Materials Today: Proceedings
Volume 44, Part 6, 2021, Pages 4784-4788

Optimization of sliding and mechanical performance Ti/NI metal powder particulate reinforced Al 6061 alloy composite using preference selection index method

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Received 21 September 2020, Revised 14 October 2020, Accepted 24 October 2020, Available online 21 January 2021.

https://doi.org/10.1016/j.matpr.2020.10.974

Abstract

In this study, Ti/ Ni reinforced in AA6061 composites were prepared via a high vacuum stir casting method. The fabricated composite specimens are prepared for experimental studies as per ASTM standard and then physical, mechanical, and sliding wear characterization was conducted on different equipment. The higher confidence level (95%) obtained via experimental studies. The experimental results of the specimen have been used for optimization, and the ranking order of composite are computed via using the preference selection index method. Many researchers' results have been reported and easily computed to rank of composite composition using optimization properties such as void contents,density flexural strength, tensile strength, impact strength, wear resistance etc. The resultsreveal that the base matrix included with the equal presence of both particulates exhibits most excellent properties hence to obtained best ranked of

Materials Today: Proceedings
Volume 46, Part 15, 2021, Pages 6552-6557

Computational analysis of aluminium alloy plates against conical-nose steel projectile

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Received 27 February 2021, Revised 20 March 2021, Accepted 1 April 2021, Available online 26 April 2021.

https://doi.org/10.1016/j.matpr.2021.04.017

Abstract

The usage of aluminium alloy in shielding structures is becoming prevalent choice due to its low density. Even then, articles and reports describing the experimental and computational analysis of such problems are still limited. This paper illustrated the computational analysis of AA5058 against impact of hardened steel projectiles with conical nose. The computational analysis was performed using finite element code-ANSYS. The target plate used was in shape of circular disc of 500 mm diameter and fixed at its curved face. However, wide range of thickness of target plate i.e., 15 mm, 20 mm, 25 mm and 30 mm were considered in the work reported. The projectile considered was of 20 mm diameter and 98 mm long. The conical shape was provided on projectile for 30 mm length on one of its sides. The target material was modeled in finite element code

Materials Today: Proceedings
Volume 46, Part 15, 2021, Pages 6534-6540

Investigation on mechanical and tribological characterization of Gr filled AA7075 alloy composite using Taguchi method

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Received 9 March 2021, Revised 25 March 2021, Accepted 31 March 2021, Available online 23 April 2021.

https://doi.org/10.1016/j.matpr.2021.03.734

Abstract

Current research work emphasis on the mechanical and tribological characteristics of the graphite reinforced AA7075 alloy composite. The samples were developed with various proportions (0, 1, 3, 5, and 7 wt%) of Gr particulate in Al alloy matrix using the high vacuum casting machine. The physical and mechanical characterization like density, void content, hardness, impact strength, flexural strength, and compressive strength were experimentally estimated. The dry sliding wear performance of the composite specimens was also estimated. The various samples were ranked based on the wear rate performance using the Taguchi method. The experimental results reveal that the estimated tribological and mechanical performance enhances with the ad