Hubbard-Hall
Chemical Services Since 1849

Product Bulletin

technicalservice@hubbardhall.com

P.O. Box 790 • *Waterbury*, CT 06720-0790 •*Tel*: (203) 756-5521 • *Fax*: (203) 756-9017
P.O. Box 969 • *Inman*, SC 29349-0969 • *Tel*: (864) 472-9031 • *Fax*: (864) 472-2117

HALLBRITE 0087

SULFAMATE NICKEL PROCESS

0621009
3/16/06

The **HALLBRITE 0087 SULFAMATE NICKEL PROCESS** is designed to produce a semi-bright, ductile, slightly compressively-stressed deposit that is suitable for use on connector and semi conductor devices and printed circuit boards.

SOLUTION COMPOSITION

	RANGE	TYPICAL
Nickel (as metal)	9-12 oz/gallon	10.5 oz/gallon
Nickel Sulfamate	38-65 oz/gallon	45 oz/gallon
Boric Acid	4-6 oz/gallon	4.5 oz/gallon
Hallbrite 0087A Anode Activator	5-8% by volume	6.5% by volume
Wetter SN-A or SN-S	0.1 – 0.4% by volume	0.3% by volume

Wetter SN-A is for air agitated bath.
Wetter SN-S is for solution or mechanical agitation bath.

pH	2.5 – 3.5	3
Temperature	125 - 135°F.	130°F.
Current density	15 – 80 ASF	
Anode / Cathode Ratio	2 : 1	
Agitation	Moderate	
Filtration	Continuous – 1- 2 turnovers per hour	

HALLBRITE 0097A ANODE ACTIVATOR

Concentrated addition agent used to improve anode corrosion solution conductivity and throwing power.
Additions to the bath should be made on the basis of analysis.

HALLBRITE WETTING AGENT

Wetters prevent gas pitting. Use Hallbrite Wetter SN-A for air agitation baths and Hallbrite Wetter SN-S for baths with mechanical or solution agitation.

NICKEL SULFAMATE

Nickel Sulfamate supplies the nickel ions in the plating solution.

A concentrate (**HALLBRITE 0587**) 85.4 oz/gallon nickel sulfamate, or 20 oz/gallon nickel as metal is available for replenishment purposes.

Analytical procedures for all bath constituents are available on request.

HALLBRITE 0087

BORIC ACID

Boric Acid is used as a buffer and as a preventative against burning at high current densities.

NICKEL PLATING SOLUTION

A pre-treated nickel plating solution containing the proper concentrate of all additives is available upon request.

AGITATION

Moderate air, mechanical or solution agitation. The rate of agitation should be increased as the current density is increased.

FILTRATION

Continuous filtration is recommended at a rate of 1-2 turnovers per hour.

EQUIPMENT REQUIREMENTS

Tanks: A lined steel tank is recommended. Rubber or plastic linings of the type approved by Hubbard-Hall are suitable.

Anodes: S.D. or electrolytic squares in bagged titanium anode baskets are recommended.

Anode Bags: Single or double bags of cotton, Dynel, or polypropylene.

Heaters: Titanium, graphite, quartz and Teflon.

Filters: Lined with a material suitable for use with a fluoborate solution. Filter cartridges or bags should be made of Dynel or polypropylene.

HANDLING PRECAUTIONS

Before using this product, please read and understand all information pertaining to the use of this product.

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.