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 article can be accepted after incorporating the following corrections:

1. What specific advantages does the hole technique offer over the groove method in the context of friction stir processing (FSP) for magnesium alloys?
2. Why was MoS2 chosen as the reinforcing material for the Mg alloy, and what properties does it impart to the composite?
3. How were the rotation speed, travel speed, load, and tool material (tungsten carbide) selected, and what impact do these parameters have on the FSP outcomes?
4. Can you elaborate on the microstructural changes observed in the AZ91 alloy and the Mg alloy reinforced with MoS2 after FSP?
5. What specific improvements in tensile strength were noted in the FSP-treated areas compared to untreated areas, and how significant were these improvements?
6. What methods were used to analyze the surface microstructures and tensile strengths of the FSP-treated areas?
7. How do the challenges of limited elasticity, ductility, susceptibility to creep and wear, and high corrosion rate manifest in the processed Mg alloys, and were these challenges mitigated through the FSP technique?
8. What are the potential industrial applications of the magnesium matrix nanocomposites developed in this study, particularly in the transportation sector?
9. How does the incorporation of nanoparticles into the magnesium matrix enhance the strength while maintaining toughness, and what role does the FSP play in this enhancement?
10. The wear mechanism should be discussed in more detail. The author needs to refer to and cite the following articles..
    1. https://doi.org/10.1177/09544054211029828 2. 10.1088/2053-1591/aae6dc