Mitigation of Connector Damage During Disengaging DC Loads Using Polymeric Arc Suppressor

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Abstract – **Although connectors are generally not designed to disconnect electrical loads under power, in some circumstances they are mated and unmated under load. For instance, during repairs, diagnostic procedures, or when blown fuses are replaced under short circuit conditions. At DC system voltage levels significantly higher than the minimum arc voltage of metals such hot-disconnections may impact the reliability of the connection, the electrical distribution system, and automotive safety. Gassing polymers mounted onto connector terminals may reduce the damage resulting from disconnections under DC loads, and therefore enable connector designs with occasionally (forward running) arcing terminals.**

The authors discuss the effects of different types of gassing polymers on arc extinction and connector damage of standard automotive connectors.

Index terms – **Series Arc Faults, 42 V PowerNet, Connectors, DC, Hot Plugging, Gassing Polymers**