

Review of: "The Influence of Hot Extrusion on The Mechanical and Wear Properties of an Al6063 Metal Matrix Composite Reinforced With Silicon Carbide Particulates"

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Potential competing interests: No potential competing interests to declare.

Comments to the Author

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Article dated December 21, 2023 entitled "*The Influence of Hot Extrusion on The Mechanical and Wear Properties of an Al6063 Metal Matrix Composite Reinforced With Silicon Carbide Particulates*"

In this manuscript, the authors studied the mechanical and wear behaviour of the aluminium 6063 alloy reinforced with different weight fractions of silicon carbide for 'as-cast' and 'hot extruded' conditions. They used the stir casting technique to develop a set of samples which were further subjected to hot extrusion at 500 °C with an extrusion ratio of 9.0. Then they observed a significant improvement in mechanical and wear resistance via the addition of reinforcement. The results imply that the addition of reinforcement increases the density, which reduces the voids or porosity in Al6063. There is a significant improvement in mechanical properties with an adverse effect on wear rate and demonstrated the tribological advantage of materials.

After going through the manuscript, I recommend rewriting the introduction part as there are several diversions, and the overall manuscript has lots of critical typo defects. This paper undergoes major revision, and the following comments should be addressed before accepting it.

Comment 1

"The introduction part should be rewritten with a little bit of description of other important composite materials to make the manuscript suitable for a wide range of readership. The author should add some references like

- i. Chanchal Gupta, Priyanka H. Maheshwari, Sanjay R. Dhakate. "Development of Multiwalled Carbon Nanotubes Platinum Nanocomposite as Efficient PEM Fuel Cell Catalyst". Published in Materials for Renewable and Sustainable Energy, 2, 5, 2016. 10.1007/s40243-015-0066-5_1
- ii. Book chapter entitled "Summary and Future Perspectives of Nanomaterials and Technologies: Special Emphasis on Energy and Environment" in a book entitled Nanomaterials for Sustainable Energy and Environmental Remediation, Materials Today, Elsevier, 2020, 978-0-12-819355-6.

- iii. Development of Multiwalled Carbon Nanotubes Platinum Nanocomposite as Efficient PEM Fuel Cell Catalyst".
Published in Materials for Renewable and Sustainable Energy, 2, 5, 2016.
- iv. Chanchal Gupta, Priyanka H. Maheshwari, and R. B. Mathur. "Effect of Feed Rate on the Properties of Multiwalled Carbon Nanotubes Prepared from Chemical Vapor Deposition Method" published in Advanced Science Letters, 20, 1454, 2014.
- v. Effect of heat treatment and functionalization of MWCNT nanocomposite on the performance of PEMFC electrocatalyst, AIP Conference Proceedings, 2020.

Comment 2:

The should explain in a little elaborated way the reason behind the high density value of composites with high reinforcement percentages in as-cast and hot extruded conditions.

Comment 3:

Figure 3 and Figure 4 are not clearly visible; authors should provide high-resolution figures.

Comment 4:

In Graph 8, wear rates of composites in the as-cast condition under different loads, reinforced with silicon carbide reinforcement, are shown, but here lines are overlapped. Authors are requested to enlarge the lines via an increase in the Y-axis. Then only the difference between the data can be observed evidently.

Comment 5:

Conclusions should be in paragraph format rather than bullet format. Please correct them and make them in good continuation.

Comment 6:

The presented papers should be inserted in References. The paper should be sent to me for the second analysis after the major revisions.