



Technical Process Bulletin

# **BONDERITE M-ED 1000**

## **ANODIZING ADDITIVE**

(KNOWN AS ANOSEAL 1000 (US))

Issued 6/10/2013

### **Description:**

BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)) is a highly effective liquid nickel acetate base seal process for use on clear, integral or two-step electrolytically colored anodized aluminum. BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)) improves the corrosion resistance of the anodized film by penetrating the pores of the anodic film through a precipitation mechanism which plugs these voids. BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)) can reduce or eliminate the smut or powdering often experienced in sealing anodized aluminum. BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)) will also eliminate yellowing which results in sealing clear, anodic coatings at higher temperatures in sealing baths containing organic dispersants.

BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)) meets the sealing requirements of both commercial and certain military specifications.

### **HANDLING CHARACTERISTICS:**

BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)) contains mildly acidic materials. Contact with the skin or eyes may cause irritation. Personnel should wear eye protection, NIOSH approved air mask, rubber gloves and apron when working with BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)). Tanks used for BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)) should be provided with an adequate exhaust system to protect workers against irritating airborne contaminants. Material Safety Data Sheets are available upon request from Henkel Corporation..

### **EQUIPMENT RECOMMENDATIONS:**

Tanks and heating equipment for BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)) should be constructed using 300 Series stainless steel. When BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)) is installed in a used tank, it may be necessary to sandblast the tank walls and coils to remove water scale deposits or other foreign matter which could adversely affect the performance of the BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)) bath.

### **OPERATING INSTRUCTIONS:**

Recommended operating conditions for BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)) are:

	<u>RANGE</u>	<u>OPTIMUM</u>	<u>FREQUENCY OF ANALYSIS</u>
<b>Concentration:</b>	1.5-2.5% by volume	2.0% by volume	Once a shift
<b>Temperature:</b>	170-190°F (77-88° C)	185°F (85° C)	Twice a shift
<b>Time:</b>	5-15 minutes	10-12 minutes	
<b>pH:</b>	5.7-6.0	5.8	Twice a shift
<b>Agitation:</b>	Sufficient mechanical agitation or recirculation is necessary to maintain uniform seal bath temperature.		
<b>Filtration:</b>	Continuous filtration through 3-10 micron filter is highly recommended, however, cartridge filters work excellently.		



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Please consult with a Henkel Technical Service representative for your specific operation parameters according to your sealing quality requirements.

**NOTES:**

1. Anodic film thickness dictates sealing time as well as the end use of the finished product, e.g., architectural, residential, decorative anodizing or organic dye.
2. The pH of the water should be between 5.5 and 6.0 before charging the BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)) for maximum sealing performance.
3. Maintain the pH of the BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)) bath at 5.5 to 6.0. Acetic acid should be used to lower the pH and dilute Ammonium hydroxide should be used to raise the pH as required.
4. SC-640 is highly recommended for pH buffering and is specifically formulated to stabilize and buffer the AS-1000 bath.
5. Maintain the concentration of the BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)) by making the necessary additions as required.

**ORGANIC DYES:**

When these dyes are used to color anodic films, the following parameters are recommended for BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)).

<b>Concentration:</b>	3.0-4.0% by volume
<b>Temperature:</b>	185-190°F (85-88°C)
<b>Time:</b>	5-15 minutes
<b>pH:</b>	5.8-6.0

Separate seal tanks are recommended for clear and organic dyed colored anodizing.

**RINSING:**

Thorough rinsing is necessary before and after the BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)) bath to help prevent contamination of seal bath, to achieve good sealing quality and to help extend the life of the bath. The following rinse sequence is recommended; however, the conditions differ from one plant to another depending on their capabilities.

**BEFORE SEALING:**

Three rinse tanks are recommended as follows:

**First Rinse:** The first rinse after anodizing or coloring is spray rinsing with quality city water (D.I. is recommended) at room temperature.



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Second rinse: Overflow 8-10 GPM with quality city water at room temperature.

Third rinse: Overflow 2-4 GPM, deionized water at room temperature (pH 5.5-6.5).

### AFTER SEALING:

Following seal, a final warm rinse in deionized water at 110° - 140° F is recommended to facilitate drying. pH of this rinse should be 5.5-6.5

### TYPICAL CYCLE:

1. Clean using appropriate Henkel cleaner
2. Rinse
3. Etch in appropriate Henkel etchant
4. Rinse
5. Rinse
6. Desmut in appropriate Henkel desmut/deoxidizer
7. Rinse
8. Anodize
9. Rinse
10. Rinse
11. Rinse
12. Electrolytic
13. Rinse
14. Rinse
15. Rinse
16. Seal BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US))
17. Warm Rinse



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**PERFORMANCE OF THE BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)):**

The BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)) process meets the following requirements:

1. Standard dye stain test
2. Modified dye stain test ASTM: B-136-77
3. Acid dissolution test ASTM: B-680-80
4. Salt spray test ASTM: B-117 up to 3000 hours
5. UV resistance test – no color change after 1000 hours.

**SOLUTION CONTROL:**

1. Pipette a 100 mL sample of the BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)) and place in a clean 400 mL beaker.
2. Add approximately 200 mL of distilled water
3. Add 25 mL of concentrated Ammonium Hydroxide and 10 mL of Triethanolamine and mix thoroughly
4. Add approximately 0.1 gram (2 tablets) of Murexide Indicator.
5. Titrate with 0.1M EDTA until a purple violet color is obtained which persists for 35 to 45 seconds. Record the number of mL of 0.1M EDTA required.

**6. CALCULATIONS:**

% BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)) by volume =  $0.14 \times (\text{mL of 0.1M EDTA})$

**STORAGE:**

BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)) should be stored in original sealed containers in a cool, dry area away from alkaline materials. KEEP FROM FREEZING

**WASTE DISPOSAL:**

Disposal of BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)) will depend on the limits of nickel acceptable by Federal, State and local waste treatment regulations. Disposal methods for BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US)) are available upon request from Henkel Corporation..



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**PRECAUTIONS:**

DANGER: MAY CAUSE ALLERGIC REACTION AFTER REPEATED OR PROLONGED CONTACT. MAY CAUSE SKIN IRRITATION. HARMFUL IF SWALLOWED.

Contains nickel acetate. Avoid contact with skin or clothing. Do not breathe vapor or mists. Wear protective clothing to prevent repeated, prolonged contact with skin. Maintain adequate ventilation. Wash thoroughly after handling. Remove clothing and launder before reuse after working with this product.

**FIRST AID:**

**Ingestion:** If swallowed, drink large amounts of milk or water. INDUCE VOMITING by touching the back of the throat with finger. Never give liquids or induce vomiting if a person is having convulsions or is unconscious. GET MEDICAL ATTENTION IMMEDIATELY!

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

**Eye Contact:** Flush eyes thoroughly with water. GET MEDICAL ATTENTION IMMEDIATELY!

**Skin Contact:** Wash skin with mild soap and water. Remove contaminated clothing. If irritation occurs, GET MEDICAL ATTENTION.

KEEP OUT OF REACH OF CHILDREN

**ATTENTION:** When empty, containers will still be hazardous because of product residue. All labeled hazard precautions must be observed.



**BONDERITE M-ED 1000  
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BONDERITE M-ED 1000 (known as ANOSEAL 1000 (US))

<u>Code</u>	<u>Quantity</u>	<u>Item</u>
592477	1	Buret assembly, 25 mL automatic
N.A.**	2	100 mL Volumetric pipette
N.A.**	2	400 mL Glass beaker
592493	2*	Pipette, 25 mL volumetric
594473	1 (2.5 L)	Reagent Solution 102 (Ammonium Hydroxide Concentrate)
595523	1 (1.0 L)	Reagent Solution 1574 (Triethanolamine)
N.A.**	1 (100 tab)	Indicator 1554 (Murexide Indicator Tablets)
N.A.**	1 (1.0 L)	Titration Solution 1561 (0.1M EDTA)

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

\*\*Not Available

Henkel Corporation | 32100 Stephenson Highway | Madison Heights, MI 48071  
 PHONE: (248) 583-9300 | FAX: (248) 583-2976 | [www.henkeln.com/](http://www.henkeln.com/)

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