

BONDERITE C-IC SMUTGO NC AERO

Known as Turco Liquid Smut-Go NC
November 2021

PRODUCT DESCRIPTION

BONDERITE C-IC SMUTGO NC AERO provides the following product characteristics:

Technology	Metal Pre-treatment
Product Type	Acid Deoxidizer
Application	Immersion process

BONDERITE C-IC SMUTGO NC AERO is a dark brown concentrated liquid, formulated to deoxidize and desmut aluminum alloys by immersion and spray methods. BONDERITE C-IC SMUTGO NC AERO is free of all chromates 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 0.5 - 2.5 $\mu\text{m}/\text{h}/\text{side}$. If higher etch rates are required, BONDERITE C-IC SMUTGO NCB AERO may be used. Please add also BONDERITE C-IC DEOXMLM 2310 AERO.

Features

- Free of all chromates
- Can be used either in Immersion and spray systems
- Readily soluble in water
- Easy to control by titration
- Etch rate can be adjusted to meet specific requirements
- Effective at ambient temperatures

TECHNICAL DATA

(as supplied):

Appearance	brownish liquid
pH-value	<1

DIRECTIONS FOR USE

Preliminary Statement:

Prior to use it is necessary to read the **Material Safety Data Sheet** for information about precautionary measures and safety recommendations. Also, for chemical products exempt from compulsory labeling, the relevant precautions should always be observed. Please also refer to the local safety instructions and contact Henkel for analytical support.

Use instructions

Equipment:

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

Spray & Immersion Systems:

Prepare a 18 to 20 % by volume solution of BONDERITE C-IC SMUTGO NC AERO in clean, cold 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 approx. 1.5 to 2.0 bars.

Temperatures:

Operate solutions within a temperature range of (50 to 100 °F). Optimum temperature is about 25°C for both spray and immersion systems.

Processing Time:

Processing time will vary with alloy, condition of bath and bath 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 Procedure for BONDERITE C-IC SMUTGO NC AERO :

TITRATION METHOD #1:

A. DETERMINATION CONCENTRATION OF BONDERITE C-IC SMUTGO NC AERO :

Apparatus:

- Pipette, 5 mL
- Burette, 50 mL
- Iodine Erlenmeyer Flask with plug, 300 mL
- Graduated cylinder, 50 mL

Reagents:

- Potassium Iodide solution 25%
- Sodium Thiosulfate solution 0.1N
- Sulfuric acid, 50% by volume
- Starch Indicator 1%
- DI water

Procedure:

1. Take sample of the bath and cool down to room temperature.
2. Pipette 5 mL of sample into an Erlenmeyer flask.
3. Add ~50 mL water.
4. Add ~25 mL of KI-solution 25%.
5. Add ~5 mL H₂SO₄ 50%.
6. Put the plug on the flask, shake a little bit and let it stay 5 min into the dark.
7. Titrate under shaking the flask with 0.1N Na₂S₂O₃ to yellow.
8. Add some starch (~1 mL) => becomes dark blue!
9. Titrate under shaking the flask with 0.1N Na₂S₂O₃ from dark blue to colorless.
10. Note the volume (V).

Calculation:

$V \text{ (mL 0.1N Na}_2\text{S}_2\text{O}_3) \times 1.18 = \% \text{vol BONDERITE C-IC SMUTGO NC AERO .}$

B. CONCENTRATION OF NITRIC ACID:**Apparatus**

- Pipette, 10 mL
- Beaker, 250 mL
- Burette
- Magnetic stirrer with stirrer barre
- pH meter

Reagents

- Sodium hydroxide, 1N
- Potassium fluoride p.a. (100%) or 50% solution
- DI water

Procedure

1. Take a sample of the bath.
2. Pipette 10 mL of sample into the beaker.
3. Add ~100 mL DI water and ca. 3g±0.5g potassium fluoride p.a. (or 6 mL 50% KF-solution) into the beaker.
4. Place the beaker on the magnetic stirrer with the stirrer barre, stir with ~300 rpm and put the pH meter inside.
5. Titrate with 1N NaOH to an endpoint of pH = 5.9.
6. Note the volume (V).

Calculation

$V \text{ (mL 1N NaOH)} \times 0.66 = \% \text{vol Nitric Acid (68\%)}$

$V \text{ (mL 1N NaOH)} \times 0.45 = \% \text{vol Nitric Acid (100\%)}$

Procedure with used bath:

First you have to measure the SMSTGO NC concentration, if needed add SMUTGO NC to expected value. Afterwards determination of missing Nitric Acid and possibly adding of missing Nitric Acid volume.

Storage:

Temperature, °C -10 to 60
Shelf-life (in unopened original packaging), months 24

Classification:

Please refer to the corresponding **Material Safety Data Sheets** for details on:

Hazards identification
Transport information
Regulatory information

ADDITIONAL INFORMATION**Disclaimer**

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Reference 0.2