

CEE-BEE A-525L LIQUID ALKALINE ETCHANT



d a t a s h e e t

CEE-BEE A-525L is a liquid, alkaline etchant for aluminum where cleaning and etching are required. This product produces a fine etch on aluminum and its alloys.

BENEFITS

- Provides a fine etch on aluminum and its alloys.
- Cleans and removes scale from aluminum prior to further operations.
- Produces a foam blanket to control sodium hydroxide mist and hydrogen that is generated during the etching process.
- Etch rates can be controlled as needed using concentration and/or temperature.

CONFORMS TO

- **UNITED LAUNCH ALLIANCE DPM 8995**
- **LOCKHEED MARTIN STM32-303 REV. C**
- **LOCKHEED MARTIN EMAP – ITEM NUMBER G32.222**

**NOTE: To place an order, call or FAX Customer Service at
800-932-7006 / FAX 1-216-441-1377
Cee-Bee A-525L Product Code # 21020**

NOTES PRIOR TO HANDLING

Before using any Cee-Bee Aviation products, 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 between 5 – 15% by volume Cee-Bee A-525L
3. Mix to ensure bath uniformity.
4. Add water to bring bath up to final working volume.
5. Agitate solution (either air or mechanical) for 50-60 minutes.
6. Bring to operating temperature.

USE INSTRUCTIONS

Operating Temperature – Operate solution within a temperature range of 120° -160 ° Fahrenheit. Heating is necessary to achieve etch rates of 1.3 – 9.0 mil/surface/hour. (0.02 – 0.15 mil/minute/side).

Processing Time – Processing times will vary with alloy, desired etch rate, condition of bath, amount of oxide/discoloration/smut on the part, and temperature. Generally speaking, 2-10 minutes for immersion. Typical times are about 10 minutes.

Etch Rate - For a 10 minute emersion, a typical etch rate for a fresh 6.25% A-525L bath operated at 130°F (54°C) is about 4 mil/surface/hour (0.07 mil/surface/minute). For a 10 minute emersion, a typical etch rate for a fresh 12.5% A-525L bath at 130°F (54°C) is about 8 mil/surface/hour (0.13 mil/surface/minute).

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.

SOLUTION CONTROL

Reagents and Equipment for Cee-Bee A-525L

250 ml Erlenmeyer Flask	100 ml graduated cylinder
10 ml Volumetric pipet	Sodium Fluoride, reagent grade
Phenolphthalein Indicator	1.0 N Sulfuric Acid
Deionized or distilled water	

Part A – Determination of Cee-Bee A-525L

1. Add 100 ml of deionized or distilled water into a 250 ml Erlenmeyer flask.
2. Pipet a 10 ml bath sample of Cee-Bee A-525L to the flask.
3. Add 5 drops of phenolphthalein indicator.
4. Titrate the sample with 1.0N Sulfuric Acid until the pink color disappears. **KEEP SOLUTION FOR USE IN PART B.**
5. ml of 1.0 N Acid x 2.41 = % by volume Cee-Bee A-525L

Part B – Determination of Aluminum in Cee-Bee A-525L Bath

1. Add 1 gram of sodium fluoride to the Part A solution. The solution should turn pink again as aluminum releases hydroxide back into the solution.
2. Titrate with 1.0 N Sulfuric acid until pink color disappears.
3. ml of 1.0N acid x 0.674 = grams/liter of aluminum in the bath

Etch Rate –

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

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

I = Initial mass (grams)

F = Final mass (grams)

Th = Initial Thickness (mils)

I.T. = Immersion Time (minutes)

Divide the above result by 60 to get mil/surface/minute.

Etchant Control

Cee-Bee A-525L is best controlled by etch rate. If the determination of Cee-Bee A-525L (part A above) indicates a decrease, Cee-Bee A-525L should be replenished to bring it back to its starting value.

As Aluminum builds in the bath, the etch rate will slow down. If additions of Cee-Bee A-525L cannot bring the etch rate back to its desired rate, then the bath may have to be dumped.

PROPERTIES

- A transparent, pale yellow liquid.

PRECAUTIONS

- **WARNING!** This product contains potassium hydroxide. It 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.