



# Technical Bulletin

## PB-405 Alkaline Cleaner for Power Bond

### I. Description:

PB-405 Alkaline Cleaner is used at the beginning of the Power Bond process. It removes fingerprints, photoresist residues and other organic contaminants, and conditions the copper surface for the Power Bond coating.

### II. Operating Parameters

Make-Up	8 - 10% by volume diluted with DI water
Temperature	110 - 120°F (43 - 49C)
Dwell Time	2 - 3 minutes
Process	Batch Tank or Conveyorized Flood or Spray
Agitation	Moderate air, pump or work bar agitation recommended
Ventilation	Advised
Tanks	Polypropylene, Polyethylene
Heaters	Quartz, Teflon, Stainless Steel (316)
Racks	Stainless Steel (316), Platisol Covered Steel

### III. Physical Properties

Specific gravity	1.03 - 1.05
Appearance	Clear-amber liquid
pH	>12
Odor	Amine odor
Flash Point	>200F

### IV. Control Procedures

DI water must be used to make up this PB405 bath, and in all subsequent steps in the Power Bond process. Chlorides will contaminate this process and stop Power Bond from functioning.

PB-405 cleaner is controlled by acid - base titration. Perform analysis and make additions on a regular basis. Discard and replace the PB-405 bath whenever the Power Bond bath is decanted for copper, or every 6 months, whichever comes first.

### V. Analysis

#### Reagents and equipment needed

1.0 N HCl  
Bromophenol Blue Indicator

10 ml pipet  
50 ml burette  
250 ml Erlenmeyer Flask

**Procedure**

1. Pipet a 10 ml sample from the working bath into a 250-ml flask and add 50-75 mLs of DI water.
2. Add 4 - 6 drops of bromophenol blue indicator.
3. Titrate with 1.0 N hydrochloric acid from blue to the yellow endpoint.
4. Calculation:  
$$\text{PB-405 content (\% by volume)} = (\text{ml of 1.0N HCl}) \times 1.2$$

Maintain the concentration of PB-405 between 8 and 10% by volume.

**VI. Safety and Storage**

PB-405 is a concentrated base and should be handled with care. Avoid open flames. Do not store in direct sunlight, high temperature or below freezing.

**VII. Waste Treatment**

Please ask a Florida CirTech technical sales representative for more information regarding waste treatment of this chemistry and our complete line of waste treatment line if additional help or information is desired.

**VIII. Miscellaneous**

Available in 5-gallon pails and 55-gallon drums. Consult MSDS sheet for additional information.

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