A Project Report on

INVESTIGATION OF MECHANICAL PROPERTIES OF ALUMINIUM AND E-GLASS LAMINATES

Submitted by

REGANTI VENKATA NAGASAI BL.EN.U4MEE11047

SURYA VENKATA SRIKANTH B BL.EN.U4MEE11064

NISHANTH VEMURI BL.EN.U4MEE11071

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Mr. R PRAMOD

Assistant Professor

Department of Mechanical Engineering

AMRITA SCHOOL OF ENGINEERING, BANGALORE

AMRITA VISHWA VIDYAPEETHAM

BANGALORE 560 035

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ABSTRACT

A Composite material is composed of two or more distinct phases (matrix phase and dispersed phase) and having bulk properties significantly different from those of any of the constituents. This project is about reinforcing E-glass into Aluminium foil to attain high strength to weight ratio. As pure Aluminium is soft, ductile, corrosion resistant, also alloying with other elements provide the higher strengths needed for other applications. The density of most Aluminium alloys is near to that of pure Aluminium that is 2.7 g⁄cm^3. Electrical grade glass formally known as E-glass, is by far the most used fiber in reinforced plastic composites. It is a high strength material with light weight compared to steel and corrosive resistant. The matrix and reinforcement is binded with a resin, named Araldite Ly556, which has density at 25 °C, 1.15-1.20 g⁄cm^3. Thus gives a good binded structure. In the present work, Aluminium, E-Glass and Epoxy are combined to fabricate a laminate by Hand-Lay process. Hand-lay is the oldest and simplest method used for producing reinforced plastic laminates. The fabricated metal matrix composites are tested for their mechanical properties. The metal laminate is found to render high strength, hardness, flexural strength, increased wear resistance, etc.

***Keywords**: Composite material, Aluminium, E-Glass, Araldite, Reinforcement, Mechanical properties.*