BONDERITE

Technical Data Sheet

BONDERITE M-NT E

November 2022

PRODUCT DESCRIPTION

BONDERITE M-NT E provides the following product characteristics:

Technology	Metal Pretreatment
Product Type	Chrome-free
Application	Conversion coating, Rinse process
Process Components:	BONDERITE M-NT E BONDERITE M-AD 700 BONDERITE M-NT 4830

BONDERITE M-NT E is a chrome free reactive pretreatment especially formulated for the conversion prepainting of aluminum, steel and zinc surface. BONDERITE M-NT E is free of volatile organic component, phosphate, chromate, heavy metals, DOC (when used without BONDERITE M-NT 4830) so it's very environment compatible.BONDERITE M-NT E produces, on aluminum surface, compactness and colorless layer, its corrosion resistance performance will generally be equal or better than chromic conversion. Separated tank is suggested for architectural aluminum applications.BONDERITE M-NT E produce, on steel and zinc surfaces, a more compactness layer than iron phosphate, and its corrosion resistance performance will generally be better than iron phosphate conversion.

Process components

BONDERITE M-NT E	make up and replenisher product
BONDERITE M-AD 700	pH adjuster product (if necessary)
BONDERITE M-NT 4830	make up and replenisher product (optional for architectural aluminum treatment)

DIRECTIONS FOR USE

Preliminary Statement:
Prior to use it is necessary to read the **Material Safety Data Sheet** for information about precautionary measures and safety recommendations. Also, for chemical products exempt from compulsory labeling, the relevant precautions should always be observed. Please also refer to the local safety instructions and contact Henkel for analytical support.

Process Description:

1. Alkaline degreasing (preferentially done with a suitable alkaline cleaner system)
2. Rinse (suitable continuous renewal)
3. Acid deoxidizing (option for architectural aluminum)
4. Rinse (option for architectural aluminum)
5. DI rinse (suitable continuous renewal)
6. Conversion with BONDERITE M-NT E (separated tank is suggested for architectural aluminum)
7. DI rinse (continuous renewal, beware to maintain conductivity lower than 30 µS/cm)
8. Drying (60 to 170°C, 10 to 20 min)

Operating Data:
BONDERITE M-NT E is used in DI water solution both for immersion and spray application at the following conditions:

BONDERITE M-NT E, %	4 to 7
BONDERITE M-NT 4830 (when used), %	0.2 to 0.8
pH	4.0 to 5.5 (4.0 to 5.0 if aluminum is treated)
Temperature, °C	max. 15 to 40
Time (immersion), sec	30 to 180
Time (spray), sec	20 to 120
Pressure, bar	0.5 to 1.5
Absorbance	0.1 to 0.55 (typically 0.2 to 0.4)
DOC (if BONDERITE M-NT 4830 is used)	60 to 280 ppm O2

Bath make-up:
Fill ¾ of the bath with deionized water (DI water).
Add BONDERITE M-NT E and BONDERITE M-NT 4830 (if necessary) and fulfill the tank with DI water.
Homogenize the bath and make the control as described below.
Keep the correct pH value with BONDERITE M-AD 700.

Bath Monitoring:
BONDERITE M-NT E bath is controlled by determination of the pH-value, the pH must be kept constant during the bath's operation and DOC value when BONDERITE M-NT 4830 is used. Additionally, we recommend monitoring the BONDERITE M-NT E bath by photometric measurement of zirconium concentration.

pH:

- Take a sample of the bath and if necessary cool down to 20°C, check the pH value using a fluoride stable pH-meter standardized at pH 4 and pH 7.
- Keep the pH value in the upper mentioned range with addition of BONDERITE M-NT E to decrease it and BONDERITE M-AD 700 to increase it.
- Addition of 5.8 L of BONDERITE M-NT E each 1,000 L

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bath decrease approximately pH by 0.1.
- Addition of 95 mL of BONDERITE M-AD 700 each 1,000 L bath increase approximately pH by 0.1.

DOC:

BONDERITE M-NT E concentration is checked by DOC determination, in order to able to do it following equipments is requested:

DOC vials (range 25 to 1,500 ppm)
Heater
Photometer

Introduce 3 mL bath into a DOC vials. Put the vial into the heater (2 hours at 148°C). Cool down to room temperature the vials and read the DOC (in O2 ppm) using the photometer.

BONDERITE M-NT 4830 concentration is giving by:

% BONDERITE M-NT 4830 = ppm O2 x 330

DOC value must keep in the correct range, add 0.5 kg of BONDERITE M-NT 4830 each 1,000 L bath every 15 ppm O2 needed.

BONDERITE M-NT E

Take approximately 5 mL bath sample, and filter through 0.22 µm pore width filter. A membrane filter attached to a 5 mL plastic syringe is recommended. Alternatively one or two paper filter (e.g. S&S 589.3) can be used.

Pipette exactly 1.0 mL of the filtrate into a 50 mL beaker equipped with a Teflon stirring bar. This is the “sample”.

Pipette exactly 1.0 mL of DI water as blank solution into a second 50 mL beaker equipped with a Teflon stirring bar. This is the “blank”. Add exactly 1 mL of Titration Solution 1561 each to “sample” solution and “blank”. Then add exactly 2 mL Buffer Solution 4.7 each to “sample” solution and “blank”, and mix for at least 5 minutes. After mixing, add exactly 1.0 mL Reagent Solution AT each to “sample” solution and “blank”. Mix another 10 minutes. The resulting solutions should be orange red.

Pipette the “blank” solution into one of the plastic cells (1-cm path length) that came with the Hach pocket colorimeter. Pour “sample” solution into a second plastic cell. Remove the instrument cap from the pocket colorimeter, and insert the cell with the “blank” solution into the cell compartment with notch-to-notch fit. Use the instrument cap as a light shield during measurements. Press the ZERO key. The meter should read 0.00. If the meter does not read 0.00, press the ZERO key again.

Replace the “blank” cell with the “sample” test cell, and cover the cell compartment with cap. Press the READ key. Record the reading as absorbance. This reading corresponds to the concentration of active component in BONDERITE M-NT E bath. Maintain suggested working condition between 0.1 to 0.55 (typical 0.2 to 0.4), to increase absorbance value 0.6 points add approximately 10 L BONDERITE M-NT E each 1,000 L bath.

For consistent and accurate results, check battery, clean and dry the outside of sample cells before inserting them into the pocket colorimeter.

Replenishment:
Keep the concentration of BONDERITE M-NT E and BONDERITE M-NT 4830 (if used) as described in the “BATH CONTROLS”.

Frequently controls and concentration adjustment are suggested in order to maintain the correct operating values; avoid to add consisting quantity of BONDERITE M-NT E, BONDERITE M-NT 4830 and BONDERITE M-AD 700.

In order to avoid precipitations of active matter made addition of working products in high turbulence point of the tank.

Special Remarks:
Slight differences in product appearance do not affect its efficiency or operating performances. Keep the bath surface free from floating pollutant. Working tank must be made in Stainless steel (AISI 304) or steel coated with plastic (PVC, PP). Spraying systems, pumps and heating facilities should be made of stainless steel (AISI 304).

Classification:
Please refer to the corresponding **Material Safety Data Sheets** for details on:
- **Hazards identification**
- **Transport information**
- **Regulatory information**

Storage:

Recommended Storage Temperature, °C	5 to 45*

*BONDERITE M-NT E may precipitate if stored at temperatures below 5°C or above 45°C. If the product freezes or precipitates, do not use.

ADDITIONAL INFORMATION

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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