

# ACCU-LABS INC.

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A2LA Accredited ISO/IEC 17025:2005 Certificate # 2558.01

## ACCU-LABS UNILUX

*single-package maintenance brightener for nickel*

### **GENERAL DESCRIPTION:**

The **UNI/LUX Bright Nickel** is a highly concentrated liquid addition agent designed to produce a low stress, highly leveled deposit over a wide range of current densities, for a variety of applications. After initial start-up or conversion, just one additive is required for most maintenance requirements. **UNI/LUX** provides dependable, economical results with maximum operator ease.

### **FEATURES AND BENIFITS:**

- ❑ Single-package product
- ❑ High-speed leveling
- ❑ Ductile bright nickel Deposits
- ❑ Wide operating parameters
- ❑ High Tolerance to Impurities
- ❑ Excellent chrome receptivity

### **OPERATING PARAMETERS:**

<b><u>Chemical concentrations</u></b>	<b><u>Optimum</u></b>	<b><u>Range</u></b>
Nickel sulfate hexahydrate	38 oz/gal	32-42 oz/gal
Nickel chloride hexahydrate	8 oz/gal	6 - 14 oz/gal
Boric acid	6 oz/gal	5.5- 6.5oz/gal
pH	3.8 – 4.2	3.5 – 4.5

<b>NILUX Carrier ST - 1</b>	2 - 4 % by volume
<b>NILUX Carrier Z - 2</b>	1 - 2 % by volume
<b>NILUX NXZ Brightener</b>	0.1 % by volume

### **UNI/LUX Maintenance Brightener Additions:**

Following establishment of consistent bright nickel plating production, regular maintenance can be accomplished using just the **UNI/LUX** component. Additions should be made at the rate of one gallon of **UNI/LUX** per 7,000 – 8,000 ampere-hours of plating. While **UNI/LUX** will provide excellent results in most applications, each solution will need periodic adjustment with the basic **NILUX** components as was done at start-up. The need for this fine-tuning varies with each solution. Regular solution analysis is the best way to determine this fine-tuning schedule for your type of production.

### **Conversion of existing baths**

**NILUX Bright Nickel** and **UNI/LUX** components are fully compatible with most existing systems, so that a simple "slide-in" conversion is acceptable. A representative sample of the solution should be sent to Accu-Labs, Inc. for analysis to advise the best conversion method.

### **Equipment:**

Tanks and equipment	Lined steel or heat-resistant plastic
Anodes	Sulfur depolarized suggested
Anode baskets	Titanium, bagged
Filtration	Continuous Carbon
Agitation	Mechanical or filtered air
Temperature	140 <sup>0</sup> F (conventional)
Cathode current density	5 - 100 amps per square foot
Anode current density	3 - 100 amps per square foot

### **Filtration and purification**

Filtration should be continuous with media capable of one-micron retention. Turnover should be at least once per hour. Activated carbon should be used in filtration on a regular basis to maintain organic contaminants at a tolerable level.

### **Nickel anodes**

Only high-purity nickel anodes should be used. Several types are commercially available, and the choice of anodes depends in part on the type of plating being done. In general, sulfur-depolarized anodes are recommended as the best choice to maintain consistent corrosion. Anode baskets should be constructed from titanium, which will not corrode in the properly maintained nickel solution. Anodes should also be bagged to retain nickel fines.

### **Operating temperatures**

**UNI/LUX Bright Nickel** baths produce exceptionally bright plating through a temperature range of 110 - 150<sup>0</sup> F. Temperature range depends on the chemical balance of the bath, brightener levels, and type of work being plated.

### **New Bath Makeup:**

Thoroughly leach all tanks and equipment with a 10% v/v sulfuric acid solution.

- 1) Fill tank with warm DI water  $\frac{2}{3}$  full for granular salts or  $\frac{1}{4}$  full for liquid salts.
- 2) While agitating (mechanical preferred) slowly add chemicals. Mix until fully dissolved.
- 3) Bring solution to 90% of final volume, mix well, and adjust pH of solution. If pH is high, add dilute sulfuric acid to reduce; if pH is low, add  $\frac{1}{2}$  pound nickel carbonate powder per 100 gallons to raise. Allow to dissolve completely before rechecking pH. Continue adjustments until pH is within range.
- 4) Low current electrolyze (dummy) the new solution at 1-2V for 24 hours to remove trace impurities may have been in the make-up chemicals.
- 5) Add appropriate combination of **NILUX Bright Nickel** components and mix well. Dilute to final volume and mix. Analyze solution and fine-tune balance.

### **Handling and storage**

Nickel plating solutions are irritating to skin and mucous membranes. Proper safety precautions should always be observed. Read, understand, and follow all safety information for all chemicals used. This consideration should include all stages of the plating cycle.

**UNI/LUX** and **NILUX Bright Nickel** products have a suggested maximum shelf life of one year.

### **Non-warranty**

*The information contained in this bulletin is, to the best of our knowledge, true and accurate. All recommendations are made without guarantee, and Accu-Labs, Inc. disclaims any and all liability arising from the use of this product or the information contained herein.*