



ACID CLEANER PC

For PWB Metallization Applications

Regional Product Availability			
N.America	Japan/Korea	Asia	Europe
		✓	✓

DESCRIPTION

Acid Cleaner PC is designed for cleaning resist-coated printed circuit boards before pattern plating with copper and/or tin-lead. It is particularly effective in removing resist developer residues from high-build electroless copper deposits and is compatible with subsequent micro-etch and plating solutions.

Acid Cleaner PC is suitable for use with most types of plating resists, including solvent, semi-aqueous and fully aqueous processable dry film products. However, for applications where a milder cleaning action is required for delicate aqueous processable resists, the use of Ronaclean™ PC 590 or Ronaclean LP 200 is recommended.

PRODUCT PREPARATION AND OPERATION

Cleaning Procedure for New Bath Installation

Clean the tank to remove any dirt and flush clean with water. Leach with sodium hydroxide (50 g/l) for 8 hours. Empty and rinse with water. Fill and circulate with 10% sulphuric acid for a minimum of 4 hours.

If the tank has previously been used with other acid cleaners, then a rinse with water followed by 10% sulphuric acid leach is usually sufficient.

BATH MAKE-UP

Acid Cleaner PC Concentrate 15–30% in deionized water. (Dependent on dry film type.)

PROCEDURE

1. Add 80% of the water to a clean tank.
2. Add the Acid Cleaner PC Concentrate and mix well.
3. Add the remainder of the water and mix well.

BATH CONTROL

The operating range is from -2% to +5% around the bath make-up. For example, for a 20% bath make-up, the operating range is 18–25% (180–250 ml/l). The optimum is the bath make-up selected.

Operating Parameters		
Parameter	Range	Recommended
Temperature	40–60°C	50°C
pH	1.0–2.2	<1.8
Time	2–5 minutes	
Agitation	Paddle agitation and vibration are recommended	
Rinsing	Thorough spray rinsing followed by immersion rinsing is recommended	
Ventilation	Recommended	
Filtration	10 micron polypropylene filter	

YIELD

Typically, the following yield may be expected: approx. 7 m² of laminate can be processed per litre of Acid Cleaner PC Concentrate, inclusive of make-up.

Depending on the strength of bath make-up, the Acid Cleaner PC bath should be replaced after processing 2.0 m² of laminate per litre of bath or when it becomes cloudy or noticeably discoloured with resist pigment (*see note 1*).

ANALYSIS

Prior to sampling, the bath volume must be adjusted to operating level with deionized water and thoroughly mixed.

Determination of Acid Cleaner PC Conc. Content

I. Principle

Acid Cleaner PC Concentrate is determined by titration with sodium hydroxide.

II. Reagents

- a) Sodium hydroxide 0.5M (0.5N); standardised
- b) Phenolphthalein indicator, 1 g/l; dissolve 0.1g of phenolphthalein in a mixture of 50 ml of deionized water and 50 ml of ethanol (or industrial methylated spirit)

III. Procedure

- a) Cool a sample of the bath to 15–25°C. Pipette 10.0 ml of the bath sample into a 250 ml conical flask and dilute to approximately 100 ml with deionized water.
- b) Add 3 drops of phenolphthalein indicator and titrate with sodium hydroxide (0.5M) to the first permanent pink end-point.

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IV. Calculation

$$\text{ml/l Acid Cleaner PC Concentrate} = \frac{\text{ml of sodium hydroxide} \times M \times 371}{\text{Aliquot (10 ml)}}$$

V. Replenishment

Replenish the solution with Acid Cleaner PC Conc.

EQUIPMENT

Polyethylene, PVC or polypropylene tanks with PTFE-clad heater and thermostatic control.

PRODUCT DATA

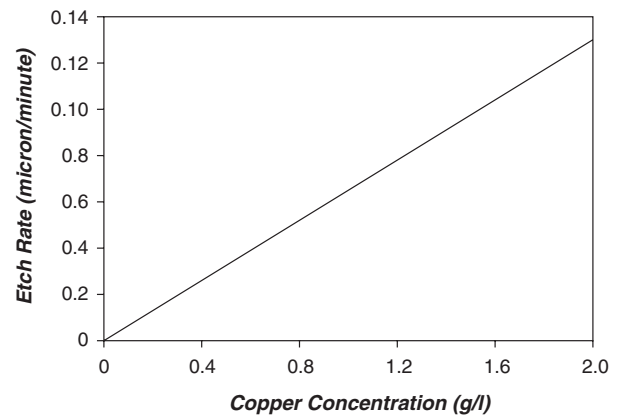
Acid Cleaner PC Concentrate

Description:	Clear, colorless to pale-yellow, aqueous solution
Specific Gravity @ 20°C:	~1.11
pH:	<1.0
Flammability:	Non-flammable

NOTES

1. Acid Cleaner PC can be used for general pickling of mildly-contaminated copper alloy components.
2. Before plating, the surface should be lightly etched using a suitable micro-etch such as Ronetch™ PC 373 or Ronetch PS.
3. Some photoresist processed in aqueous solution may be softened or affected at the edges of tracks, pads, etc., if the pH is allowed to rise above 1.8. Rising pH value is normally due to contamination from alkaline developer residues. The pH should be reduced with dilute hydrochloric acid and increased (if necessary) with sodium hydroxide.
4. Acid Cleaner PC may be used at temperatures below 45°C (25°C min.) but the cleaning capability will be reduced.
5. The Acid Cleaner PC baths are aggressive to copper and the rate of attack on copper will increase with increasing copper contamination (*see graph in next column*). The solution should therefore be replaced when the copper content rises to 1 g/l.

Etch Rate on Copper



HANDLING PRECAUTIONS

Before using this product, consult the Material Safety Data Sheet (MSDS)/Safety Data Sheet (SDS) for details on product hazards, recommended handling precautions and product storage.

CAUTION! Keep combustible and/or flammable products and their vapors away from heat, sparks, flames and other sources of ignition including static discharge. Processing or operating at temperatures near or above product flashpoint may pose a fire hazard. Use appropriate grounding and bonding techniques to manage static discharge hazards.

CAUTION! Failure to maintain proper volume level when using immersion heaters can expose tank and solution to excessive heat resulting in a possible combustion hazard, particularly when plastic tanks are used.

STORAGE

Store products in tightly closed original containers at temperatures recommended on the product label.

DISPOSAL CONSIDERATIONS

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Rohm and Haas Electronic Materials Technical Representative for more information.

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UNITED STATES

Marlborough, MA

Tel: 800.832.6200

Fax: 508.485.9113

JAPAN

Tokyo

Tel: +81.3.5213.2910

Fax: +81.3.5213.2911

ASIA

Hong Kong

Tel: +852.2680.6888

Fax: +852.2680.6333

EUROPE

Paris, France

Tel: +33.1.40.02.54.00

Fax: +33.1.40.02.54.07

<http://electronicmaterials.rohmmaas.com>

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