

**An experimental study on minimum arc current characteristics
of Ag and Pd contacts under DC inductive load conditions**

Makoto Hasegawa

Chitose Institute of Science and Technology

Arc discharge characteristics are one of important features that should be carefully examined for proper selection of contact materials. Especially, the minimum arc current value is one of the very important factors to be considered for various contact materials under different load conditions in order to achieve better contact performance and/or reliability.

The author has reported that arc discharges are surely detected with load current levels lower than the so-called minimum arc current of the contact materials tested, and therefore, interpretation of the term "minimum arc current" needs to be re-considered.

In this paper, Ag and Pd contacts are installed on a newly-constructed switching mechanism which utilizes a stepping motor for opening and closing a pair of mated contact electrodes, and operated to break inductive DC load currents in the range up to 1.5A with 10 to 30 V, and occurrence rates of arc discharges and arc voltage waveforms at each current level are investigated. Based on the results, the minimum arc current characteristics of Ag and Pd contacts will be further studied.

Moreover, the opening speed of the contact electrode is varied, and influences of the opening speeds on the minimum arc current characteristics will be also studied.

Information of the author to be contacted:

Makoto Hasegawa
Chitose Institute of Science & Technology
758-65 Bibi, Chitose, Hokkaido, 066-8655 Japan
Phone/Fax: +81-123-27-6059
E-mail: hasegawa@photon.chitose.ac.jp