



CONDUCTRON™ DP ACCELERATOR LC USING CUPOSIT™ Z-1

For PWB Metallization Applications

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

DESCRIPTION

Conductron DP Accelerator LC is designed to promote initially rapid and complete coverage at the subsequent electrolytic copper plating stage, thus ensuring a void-free and fully adherent through-hole copper deposit.

BATH MAKE UP (FOR 100 LITRES)

Conductron DP Accelerator LC Part A	5.0 litres
Conductron DP Accelerator LC Part B	17.5 litres
Water (distilled or deionized)	77.5 litres

MAKE UP PROCEDURE

1. Add 50% of the water to a clean tank.
2. Add the Conductron DP Accelerator LC Part B and stir thoroughly.
3. Add the Conductron DP Accelerator LC Part A slowly with continuous stirring.
4. Add the remainder of the water and mix well.

Operating Parameters		
Parameters	Range	Recommended
Temperature	55–65°C	60°C
Time	8–12 minutes	10 minutes
Agitation	Board movement sufficient to ensure uniform solution flow through holes	

Control Limits		
Component	Range	Recommended
Copper	1.50–2.00 g/l	1.75 g/l
Conductron DP Accelerator LC Part B	150–200 ml/l	175 ml/l
Free Alkalinity	0.2–0.3M	0.25M

YIELD

Based on the make-up, replenishment and replacement figures quoted:

- 1 litre Conductron DP Accelerator LC Part A is sufficient to process a total surface area of ca. 73.7 m²
- 1 litre Conductron DP Accelerator LC Part B is sufficient to process a total surface area of ca. 44.4 m²
- 1 litre Cuposit Z-1 is sufficient to process a total surface area of 314 m²

ANALYSIS—BATH MAINTENANCE

Replenishment

By Work Load

For every 1 m² (surface area) processed add:

- 10 ml Conductron DP Accelerator LC Part A
- 10 ml Conductron DP Accelerator LC Part B
- 3.2 ml Cuposit Z-1

By Analysis

Replenish with Conductron DP Accelerator LC Part A, Part B and Cuposit Z-1 as required by analysis to maintain optimum copper concentration, Part B concentration and free alkalinity.

CONDUCTRON DP ACCELERATOR LC

ANALYTICAL PROCEDURE

COPPER

I. Reagents

- 20 ml Sulphuric acid (20% v/v)
- 20 ml Potassium iodide solution (20% w/v)
- 20 ml Potassium thiocyanate solution (20% w/v)

II. Equipment

- 400 ml Conical flask
- Pipettes

III. Procedure

- Pipette a 20 ml sample into a 400 ml conical flask and add 30 ml deionized water.
- Add 20 ml sulphuric acid (20% v/v), 20 ml potassium iodide solution (20% w/v) and 20 ml potassium thiocyanate solution (20% w/v).
- Titrate with 0.1M sodium thiosulphate until the solution becomes pale straw in colour then add 2 ml of starch indicator (1% w/w) solution and continue titrating to a milky white end point.

IV. Calculation

$$\text{Copper (g/l)} = \frac{\text{ml of sodium thiosulphate} \times \text{molarity} \times 3.18}{\text{ml of sample}}$$

Note: 2.86 ml/l Conductron DP Accelerator LC Part A increases the concentration of copper by 0.1 g/l. Copper can also be determined by AAS.

CONDUCTRON DP ACCELERATOR LC PART B

I. Reagent

1% v/v Sulphuric acid

II. Equipment

- 100 ml Volumetric flask
- 150 ml Beaker

III. Procedure

- Pipette a 10 ml sample into a 100 ml volumetric flask and dilute to the mark with deionized water, stopper and mix thoroughly.
- Pipette 5 ml of this diluted sample solution into a 150 ml beaker, add 50 ml deionized water and 1 ml Conductron DP Accelerator LC Part A.
- Add 1% v/v sulphuric acid dropwise until the solution clears ensuring that the pH does not fall below 5.0. Transfer this solution quantitatively to a second 100 ml volumetric flask and dilute to the mark with deionized water, stopper and mix thoroughly.
- Measure the absorbance at 320 nm against a deionized water reference using 10 mm silica cells. Determine the concentration of Conductron DP Accelerator LC Part B from a calibration curve derived from standard

solutions prepared according to the bulletin make up information but containing 125, 175 and 225 ml/ of Conductron DP Accelerator LC Part B.

FREE ALKALINITY

I. Reagents

- 5 ml of 30% barium chloride solution
- Phenolphthalein indicator solution (0.5% w/v)
- Hydrochloric acid (0.1M)

II. Equipment

- Pipettes
- 250 ml Conical flask

III. Procedure

- Pipette a 5 ml sample into a 250 ml conical flask and add 100 ml deionized water and approximately 5 ml of 30% barium chloride solution.
- Add 3 drops of phenolphthalein indicator solution (0.5% w/v).
- Titrate with hydrochloric acid (0.1M) to a pale milky blue end point.

IV. Calculation

$$\text{Free alkalinity (M)} = \frac{\text{ml of hydrochloric acid} \times \text{molarity} \times 0.2}{\text{ml of sample}}$$

Free alkalinity should be determined after additions of Conductron DP Accelerator LC Part A and Conductron DP Accelerator LC Part B have been made.

Note: 5.5 ml/l Cuposit Z-1 increases free alkalinity by 0.1M.

REPLACEMENT

Conductron DP Accelerator LC should be replaced when a total surface area of 14 m²/l has been processed through the solution.

EQUIPMENT

- Tanks: Temperature-stabilized translucent white polypropylene
- Heaters: PVDF-clad panel heaters with thermostatic control
- Filtration: Preferably continuous using 10 micron woven polypropylene filter cartridges with a flow rate of 3 times tank volume per hour

CONDUCTRON DP ACCELERATOR LC

PRODUCT DATA

Conductron DP Accelerator LC Part A

Description: Clear, blue liquid
Specific Gravity: 1.079–1.095

Conductron DP Accelerator LC Part B

Description: Clear colourless to pale yellow liquid
Specific Gravity: 1.220–1.264

Cuposit Z-1

Description: a water-white, aqueous solution.

Specific Gravity at 20°C: 1.510–1.540

pH: >12

Flammability: Non- flammable

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.


CONDUCTRON DP ACCELERATOR LC




 Circuit Board Technologies

 CMP Technologies

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 Microelectronic Technologies

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