عنوان مقاله:

Hardness and tensile strength of zircon particles and TiB2 reinforced Al-A356. 1 alloy matrix composites :Comparative study

محل انتشار:

اولین همایش مشترک انجمن مهندسین متالورژی و انجمن ریخته گری ایران (سال: 1386)

تعداد صفحات اصل مقاله: 6

نویسندگان:

K. Shirvani Moghaddam - *eAzad University of South Tehran, Tehran, Iran*

H. Abdizadeh - *bSchool of Metallurgy and Materials Engineering-University of Tehran, Tehran, Iran*

H. R. Baharvandi - *dMalek Ashtar University of Technology, Tehran, Iran*

N. Ehsani - *dMalek Ashtar University of Technology, Tehran, Iran*

خلاصه مقاله:

Aluminum matrix composites are important engineering materials in automotive, aerospace, thermal, wear, and other applications because of excellent low weight, high specific strength, and better physical and mechanical propertiescompared to pure aluminum. In this paper, zircon and TiB2 ceramic particles with different amounts were incorporatedinto Al-A356.1 alloy by stir-casting route. The ceramic particles size and adding temperature were 1 micron and 750°Crespectively. Microstructure of samples has been investigated by scanning electron microscopy (SEM); hence thedispersion of reinforcement was noted. Situation of compounds of composites was examined by XRD. Mechanical tests such as hardness measurement, tensile and physical (density) tests were used. Results showed that the mechanicalproperties and microstructure behavior of composites have improved compared to monolithic alloy. Microstructures ofthe composites in as-cast conditions show uniform distribution particles and reveal better bonding in the case of zirconreinforced composite compare to TiB2, but increasing the amount of reinforcement shows better conditions in the case ofTiB2 reinforced composite. It is observed that TiB2 reinforced composites have a better wetting condition compare tozircon reinforced composites

کلمات کلیدی:

Aluminum matrix composites, reinforcement, zircon, TiB2, stir-casting, microstructure

لینک ثابت مقاله در پایگاه سیویلیکا: