

## TECHNICAL DATA SHEET

### NITEK AL 810

Nitek AL 810 is an alkaline electroless nickel strike bath for aluminium which produces a very thin nickel layer after zincating.

The deposited substrates further can be electroplated with copper, bright nickel and electroless nickel. This nickel barrier prevents direct attack by highly electroless nickel. It is supplied in as three liquid concentrates Nitek AL 810A, Nitek AL 810B and Nitek AL 810C.

#### SOLUTION MAKE – UP:

Bath parameters	Typical Range	Optimum Value
Temperature	35 – 43°C	38°C
pH	9.6 – 11.5	9.6 minimum
Nickel Concentration	4.9 to 6.0 g/l	5.8 g/l
Immersion Time	3 – 5 minimum	3 minimum
Nitek AL 810A	150 – 160ml/ltr	155 ml/ltr
Nitek AL 810B	-----	-----
Nitek AL 810C	60 – 80 ml/ltr	70 ml/ltr
Deionised or Distilled water	760 – 790 ml/ltr	780 ml/ltr

To make up the required amount of operating solution, proceed as follows :

1. Rinse tank thoroughly with deionised or distilled water.
2. Partially fill tank with deionised or distilled water.
3. Add required amount of Nitek AL 810A and Nitek AL 810C while stirring the solution with mechanical agitation. Fill to working volume with deionised or distilled water.
4. Heat solution to 38 – 40°C. ( Do not raise temperature above 45°C or plate out may occur.) Check solution pH. Adjust pH with dilute ammonium hydroxide or 10% by volume Sulphuric acid.

#### PLATING:

After Zincating in Albond S-52 the applicable process, parts to be electroless Nickel plated are simply immersed in the Nitek AL 810 bath for 3 – 5 minutes to obtain the

required thickness of electroless Nickel. Care must be taken to ensure a minimum immersion time of 3 minutes to avoid incomplete coverage and blisters of the deposit.

**NOTE:**

Rinsing is then required prior to further plating.

**AGITATION:**

Work rod agitation ( vertical aviation is most effective ) is recommended. Air agitation can be used only in well ventilated areas.

**VENTILATION:**

Ventilation is required to remove ammonia fumes. The bath should be kept covered when not in use.

**FILTRATION:**

Continuous filtration with 5 microns cartridge is recommended.

Leach the tank and filtration equipment with 20% nitric acid even with filtration.

**pH:**

Maintain pH above 9.6 by adjusting with dilute ammonia and 10% sulphuric acid.

**BATH REPLENISHMENT:**

Bath replenishment ( see below ) is based on the percent Nickel activity of the bath. This analysis is required to determine the replenishment amounts of Nitek AL 810B and Nitek AL 810C.

One complete metal turn over (5.6 g/l Nickel ) requires 60 ml each of Nitek AL 810B and Nitek AL 810C solution for bath replenishment amounts for every litre of operating solution.

Nickel metal concentration should not be allowed to drop below 5gm/l.

For replenishment Nitek AL 810B and Nitek AL 810C should be added with equal volumes with agitation.

#### **ANALYSIS FOR NICKEL METAL:**

##### **PROCEDURE:**

Take 5ml of solution in Erlenmeyer flask.

Add 50ml DM water. Add Ammonia till color turns blue.

Add 1-2 gm of murexide indicator.

Titrate with 0.1 M EDTA till end point violet color.

##### **CALCULATION:**

$$\frac{\text{Burate Reading} \times 58.69 \times 0.1 \text{ M EDTA}}{5} = \text{gms/l nickel metal}$$

##### **EQUIPMENT:**

316SS, Anodically polarized tanks are recommended. Polyethylene or polypropylene tanks can also be used.

Heating coils should be ceramic or stainless steel. Thermostatic control should maintain the temperature to  $\pm 1^{\circ}\text{C}$ .

Filtration equipment with PP pump body and 5-10microns cartridge filter in PP able to withstand  $95^{\circ}\text{C}$ .

An abstraction system to remove fumes / vapours is essential for good health.

##### **WASTE TREATMENT:**

Nitek AL 810 solutions are acidic in nature. Neutralize the solution before discharging into sewage system.

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