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Number 16

APPLICATION NOTE

Using Stabilant 22 as an Aid to IC Insertion

What is Stabilant 22?

Stabilant 22 is a liquid polymer that is applied to electrical contacts to improve conductive properties, while remaining nonconductive in the insulating spaces between conductors. It protects against corrosion and other types of deterioration.

Stabilant 22 remains on the contacts and provides the reliability of a soldered joint without forming a physical bond.

It also has a lubricating property that reduces mechanical wear. Stabilant 22 is becoming increasingly used in a dual role: not only for the reliability increase, but as an insertion aid for both machine and hand-insertion of ICs.

How does it assist in the insertion of IC's?

When Stabilant 22 is used on the IC pins, its lubricating qualities reduce the insertion forces on the individual pins making it much less likely that any pin will be bent under.

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 faulty IC pin might not be detected until some program fails to run properly!

In a system with a large number of socketed IC's, the job of locating a single bent-under pin can be very difficult. And when a number of boards are being hand-stuffed with socketed IC's there is an excellent chance that this problem must be addressed.

How can Stabilant 22 be applied to IC pins?

An applicator can be made by using a rectangle of the anti-static (conductive) foam that is often used to transport static-sensitive IC's.

Using five-minute epoxy, glue this material on the bottom of a container such as a petri dish or a shallow 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.

Can Stabilant 22 be diluted?

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. However, for insertion purposes, the lubricating quality of the Stabilant 22 is reduced when diluted. Therefore, we would suggest a dilution of no more than 1 part alcohol to 3 parts of Stabilant 22 by volume (i.e., the opposite ratio from Stabilant 22A).

Can Stabilant 22A be used in this application?

As mentioned, Stabilant 22A can be used pre-insertion as well as on pre-inserted IC's. Considering the alcohol dilution, much more will have to be applied to the pins and its lubricating qualities will be realized only after the alcohol evaporates. This could slow down the process of IC insertion.

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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