Technical Data Sheet

ND-68 G
Never Dump Aluminum Etch Process

The Haviland Aluminum Etch Process **ND-68 G** granular etch replaces the conventional etch bath in the anodizing and bright dip process. Once the Aluminum Etch Process **ND-68 G** has been installed in your tank, it is never dumped, pumped over, frozen out, salted out and will not form scale on the tank walls or coils. A cost savings on changing labor and down time is therefore realized.

With Haviland Aluminum Etch Process **ND-68 G** you control uneven etching or "galvanizing". Consequently, there is no need to dump the bath. By not dumping the bath the aluminum content builds up but only until the rate of drag-out equals the rate of build-up, and at that point, the aluminum concentration then stabilizes. A uniform gloss on your anodized finish is maintained - a property not possible with a conventional etch.

EQUIPMENT

Aluminum Etch **ND-68 G** may be installed in a plain steel tank.

PREPARATION AND OPERATION

Aluminum Etch **ND-68 G** is used at a concentration of 8 to 12 ounces per gallon and operated within the temperature range of 130 - 170°F. To prepare a new bath, the concentration of **ND-68 G** required is 4 oz/gal. This means an addition of 25 pounds of **ND-68 G** per 100 gallons of bath volume. Then as the aluminum content increases, the concentration of etch is increased. By the time the aluminum reaches 20 grams per liter, the bath must be in the operating range of 8 to 12 oz/gal of **ND-68 G**. Once this is attained, the concentration of **ND-68 G** may never be allowed to fall below 8 oz/gal or precipitation will occur. The high end of the concentration range gives better performance when the aluminum build up is near the saturation point.

CONTROL

Solution is analyzed for free caustic with **ND-68 G** additions based on the test results.

ANALYSIS OF ND-68 G ALUMINUM ETCHING BATHS

Procedure

1. Filter a sample of ND-68 G etch bath through a moderately retentive filter paper.
2. Pipette a 5 ml sample into a 250 ml flask. Then add 50 mls of water.
3. Add three drops of ND-68 G (see note below) indicator. Titrate with 1.0N Hydrochloric Acid (HCl) to a dull orange (first non-violet color) end point (If ND-68 G indicator is not available, titrate to slightly cloudy endpoint).
4. Record the number of mls used and call this "A".
5. To the same flask add approximately 3 grams of Sodium Fluoride and add 3 drops of Phenolphthalein indicator.
6. Titrate the solution with 1.0N HCl, until the endpoint remains yellow for 30 seconds or more.
7. Add another 3 grams of Sodium Fluoride, if a red color appears continue titration as indicate in Step 6.
8. Record the number of mls of HCl titrated in Steps 6 and 7 and call this "B".

HAVILAND
PRODUCTS CO.

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ANALYSIS OF ND-68 G ALUMINUM ETCHING BATHS (Cont'd)

Note: **ND-68 G** indicator solution may be prepared by adding 1/2 gram of dry indicator to 1 pint slightly alkaline water [3 drops of 1.0N Sodium Hydroxide (NaOH)].

Calculations

Active Etch Content:

A x 1.1 = oz/gal Dry Etch **ND-68 G**
A x 1.1 = percent Liquid Etch **ND-68 G**

Dissolved Aluminum Metal:

B x 0.18 = oz/gal Aluminum
B x 1.35 = g/L Aluminum
B x 0.14 = percent Aluminum

Sodium Aluminate (NaAl02):

oz/gal Aluminum x 3.3 = oz/gal Sodium Aluminate
g/L Aluminum x 3.3 = g/L of Sodium Aluminate
percent Aluminum x 3.3 = percent Sodium Aluminate.

SAFETY AND HANDLING

Aluminum Etch **ND-68 G** contains caustic which is very corrosive to body tissues. Wear protective clothing and goggles when handling. For further safety and handling information see the M.S.D.S.

WASTE DISPOSAL

Aluminum Etch **ND-68 G** and its solutions and rinse waters are alkaline and would require a pH adjustment to local ordinance standard. On neutralization the pH should not be allowed to go below 7.5.

NON-WARRANTY

The data contained in this bulletin is believed by HAVILAND PRODUCTS COMPANY to be accurate, true and complete. Since however, final methods of use of these products are in the hands of the customer and beyond our control, we cannot guarantee that the customer will obtain the results described in this bulletin, nor can we assume any responsibility for the use of this product by the customer in any process which may infringe the patents of third parties.