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Influence of titanium (Ti) addition on wear properties of aluminium-silicon-copper (Al-Si-Cu) eutectic alloy

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Influence of Ti content (Up to 4%) on the microstructure & hardness of near eutectic alloy Al-Si-4Cu-xTi (x=1%, 2%, 3%, 4%) has been investigated. After melting (Al) base alloy with different Ti content melt were cast in the graphite mould (Pre-heated to 200 °C) at 740 °C & solidified in the room temperature. Pin-On-Disc wear test conducted under dry sliding condition on the near eutectic Al-Si-4Cu-Ti cast alloy for various load varying from 9.81 N 49.05 N with

constant speed of 200 rpm, 400 rpm & 600 rpm and constant sliding time of 5 min. With increase the Ti content on the eutectic Al-Si-4Cu-Ti will decrease the Specific wear rate from 5.56×10^{-5} to $3.83 \times 10^{-5} \text{mm}^3/\text{N-m}$ under the normal load 49.05 N and at a sliding speed of 3.456 m/s and hardness increases from 102 to 132 Microhardness HV. Where A2=1% Ti, A3=2% Ti, A4=3% Ti, A5=4% Ti.

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