additions and solution heat treatment on the π -AlMgFeSi iron intermetallic phase in Al-7Si-Mg alloys, *J. Mater Sci.* 45 (2010) 1528-1539.
- [123]. C.H. Caceres, C.J. Davidson, J.R. Griffiths, Q.G. Wang, The effect of Mg on the microstructure and mechanical behavior of Al-Si-Mg casting alloys, *Metall.Mater. Trans. A* 30 A (1999) 2611-2618.
- [124]. G. Chirita, D. Soares, F.S. Silva, Advantages of the centrifugal casting technique for the production of structural components with Al-Si alloys, *Mater. Des.* 29 (2008) 20-27.

References

- [125]. Mohammadreza Zamani, Salem Seifeddine, Anders E.W. Jarfors, High temperature tensile deformation behavior and failure mechanisms of an Al-Si-Cu-Mg cast alloy and the microstructural scale effect, *Mater. Des.* 86(2015) 361-370.
- [126]. S.K. Shaha, F. Czerwinski, W. Kasprzak, J. Friedman, D.L. Chen, Microstructure and mechanical properties of AlSi cast alloy with additions of Zr-V-Ti, *Mater, Des* 83 (2015) 801-812.
- [127]. Mohammadreza Zamania, Lorenzo Morini, Lorella Ceschini, Salem Seifeddine, The role of transition metal additions on the ambient and elevated temperature properties of Al-Si alloys, *Mater. Sci. Eng. A* 693 (2017) 42-50.
- [128]. Narayanasamy P and Selvakumar, N, Tensile, compressive and wear behaviour of self-lubricating sintered magnesium based composites, *Trans. Nonferrous Met. Soc. China* 27(2017) 312–23.
- [129]. Jeyasimman D, Narayanasamy R, Ponalagusamy R, Anandakrishnan Vand KamarajM, The effects of various reinforcements on dry sliding wear behaviour of AA 6061 nanocomposites, *Mater. Des.* 64 (2014)783–93.
- [130]. Narayanasamy P and Selvakumar N , Tensile, compressive and wear behaviour of self-lubricating sintered magnesium based composites , 2017 *Journal of Tribology* 139 1–11.
- [131]. Siddhalingeswar IG, Deepthi D, ChakrabortyM and Mitra R , Sliding wear behavior of in situ Al–4.5Cu–5TiB₂ composite processed by single and multiple roll passes in mushy state, *Wear* 271 (2011)748–59.
- [132]. Ramesh CS and Ahamed A , Friction and wear behaviour of cast Al 6063 based in situ metal matrix composites, *Wear* 271(2011) 1928–39.
- [133]. RaoA P, Das K, Murty B S and ChakrabortyM, Effect of grain refinement on wear properties of Al and Al–7Si alloy, *Wear* 257 (2004)148–53.
- [134]. Acilar Mand Gul F , Effect of the applied load, sliding distance and oxidation on the dry sliding wear behaviour of Al–10Si/SiC_p composites produced by vacuum infiltration technique, *Mater. Des.* 25 (2004)209–17.
- [135]. W. Feng, M. Yajun, Z. Zhang, X. Cui, Y. Jin, A comparison of the sliding wear behaviour of a hypereutectic Al–Si alloy prepared by spray-deposition and conventional casting methods, *Wear* 256 (2004) 342–345.

References

- [136]. Alireza Hekmat-Ardakan, Xichun Liu, Frank Ajersch, X.-Grant Chen, Wear behaviour of hypereutectic Al–Si–Cu–Mg casting alloys with variable Mg contents, *Wear* 269 (2010) 684–692.

- [137]. Jaswinder Singh, Amit Chauhan, Overview of wear performance of aluminium matrix composites reinforced with ceramic materials under the influence of controllable variables, *Ceramics International*,42(2016)56–81.