

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 COMEPING INTERESTS

Sincere gratitude goes to Qeios for giving us the chance to review the article titled "The Influence of Hot Extrusion on The Mechanical and Wear Properties of an Al6063 Metal Matrix Composite Reinforced With Silicon Carbide Particulates."

Comments are as follows:

In the abstract, it should be specified about the weight fractions of SiC. Instead of „degrees Celsius,“ please write °C. The numerical results should be indicated in the abstract.

Chapter 2.1 – it would be better to call it Materials and Methods because it doesn't just describe the fabrication of the composite. In this chapter, the SEM analysis of the surface morphology should be mentioned because the results of this analysis appear later. Also, I suggest the author provide information on specimen dimensions before and after extrusion.

How did you get the results for density and porosity - neither the method of measurement nor the method of calculation is described?

The sentence: „It was noticed that the porosity of the composite is mainly influenced by the particle size of the ceramic reinforcements; thus, as the volume fraction of reinforcement is increased, porosity is also increased due to the inhomogeneity of the alloy and the reinforcing element at the atomic level and the particulate nature of the reinforcements.“ is not good and needs to be rewritten.

„It was noticed“ - by whom? Please provide the Figure if the author is the one who “noticed,” but if it is generally known, please add a reference. Also, the particle size and volume fraction should be separated as two different parameters. If you discuss the particle size, it is necessary to provide information about the one used as reinforcement in your experimental work. Please change „volume fraction of reinforcement“ to "weight fraction" used in your experiment.

All graphs need to have more uniform text height; some of them are small and hard to see. Graphs 8 and 11 have similar colours. They should be more distinguished.

Why is the wear rate given in μm ? Discuss that in the Results and Discussion. How did you orient the extruded samples during the wear test? Do you believe that different results would be obtained in the cross-section in comparison with an axial surface? Why do you think that voids have appeared on an extruded sample of the composite? Include answers in this section.

On SEM figures, a scale bar is needed.

Titles of the SEM micrographs need to be revised: Figure is more commonly used as a title than Graph. Al6063 without reinforcement cannot be titled as a composite (for example, "Graph 14. SEM micrographs of the wear surface of **reinforced composites** in the as-cast condition: Al6063**without reinforcement**").

Discussion of the results, as well as conclusions, should be more specific; for example, include a percentage of the increase or decrease. The third conclusion claims that the "grains were noticeably refined," but none of the figures show that.

References should provide a DOI or HTTP link to be easier to check.