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Investigating the properties of Al-SiO_2 composite fabricated by the powder metallurgy method

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Abstract

In this research, aluminum-silica composite was fabricated by the powder metallurgy method and using different weight amounts of aluminum and silica powders. After mixing of powders, uniaxial pressing and sintering were applied in pressure of 600 MPa and temperature of 550 °C during 2 hours under argon atmosphere. The pills with diameter of 3 cm and thickness of 5 mm were prepared using 10 g powder. Results showed that with increasing the silica percentage, the density and hardness of composite decreased. With Adding the silica up to %15, the wear resistance of composite increased, however, beyond this amount the wear resistance decreased.

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