

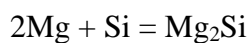
RESEARCH PUBLICATIONS:

1. **S.C.Ram, K.Chattopadhyay, I.Chakrabarty. “Microstructures and High Temperature Mechanical Properties of A356-Mg₂Si Functionally Graded Composites In As-Cast And Artificially Aged (T6) Conditions”.** Journal of Alloys and Compounds, 805 (2019) 454-470.
2. **S.C.Ram, K.Chattopadhyay, I.Chakrabarty. “High Temperature Tensile Properties of Centrifugally Cast In-situ Al-Mg₂Si Functionally Graded Composites for Automotive Cylinder Block Liners”.** Journal of Alloys and Compounds, 724 (2017) 84-97.
3. **S.C.Ram, K.Chattopadhyay, I.Chakrabarty. “Effect of Magnesium Content on the Microstructure and Dry Sliding Wear Behavior of Centrifugally Cast Functionally Graded A356-Mg₂Si in situ Composites”.** Mater. Res. Express 5 (2018) 046535.
4. **S.C.Ram, K.Chattopadhyay, I.Chakrabarty. “Dry Sliding Wear Behavior of A356 alloy/Mg₂Si Functionally Graded in-situ Composites: Effect of Processing Conditions.”** Journal of Tribology in Industry, Vol.38, No.3, September 2016, Pages (371-384).
5. **S.C.Ram, K.Chattopadhyay, I.Chakrabarty, “Effect on Microstructures, Hardness and SDAS of Primary Mg₂Si/Al-Si Eutectic Phases of Centrifugally Cast Functionally Graded Al-(Mg₂Si)_p in-situ Composites”,** *IOP Conf. Ser.: Mater. Sci. Eng.* (2018) 390 012012.
6. **I.Chakrabarty, S.C. Ram, K.Chattopadhyay, “Study on Centrifugally Cast Functionally Graded Al-Mg₂Si in-Situ Composites”** Proceedings of the Liquid Metal Processing & Casting Conference 2019(LMPC-2019), Organized at **Birmingham, U.K.**, ISBN-10: 0-87339-771-1, 13: 978-0-87339-771-1,PP-345-354 September 8-11, 2019.
7. **S.C.Ram, K.Chattopadhyay, I.Chakrabarty, “Functionally Graded Al-(Mg₂Si)_P in-Situ Composites-A Review”,** Proceedings(ICMMSA-2014), at MNNIT,Allahabad,U.P., **McGraw Hill** Education(India) P. Limited., ISBN(13)978-93-392-2019- 8,Pages-30-35, Dec 22-24,2014.
8. **S.C.Ram, K.Chattopadhyay, I.Chakrabarty, “Cast In-situ Al-Si-Mg₂Si Metal Matrix Composites for Automotive Engine Applications- A Review”.**(to be communicated ,2020).
9. **S.C.Ram, K.Chattopadhyay, I.Chakrabarty, “High Temperature Wear Behavior of Al-Mg₂Si in-situ Functionally Graded Composites for Automotive Engine”.**(to be communicated ,2020).

APPENDIX:

Stoichiometric calculation of wt.% Mg₂Si from wt.% Mg addition

Considering, the reaction between Mg and Si forming Mg₂Si,



Now, atomic mass of Mg = 24.3 g; Si = 28.0 g

So, molar mass of Mg₂Si = 76.7 g/mol

∴ 48.6 g Mg produces = 76.7 g Mg₂Si

∴ i) For Al-4 Mg₂Si, Mg requirement = $\frac{48.6 \times 4}{76.7} = 2.5 \text{ g}$

ii) For Al-8 Mg₂Si, Mg requirement = $\frac{48.6 \times 8}{76.7} = 5.0 \text{ g}$

iii) For Al-12 Mg₂Si, Mg requirement = $\frac{48.6 \times 12}{76.7} = 7.6 \text{ g}$

iv) For Al-16 Mg₂Si, Mg requirement = $\frac{48.6 \times 16}{76.7} = 10.1 \text{ g}$