

BONDERITE C-AK 1000
ALKALINE ETCHANT
(KNOWN AS ALUMINUX 1000)

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DESCRIPTION:

BONDERITE C-AK 1000 (known as ALUMINUX 1000) is a granular, alkaline etchant formulated specifically for etching aluminum with a minimum of fuming and foaming. BONDERITE C-AK 1000 (known as ALUMINUX 1000) forms a stable, controlled foam blanket which entraps the caustic spray resulting from hydrogen evolution and prevents the caustic mist from escaping into the air. BONDERITE C-AK 1000 (known as ALUMINUX 1000) can be mixed with conventional etchants to provide a controlled foam blanket where desired. All surfactants in BONDERITE C-AK 1000 (known as ALUMINUX 1000) are biodegradable.

BONDERITE C-AK 1000 (known as ALUMINUX 1000) provides an outstanding sequestering action that prevents sludging and scaling of the tank walls and heating coils. These benefits reduce the need for expensive equipment descaling and assures the most efficient heating.

BONDERITE C-AK 1000 (known as ALUMINUX 1000) is used for specific metal removal purposes or to develop a highly decorative, or frosted finish on aluminum sheet or extrusions.

HANDLING CHARACTERISTICS:

BONDERITE C-AK 1000 (known as ALUMINUX 1000) is highly alkaline and, therefore, a corrosive product. Contact with the skin or eyes causes irritation or burns. The same safety precautions should be observed as when handling caustic type materials. Personnel should wear eye protection, rubber gloves, an apron or other protective clothing when working with BONDERITE C-AK 1000 (known as ALUMINUX 1000). Tanks used for BONDERITE C-AK 1000 (known as ALUMINUX 1000) should be provided with an adequate exhaust system to protect workers against irritating or corrosive airborne contaminants. Material Safety Data Sheets are available upon request from Henkel Surface Technologies.

OPERATING INSTRUCTIONS:

Recommended operating conditions for BONDERITE C-AK 1000 (known as ALUMINUX 1000) are:

Concentration:	4-10 oz/gallon (30-75 g/L)
Temperature:	100-160°F (38-72°C)
Time:	5-10 minutes

TYPICAL OPERATING CYCLE:

1. Clean using the appropriate Henkel cleaner
2. Water rinse
3. Etch in BONDERITE C-AK 1000 (known as ALUMINUX 1000)
4. Water rinse
5. Desmut/Deox in the appropriate Henkel product.
6. Water rinse
7. Anodize, bright dip, conversion coat, resistance weld, zincate prior to plating, etc.



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FREE CAUSTIC SODA:

New bath free of aluminum:

1. Take a 10 mL sample of etch bath.
2. Add 50 mL of water and 4 drops of Indicator 3 (Phenolphthalein) solution should now be pink.
3. Titrate with Titration Solution 60 (1.0N Acid) until the pink color disappear.
4. Calculation:

$$\begin{aligned} \text{Oz/gal of BONDERITE C-AK 1000 (known as ALUMINUX 1000)} &= \\ &0.56 \times \text{mL of Titration Solution 60 (1.0N Acid)} \\ \text{g/L of Free Caustic Soda} &= 4.21 \times \text{mL of Titration Solution 60 (1.0N Acid) required} \end{aligned}$$

Used etch bath with aluminum:

1. Filter a sample of etch bath through Whatman #54 or #541 filter paper.
2. Take a 10 mL sample of the clear filtered solution.
3. Add 50 mL of water.
4. Titrate with Titration Solution 60 (1.0 N Acid) until the first permanent cloudiness or turbidity is detected.

NOTE: A precipitate will form as the Titration Solution 60 is added but it will redissolve and leave the solution cloudy.

5. Record the number of mls. Of 1.0N Acid required to reach the turbid end point.
6. CALCULATIONS:

$$\begin{aligned} \text{Oz/gal of BONDERITE C-AK 1000 (known as ALUMINUX 1000)} &= \\ &0.56 \times \text{ml of 1.0N acid} \end{aligned}$$

NOTE: It may be difficult to filter the etch bath after aluminum content exceeds 100 g/L. In this case, take a 50 ml sample of the etch bath, dilute with .50 mL of water and proceed as noted above. Multiply the mls. Of 1.0N Acid required to reach the turbid endpoint by 2 to get the correct results.

Aluminum Content:

1. To the retained sample of (b) add 4 drops of Indicator 3 (Phenolphthalein).
2. Re-zero the buret and continue titrating with Titration Solution 60 (1.0N Acid) until the pink color disappears. Record the number of mls. Of Titration Solution 60 (1.0N Acid) used to reach this endpoint.
3. CALCULATIONS:

Grams of Aluminum per liter = 2.67 x mls. Of Titration Solution 60
Ounces of Aluminum per gallon = 0.36 x mls. Of Titration Solution 60

STORAGE:

BONDERITE C-AK 1000 (known as ALUMINUX 1000) should be stored in sealed containers located in a cool, dry area away from acidic materials. If the drums are left open, the BONDERITE C-AK 1000 (known as ALUMINUX 1000) will absorb moisture from the air and degradation of the product could result.



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BONDERITE C-AK 1000 (known as ALUMINUX 1000) solutions may require neutralization to a specified pH range depending on Federal, State and local waste treatment regulations. Waste disposal methods for BONDERITE C-AK 1000 (known as ALUMINUX 1000) are available upon request from Henkel Surface Technologies.

PRECAUTIONS:

DANGER: CAUSES MODERATE TO SEVERE BURNS. MAY BE FATAL IF SWALLOWED.
HARMFUL IF INHALED.

Contains Sodium Hydroxide. Do not get in eyes, on skin, or on clothing. Avoid breathing dust or mist. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

FIRST AID: GET MEDICAL ATTENTION IMMEDIATELY.

Ingestion: Do not take internally. If swallowed, dilute by drinking milk of magnesia. If this is not available, drink large quantities of water or milk. DO NOT induce vomiting. Do not attempt to give liquids or induce vomiting if victim is unconscious or having convulsions. GET MEDICAL ATTENTION IMMEDIATELY.

Inhalation: Remove victim to fresh air. If victim is not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. GET MEDICAL ATTENTION IMMEDIATELY.

Eye Contact: Immediately flush with clean, running water for at least 15 minutes, raising upper and lower lids periodically. GET MEDICAL ATTENTION IMMEDIATELY.

Skin Contact: Flush skin immediately with plenty of water for at least 15 minutes. Wash with mild soap and water. Remove contaminated clothing immediately. If irritation or burns are present, GET MEDICAL ATTENTION IMMEDIATELY.

KEEP OUT OF REACH OF CHILDREN!

ATTENTION: When empty, containers may still be hazardous because of product residue, in either liquid, solid or vapor form. All labeled hazard precautions must be observed.



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TESTING REAGENTS AND APPARATUS

(Order only those items which are not already on hand.)

<u>Code</u>	<u>Quantity</u>	<u>Item</u>
592477	1	Buret assembly, 25 mL automatic
592488	2*	Flask, Erlenmeyer, 250 mL
592475	1	Indicator dropping bottle
592492	2*	Pipette, 10 mL volumetric
592494	1	Pipette filler
592398	250 ml	Indicator 3 (Phenolphthalein)
592440	4.0 L	Titrating Solution 60 (1.0N HCl)

*Includes one more than actually required, to allow for possible breakage.

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