Primary Imaging

LAMINAR PC

LAMINAR PC is designed for dry lamination, with excellent hold time capabilities and broad process latitude.

LAMINAR PC has been formulated for plating and print and etch applications. It has an excellent adhesion, high resolution and is compatible with high acid content plating solutions and high normality acid etchants.

Product use

Print & Etch	Acid
Acid Plating	Copper, tin/lead and methylsulfonic tin/lead plating baths.

Product Data

Nominal Thickness		
Mils	1.5	2.0
Microns	37	50
Phototropic image		

Product Preparation and Operation

Lamination

The surface on which LAMINAR PC is to be laminated must be free of dirt, oils, oxidation and other contaminants. The surface should be neutral to slightly acidic and free of moisture.

Table I shows the recommended processing conditions with recommended laminators.

Table I - Lamination

Model 300/360 Hot Roll Laminators

Roll Temperature	113-118˚C
Laminating Speed	1-2 m/min
Exit Temperature	O/L 43-71˚C
	I/L 60-71˚C

1600 SPC Cut Sheet Laminator

Roll Temperature	105-115°C
Roll Speed	1.8-2.6 m/min
Roll Pressure	3-6 bar (59-84 psi)
Tack Bar Temperature	50-60˚C
Tack Time	2-4 sec
Panel Entrance Temp	21-50˚C
Panel Exit Temperature	O/L 43-60˚C
	I/L 60-71˚C

Exposure

Table II gives the recommended exposure parameters for LAMINAR PC Dry Film Photopolymer. Because of differences in equipment and lamps, the correct exposure in mJ/cm^2 must be determined for each unit.

Table II - Exposure

	PC15	PC20
Radiometer mJ/cm^2	20-50	40-70
	Resist	Copper
Stouffer 21 Step Density Tablet	7-9	8-10
Stouffer 41 Step Density Tablet	19-25	22-28

Development

Remove the polyester cover sheet with a developer solution as described in Table III. Developing time will be affected by temperature, spray pattern, spray pressure and pH of the developer.

Table III - Developing

Solution	Temperature	Breakpoint
Sodium carbonate 0.75-1.0% (monohydrate)	24-30˚C	55-65%
Potassium carbonate 0.75-1.0%	24-30˚C	55-65%
REsolve 211 0.75-1.0%	24-30˚C	55-65%

Do not use antifoams containing water miscible solvents such as ethylene glycol monobutyl either (butyl Cellosolve). Use FOAMklear AF 2750 at 0.1-0.5ml/L as required.

Etching

Boards can be processed immediately after development to etching. Etching can be achieved by acid etchants up to 3N.

Plating

LAMINAR PC can be processed through acid plating solutions in a pattern plating operation. A typical preplate cleaning process is given in Table IV.

Table IV - Plating

Preplate Cleaning	Time
RONAclean PC 590	2-3 min
Rinse Counterflow	1-2 min
Spray Counterflow (Optional)	1-2 min
Microetch	As required
Spray Rinse	1-2 min
Sulphuric Acid (10% by volume)	1-2 min
Spray Rinse (Optional)	1-2 min

Pattern Plating:Copper sulphate and tin/lead fluobate or tin/lead methysulphonic solutions.

Stripping

Stripping of LAMINAR PC can be achieved in conventional immersion or conveyorized equipment using either potassium hydroxide (KOH) or sodium hydroxide (NaOH) as shown in Table V. Stripping should be followed by an immediate water rinse to reduce oxidation.

Table V - Stripping

Potassium Hydroxide	1-3%	54-60˚C
Sodium Hydroxide	1-3%	54-60˚C

SURFACEstrip SQI will more readily strip LAMINAR PC without attacking or oxidizing copper and solder plate surfaces.FOAMklear AF80 is the recommended antifoam.

Storage

Please read and understand this product's current Material Safety Data Sheet before use.

For optimum performance, and shelf life LAMINAR PC Dry Film Photopolymer should be stored in a limited access area between 5-15˚C.

LAMINAR PC Dry Film Photopolymer is sensitive to sunlight and indirect white light. Gold or yellow fluorescent "Safe lights" are required in the immediate work area.

Disposal Information

Utilize ADVANTAGE 2000 waste treatment chemistry 1240. The ADVANTAGE 2000 System will automatically compensate for the alkalinity of the waste material and add the Advantage 2000 chemistry to the stripper/developer waste in the correct proportion. After the treatment is completed, the solution is pumped to a filter press. See ADVANTAGE 2000 technical data sheet for detailed procedure.

It is the customer's responsibiity to ensure that the disposal of this product complies with national and local guidelines.

Handling Precautions

Before using this product, refer to the current Material Safety Data Sheet and the Laminar Safe Handling Guide for detailed safety, handling and storage information.

LAMINAR PC Dry Film Photopolymer should be applied in a well ventilated area. Commercial lamination equipment may cause vapours to be generated from the dry film, and these vapours should be removed by conventional exhaust techniques. Wash thoroughly after handling. Contact of the unexposed resist with the skin may cause irritation and should be avoided. Sensitization may occur in some individuals. If contact occurs, wash thoroughly with soap and water. If irritation occurs or persists, consult a physician.

Avoid reuse of or contact with the dry film release sheets and cover sheets, since they may retain small amounts of unpolymerized photoresist components.

During cleaning, developing, stripping, and etching operation, follow the safety precaustions pertaining to the particular solution(s) being used.

ISO 9002
Q 05293

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