

# 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.

**Title:** 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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This manuscript deals with the mechanical and wear behaviour study of aluminium 6063 alloy reinforced with different weight fractions of silicon carbide in 'as-cast' and 'hot-extruded' conditions. The stir casting technique was used to develop the composite systems. The samples were further subjected to hot extrusion at 500 degrees Celsius with an extrusion ratio of 9.0. Both cast and hot-extruded samples were investigated for mechanical and adhesive wear studies. It was observed that the addition of reinforcement improved the mechanical properties and wear resistance, and a significant improvement in mechanical and wear resistance was observed when the samples were subjected to secondary processing through hot extrusion.

The manuscript has some merits and can be **considered for publication** in **Qeios** after addressing the following Major comments:

## **Major Comments:**

1. The authors mentioned that the density was measured through experimental techniques. If so, they need to give a brief description of the process. Also, they then need to obtain the theoretical calculation for any one combination of the composites and compare the results from theory and experiments.
2. The results reported in graph 4 are misleading. The results show that the Modulus of Elasticity of the as-cast Al6063 is around 18 GPa, which is very low. What is the reason for this difference?
3. Same issue with graph 3; the experimental values obtained are quite low compared to the reported values in the literature.
4. The SEM micrographs need to be clearer. Improve the figure resolution.
5. Need to include more recently published work, the latest being in 2020, in this manuscript.

