Review of: "Investigating the Mechanical and Tribological Effects of MoS2 Reinforcement in AZ91 Magnesium Alloy: A Comprehensive Experimental Study"

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Potential competing interests: No potential competing interests to declare.

The research work is novel and experimentally substantiated. The results and discussion are well explained and organised to attract the reader's attention.
This study successfully achieved the FSP of AZ91 alloy reinforced with MoS2 particles using a through-hole technique. It also investigates the influence of processing parameters on the friction stir processing of AZ91 and a Mg alloy reinforced with MoS2.

I recommend the acceptance of this article after inclusion of the minor corrections and suggestions below.

1. Please mark the fracture features along the SEM images to identify the nature of fracture of the samples.

2. I recommend the authors to go for in-depth characterisations like FE-SEM, TEM, and EBSD to study the interfacial phase formations and the grain transformation properties.

3. A trend of increasing hardness is observed with the decline in rpm. Is there any scientific justification for this trend?

4. "42 holes were bored and each hole was filled with MoS2". The volume or weight percentage of MoS2 filled in each hole is to be mentioned. Is it uniform throughout or varying? Please specify the reason for keeping it constant. What happens if it varies?

5. How did the authors select "MoS2" as the best reinforcement, and which are the other potential reinforcements for this application?

6. The conclusion section requires a strict revision as it fails to highlight the outcomes and achievements of this study. The improvement in properties should be quantified in percentile.