

Evaluation and application of composite materials (MMC) using rice husk reinforcement

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Abstract: In today's world low cost product - with high performance are needed. Aluminum alloy composites with rice husk as a reinforcement in specific percentages is investigated in this study. The mechanical properties, microstructural analysis were used to assess the performance of composites. By XRD we get the composition of RHA. It's much needed for the - mix proportion. The result reveals that the compressive strength of the aluminum alloy increases with increase or in the increase in the weight fractions of RHA particles decreases the ductility of the composites. The resultant composite product may be used as a replacement of raw aluminum alloy due to their stable hardness, strength, low cost, easy availability, light weight, low machine wear during processing etc. Various tests were also being performed for analyzing the properties.

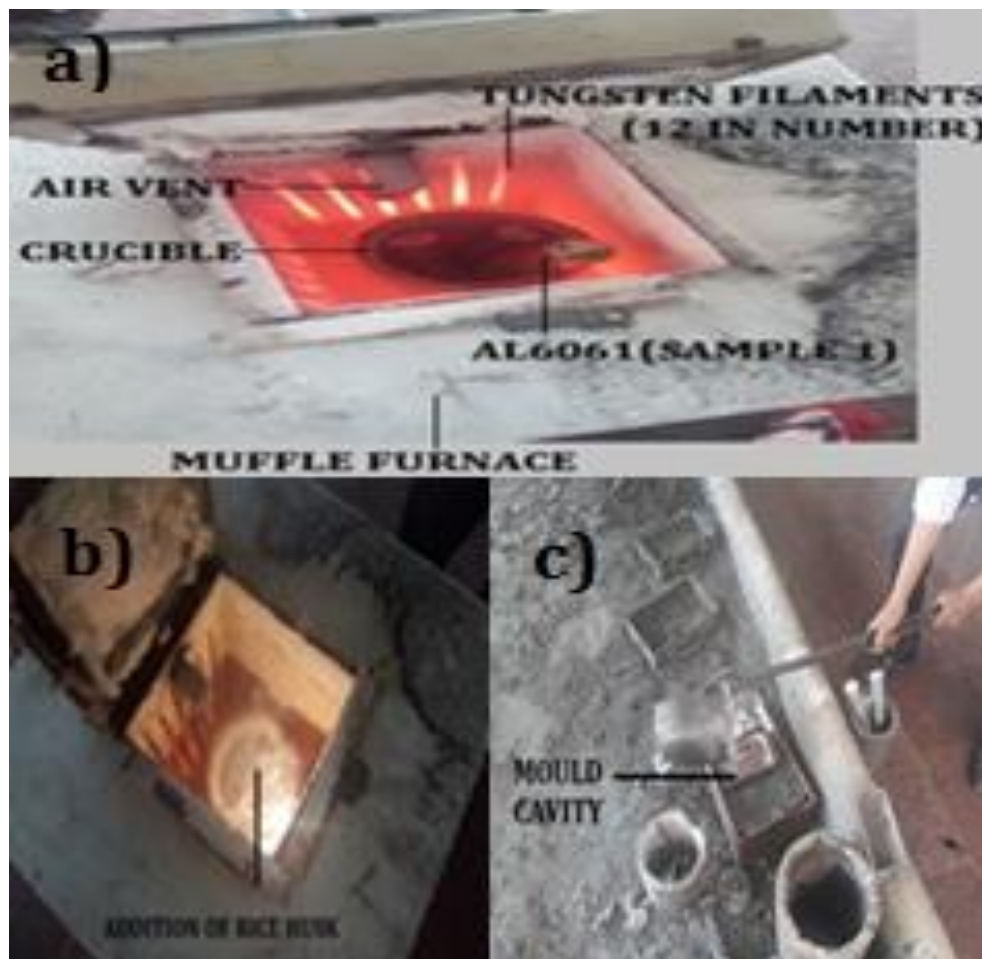
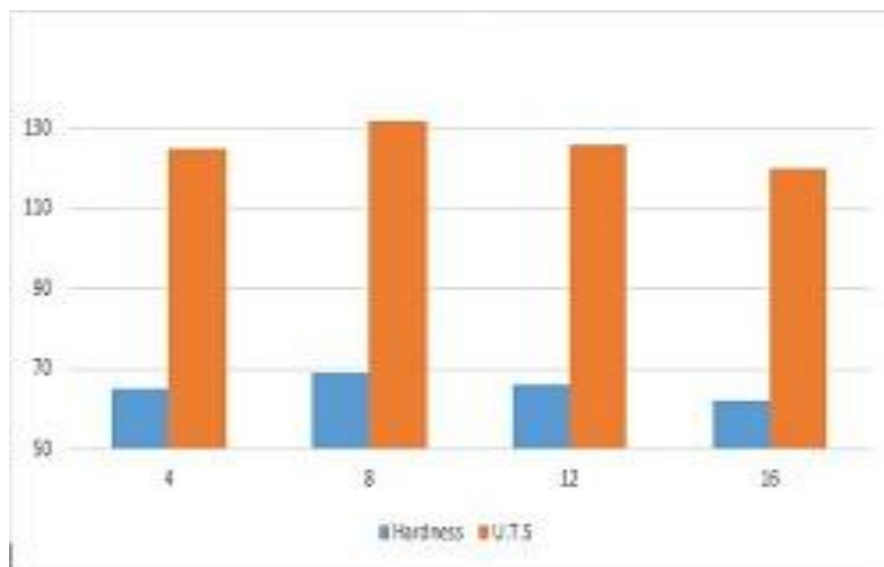


Figure 1: Casting Process.

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The study may provide a new era to the various products, parts and production. The investigation and characterization of a wide range of Aluminum based composites has developed a lot of interest from the large volume of publications in this area materials science and engineering for the past twenty years. This is due to the viable applications Al based composites have been widely utilized in and the huge scope it has for so many other new applications. In actual service performance and durability of a component is a prime criteria for acceptance in the market which is not possible using monolithic material systems. Metal matrix composites (MMCs) have been noted to offer such tailored property combinations required in a wide range of engineering applications. Some of these property combinations include: high specific strength, low coefficient thermal expansion and high thermal resistance, good damping capacities superior wear resistance, high specific stiffness and satisfactory levels of corrosion resistance.

Specimen Preparation: The synthesis of the metal matrix composite used in the present study is carried out by using the liquid metallurgy route. Initially, Al alloy is charged into the graphite crucible and heated to 800 °C till the entire alloy in the crucible is melted.



Graph 2: Results for Hardness and Ductility.

Reference

- {1} Leonardo Electronic Journal of Practices and Technologies 13(25):84-98 · July 2014
 {2} [i-manager's Journal on Material Science](#)5(2):35 · January