



Better Chemistry. **Better Business.**

**Stripol™ NI Ultra**

**Product Code: 2582014**  
**Revised Date: 01.03.2018**

### Stripol™ NI Ultra

#### DESCRIPTION

**Stripol™ NI Ultra** is a non-regulated, one component liquid designed to rapidly strip nickel and nickel alloys from all substrates typically encountered in the metal finishing industry. Additionally, **Stripol™ NI Ultra** is especially formulated to strip nickel from high current density areas. This chemical is slightly alkaline and can be used at room temperature without the need of electrical current.

#### FEATURES AND BENEFITS

- Non-regulated
- No phosphates
- Single component liquid
- Excellent thermal stability
- Non-fuming
- No fluorides, cyanides, or caustics
- Long bath life

#### TYPICAL APPLICATIONS

- Reworking of nickel plated parts
- Removal of nickel bonded abrasives



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### OPERATING CONDITIONS

Concentration ..... 50 to 100% (Full Strength)  
Temperature ..... Room temperature to 180 °F  
Immersion Time ..... 30 minutes to 120 minutes  
Equipment..... Rotating barrel/rack with stainless steel tank  
Control..... Discard when stripping times become excessive

### TITRATION PROCEDURE

The usual procedure is to discard the **Stripol™ NI Ultra** solution when the stripping rate becomes excessively long. However, there are times when a titration procedure is of value.

1. Pipet 10.0 mL of **Stripol™ NI Ultra** bath sample into a 250 mL Erlenmeyer flask. Add 50 mL DI water and 10 drops of Phenolphthalein indicator with mixing.
2. Titrate with 0.5 N Hydrochloric Acid until the Pink Color disappears. Record the mL of titrant used.

### CALCULATION:

$$\% \text{ Stripol}^{\text{TM}} \text{ NI Ultra} = 4.76 \times (\text{mL of 0.5 N Hydrochloric Acid used})$$

### WASTE DISPOSAL

**Aquapure™ P601** may be used to precipitate the nickel in **Stripol™ NI Ultra**. If the precipitate is difficult to settle, **Aquapure™ AN** may be used to separate the phases quickly. Dispose of in accordance with all local, state and federal regulations.

### WARRANTY

THE QUALITY OF THIS PRODUCT IS GUARANTEED ON SHIPMENT FROM OUR PLANT. IF THE USE RECOMMENDATIONS ARE FOLLOWED, DESIRED RESULTS WILL BE OBTAINED. SINCE THE USE OF OUR PRODUCTS IS BEYOND OUR CONTROL, NO GUARANTEE EXPRESSED OR IMPLIED IS MADE AS TO THE EFFECTS OF SUCH USE, OR THE RESULTS TO BE OBTAINED.



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### Performance Optimization for Stripol NI Ultra

#### I. Introduction

**Stripol™ NI Ultra** is a highly concentrated nickel stripping product engineered to dissolve three to seven ounces of nickel per gallon of solution. In addition, **Stripol™ NI Ultra** will typically strip between one to two mils of electrolytic nickel per hour at about 160 F. The stripping rate of electroless nickel depends primarily on the phosphorus content. In general, less than five percent phosphorus will not appreciably impact the strip rate. As the phosphorus level increases above five percent, the stripping time will increase.

The longevity of **Stripol™ NI Ultra** can be substantially optimized by correctly maintaining the working bath. Although **Stripol™ NI Ultra** has excellent thermal stability, one way to prolong the bath is to simply turn off or reduce the heat to the bath when not in use. Additionally, the operator should avoid introducing foreign metals into the tank, because this will result in a reduced capacity to strip nickel.

#### II. Tanks & Equipment

**Stripol™ NI Ultra** requires no mixing when used to remove nickel from steel alloys. The tanks should be constructed of polypropylene, stainless steel, or any lined tank which can withstand the operational temperature of the bath and is impervious to the **Stripol™ NI Ultra** solution. Agitation or circulation of the stripping solution is recommended to enhance the strip rate of nickel. Barrel rotation filled to about three quarters volume of parts and fully submerged has shown to be the best way to achieve optimum stripping action. Heating the **Stripol™ NI Ultra** solution is not necessary, but is recommended for best results. Although **Stripol™ NI Ultra** is the most thermally stable non-regulated nickel stripper on the market, decreased performance can be realized if heated at a high temperature for long periods of time. Therefore, when increasing the nickel strip rates by increasing the temperature, operators should avoid heating a bath without processing work. In some cases, reduced temperature is actually preferred over high temperatures on certain alloys.

#### III. Bath Operation

Complete removal of all chromium prior to immersion into a **Stripol™ NI Ultra** bath is mandatory. Generally, the removal of chrome is accomplished by a brief immersion in hydrochloric acid. Care should be taken not to contaminate the **Stripol™ NI Ultra** bath from the chrome strip operation. Rinse tanks placed in series prior to the **Stripol™ NI Ultra** tank has



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proven effective. Parts in the **Stripol™ NI Ultra** tank should be spaced as to allow solution to flow completely around them. This will give rise to an even strip rate without associated nesting problems. It is best to strip large work loads at a time to maximize throughput and nickel dissolution. In a rotary barrel operation parts are generally loaded to three quarters capacity, fully immersed, and slowly tumbled. In this way, the parts are stripped completely clean without the need for further processing.

#### A. Removing Electrolytic Nickel from Copper, Brass, Zinc Diecast, and Aluminum

Elemental sulfur may be added (over the side) at one percent by weight as an added precaution to prevent base metal attack when stripping nickel from the base metals listed above.. When using elemental sulfur as an additive **Stripol™ NI Ultra** solutions should be continuously agitated (mixed) to keep the sulfur in suspension during the nickel stripping. Further additions of elemental sulfur will be required if suspended sulfur cannot no longer be seen in a well-mixed **Stripol™ NI Ultra solution**. The addition of too much elemental sulfur is not a concern as it does not interfere with nickel removal.

#### Note

One percent by weight is equal to 1.5 ounces or 40 grams of elemental sulfur per gallon of **Stripol™ NI Ultra**.

#### B. Removing Electroless Nickel (EN) from Steel Alloys

To effectively remove electroless nickel from steel alloys, the **Stripol™ NI Ultra** is handled in essentially the same way as stripping electrolytic nickel. In most applications, a higher temperature is needed, but in other cases such as with powdered metal, room temperature is desired. With electroless nickel, the plate tends to be more tenacious and may require more time for removal. Interestingly, with high phosphorus electroless nickel, the plate actually dissolves and flakes off leaving parts ready for reprocessing.

### IV. Post Treatment Procedure

During the course of nickel stripping the parts will most often develop a black residue. This residue is oxides and sulfides of nickel and will need to be removed. There are several ways to accomplish this as noted below:

1. A five to ten percent hydrogen peroxide solution can be employed at room temperature. When using hydrogen peroxide, the aqueous solutions tend to be relatively unstable and



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will have a tendency to break down to oxygen and water. For this reason, solutions of hydrogen peroxide should be made up frequently depending upon the nickel stripping work load. The addition of small amounts of citric acid (i.e. one to two ounces per gallon) have shown to decrease the peroxide degradation rate in the presence of metals and aid in the removal of nickel residues. Anyone using hydrogen peroxide solutions of this nature should read and understand the Material Safety Data Sheet before proceeding. As a cautionary note, hydrogen peroxide solutions in contact with metals notably iron can cause an exothermic chain reaction and spontaneous breakdown of hydrogen peroxide.

2. Alternatively, a solution of hexavalent chrome (approximately one pound per gallon), or a cyanide salt (approximately four ounces per gallon) can be utilized to remove this nickel residue. Some plant operations have these solutions prepared and available for use with their nickel stripping line. If using these salts, Federal, State, and Local environmental guidelines should be followed for their disposal.

### V. Disposal

**Stripol™ NI Ultra** is a non-regulated product. However, when the product contains nickel salts, it becomes an industrial waste. **Stripol™ NI Ultra** does not contain phosphates which make it suitable for incorporation into stainless steel. For this reason, exhausted **Stripol™ NI Ultra** has been recycled in this manner. Otherwise, **Stripol™ NI Ultra** can be hauled away by an outside contractor to be properly disposed.

Alternatively, Hubbard-Hall's Aquapure™ P601 can be used. Given the high concentration of nickel in exhausted **Stripol™ NI Ultra**, in a batch method operators will need to treat the waste stream more than once to achieve the desired reduction in nickel. This procedure can be followed up with ion-exchange as a final scavenger for nickel and other ions.