

CEE-BEE A-601L Chromated Deoxidizer



d a t a s h e e t

CEE-BEE A-601L is a liquid chromated, medium-to-heavy duty deoxidizer that will deoxidize, desmut, and etch aluminum and aluminum alloys prior to dye penetrant inspection, anodizing, resistance welding, and conversion coating.

BENEFITS

- One chemistry process.
- Can be used in both spray and immersion applications.
- Effectively removes surface oxides, surface discoloration due to heat treatment, and smut resulting from alkaline etching or chemical milling.
- Can be made up with either nitric acid (improved bare salt spray performance) or sulfuric acid (low surface resistance for spot welding).
- Can be used to strip anodizing films.
- Simple titrations can control system components.
- No heat required.

CONFORMS TO

- **LOCKHEED MARTIN STM32-402C, CLASS II, TYPE 2**
- **LOCKHEED MARTIN EMAP ITEM G32.024 VERSION:37**
- **BOEING BAC 5765 (PARTIAL TEST)**
- **THRUSH MANUFACTURING FINISH PROCESS SPEC #525-11**

**NOTE: To place an order, email, call or FAX Customer Service at
800-932-7006 / FAX 1-216-441-1377 / orders@mcgean.com
Cee-Bee A-601L Deoxidizer - Product Code # 21021**

NOTES PRIOR TO HANDLING

Before using your Cee-Bee Aviation product, all safety and operating instructions should be read and understood. If you have any questions, please contact your Cee-Bee representative before proceeding.



EQUIPMENT

The process tank, all piping, pumps, and associated equipment should be fabricated from stainless steel (316L preferred) or acid resistant plastic. All pump seals, valve seats, and other elastomers which come in contact with the solution should be EPDM, Teflon, or Viton.

MAKE UP INSTRUCTIONS

1. Fill the tank 50% full with clear, ambient temperature water.
2. Slowly add 10% (by volume of final working solution) 42° Baumé Nitric Acid or 5% (by volume of final working solution) 66° Baumé Sulfuric Acid.
3. While mixing, slowly add 7% (by volume of final working solution) Cee-Bee A-601L.
4. Add water to bring bath up to final working volume.
5. Agitate solution (either air or mechanical) for 50-60 minutes.

USE INSTRUCTIONS

Operating Temperature – Operate solution within a temperature range of 65° – 85° F (18 – 30° C). Heating is not necessary unless the temperature falls below 65° F (18° C). It must be noted that there is an increase in metal removal (etch rate) as the temperature increases. A new solution will generate more heat (exothermic) when first made up; however, it will stabilize over a couple of days. Air agitation helps assist in reducing this exothermic condition.

Processing Time – Processing times will vary with alloy, condition of bath, amount of oxide/discoloration/smut on the part, and temperature. Generally speaking, 2-10 minutes for immersion and 30 seconds to 5 minutes for spray. For immersion, agitation is recommended for a uniform removal of oxide from the surface of aluminum.

Rinsing – Immediately rinse parts in cold water by immersion with air agitation or by spray. These tanks should be overflowed to control build up of contaminants. De-ionized water is not recommended prior to chromate conversion coating due to passivation of the aluminum surface,

SOLUTION CONTROL

Reagents and Equipment for Nitric/Sulfuric Acid Titration

250 ml Erlenmeyer Flask	100 ml graduated cylinder
2 ml Volumetric pipet	Deionized or distilled water
Bromcresol Green Indicator	1.0N NaOH Titrating Solution

1. Add 100 ml of deionized or distilled water into a 250 ml Erlenmeyer flask.
2. Pipette a 2 ml bath sample of Cee-Bee A-601L to the flask.
3. Add 10 drops of bromcresol green indicator.
4. Titrate the sample with 1.0N NaOH to a blue-green endpoint.
5. $\text{ml of 1.0N NaOH} \times 3.4 = \% \text{ by volume of Nitric Acid}$ **or**
6. $\text{ml of 1.0N NaOH} \times 1.4 = \% \text{ by volume of Sulfuric Acid}$.
7. Add 42° Baume Nitric Acid or 66° Baume Sulfuric to bring the percentage up to 10% (for nitric acid) or 5% (for sulfuric acid).

Reagents and Equipment for Concentration of Cee-Bee A-601L

250 ml Erlenmeyer Flask	100 ml graduated cylinder
5 ml Volumetric pipette	1:1 HCl solution
10% KI solution	0.1N Sodium Thiosulfate
0.5% soluble starch solution	15 ml Volumetric pipette
Deionized or distilled water	

1. Add 100 ml of deionized or distilled water into a 250 ml Erlenmeyer flask.
2. Pipette a 5 ml bath sample of Cee-Bee A-601L to the flask.
3. Add 30 ml of 10% KI solution.
4. Add 15 ml of 1:1 HCl solution. Let stand for approximately 1 minute.
5. Titrate with 0.1N Sodium Thiosulfate until a golden color appears. Add several drops of the soluble starch solution. A blue-black color will appear.
6. Continue titration until the blue-black color disappears to a colorless endpoint.
7. $\text{ml of 0.1N Sodium Thiosulfate} \times 0.33 = \% \text{ by volume of Cee-Bee A-601L}$. (Target 21 mls).

Etch Rate –

The etch rate of the bath can be measured using the formula below:

$$\text{Etch Rate} = \frac{(I - F) (\text{Th}) 30}{(I) (I.T.)} = \text{mil/ surface/hour}$$

I = Initial mass (grams)

F = Final mass (grams)

Th = Initial Thickness (mils)

I.T. = Immersion Time (minutes)

A 2024 clad panel immersed in a non-agitated solution of Cee-Bee A-601L should exhibit an etch rate of 0.1 – 0.4 mils/side/hour. The etch rate can be maintained by periodic additions of HF or ABF (ammonium bifluoride) along with base material of Cee-Bee A-601L. To prolong the solution life of Cee-Bee A-601L, it is suggested to maintain etch rate of 0.15 – 0.25. It also should be noted that an increase in agitation of the solution will result in an increase in etch rate as more solution is circulated around the parts.

PROPERTIES

- An orange brown, acidic liquid. pH of about 3.2.

PRECAUTIONS

- **CONTAINS CHROMIC ACID**
- **WARNING!** Can cause severe burns to eyes and skin. Wear face shield, gloves, boots and other proper protective clothing sufficient to avoid contact with eyes and skin. Proper eye protection is always absolutely essential.
- In case of accidental contact, flush area with water for at least 15 minutes. Seek medical attention promptly if irritation persists.
- Avoid splashing nearby personnel during spray rinsing.
- Avoid breathing spray mist. Use adequate ventilation.