

LOW AND HIGH TEMPERATURE MICROMECHANICAL BEHAVIOR OF BN/3003 ALUMINUM ALLOY NANOCOMPOSITES

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ABSTRACT

The aluminum 3003 alloy is used in manufacturing of cooking utensils, pressure vessels, ice cube trays, refrigerator panels, heat exchangers, etc. In recent years, hexagonal boron nitride has been focused as a filler material for the metal matrix composites used for low or high temperature applications. Micromechanical properties were analyzed for the BN/3003 Al alloy nanocomposites using ANSYS software code. The major conclusion of the present work is that the interphase between BN nanoparticle and 3003 Al alloy has been found to be the weakest zone either low or high temperature operating conditions.

KEYWORDS: 3003 Al Alloy, Low or High Temperature, Hexagonal Boron Nitride, Micromechanics