INFLUENCE OF MILLING RATE AND WEIGHT FRACTION ADDITION OF Al₃Ti ON MICRO STRUCTURE’S TRANSFORMATION OF COMPOSITE Mg/Al₃Ti

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Abstract
Light and strong material that became the main requirement as automotive components, weapons, equipment and even aerospace’s tool. Therefore, research on lightweight materials constantly done by the community. One promising material is a metal matrix composite (MMC)-based magnesium (Mg) and strengthened by particulate Al₃Ti. In the present study will be conducted by mechanical alloying using HEM E3 to synthesize the scattered Al₃Ti in Mg which is then further compacting 400 ton of sintered 700 °C for 1 hour to form a composite Mg/Al₃Ti by varying the milling speed ranging from 700rpm and 933rpm and Al₃Ti adding weight fraction of 10%, 20%, and 30% to achieve the best physical of the composite. After the integration process is completed, the resulting pellets are tested micro structure using Scanning electron microscope, phase analysis by X-ray diffraction, density and porosity with the principle of Archimedes

Keywords: Mg/Al₃Ti, Weight composition, MMC, Milling rate