

Material Transfer in Dynamic Welding of Ag and Ag/SnO₂ Contact Material

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Abstract- Silver / Tin Oxide composite material has increasingly been used in DC switching because of its good anti-welding properties and resistance to arc erosion. The superior anti-welding and low arc erosion properties are observed to be partly due to the weak interface sticking between arc erosion products on the contacts. The phenomena of contact bounce creates a short arc erosion and material transfer by ions and metal vapor, while the equally important effect of dynamic welding creates a surface structure that is modified by sticking and fracture of weld spots. In this research, we examined the surface microstructure of Ag and Ag/SnO₂ contacts in various combinations of current, contact force and contact bounce parameters to further understand the complex phenomena of total material transfer in switching.