



## Product Data Sheet

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**PRODUCT #: N8340 & N8350**

# *NPS 10 and NPS 20*

Non-Peroxide Tin/Lead Stripper

### **DESCRIPTION:**

A two step, high capacity alternative to peroxide tin/lead stripping. It is especially formulated for intermittent use in whole panel stripping. It can be used in either spray or soak applications without the worry of laminate attack or “run-away” peroxide reactions.

*NPS 10* is designed to remove the bulk of the tin/lead deposit safely, while leaving behind a thin intermetallic layer that protects the copper from chemical attack.

*NPS 20* removes the remaining intermetallic layer left after stripping in *NPS 10*. It works very quickly, with minimal copper attack, and will last 2-3 times as long as *NPS 10*.

### **BENEFITS:**

- **Safe - may be used at high loading rate with no danger of hazardous peroxide**
- **High capacity - *NPS 10* holds 15-18 ounces per gallon of tin/lead**
- **Good cosmetics - *NPS 20* leaves copper exceptionally clean**
- **Consistent performance - no loss of activity in the presence of dissolved tin/lead**

### **SPECIFICATIONS:**

	<u><i>NPS 10</i></u>	<u><i>NPS 20</i></u>
<b>Density:</b>	1.24 gm/ml, 10.3 lbs./gal.	1.10 gm/ml, 9.1 lbs./gal.
<b>Flash Point (TCC):</b>	None	None
<b>Color:</b>	Light green	Light yellow
<b>Shelf life:</b>	Indefinite	One year

### **INSTRUCTIONS:**

Use both *NPS 10* and *NPS 20* at full strength. Immerse the tin/lead plated boards in *NPS 10* until stripping action is complete (bubbling ceases and the tin/lead deposit turns a lighter shade of gray). This takes 2-5 minutes, depending on tin/lead thickness. Rinse boards with water and immerse in *NPS 20* until the gray residue is removed (usually less than 1 minute). Follow with a thorough water rinse.

Analyze for tin/lead according to analysis procedure on reverse side. Solution is considered spent at 15-18 ounces per gallon of tin/lead.

Do not use in metal or glass containers. Equipment should be constructed of PVC, CPVC or polypropylene.

### **CAUTIONS:**

*NPS 10* and *NPS 20* are acidic; glasses or goggles and gloves should be worn when handling these products. For skin contact, flush with water. For eye contact, flush immediately with water for at least 15 minutes and obtain medical assistance. Use in ventilated area. Do not store or use in metal or glass containers. Refer to Material Safety Data Sheet for further information.

**DISPOSAL:**

The spent solutions of *NPS* will contain soluble tin, lead and copper salts. The precipitates generated in the working solutions are insoluble lead salts. *NPS 10* and *NPS 20* may be waste treated separately or together. It is often convenient to waste treat a *NPS* solution consisting of 2 parts *NPS 10* and 1 part *NPS 20*.

**Procedure for Treating Spent *NPS 10* and *NPS 20***

1. Slowly add 25-50% caustic soda to the spent solution until the pH of the solution reaches a value of 9.0. Caution - heat and fumes will be generated.
2. Mix or stir the mixture for about one hour after completion of alkali addition.
3. Allow all precipitates to settle. 0.1% solution of an anionic flocculate is recommended to reduce settling time.
4. Remove sludge of metal salts.
5. Place the resulting solution in main waste stream to remove any remaining soluble metal salts. Dispose of precipitated metals in accordance with all local, state and federal regulations.

**ANALYSIS:****Equipment required:**

25 ml buret	10 ml graduated cylinder
2 ml pipet	Dropper
250 ml Erlenmeyer flask	

**Reagents required:**

**0.115 M EDTA solution:** 43.0g of EDTA disodium, dihydrate salt.

**35% hydrogen peroxide**

**Triethanolamine solution:** 20% by volume in water.

**Buffer solution:** Mix 54.0g ammonium chloride and 350 ml ammonium hydroxide, add distilled water to make 1 liter. Stir until dissolved.

**0.115 M Zinc Chloride solution:** Dissolve 7.52g zinc in 30 ml hydrochloric acid, and dilute to 1 liter.

**Eriochrome Black T indicator:** Mix 1g Eriochrome Black T with 100g sodium chloride.

**Procedure:**

1. Pipet a 2 ml sample of *NPS 10* into a 250 ml Erlenmeyer flask. Add 100 ml distilled water. Add 5 drops of 35% hydrogen peroxide and let stand for 5 minutes.
2. Add exactly 10 ml of 0.115 M EDTA; shake well.
3. Add 5 ml of 20% triethanolamine solution and 10 ml of the buffer solution.
4. Add Eriochrome Black T indicator to produce a blue color.
5. Titrate with 0.115 M zinc chloride solution to a violet end point.

**Calculation:** Tin/lead (ounces per gallon) = 6.10 X (10 - mls of ZnCl)

This product should be used only for its intended purpose. The information stated above is based on our laboratory tests and experience, and is accurate to the best of our knowledge. Since actual use is beyond our control, the recommendations or suggestions are made without warranty, expressed or implied.