

# Review of: "Investigating the Mechanical and Tribological Effects of MoS<sub>2</sub> Reinforcement in AZ91 Magnesium Alloy: A Comprehensive Experimental Study"

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Potential competing interests: No potential competing interests to declare.

This paper examines the "Mechanical and Tribological Effects of MoS<sub>2</sub> Reinforcement in AZ91 Magnesium Alloy." While the effort in conducting and reporting the work is appreciated, the scientific depth and rigor are lacking. The inclusion of significant experimental data does not compensate for this. The submission requires substantial improvement in both scientific discussion and presentation. After the inclusion of these suggestions, the paper may be published in this journal.

**Decision:** Minor revision

Comments:

1. The abstract is lengthy and needs revision. It should focus on the experiments and outcomes, emphasizing the motive, method, key results, and conclusions.
2. The abstract should clearly state the key novelty point of your work.
3. The introduction section needs revision as the paragraphs are not well-connected. Reviewing old research and literature, along with incorporating the following recent articles, may improve the introduction section.

<https://doi.org/10.1016/j.jma.2023.06.012>

<https://doi.org/10.1007/s10853-024-09398-7>

4. Change the size and pixel of Figure 1.
5. Revise Table 2 (process parameters), including tool geometry, tilt angles, etc.
6. In the results and discussion section, include graphs to illustrate the variations in hardness and tensile strength.
7. The authors aim to study the influence of variations in rotational speed on the mechanical and microstructural properties of the developed composite. Therefore, it is necessary to compare the effects of different rotational speeds.
8. On page 9, the authors claim, "Each figure shows EDS spectra obtained at specific locations within the modified zone," but the manuscript is missing the EDS.
9. A concise and factual conclusion is required. The conclusion should be re-written by presenting key observations and



findings through this work, and if possible, quantitative evaluation should be presented.