

Laminat Resist

Instructions for Use

1. General

This data sheet contains extracts from the original manufacturer's information and is extended by experience that we have from using the product on our machines.

Laminat Resist is an aqueous processible dry film photoresist, designed for acid plating and acid print and etch applications. It is formulated for excellent fine line reproduction, adhesion and tenting capability.

Laminat Resist comes as a light blue film that converts to dark blue colour after exposure. We supply it preferably in 1.5 mil (38 μm) thickness and 12" (305mm) width, at roll lengths of either 25 or 150m. As usual for dry resists, the photo polymer is sandwiched between a thin polyolefine foil and a 25 μm polyester protection foil.

Laminat Resist responds to light wavelengths in the near UV, with peaks from 360 to 400 nm. The resist should be handled in rooms with yellow or gold (UV-safe) light only.

2. Processing

Processing Laminat Resist consists of the Steps: cleaning, lamination, exposure, development, and stripping after acid etching.

2.1 Cleaning

The optimum Performance of Laminat Resist depends on the condition and cleanliness of the copper surface prior to lamination. The surface must be free of contaminants such as chromate conversion coatings, residual water, acid stains and antitamish residues. Other contaminants include oil in air lines, fingerprints and

airborne contaminants generated by the environment in wet chemical areas.

We recommend wet brushing (with a target roughness of 4 μm), extra fresh water rinse and drying with warm air. It is important to have the board cleaned shortly before lamination. If there was a hold time after cleaning of several hours it is recommended to repeat the cleaning before laminating the board.

2.2 Lamination

Laminat Resist is laminated under heat and pressure. We recommend our laminator RLM 419p for this purpose.

They combine perfect results with easy Operation. The laminator manual should be considered for details on the lamination conditions. For our RLM 419p we recommend temperatures of 100-110 °C and a conveyor speed of approx. 0.3 m/min. The pressure should be set to 1 to 2 on the scale. The above settings are meant as start-up information. Your own experience on these parameters will be required.

Lamination of Laminat Resist must be performed in an environment that is free from dust and dirt. The condition and maintenance of the lamination equipment is very important for high yields. Panels may be processed immediately after lamination, although. Always stack the panels in vertical racks, never in horizontal position.

2.3 Exposure

It is recommended to let the panels stabilize to room temperature prior to exposure. Any Standard UV exposure unit with light of 360 to 400 nm wavelength **will** be suitable for exposure. It is important to assure an intimate contact between the artwork and the laminate. For very fine line reproduction, a parallel beam exposure unit is recommended. In absence of such, a compromise could be to remove the polyester protection from the resist and put the artwork directly onto the photopolymer. This is proven to work in practise on our exposure unit HELLAS, but it is important for the success of this Operation that you use a copy of your artwork (to avoid damage to the original) and to avoid higher temperatures in the unit.

2.4 Development

Laminat Resist may be developed in aqueous alkaline Solutions, in stationary or conveyor machines, but always under spray pressure. (For conveyor machines we recommend to add up to 1 ml/l of anti-foam agent to the solution.) We offer our Special developer for negative boards, based on sodium carbonate, in portions for 11 or for 101 of developer solution.

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Prior to development the polyester protection must be peeled off the panel.

Development in our SPLASH machine takes up to 90s at 40 °C, depending on the load of dissolved material in the solution. A short exposure requires a development just to the point. The undeveloped parts of the resist have a white to grey, slimy aspect.

If the resist peels off during development the laminating conditions were poor or the exposure was significantly too short. An extra exposure of the entire panel before etching can help to reinforce the resist, thus improving the resistance of the tents over the PTH holes.

Rinsing the panels after development with lots of fresh water and spray pressure is vital for the yield of the process. Drying the panel before etching is not really necessary. In doubt if the development was finished all over the board, a short immersion into the etchant or into the galvanic copper bath will make all free copper change into a reddish colour, and parts that were not ready developed will show in brighter colour.

In the case an error occurred, all the steps from brushing the board until development may be repeated without losing the board and the preliminary production steps.

The boards shall be etched in acid media. We recommend ferric Chloride. Ammonia based etchants shall be used with this resist only after our special advice.

2.5 Stripping

The resist may be stripped in tanks with sodium or potassium hydroxide, at 1 or 2% concentration. We offer such NaOH in different bag sizes. One tank in our SPLASH CENTRE is prepared for taking the stripper solution. It is essential to rinse very thoroughly after stripping, in order not to have the copper oxidise.

3. Waste treatment

The developer itself does not contain heavy metals or reduction agents, but the organic load from the dissolved resist causes oxygen consumption in the water cleaning stations. One approach to treat the used liquid is to add acid until the organic parts fall out. The residual water could be drained. Handling this problem requires that you take advice from your local authorities.

4. Storage

The laminate shall not be stored at more than 15 °C. The shelf life under this condition is less than 6 months.

5. Safety / Warranty

Laminat Resist should be used in rooms with good Ventilation. The usual application of the resist in laminators will produce fumes that need extraction. After handling the resist please wash your hands. Further details on health and safety are given in the safety data sheet.

Conditions of storage and application of this product being out of our reach, we do not take any liability for the result of using this product, neither technically nor commercially. Our warranty covers solely the quality of the product at the time of shipment.

6. Copyright

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