AGING STUDIES ON CAST Al-Cu-Mg ALLOYS

A Project report submitted in the partial fulfillment of the requirements for award of Degree of

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MECHANICALENGINEERING

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CERTIFICATE

This is to certify that the project entitled **"AGING STUDIES ON CAST AL-CU-MG ALLOYS"** is the record of the work carried out by **D.ASHOK (17815A0312), D.VINAY (17815A0314), V.NARENDRA (17815A0366), and S. KARTHIK (17815A0355)** students of final year B. Tech in the department of Mechanical engineering. This work is done for the partial fulfillment for the award of BACHELOR OF TECHNOLOGY during the year 2019-2020.

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ABSTRACT

Aluminium was melt in cast iron moulds and ingots Al-4.5%Cu-2%Mg, Al-4.5%Cu-4%Mg, Mg alloys were prepared. Samples of 1:1 aspect ratio were prepared from the cast ingots. The samples were solutionized at 450°C for two hours and quenched in water. The quenched alloy samples were aged at 200°C in a muffle furnace. Hardness measurements were carried during ageing and the peak hardness is determined. The peak aged time was decreased with increase in Mg content of the alloy. This is due to the formation of intermetallic and other precipitates during the ageing treatment. The peak hardness was also increased with increase in the Mg content. Mathematical method was developed to determine the as-cast hardness and solution treated hardness of thealloys.