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Number 16

APPLICATION NOTE

Using Stabilant 22 as an Aid to IC Insertion

Introducing Stabilant 22

Stabilant 22 is an initially nonconductive block polymer which when used in a thin film between metal contacts becomes conductive under the effect of an electrical field. This occurs at an electric field gradient such that the material will remain nonconductive between adjacent contacts in a multiple pin environment. In addition, Stabilant 22 exhibits surfactant action as well as lubrication ability, providing a single component resident solution to virtually all contact problems.

When applied to electromechanical contacts, Stabilant 22 provides the connection reliability of a soldered joint without bonding the contact surfaces together.

In this Application Note, we outline the benefits of Stabilant 22 (or its alcohol diluted form, Stabilant 22A) for the installation and replacement of socketed integrated circuits and similar components found even on more modern circuit boards.

How does Stabilant 22 assist in the insertion of IC's?

The properties of Stabilant 22 provide several benefits for any electronic contact application, including prevention of corrosion and reduction of wear due to vibration or thermal cycles. The lubricating property that reduces wear in use has proven invaluable in the insertion of IC's, reducing insertion force. This reduces the likelihood of having any of the pins bend, as well as reducing wear of any plating materials.

IC's in the Dual Inline Package (DIP) were the most common form until the advent of surface-mount technology and are often encountered in older equipment – a service area in which Stabilant 22 excels. DIP's are especially prone to misaligned pins, leading to difficult insertion - one or more of the pins will buckle and bend under the force required. Sometimes this is not detected visually and when the system is powered up, it shows up as a fault. While modern computers do a power-on memory check, in some cases, a bad memory IC pin may be detected only when a program fails to run properly.

Stabilant 22 thus saves both time and effort when working with systems that use a large number of socketed IC's, especially when doing manual service work.

How can Stabilant 22 be applied to IC pins?

An applicator can be made by using a rectangle of the anti-static (conductive) foam of the type used to pack and ship static-sensitive IC's. Various types are available – select one that you find allows easy insertion of IC pins and allows Stabilant 22 to soak in.

Using five-minute epoxy, glue this material on the bottom of a shallow container such as a petri dish or a tin. Pour enough Stabilant 22 (the concentrate) over the foam pad to saturate it.

To use this, pick up the IC with a standard insertion tool and thrust the pins into the pad in order to wet them with the Stabilant. (A small amount left on the bottom of the IC will not affect the performance of standard DIP types.) The IC is then inserted into its socket in the usual fashion. The reduced insertion resistance allows easier determination that the IC is properly seated.

Even with the use of Stabilant 22, DIP IC's must still start with the pins properly aligned in their parallel rows. While even hand insertion of ICs is made much easier by Stabilant 22, the use of an insertion tool can still prevent bending of pins.

How is Stabilant 22A used in IC applications?

Stabilant 22A is the product that uses isopropyl alcohol to dilute the concentrate (3 parts alcohol to 1 part Stabilant 22). This may be used to treat IC's already in their sockets, if desired, as the alcohol allows it to penetrate the contact spaces. Clearly, a larger number of drops (per pin) are required to apply the same final amount of Stabilant 22. Note that for insertion purposes, the lubricating quality of the Stabilant 22 is only effective once the alcohol has evaporated. If you find the drying time slows down your service routine, we suggest using a dilution of about 1 part isopropyl alcohol to 3 parts of Stabilant 22 by volume (the opposite ratio from that of Stabilant 22A).

NATO CAGE/Supplier Code 38948

5mL Stabilant 22 (Concentrate), NATO Stock Number 5999-20-002-1112

15mL Stabilant 22 (Concentrate), NATO Stock Number 5999-21-909-9981

15mL Stabilant 22A (Isopropanol Diluted), NATO Stock Number 5999-21-900-6937

15mL Stabilant 22E (Ethanol Diluted), NATO Stock Number 5999-21-909-9984

Stabilant products 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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