



DuPont *i*Technologies

Printed Circuit Materials

Temporary Mask Compatibility with DuPont VACREL® 8100 Series Solder Mask

VACREL® Photopolymer Film Solder Mask

Technical Bulletin TB-0056

BACKGROUND

There are three basic types of temporary masks: solvent soluble, water soluble, and peelable. The soluble types are generally acrylic, while the peelable are generally latex. In general the compositions are high in solids content but, depending on the type, do contain some solvents such as toluene, isopropanol, methyl alcohol, or ammoniated solvents. Most of these compositions will dry in low humidity room conditions, if given enough time. Otherwise a one to two hour oven bake at approx. 65°C (150°F) is necessary.

INTERACTION SUMMARY

The composition of temporary masks and the drying process used can affect DuPont solder masks. In internal and external testing of DuPont aqueous processable solder masks with different temporary masks several trends have been found. The following trends will have a greater effect on thinner solder masks or low coverage areas such as over high circuitry:

- Temporary masks that contain high levels of ammonia can cause bubbling and lifting of the DuPont solder mask. This is more pronounced with high temperature baking where the ammonia softens the solder mask and acts as a stripper because of its alkalinity.
- Temporary masks that contain acetic acid and are oven baked can cause blistering of the DuPont solder mask.
- Peelable masks in general, especially those that are dried at room temperature, are compatible with most DuPont solder masks.
- Temporary masks that contain acrylate monomers have

caused breakdown of DuPont solder masks in some cases.

- Gentle room temperature drying of the temporary masks provides better compatibility with the DuPont solder masks than oven baking at elevated temperatures.

RECOMMENDATIONS

The following temporary masks have been used or tested successfully either in the field or internally with DuPont solder masks. Applications were done according to the manufacturers recommendations, and with room temperature drying when appropriate. Other temporary masks may work equally well, but they should be tested for acceptability.

- ALPHAMASK 110 (water soluble)
Alpha Metals
Alpharetta, Ga 30201
- CHEMASK® W (water soluble)*
Chemtronics Inc.
Kennesaw, Ga. 30144
- ROVER MASK™775(peelable)*
Xuron Corp.
Saco, Maine
- SOLDER STOP™ 110 (peelable)
London Chemical Inc.
Bensenville, Il. 60106
- TECHFORM TC-530 (peelable)
Techform Labs
Orange, Ca. 92665

- TSM-90 (peelable)
Assembly Products Technology
Manchester, NH
- WONDERMASK®W(water soluble)
WONDERMASK®S (water soluble)
WONDERMASK®P (peelable)
WONDERMASK®W-UVA 2210 (water soluble)
Tech Spray
Amarillo, Texas 79105

Properly processing the DuPont solder mask is mandatory for good compatibility with these temporary masks.

NOTE: As with any product, these temporary masks should be tested in the final process condition for which they are intended.

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