Technical Product Bulletin

Technical Product Bulletin No. 239000
This Revision: 02/10/2010

TURCO® LIQUID SMUT-GO NCB
NON-CHROMATED DEOXIDIZER AND DESMUTTER FOR ALUMINUM ALLOYS

DESCRIPTION:

TURCO LIQUID SMUT-GO NCB is a dark brown liquid formulated to deoxidize and desmut aluminum alloys by spray or immersion methods.

TURCO LIQUID SMUT-GO NCB is free of chromate and is ideal for processing alloys that require low surface resistance, prior to anodizing, conversion coating, bonding or welding. Nominal etch rates for most aluminum alloys will normally be in the range of 0.1 to 0.9 mils/surface/hr. If lower etch rates are required, TURCO LIQUID SMUT-GO NC may be used.

FEATURES:

TURCO LIQUID SMUT-GO NCB offers these features:

1. Free of chromate
2. Can be used either in spray or immersion systems
3. Readily soluble in water
4. Easy to control by titration
5. Etch rate can be adjusted to meet specific requirements
6. Effective at ambient temperatures

USE INSTRUCTIONS:

Equipment: Tanks, headers, pumps and associated equipment may be fabricated from stainless steel or acid-resistant material. Do not use glass or fiberglass.

Spray & Immersion Systems: Prepare a 22-28% by volume solution of TURCO LIQUID SMUT-GO NCB in water. For optimum results, the use of D.I. water is recommended, especially if low electrical surface resistance is required. Air agitation is recommended for immersion systems. Operate spray system at 20 to 30 psi.

Temperature: Operate solutions within a temperature range of 10°C to 50°C. Optimum temperature is about 25°C for both spray and immersion systems.

Processing Time: Processing time will vary with alloy, condition of bath and temperature. Normal processing time is from 1 to 10 minutes.

Rinsing: Rinse parts in cold, overflowing water or by spray methods. If low surface resistance is required, parts should be rinsed with D.I. water, preferably by spray or overflowing rinse of clean water followed by spray

rinse of D.I. water. Rinse tanks should be changed daily for optimum results.

CONTROL:

CONCENTRATION OF LIQUID SMUT GO NC-B

Apparatus:

1. Pipet, 5ml
2. Buret, 50 mL
3. Iodine Flask, 250 mL
4. Cylinder, 50 mL

Reagents:

1. 25% Potassium Iodide solution
2. 0.1 N Sodium Thiosulfate solution
3. Sulfuric acid, 25% by volume (**Warning!! Corrosive, check MSDS, use safety glasses and protective clothing)**
4. 1% Starch Indicator solution

Procedure:

1. Obtain a sample from the bath, cool to room temperature. Pipet 5 mL into a 250 mL iodine flask containing 50 mL DI water. **(Warning!! Turco Liquid Smut Go NCB is corrosive. Use proper personal protective clothing to avoid contact with skin and eyes.**
2. Add 10 mL of 25% sulfuric acid.
3. Add 25 mL of 25% potassium iodide solution. Swirl to mix. Place a little potassium iodide solution in the flange of the iodine flask. Allow to stand in the dark for 5 minutes.
4. Titrate with 0.1N sodium thiosulfate solution. When the solution reaches a golden color, add 1 ml starch indicator solution. Continue the titration to the endpoint, which is a clear colorless solution which remains colorless for one minute.

Calculation:

mL of 0.1N sodium thiosulfate X 1.42 = % by volume Liquid Smut Go NC-B

NITRIC ACID IN LIQUID SMUT GO NCB

Apparatus:

1. 205942 - Pipet, 5 Ml
2. 205700 - Buret, 25 mL
3. Plastic beaker, 250 mL
4. 205852 - Cylinder, 50 mL
5. pH meter

Reagents:

1. 205289 - Titrating Solution 89 (1.0N Sodium Hydroxide)
2. Sorbitol (Fisher’s D-sorbitol, powder purified, Catalog No. S-459, or equivalent)

Procedure:

1. Obtain sample from the bath, cool to room temperature. Pipet 5 mL into a 250 mL plastic beaker.
2. Add 50 mL DI water.

3. Dissolve 1-2 1/2 grams of sorbitol in the solution.
4. Titrate the sample with TS 89 to a pH of 2.5 using a pH meter.

Calculation:

mL of TS 89 X 1.15= % by volume Nitric Acid (42 degree Baume)

ETCH RATE OF LIQUID SMUT GO NC-B

Materials:

1. 3" X 4 Aluminum or any convenient thickness
2. 205956 - 500 mL plastic pitcher

Reagents:

1. TURCO 4215 NC-LT
2. Liquid Smut Go NCB working solution

Procedure:

1. Clean aluminum panel to a water break - free surface in 7 oz/gal solutuin of TURCO 4215 NC-LT at 100-1200F.
2. Rinse, dry and weigh.
3. Immerse for 15 minutes at room temperature (70-800F) in a 500 mL plastic pitcher containing approximately 500 mL processing solution from the working tank.
4. Rinse, dry and reweigh the aluminum panel.

Calculation:

$$\text{Metal Removal Rate (inches/surface/hour)} = \frac{\text{Weight Loss}}{\text{Original weight}} \times \text{Gauge (inches)} \times \frac{30}{15 \text{ min}}$$

DISPOSAL INFORMATION:

DANGER! Contact may cause severe burns to skin and eyes.

TURCO LIQUID SMUT-GO NCB contains nitric acid and acid fluorides. Avoid contact with eyes, skin and clothing. Do not take internally. Avoid prolonged breathing of vapors. Use with adequate (equivalent to outdoor) ventilation.

Protective clothing, such as a chemical face shield or goggles and gloves, boots and apron made form acid resistant materials should be worn when handling and using this product. A NIOSH-approved respirator should be worn when handling liquid or during mist conditions.

Transport and store containers at a temperature below 55°C and away from metals and glass.

Before using this product refer to container label and TURCO MATERIAL SAFETY SHEET for additional precautionary, handling and first aid information.

NOTICE:

The above information and recommendations concerning this product are based upon our laboratory tests and field use experience with this or similar products. However, since conditions of actual use are beyond our control, any recommendations or suggestions are made without warranty, express or implied. Manufacturer's and seller's sole obligation shall be to replace that portion of the product shown to be defective. Neither shall be liable for any loss, damage or injury, direct or consequential, arising out of the use of this product.

Rev. 6/98 (Sup.3/98)
FG:03980

Henkel Surface Technologies
32100 Stephenson Highway
Madison Heights, MI 48071
Telephone: 248-583-9300
Fax: 248-583-2976

Form Revised 04 June 2001