

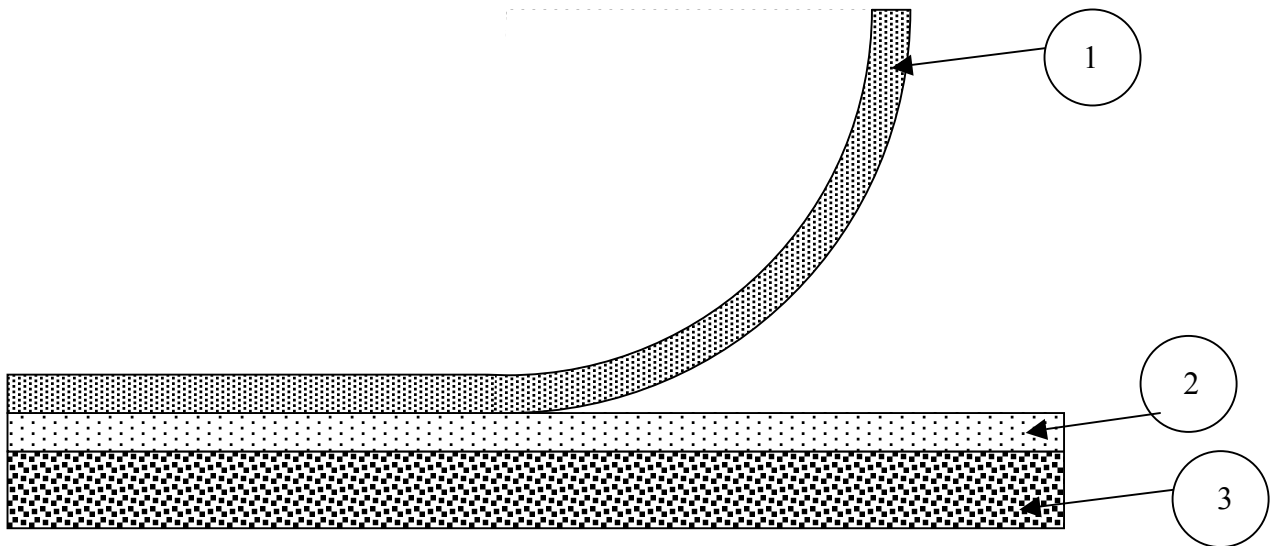
Positive Photosensitive Boards

" LA COUCHE VERTE "

A registered brand name - A registered design

VERY HIGH DEFINITION

↳ *Presentation :*



- 1) "Polyane" protective adhesive film
- 2) 35 micron thick copper
- 3) 1,6 mm thick epoxy laminate

TECHNICAL FILE No. 284

LA COUCHE VERTE

Board development process :

1
Exposure

2
Development

3
Etching

I - Exposure :

Skimming UV light on one or both sides from fluorescent tubes, metal iodide lamps or mercury vapour lamps. Depending on the characteristics of the light source, the exposure time will vary from 2 to 4 minutes.

II - Development :

RCI 20 is available in powder sachets.

Preparation : 1 x RCI 20 sachet + 1 litre of distilled or demineralised water.

Development :

Place the board in the solution with the photosensitive side up and move it around a bit. The board will take 15 to 30 seconds to develop in a solution with a temperature of 20°C. Rinse the board in running water to stop the action of the RCI 20.

III - Etching :

This can take from 2 minutes 30 seconds to 4 minutes depending on the type of machine used (and the degree to which the etching agent saturates into the copper).

THE PHOTORESISTIVE OR PHOTORESIST LAYER

Essentiel information :

Basics properties :

- Acid-resistant
- Vulnerable to UV light

Working on the basics of these characteristics and a few basic chemistry concepts, the result of the exposure, development and etching operations can be optimised.

During the operational cycle, the electronics engineer should pay special attention to the "development" factor :

- 1) Developer temperature
- 2) Developer concentration

The role of the 6 micron thick photoresist layer is to protect the copper against the etching agent, which is an acid (ferric chloride).

If the operator does not adhere to the developer **temperature** and **concentration** requirements, the result will be excessive etching into the photoresist layer. Out of the total layer thickness of 6 microns, a 1 or 2 micron thickness will be destroyed without this being checkable visually.

In this event, obviously the copper will be insufficiently protected. Part of the circuit will be destroyed.

The temperature factor is very important as the higher the temperature of the chemical agent, the greater its corroding effect will be.

A comparison :

- 15°C developer temperature Difficult to develop, frequently requiring rubbing, which mechanically corrodes the photoresist.
- 20°C developer temperature Correct development will occur in 30 seconds, with rinsing immediately after required.
- 25°C developer temperature Development takes 10 to 12 seconds.

Consequently it should be noted that the operator has to pay careful attention and must always keep track of the developer temperature.

Use a floating thermometer to read the temperature and determine the right time to take the board out.