Conference Paper – Volume 2213, AIP Conference Proceedings 2020

Copper alloy reinforced by graphene by powder metallurgy technique

Abstract

In this study, the effect of milling speed and compaction pressure on the densification and morphology of CuZn-Gr composite was evaluated. The composite was prepared by using powder metallurgy technique. The effect of the microstructural and compaction were determined based on different milling speed in thus research. The different milling speeds that involved were 175 rpm, 200 rpm, 225 rpm, and 250 rpm. Meanwhile, the different compaction pressures that used in this study were 127.53, 250, 374.67, and 500 MPa. The properties of the milled powder gave the result to green density and densification parameter. The peak XRD of Cu and Zn broadened as milling time increased. The milled powder at 250 rpm has lowest crystallite size and highest internal strain. As the milling speed is increase, the pattern of powder mixture diminished and become smaller due to the well homogenizing powders during milling. Besides, after compaction, 200 rpm and 250 rpm have optimum green density and densification parameter with increasing compaction pressure.