

RONATAB™ Acid Activator PC-1

For Electronic Finishing Applications

Regional Product Availability

- Europe, Middle East and Africa

Description

The RONATAB™ Acid Activator PC-1 bath offers an effective activation of passivated surfaces of nickel and nickel-based alloy substrates, allowing for the deposition of uniform, adherent coatings in subsequent plating operations. RONATAB Acid Activator PC-1 is particularly recommended for use in electronics applications, where gold, palladium or tin/tin-lead is typically deposited onto nickel plated components and printed circuit edge tabs.

Advantages

- Effective activation of nickel coatings and nickel based alloy substrates to allow for subsequent over-plating operations.
- Low foaming properties make it an excellent choice for high speed, reel-to-reel plating equipment
- No electrolysis required
- Solution is easy to maintain and control
- Low acidity
- Contains no halide ions
- Ambient operating temperature

Bath Make-Up

Chemicals Required	Metric
Deionized Water	750 mL/L
Sulfuric Acid (96%)	20 mL/L
RONATAB™ Acid Activator PC-1	150 mL/L

Make-Up Procedure

- 1) Add deionized water to a clean tank.
- 2) Slowly add Sulfuric Acid with constant stirring.
- 3) Allow solution to cool to below 40°C
- 4) Add RONATAB™ Acid Activator PC-1.
- 5) Dilute to final volume with deionized water.

Bath Operation -Metric

Parameter	Range	Recommended
RONATAB™ Acid Activator PC-1	100–200 mL/L	150 mL/L
Sulfuric Acid (96%) Content	10–30 mL/L	20 mL/L
Temperature	Ambient (20–30°C)	
Time	10 sec.–1 min. depending upon equipment design and application	

Bath Maintenance RONATAB™ Acid Activator PC-1 and Sulfuric Acid (96%) are required upon solution make-up to achieve effective activation of nickel. These chemicals are consumed by solution drag-out.

RONATAB™ Acid Activator PC-1 The activity level of the RONATAB™ Acid Activator PC-1 can be accurately controlled and maintained at 15% v/v using the following UV spectrophotometric technique.

I. Equipment

- a) UV Spectrophotometer
- b) 2, 10 mm far-UV Quartz spectrophotometer cells

II. Procedure

- a) Establish a zero baseline by scanning UV at 286 nm with deionized or distilled water in both sample and reference cells.
- b) Rinse the cuvet with an undiluted bath sample 4 times, then fill the cell with the bath sample
- c) Measure absorbance at 286 nm versus a deionized water blank.

III. Calculation

$$\% \text{ RONATAB Acid Activator PC-1} = \text{absorbance} \times 11.56$$

Sulfuric Acid Maintain Sulfuric Acid (96%) content at 20 mL/L by using the following analytical procedure:

Determination of Sulfuric Acid (96%) Content in RONATAB™ Acid Activator PC-1 bath

I. Equipment

- a) 5 mL Transfer pipette
- b) 250 mL Erlenmeyer flask
- c) 100 mL Graduated cylinder

II. Reagents

Phenolphthalein indicator

III. Titrant

Sodium Hydroxide solution (1 N)

IV. Procedure

- a) Pipette a 5 mL sample of RONATAB™ Acid Activator PC-1 bath into 250 mL Erlenmeyer flask.
- b) Add 50 mL deionized water. Mix thoroughly.
- c) Add 10 drops Phenolphthalein Indicator. Mix thoroughly.
- d) Titrate with a solution of Sodium Hydroxide (1 N) to a pink end point.

V. Calculation

$$\text{mL/L Sulfuric Acid (96\%)} = \text{mL Titrant} \times \text{N} \times 5,6$$

Nickel
Concentration

Nickel metal will accumulate in the working RONATAB™ Acid Activator PC-1 bath. Monitor the nickel concentration by Atomic Absorption Spectrophotometer and replace the bath when the nickel concentration reaches 200 ppm.

Product Data

For the specific Product Data values, please refer to the Certificate of Analysis provided with the shipment of the product(s).

Equipment

Tanks: PVC or polypropylene

Equipment
Preparation

Prior to make-up, the process tank and ancillary equipment should be thoroughly cleaned and then leached with a Sulfuric acid solution.

This procedure is particularly important for new equipment or equipment previously used for other processes.

I. Cleaning Solution

- a) Trisodium Phosphate: 15 g/L
- b) Sodium Hydroxide: 15 g/L

II. Leaching Solution

Sulfuric Acid: 100 mL/L

III. Procedure

- a) Thoroughly wash down tank and ancillary equipment with clean water.
- b) Recirculate water through the complete system to remove water soluble materials.
- c) Discard water.
- d) Add cleaning solution to the tank, heat to 55–60°C and recirculate through the complete system.
- e) Discard cleaning solution.

- f) Recirculate water through the complete system.
- g) Discard water.
- h) Add leaching solution and recirculate through the complete system.
- i) Leave leaching solution in tank for minimum of 4 hours.
- j) Recirculate leaching solution through the complete system.
- k) Discard leaching solution.
- l) Recirculate water through the complete system.
- m) Discard water.

List of Products
Handling
Precautions

RONATAB™ Acid Activator PC-1

Before using this product, associated generic chemicals or the analytical reagents required for its control, consult the supplier's Material Safety Data Sheet (MSDS)/Safety Data Sheet (SDS) for details on material 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 DuPont technical representative for more information.

Product Stewardship

DuPont has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with DuPont products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

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