

## Effects of Arcing in Air on the Microstructure, Morphology and Photoelectric Work Function of Ag-Ni (60/40) Contact Materials

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**Abstract :** The present work aims to throw light on the effects of arcing in air on the surface state of contact pastilles made of silver-nickel Ag-Ni (60/40). Also, the photoelectric emission from these electrical contacts has been investigated in the spectral range of 196-256 nm. In order to study the effects of arcing on the EWF, the metallic samples were subjected to electrical arcs in air, at atmospheric pressure and room temperature, after that, they have been introduced into the vacuum chamber of an experimental UHV set-up for EWF measurements. Both Fowler method of isothermal curves and linearized Fowler plots were used for the measurement of the EWF by the photoelectric effect. It has been found that the EWF varies with the number of applied arcs. Thus, after 500 arcs in air, the observed EWF increasing is probably due to progressive inclusion of oxide on alloy surface. Microscopic examination is necessary to get better understandings on EWF of silver alloys, for both virgin and arced electrical contacts.

**Keywords :** Ag-Ni contact materials, arcing effects, electron work function, Fowler methods, photoemission

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