



International Journal on Recent Researches In Science, Engineering & Technology

(Division of Mechanical Engineering)

A Journal Established in early 2000 as National journal and upgraded to International journal in 2013 and is in existence for the last 10 years. It is run by Retired Professors from NIT, Trichy.

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Research Paper

Available online at: www.jrrset.com

ISSN (Print) : 2347-6729

ISSN (Online) : 2348-3105

Volume 5, Issue 5,
May 2017

JIR IF : 2.54

DIIF IF : 1.46

SJIF IF: 1.329

Analysis on the effect of quenching and ageing duration on mechanical properties of metal matrix composites

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Abstract

The authors worked on analyzing the effect of quenching and ageing duration on mechanical properties of metal matrix composites. They have used regression analysis and variants analysis for checking the mathematical model developed by them. They observed that the composites quenched in water and ice attained maximum hardness for 8 hours ageing duration. The mathematical model developed by them has adequate predictive capability. The composite specimens are subjected to three types of cooling at 529⁰c for 2 hours and subjected to artificial ageing at 199⁰c for 4 to 12H in steps of 4H. Brinell hardness was measured. The mathematical model developed by them related hardness of the composites and ageing duration for different fractions of composites. They have developed the requisite mathematical equations. They have considered the effect of reinforcement, effect of heat treatment and effect of ageing duration.