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Product Data Sheet

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PRODUCT #: N8362

NPS 3002

Enhanced Single Step Tin Stripper

DESCRIPTION: A concentrated nitric acid based tin stripper with exceptional loading capacity, high strip speed, and resistance to exotherming. ***NPS 3002*** is designed for use in high speed, steady-state, high volume applications. It leaves a bright copper surface for subsequent processes. ***NPS 3002*** has a high tin holding capacity, greatly reducing re-deposition of tin oxide on equipment surfaces and in spray nozzles.

BENEFITS:

- **Beats the competition for highest loading capacity and fastest strip speeds**
- **Holds tin in solution to prevent re-deposition of tin oxides**
- **Minimal copper attack**
- **Bright copper surface**
- **Resists exotherming**

SPECIFICATIONS:

Density:	1.22 gm/ml, 10.1 lbs./gal. @ 20°C
pH:	< 1
Flash Point (TCC):	None
Appearance:	Clear yellow to green liquid

INSTRUCTIONS:

Concentration:	Use as supplied
Temperature:	80º - 100ºF
Strip Time:	10 - 45 seconds

For use in spray applications. Equipment must be free from metallic residues prior to installing this product. Residues may reduce bath life and decrease loading. To clean equipment, fill with 10 - 20% nitric acid solution and circulate for one hour at 100°F. Drain and rinse.

When starting a new bath, it may be necessary to dilute with 10% water or spent solution, to moderate the activity of the solution until it becomes slightly loaded.

Maintain temperature between 80 and 100°F. Pumping the solution will generate some heat; use of heating and/or cooling coils may be necessary to maintain temperature within this range.

The conveyor speed should be set to maintain the break point at about 50% of the length of the chamber. If the break point is less than 50%, ***NPS 3002*** can be diluted with 10% water. This will insure that the tin or tin/lead is completely removed while minimizing the amount of copper dissolved into the solution. Adjust the spray pressure so that both sides of the panel are stripped in approximately the same dwell time.

NPS 3002 is controlled by specific gravity. The use of a feed and bleed replenishment system provides optimum process consistency. The specific gravity set point for replenishment is normally between 1.35 - 1.37, depending on desired line speed. Do not replenish with acid. The solution is considered spent when the specific gravity exceeds 1.39, at which point it will contain more than 26 ounces per gallon of tin.

CAUTIONS: **DANGER! CAUSES BURNS**. Do not allow solution to contact eyes, skin or clothing. Wear protective clothing, face shield, goggles, and rubber gloves when handling this product. In case of contact with skin or eyes, flush immediately with water and obtain medical attention.

Use only with adequate ventilation. For further information, refer to material safety data sheet.

Store in original vented container, out of direct sunlight. Store at temperatures between 50 and 90° F. If crystals or precipitates form, allow to warm up and mix to re-dissolve precipitate.

NOTE: Equipment should be constructed of PVC, polypropylene or polyethylene. Heaters should be stainless steel, quartz, or Teflon.

DISPOSAL: Neutralize with caustic or lime to raise the pH to 7.0 - 8.0. It may be necessary to dilute the spent solution with water to reduce heat and fumes generated by addition of caustic, and to make it easier to mix. Allow the precipitate to settle, and analyze supernatant liquid for residual metals. If within local limits, the supernatant liquid may be discharged. Dispose of supernatant liquid and precipitated metal sludge in accordance with all local, state and federal regulations.

ANALYSIS:

Equipment required: 5 ml pipet, 250 ml beaker, 50 ml buret, pH meter

Reagents required: 1.0 N sodium hydroxide standard solution

Procedure:

1. Pipet a 5 ml sample of the solution into a 250 ml beaker. Add 100 - 150 ml distilled water.
2. Using a pH meter, titrate with 1.0 N sodium hydroxide solution to a pH of 8.0. Record the volume of sodium hydroxide used.

Calculation:

$$\frac{\text{mls of NaOH} \times \text{Normality of NaOH}}{\text{ml of sample}} = \text{Normality of } \textbf{\textit{NPS 3002}}$$

The normality of a new solution of ***NPS 3002*** (at 100%) is between 5.8 – 5.9; the normality of a spent solution is between 4.0 – 4.20. If ***NPS 3002*** has been diluted, the normality and specific gravity will be correspondingly lower.

Charts illustrating specific gravity vs. loading and normality vs. loading are available from RBP Technical Service.