



NEUTRALIZER PM-952

For Industrial Finishing Applications

DESCRIPTION

Neutralizer PM-952 may be used with the Crownplate™ Process or PM System for plating-on-plastics and specifically for plating Noryl straight thru. When used after the rinses following chromic acid etch, Neutralizer PM-952 removes residual hexavalent chromium and prepares the etched plastic surface for catalyzation. The slightly alkaline neutralizer must be thoroughly rinsed from the parts prior to catalyst treatment.

ADVANTAGES

- Complete catalysis of difficult to plate plastics
- Allows use of dilute catalyst baths
- Control of rack plating

BATH MAKE-UP

Chemicals Required	Metric	(U.S.)
Deionized water	800 ml/l	(80% v/v)
Neutralizer PM-952	70 ml/l	(7% v/v)
37% Hydrochloric Acid	70 ml/l	(7% v/v)

MAKE-UP PROCEDURE

1. Add deionized water to a clean tank.
2. Add Neutralizer PM-952 and mix thoroughly.
3. Slowly add 37% hydrochloric acid and mix thoroughly.
4. Adjust the pH to 8.5–9.0 using 37% hydrochloric acid.
5. Dilute to working volume with deionized water.

BATH OPERATION

- Immersion time: 1.5–3 minutes
- Temperature: 32–52°C (90–125°F)
- pH: 8.0–8.5 (for ABS)
8.5–9.0 (for Noryl)
- Agitation: Mild air agitation is recommended
- Filtration: Use 5–10 µm polypropylene cartridge filtration
- Rinsing: Ensure adequate rinsing to eliminate drag-in to bath
- Note: The higher the pH, the more tendency for rack plating

BATH MAINTENANCE

1. Maintain bath volume with deionized water.
2. Maintain Neutralizer PM-952 concentration between 85–110% by volume.
3. Maintain the pH of the working solution within range using 37% hydrochloric acid. Neutralizer PM-952 or ammonium hydroxide may be used to raise the pH, if necessary.

CAUTION! Rapid additions of HCl can diminish the functionality of the Neutralizer PM-952.

BATH CONTROL PROCEDURE

I. Principle

A sample is neutralized with hydrochloric acid to the methyl orange end point.

II. Equipment

- a) 20 ml Pipette
- b) 250 ml Erlenmeyer flask

III. Reagents

- a) Sodium hydroxide solution, 1.0N
- b) Methyl orange indicator, 0.01%; dissolve 0.05 gm of indicator in water and dilute to 500 ml

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IV. Titrant

Hydrochloric acid solution, 0.1N

V. Procedure

- a) Pipette 20 ml Neutralizer PM-952 bath into a 250 ml Erlenmeyer flask and add 100 ml of distilled water.
- b) Adjust pH to 8.5 with 1.0N HCl or NaOH.
- c) Add 10 drops of methyl orange indicator.
- d) Titrate with 1.0N HCl to pink end point.

VI. Calculation

% Neutralizer PM-952 =

ml titrant x N titrant x 60.10 x 100%

20 ml x 50.40

Maintain the Neutralizer PM-952 concentration in the working solution between 85–110%. To raise the concentration 10% by volume, add 2,600 ml of Neutralizer PM-952 for every 100 gallons working solution.

PRODUCT DATA

Neutralizer PM-952

Color:	Colorless to yellow liquid
pH:	12.0 (approx.)
Specific gravity:	1.0 (approx.)

EQUIPMENT

Tank and Plumbing:	CPVC, polyethylene, polypropylene and Teflon are suitable construction or lining materials
Racks:	PVC plastisol coated; or 316 stainless steel can be used if mild corrosion is acceptable
Heaters:	Quartz or Teflon coated
Filtration:	A 25 micron polypropylene cartridge is recommended
Ventilation:	Recommended
Agitation:	Mild mechanical agitation is recommended

HANDLING PRECAUTIONS

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

CAUTION! May be harmful if swallowed. Avoid contact with skin and eyes. Handle with care. Wear chemical goggles, gloves and protective clothing.

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

STORAGE

Store Neutralizer PM-952 only in upright, original containers in a dry area at 10–32°C (50–90°F). Store away from alkaline materials. Do not store in sunlight. Keep container sealed when not in use.

WASTE TREATMENT

Spent Neutralizer PM-952 solutions may contain hexavalent chromium and are strongly chelated. It is the user's responsibility to verify that procedure listed below complies with federal, state and local laws and regulations for wastewater discharge.

Due to the nature of Neutralizer PM-952, disposal of it, or residues therefrom, should be made in compliance with federal, state and local environmental laws.

PRIMARY AND SECONDARY AMINE WASTE TREATMENT PROCEDURE

I. Principle

Amines and heavy metals present in the Neutralizer PM-952 bath are treatable using the following procedure.

II. Equipment

- a) 20 ml Pipette or 200 ml graduated cylinder
- b) 250 ml Erlenmeyer flask

III. Reagents

- a) Sodium hydroxide solution, 1.0N
- b) Methyl orange indicator, 0.01%; dissolve 0.05 gm of indicator in water and dilute to 500 ml

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IV. Titrant

Hydrochloric acid solution, 1.0N

V. Procedure

- Used bath or concentrated rinses above 10% concentration; pipette 20 ml Neutralizer PM-952 bath into a 250 ml Erlenmeyer flask and add 30 ml of distilled water.
- Used bath or concentrated rinses below 10% concentration; pipette 200 ml Neutralizer PM-952 bath into a 250 ml Erlenmeyer flask and add 30 ml of distilled water.
- Adjust pH to exactly 8.5 with 1.0N HCl or NaOH, as necessary.
- Add 10 drops of methyl orange indicator.
- Titrate with 1.0N HCl to pink end point.

VI. Calculation

$$\text{g/l amine} = \frac{\text{ml titrant} \times \text{N titrant} \times 60.10}{\text{ml bath or rinse}}$$


VII. Treatment

- Adjust pH to 12.0–12.5 with lime, $\text{Ca}(\text{OH})_2$.
- Add 2.0g formaldehyde per gram of amine present.
- Stir for 1–3 hours.
- Adjust pH to 4.0–4.5 with sulfuric acid, H_2SO_4 .
- Stir for 5 minutes.
- Re-adjust pH to 9.0–9.5 with lime, $\text{Ca}(\text{OH})_2$.
- Decant and/or filter.
- Sewer effluent.


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ELECTRONIC MATERIALS

 Circuit Board Technologies

 CMP Technologies

 Microelectronic Technologies

 Packaging and Finishing Technologies

For locations and information please visit; <http://electronicmaterials.rohmhaas.com>

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