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Investigation on Al5052-Cu Alloy and Preperation Through Stir Casting Process

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Advanced materials possess unique properties that make them highly desirable for various applications. These properties may include low weight, low cost, wear resistance, corrosion resistance, and high strength, among others. One such advanced material is an aluminum metal alloy, which can be fabricated using the stir casting process.

Stir casting is a cost-effective and straightforward method of manufacturing aluminum metal alloys. In this project, we aim to fabricate an Al5052-Cu alloy using stir casting. By varying the weight percentages of Cu (0%, 3%, 4%, 5%, 6%, and 7%), we will investigate how these different compositions affect the alloy's mechanical properties.

To achieve this, we will subject the fabricated alloys to physical testing to determine their tensile strength, impact strength, hardness, shear test, and microstructure. Through these tests, we can gain insights into how the different weight percentages of Cu affect the alloy's mechanical behavior.

Overall, this project seeks to explore the potential of stir casting as a means of manufacturing advanced materials and to contribute to the development of Al5052-Cu alloys with improved mechanical properties.