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ISO 9001 Registered Quality System
Toronto, Ontario, Canada QMI Certificate # 004008

Negative Dry Film Resist

Cat. No. 416DFR-5

Data Sheet and Processing Information

PART 1: Copper Surface and Surface Preparation

For best results, clean the board using fine steel wool or similar abrasive pad and rinse with water. This will remove dirt, oils, and other contamination.

Wear powder-free gloves when working with Negative Dry Film Resist.

The board must be absolutely clean and dry prior to applying the film. Use M.G. Chemicals Super Wash Electronics Cleaner to quickly dry the board or heat it in an oven for 5 minutes or use a blow dryer.

Note: After rinse, the board should be dried quickly to avoid oxidation.

PART 2: Lamination

Work in a safe light environment when handling the film – any exposure to UV light will expose the film. Safe light refers to any incandescent bulb less than 40 watts.

Any Automatic Sheet laminator from an office supply store will work fine.

Typical conditions:

- Pre heat laminator until 'ready' indicator is lit
- Seal bar temperature: 50 – 80 °C (120 – 176°C)
- Laminator roll temperature: 100 – 115 °C (212 – 239°F)
- Speed m/min(ft/min): 2.0 +/- 1.0 (6.5 +/- 3.3)
- Pressure kg/cm²(psi): 2.5 +/- 1.5 (40 +/- 20)

PART 3: Exposure

M.G. Chemicals Negative Dry Film Resist can be exposed on all standard equipment used in the printed circuit industry. Choose a daylight rated UV light that compliments the peak resist response of 350 – 380 nm.

We suggest the use of M.G. Chemicals Exposure Kit (Cat. No.416-X). Expose artwork onto the presensitized copper clad board for 12 minutes.

Resolution down to 50 microns (2 mil) is possible.

PART 4: Development

Can be developed using Potassium Carbonate with good productivity.



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It is highly recommended to use M.G. Chemicals Negative Developer (Cat. No. 4170-500ML) as it has been formulated specifically for the Negative Dry Film Resist.

Peel the second protective covering from the board before submerging into solution. Brush board lightly with foam brush (Cat. No. 416-S) in developer solution. Process should only take 1 – 2 minutes. Visual inspection required to determine completion.

Rinse Water:

Hard water (150 – 250 ppm CaCO₃) equivalent), or soft water are acceptable

Drying:

Blow dry thoroughly; hot air preferred.

PART 5: Plating

(acid copper sulfate; tin/lead; tin; nickel; gold)

*Follow plating vendors' recommendations)

The Negative Dry Film Resist can be used for pattern plate processes with acid copper, tin/lead, tin, nickel and gold plating baths. This film has very strong resistance to lifting and underplating.

Recommendations: Preplate Cleaning Process Sequence

- Acid cleaner: 38-50°C (100 - 120°F); 2-4 minutes
- Spray Rinse: 2 minutes
- Microetch to remove 0.15-0.25 µm (5-10 µ") copper (time: as required)
- Spray rinse: 2 minutes
- Sulfuric acid (5-10 vol%) dip; 1-2 minutes
- (Optional: spray rinse; 1-2 minutes)

PART 6: Etching

M.G. Chemicals Negative Dry Film Resist is compatible and strongly resistant to most alkaline ammonical etch process. Excellent adhesion after multiple passes through alkaline machines capable of 4 oz copper.

M.G. Chemicals Negative Dry Film Resist is compatible with most acid etchants, e.g. cupric chloride (free HCl normally less than or equal to 3.0 N), H₂O₂/H₂SO₄, and ferric chloride (Cat. No. 415-1L).

PART 7: Stripping

M.G. Chemicals Negative Dry Film Resist is formulated to dissolve slowly in stripping solution.

Stripping recommendation:

NaOH: 1.5-3 wt%; faster stripping at 3 wt%

KOH: 1.5-3 wt%; faster stripping at 3 wt%

Proprietary Strippers: M.G. Chemicals Cat. No. 435-1L