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Number 23

APPLICATION NOTE

Use of Stabilant 22 in High Current Applications

What is Stabilant 22?

Stabilant 22 is an initially non-conductive block polymer that when used in a thin film within contacts switches to a conductive state under the effect of the electrical field. The field gradient at which this occurs is set such that the material will remain non-conductive between adjacent contacts in a multiple pin connector environment.

Thus, Stabilant 22 provides the connection reliability of a soldered joint without bonding the contacting surfaces together!

Contacts are generally the weakest link in any piece of electrical/electronic equipment whether it be in low current devices found in computers or higher current circuits found in automotive and aviation applications, to name only a few. The use of Stabilant 22 or its isopropanol-diluted form, Stabilant 22A, will make contacts from 10 to 100 times more reliable, eliminating costly service call-backs and ensuring customer satisfaction.

How is Stabilant used in high current electrical connections?

Some of our early customer success stories are from the field of automotive service, where the classic lead-acid batteries are still used. Current loads of tens of amperes are found in the operation of a vehicle's equipment, such as headlights, signals, radios, ignition circuits, etc. But the high current draw of starter motors can be several hundred amps.

The use of Stabilant 22 on battery terminals and other high-current connections has the benefits of lower contact resistance and protection from corrosion and other effects of the harsh under-the-hood environment.

The popular adoption of electric vehicles (including hybrids) has created new high-power applications. EV's have a multitude of combinations of high current and high voltage in their battery systems, motors and charging components. Customers report excellent results from using Stabilant 22 on connections ranging from charging "guns" to the emerging field of EV battery rebuilding.

How does Stabilant 22 improve high current connectors?

The greatest effect of Stabilant 22 treatment is the preservation of contact surfaces. Properly designed high current connectors provide a large surface area over which multiple metal-to-metal contact zones are found.

High current applications (such as automotive or industrial) tend to include corrosive environments. The first effect of corrosion (from regular moisture-promoted oxidation to acid fume etching) is to reduce the availability of those contact areas. The resulting increase in overall resistance will cause heating of the connector – and loss of available power to the system!

Corrosion is accelerated by vibration and temperature cycles and will cause the system to fail if not corrected. Stabilant 22 not only seals out corrosive influences, but also prevents mechanical vibrations from causing fretting of contacts.

NATO CAGE/Supplier Code 38948

15ml Stabilant 22 (Concentrate), NATO Part # 5999-21-909-9981

15ml Stabilant 22A (Isopropanol Diluted), NATO Part # 5999-21-900-6937

15ml Stabilant 22E (Ethanol Diluted), NATO Part # 5999-21-909-9984

The Stabilants are patented. Because the patents cover contacts treated with the material a Point-of-Sale license is granted with each sale of the material.

SAFETY DATA SHEETS ARE AVAILABLE ON REQUEST

NOTICE

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