

عنوان مقاله:

COMPRESSIVE AND WEAR PROPERTIES OF AL-BCNANOCOMPOSITES PREPARED VIA MECHANICAL MILLING AND HOT EXTRUSION

محل انتشار:

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نویسندگان:

A. ALIZADEH - *Department of Materials Science and Engineering, Tarbiat Modares University, Tehran, P.O. Box. 14115-143, Iran*

E. TAHER-NASSAJ - *Department of Materials Science and Engineering, Tarbiat Modares University, Tehran, P.O. Box. 14115-143, Iran*

خلاصه مقاله:

Mechanical milling was used to synthesize Al nanostructured powder in a planetary ball-mill under argon atmosphere up to 20 h. The same process was conducted for Al-4 wt.% B₄C nanocomposite powders to explore the role of nanosize reinforcements on mechanical milling stages. The results show that the addition of boron carbide particles accelerate the milling process, leading to a faster work hardening rate and fracture of aluminum matrix. Compressive and wear properties of a nanostructured matrix of Al prepared via mechanical milling and hot extrusion were investigated before and after incorporation of B₄C nanoparticles. The results revealed a lower wear rate, higher compressive strength and hardness for nanostructured Al matrix in comparison with the commercial coarse grained Al matrix. The same pattern was also observed in the nanocomposite samples with respect to the base matrix.

کلمات کلیدی:

Mechanical milling, Compressive, Wear, Hardness

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