

BONDERITE® M-NT 65000 AERO

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PRODUCT DESCRIPTION

BONDERITE® M-NT 65000 AERO provides the following product characteristics:

Technology	Metal Pre-Treatment
Product Type	Conversion Coating
Appearance	Dark green
Application Method	Immersion
Application	Surface Treatment Process, Aviation Conversion Coating

BONDERITE® M-NT 65000 AERO trivalent chromium-based conversion coating is recommended for use on aluminum and its alloys.

When applied, BONDERITE® M-NT 65000 AERO forms an amorphous, inorganic-type coating used for corrosion protection on bare metal and an adhesion promoter for paint coating.

APPROVALS

- Tested in QPL for MIL-DTL-81706, Type II, Classes 1A(A) and 3(B), Method C
- Authorized for use on parts that have to meet MIL-DTL-5541 Type II coatings
- RoHS (Restriction of Hazardous Substances) European directive 2002/95/EC compliant

PRODUCT BENEFITS

- Sulphate-free
- Suitable for use with most aluminum alloys
- No additional bath needed when used in plug-in process application of existing chromate application lines
- Allows for low electrical resistance

TECHNICAL DATA

Shelf Life @ 5 to 40°C, days 720

GENERAL INFORMATION

Please consult the Safety Data Sheet (SDS) for safe handling information of this product.

DIRECTIONS FOR USE**Processing Equipments**

Process tank and housing for the BONDERITE® M-NT 65000 AERO should be fabricated from stainless steel, such as 316L or 304L. Alloy 316L is preferred for maximum tank life. In all

cases, approved welding techniques must be used. Polyvinyl chloride (PVC) or CPVC lined mild steel can be used.

Heat exchanger plates should be made of polished 316 stainless steel. Gas fired burner tubes are not recommended. All process circulation pump seals, valve seats, door seals, etc., which may come in contact with the process solution and occasional acid equipment cleaners, should be EPDM, FKM or PTFE.

Chemical feed pump parts and other elastomers which may come in contact with the concentrated replenishing chemical should be FKM or PTFE.

Materials

BONDERITE® M-NT 65000 AERO conversion coating solution

BONDERITE® M-AD 101 aging additive (optional)

Recommended Mix Ratios

Mix the required amount of material for the bath preparation..

BONDERITE® M-NT 65000 AERO, %:

By Volume 25 to 60

BONDERITE® M-AD 101, g/L:

Optional to pre-age 5 to 11

Bath Operation and Control

Concentration, % v/v 25 to 60
Temperature, °C 20 to 30
Immersion Time, minutes 5 to 10
pH 3.8 to 4.3

Conversion Coating Process Steps

The complete process treatment consists of the following steps:

1. Non-etch alkaline cleaning
2. Water rinse
3. Alkaline etch (optional)
4. Water rinse
5. Deoxidizing
6. Water rinse
7. BONDERITE® M-NT 65000 AERO processing solution treatment
8. Deionized water (D.I. water) rinsing
9. Drying

Surface Preparation**Cleaning**

- All surfaces treated should be clean, dry and free from any contaminants that will affect adhesion.



Water Rinsing

- After cleaning, the metal must be thoroughly rinsed with water. The rinse should flow continuously at a rate which will keep it clean and free from scum and other contamination.

Alkaline Etching(Optional)

- If the aluminum to be treated has corrosive products or heavy oxides on the surface, it should be conditioned by installing two additional steps between post cleaner rinse and deoxidizing steps. The first additional step involves an alkaline etching with an etchant chemical and second step is an additional cold-water rinse.

Deoxidizing

- This step should produce a surface that is fully reactive, free from all surface oxide residue. The product must have high oxidizing power to bleach the surface by removing the dirt caused by alloying elements (i.e., copper, silicon, magnesium, etc).

SURFACE TREATMENT PROCESS USING BONDERITE® M-NT 65000 AERO

Build Up

1. Treatment tank must be cleaned thoroughly prior to build-up of bath mixed BONDERITE® M-NT 65000 AERO.
2. After cleaning, add 250 to 600 mL of BONDERITE® M-NT 65000 AERO for each 1 liter of working solution.
3. Add enough water to bring the solution up to the working level and mix thoroughly.
4. If necessary, heat the processing tank to the proper processing temperature.
5. If aging bath is necessary, slowly add BONDERITE® M-AD 101 in a turbulent area of the tank.

Bath Operation and Control

Concentration, % v/v	25 to 60
Temperature, °C	20 to 30
Immersion Time, minutes	5 to 10
pH	3.8 to 4.3

Each alloy reacts with the BONDERITE® M-NT 65000 AERO solution to produce a coating that is characteristic of that alloy. The bath should produce a light, blue to iridescent blue coating within the operating conditions selected.

After Treatment ProcessWater Rinsing

1. Tap water rinsing followed by deionized (DI) or reverse osmosis (RO) water rinsing is preferred in order to obtain optimum results from the treatment. DI or RO water rinse will most effectively remove any water-soluble salts from the treated surface. The design of the equipment is important for efficient use of DI or RO water.

Drying

1. The parts should simply be allowed to air dry in a clean environment.
2. Forced drying with moving (blowing) air or drying in a low temperature dry oven should be done at a temperature not exceeding 40°C.

Testing and Control

Photometric determination of BONDERITE® M-NT 65000 AERO with HACH Test LCK 313

Equipment:

- Photometer Hach-Lange DR 6000 ($\lambda = 540 \text{ nm}$)
- Test: Hach LCK 313, Cuvette "Chromium total"
- Measurement range: 0.03 - 1.0 mg/L Chromium
- Heating block thermostat LT 100-1 (or HT 200S)
- Stopwatch
- Graduated volumetric flasks of 500 mL
- 2.0, 5.0 and 10.0 mL pipettes

Pipette 10 mL sample of BONDERITE® M-NT 65000 AERO bath solution into a 500 mL volumetric flask and dilute to the mark with deionized water and homogenize the solution (Dilution #1).

Pipette 5 mL of dilution #1 into a 500 mL volumetric flask and dilute to the mark with deionized water and homogenize the solution (Dilution #2). Dilution #2 will be the testing solution (sample) for the following LCK 313 Method needed to determine the chromium level.

1. Take a cuvette from the test kit and remove the lid.
2. Pipette 2 mL of the above sample (Dilution #2) into the cuvette.
3. Remove the aluminum foil from the lid and screw the lid in reverse direction on to the cuvette. Shake vigorously to dilute the powder left on the lid.
4. Place the cuvette in the heating block thermostat and heat to 100°C for 60 minutes. (Heat block HT 200S for 15 minutes at 170°C).
5. After digestion, the cuvette is cooled down to ambient temperature (without shaking).
6. Remove the lid and replace with orange DosiCap B.
7. Shake until the powder from the DosiCap is completely dissolved.
8. Let the solution in the cuvette react for 120 seconds (use stopwatch).
9. Clean the outer surface and place the cuvette in the photometer. The photometer will automatically detect the determination requested (bar code of the cuvette) and present the measurement result "c" immediately in "mg/L of chromium".
10. A blank (solution without chromium content) measurement is not necessary.

To determine the bath concentration:

Reading in mg/L of prepared Sample X 73.53 = % vol of BONDERITE® M-NT 65000 AERO.



Colometric determination of BONDERITE® M-NT 65000 AERO with HACH Method 8024

Equipment:

- Colorimeter Hach-Lange DR/890 ($\lambda = 540 \text{ nm}$)
- Test: HACH Method 8024
- Measurement range: 0.01 – 0.70 mg/L Chromium
- Round sample cell 2401906 X 2
- Chromium 1 Reagent Powder Pillow
- Chromium 2 Reagent Powder Pillow
- Acid Reagent Powder Pillow
- ChromaVer® 3 Chromium Reagent Powder Pillow
- Hot plate
- Graduated volumetric flasks of 500 mL
- 5.0 pipettes

Pipette 5mL sample of BONDERITE® M-NT 65000 AERO bath solution into a 500 mL volumetric flask and dilute to the mark with deionized water. Homogenize the solution (Dilution #1).

Pipette 5 mL of Dilution #1 into a 500 mL volumetric flask and dilute to the mark with deionized water and homogenize the solution (Dilution #2). Dilution #2 will be the testing solution (sample) for the following HACH Method 8024 needed to determine the chromium level.

1. Fill the round shape cell with 25 mL of Dilution #2.
2. Add the contents of one Chromium 1 Reagent Powder Pillow cap and mix well.
3. Remove the cap and place in boiling water bath for 5 minutes.
4. Replace the cap and make sure to secure tightly.
5. Cool the sample cell to 25°C under running water.
6. Remove the caps and add the contents of one Chromium 2 Reagent Powder Pillow. Cap and invert to mix.
7. Remove cap and add the contents of one Acid Reagent Powder Pillow. Cap and invert to mix..
8. Remove cap and add the contents of one ChromaVer® 3 Chromium Reagent Powder Pillow. Cap and invert to mix.
9. Allow a 5-minute reaction time.
10. Prepare a blank by filling another sample cell with 25 mL of Dilution #2.
11. Zero the colorimeter with the blank and read the prepared sample.

To determine the bath concentration:

Reading in mg/L of prepared Sample X 147 = % vol of BONDERITE® M-NT 65000 AERO.

STORAGE AND HANDLING

Handling

1. When handling the chemical products used in this process, the first aid and handling recommendations on the Safety Data Sheet should be read, understood and followed.
2. BONDERITE® M-NT 65000 AERO is a mildly acidic material, containing fluorinated derivatives.
3. Contact with the skin or eyes can cause burns.
4. In case of contact with the skin, wash immediately with plenty of water, apply calcium gluconate gel (2.5%) and massage for several minutes.
5. Pay special attention to areas under the nails.
6. If splashed into the eyes, wash immediately with plenty of water. Apply triethanolamine (2%) eyedrops and consult an ophthalmologist immediately.
7. Gloves, boots, safety goggles and work apron are recommended when handling the product.
8. It is recommended to provide showers and eyewash fountains in the vicinity of the workstation.
9. Do not use containers made of glass or silica-based materials.

Waste Disposal Information

For the disposal of used solutions, proceed as follows:

1. Neutralize with lime to precipitate fluorides and metallic salts. Adjust the pH to between 6.5 and 9.
2. Decantation of sludge formed.
3. Check effluence compliance with local applicable laws and regulations.

Storage

This product is frost-sensitive and can be damaged irreversibly if exposed to freezing temperatures.

Keep the product away from alkaline products.

Store in original, tightly covered containers in clean, dry areas. Storage information may be indicated on the product container labeling.

Optimal Storage: 5 to 40°C. Storage below 5°C or above 40°C can adversely affect product properties.

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Henkel Representative.

Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$

L / 3,785 = gallons

mm / 25.4 = inches

dm² / L / 9,290 * 3,785 = ft² / gal

Not for product specifications

The technical data contained herein are intended as reference only. Please contact your local quality department for assistance and recommendations on specifications for this product.



Disclaimer

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product. Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

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