

BONDERITE® M-NT 1

December 2023

PRODUCT DESCRIPTION

BONDERITE® M-NT 1 provides the following product characteristics:

Technology	Metal Pretreatment
Product Type	NGC / Zirconium Technology
Application	Conversion coating
Process Components:	BONDERITE® M-NT 1 BONDERITE® M-AD 700 BONDERITE® M-AD 252

BONDERITE® M-NT 1 is a phosphate-free liquid pretreatment especially formulated for use in the treatment of steel, galvanized steel and aluminium surfaces. The pretreatment is free of volatile organic components and increases the corrosion resistance of painted metal surfaces significant. BONDERITE® M-NT 1 when compared to iron-phosphating normally improves corrosion resistance properties reducing operative costs. BONDERITE® M-NT 1 may be applied by spray or immersion with a separate cleaning step, no heating of the BONDERITE® M-NT 1 bath is required. The BONDERITE M-NT 1 pretreatment is compatible with all types of paint.

Application areas:

Pre-painting treatment of spare parts in automotive, appliances, metal furniture industries and, in general, on all plate pieces which are not much exposed to corrosive agent aggression (humidity, atmospheric conditions, etc.).

TECHNICAL DATA

Appearance	clear liquid Slight differences in colour may appear due to the used raw material. The performance, however will not be affected.
Density at 20°C (DIN 51757)	1.01
pH-value (100%)	1.9

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.

Bath make-up:

Fill $\frac{3}{4}$ of the bath with water (DI-water recommended). Measure the pH value of the make-up water. (Only necessary in rare cases: use BONDERITE® M-AD 252 to decrease the pH value below 6.5. Do not add more than 200 ml of BONDERITE® M-AD 252 per 1,000 l at a time and recheck the pH. Repeat this addition if the pH is not below 6.5.)

For each 1,000 l of bath volume add to the agitated bath:

BONDERITE® M-NT 1	10 to 50 L
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Fill the bath to normal working level and slowly add BONDERITE® M-AD 700 to adjust the pH to 4.0 to 4.5.

Operating data:

pH-value	3.8 to 5.5
Concentration Zr	0.05 to 0.25 Absorption at 450nm*
Treatment time	20 to 120 sec.
Temperature	RT (20 to 40°C)
Spray pressure	0.5 to 1.5 bar

*as described in following method

Running the process in the preferred pH range 4.5 to 5.0 must give a Zr concentration that fits the process. An absorbance of 0.05 is considered an absolute minimum, even if the process time exceeds 70 sec.

The recommended concentration (absorbance) for every production line will depend on process time, geometry of the treated parts and other parameters. Typical values are 0.1 to 0.2 (absorption).

If the absorption for Zr drops below the desired value, the pH needs to be decreased by adding more BONDERITE® M-NT 1, even when the pH is already within the preferred range. Additionally, changes in the above mentioned process parameters may be necessary – they have to be evaluated individually and documented specifically for each production line.

If the concentration of BONDERITE® M-NT 1 lies within the recommended working range, the pH-value of the bath must be adjusted within the recommended range with BONDERITE® M-AD 252 (decrease the pH-value) or BONDERITE® M-AD 700 (increase the pH-value). Additionally, changes in the above mentioned process parameters may be necessary – they have to be evaluated individually and documented specifically for each production line.

Process description:

With alkaline degreasing – 5 zones

1. Alkaline degreasing
2. Rinse (industrial water)
3. Rinse (DI water)
4. Conversion bath (BONDERITE® M-NT 1)
5. Rinse (DI water)
6. Drying (optional, depending on the paint system)

Bath monitoring:

The BONDERITE® M-NT 1 bath is controlled by determination of the pH-value and concentration of BONDERITE® M-NT 1.

pH-value:

The pH is determined using a fluoride stable pH meter standardized at pH 4 and pH 7.

pH range: 3.8 to 5.5

Preferred range: 4.5 to 5.0

Adjustment of the pH-value:

To reduce pH-value add BONDERITE M-NT 1 or BONDERITE M-AD 252

To increase pH-value add BONDERITE M-AD 700

Determination of the concentration of BONDERITE M-NT 1

Photometer: HACH Pocket colorimeter II 450 nm:

Cell /vessel: Diameter 25.4 mm, cylinder cell

Analyte: BONDERITE M-NT 1

Reagents 908-1 and 908-2 should be stored at room temp. (+5 to 25°C) and protected from light.

Before the insertion into the photometer cell / vessels need to be closed tightly.

Otherwise the operator and/or the photometer may be harmed.

Preparation of the HACH Pocket colorimeter II 450 nm:

- Turning-on of the device.
- For the zero compensation fill the 25.4 mm cell with DI water.
- Remove the instrument cap from the pocket colorimeter, and insert the cell with the DI water into the cell compartment.
- Use the instrument cap as a light shield during measurements.
Press the ZERO key. The meter should read 0.0. If the meter does not read 0.0, press the ZERO key again.

Preparation of the sample:

- Pipette 50 mL of Reagent 908-1 into a 100 mL beaker.
- Add 0.4 mL of the bath sample to the beaker using an accurate pipette and mix the solution gently.
- Add 2.0 mL of Reagent 908-2 and mix the solution gently.
- Decant the mixture into a cell and insert the cell into the cell compartment. Use the instrument cap as a light shield during measurements. Press the READ key. Multiply the reading by the correction factor (see below) and record it as absorbance. This value corresponds of the active component in BONDERITE® M-NT 1.

Determination of the correction factor:

- Prepare 30 ppm Zr solution obtained by dilution of 1,000 ppm ICP Standard-solution (Merck; Art-Nr.

1.70370.0100).

- Pipette 50 mL of Reagent 908-1 into a 100 mL beaker.
- Add 0.4 mL of the bath sample to the beaker using an accurate pipette and mix the solution gently.
- Add 2.0 mL of Reagent 908-2 and mix the solution gently.
- Decant the mixture into a cell and insert the cell into the cell compartment. Use the instrument cap as a light shield during measurements. Press the READ key and take the result (A).

0.28

Correction factor = $\frac{0.28}{\text{Extinction (A)}}$

The product concentration is in its target range, if the displayed measurement value is within the defined limits. For each missing 0.05 unit of extinction have to be added per 1,000 litre bath solution:

BONDERITE® M-NT 1 10 kg

Special remarks:

Containers for the BONDERITE® M-NT 1 product concentrate should be made of fluoride resistant plastic like hard PVC or PP.

The bath containers for the BONDERITE® M-NT 1-bath can be made of hard PVC (free of softening agents) or stainless steel 1.4301 (AISI 304). Alternatively, a mild steel container, lined with a fluoride resistant plastic can be used. The spraying systems, pumps and heating facilities should be made of stainless steel (AISI 304).

The waste water treatment and disposal must comply with the local discharge regulation.

Classification:

Please refer to the corresponding **Material Safety Data Sheets** for details on:

Hazards identification

Transport information

Regulatory information

Storage

Recommended Storage Temperature	0 to 40°C
Shelf-life, months	6



ADDITIONAL INFORMATION**Disclaimer****Note:**

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.

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