

PMD (UK) LTD PROCESS DATA

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PREV 2

NUSTRIP EN

ELECTROLESS NICKEL STRIPPER

INTRODUCTION

Nustrip EN is a fast, cyanide free alkaline immersion stripping process for electroless nickel. It will strip electroless nickel from steel, copper and copper alloys, including leaded brass with minimal substrate attack.

BENEFITS

Fast stripping speed.

High nickel capacity.

Minimal substrate attack.

SOLUTION MAKE-UP

Nustrip EN Part 1	400 ml/l
Nustrip EN Part 2	60 g/l
Sodium Hydroxide	15 g/l
Water	550 - 600 ml/l

OPERATING DATA

Temperature	85 - 90 deg C
Agitation	Work or solution movement is recommended.
Extraction	Extraction is required to remove harmful fumes.

EQUIPMENT

Tanks	Stainless steel, mild steel or suitable plastics.
Heaters	PTFE, stainless steel or mild steel immersion heaters (or steam coils.)
Jigs	Stainless steel or mild steel uncoated jigs are recommended. Stainless steel is recommended for baskets.

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INSTALLATION

1. Make sure the tank is thoroughly clean, then fill approximately half full with warm water, (40 - 50 deg C).
2. Add Nustrip EN Part 2 and stir until dissolved.
3. Carefully add the Nustrip EN Part 1.
4. Add sodium hydroxide with stirring. Continue stirring until fully dissolved.
5. Make up to final volume with water.
6. Heat to operating temperature.

MAINTENANCE AND CONTROL

The solution should be regularly analysed and replenished as necessary.

Analysis and additions should be carried out, using the analysis methods given below as follows:-

Analyse for Nustrip EN Part 1 and replenish accordingly.
After thorough mixing analyse for Nustrip EN accelerator.

For intermittent use it is recommended that evaporation losses are made up with Part 1, Part 2, sodium hydroxide and water in the ratio of the original make-up. This will extend bath life.

ANALYSIS METHODS

Nustrip EN Part 1

Reagents

1.0N Sulphuric Acid
Methyl Orange Indicator

Method

1. Pipette 2 ml of working solution into a 250 ml conical flask.
2. Add approximately 100 mls water and mix.
3. Add 3-4 drops methyl orange indicator.
4. Titrate to pink end point with 1.0N sulphuric acid.
5. Record titre = t mls.

Calculation

$t \times 2.33 = \% \text{ Nustrip EN Part 1}$

ANALYSIS METHODS CONTINUED

Replenishment

For every 1% drop in concentration add:-

10 mls/l of Nustrip EN Part 1
3.75 g/l of Nustrip EN Part 2
1.9 g/l Sodium Hydroxide

Nustrip En Accelerator

Reagents

1. Copper sulphate solution

Preparation

Add 5 mls of ammonia solution to 75 mls of deionised water. Dissolve 1.5 gms of hydrated copper sulphate in this and make up to 100 ml in a volumetric flask.

2. 1, 1, 2, - Trichloroethylene
3. Standard accelerator solution

Add 0.7 ml Nustrip EN Accelerator to a 1000 ml volumetric flask and make to mark with DI water.

Method

1. To each of 7 stoppered test tubes add 10 ml of trichloroethylene and 2 ml of copper sulphate solution.
2. No additions are made to test tube 1.
3. To test tube 2 add 1.0 ml of standard accelerator solution.

Increase addition to test tubes 3-6 in 0.5 ml increments. i.e.

<u>TEST TUBE</u>	<u>MLS STANDARD ACCELERATOR SOLUTION</u>
1	0
2	1.0
3	1.5
4	2.0
5	2.5
6	3.0

ANALYSIS METHODS CONTINUED

4. Stopper each test tube and shake well.
5. After additions from Nustrip EN Part 1 analysis have been made, take a 150 ml sample of the working solution and cool to room temperature.
6. Filter sample.
7. Pipette a 10 ml aliquot of the filtered sample into a 100 ml volumetric flask and dilute to volume with deionised water.
8. Pipette a 1 ml aliquot of this dilution into test tube number 7. Stopper and shake well.
9. Compare the colour of the bottom layers using a white background.

Replenishment

<u>Comparison Match</u>	<u>mls/l Nustrip EN Accelerator Required</u>
1	23
2	19
3	15
4	10
5	6
6	3

NOTES ON THE USE OF PMD NUSTRIP EN

Stripping practice:-

Articles to be stripped should be wired or jiggged, or small parts can be treated in baskets. The use of copper or brass wire, jigs or baskets is NOT recommended as the solution contains inhibitors to prevent attack on copper or brass substrates, and these constituents will be depleted if such materials are used to suspend articles to be stripped.

Mechanical agitation of the parts is strongly recommended, particularly where basket stripping is employed. For wired or jiggged parts a recirculating pump will provide adequate solution movement.

The progress of stripping can be monitored by removing the work from the solution, de-smutting and visual inspection. After stripping is complete the articles should be de-smudded by immersion in a solution of 50 g/l sodium cyanide OR 20 g/l chromic acid and rinsed very thoroughly before re-plating.

Copper Substrates:-

Where articles are frequently inspected for stripping progress by removing them from the solution, de-smutting and replacing in the solution, Nustrip EN Accelerator is used up at a much faster rate than usual and it is necessary to replenish the level by additions of PMD Nustrip EN Accelerator.

If a PMD Nustrip EN working solution is held at operating temperature for long periods even without work being stripped, the stripping rate will fall due to volatilisation. The solution should be analysed before use.

STRIPPING RATE

The stripping rate of a new solution is approximately 30 um/hour for medium (8-10%) phosphorus deposits.

The stripping speed is affected by the phosphorus content, deposit age and heat treatment; the stripping rate is also affected by the degree of saturation of the Nustrip EN solution.

DISPOSAL

Dispose of in accordance with local authority requirements.

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PRODUCT FAMILIES

The following products or families of products are referred to in this data sheet.

<u>Product Name</u>	<u>Product Number</u>
PMD Nustrip EN Part 1	405007
PMD Nustrip EN Part 2	402001
PMD Nustrip EN Accelerator	401002

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