

## BONDERITE M-NT 1800

Known as TecTalis 1800  
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### PRODUCT DESCRIPTION

BONDERITE M-NT 1800 provides the following product characteristics:

<b>Technology</b>	Metal Pretreatment
Product Type	NGC / Zirconium Technology
<b>Application</b>	Conversion coating
<b>Process Components:</b>	BONDERITE M-NT 1800 BONDERITE M-AD 229 BONDERITE M-AD 700 BONDERITE M-AD 252

BONDERITE M-NT 1800 is a phosphate-free, liquid pre-treatment product for the conversion pre-treatment of galvanized steel, steel and aluminium. The product is free from volatile organic components.

The procedure offers a very good adhesive coat for a following coating with paints and an excellent corrosion protection after the paint finish.

The BONDERITE M-NT 1800 pretreatment is carried out in a spray process, followed by a DI water rinse (demineralised water). The procedure is compatible with all kinds of paint finish.

### 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:

##### Preparation of the bath

Fill up  $\frac{3}{4}$  of the volume of the bath with DI Water.

##### Addition of BONDERITE M-NT 1800

Add per 1,000 L bath volume, while stirring:

BONDERITE M-NT 1800                      30 kg (29.6 L)

##### Adjustment of BONDERITE M-NT 1800 bath:

Complete with DI water and adjust the pH-value to 4.0 to 4.2 through slow addition of BONDERITE M-AD 700.

An increase of the pH-value of 0.1 corresponds to an addition of 40 mL BONDERITE M-AD 700 per 1,000 L bath volume (in the pH-range 3.5 to 4.5).

According to the experience the volume of BONDERITE M-AD 700 needed for the adjustment of the pH-value lies between approximately 2 and 6 L per 1,000 L bath volume.

### Operating data:

pH-value (working range)	3.8 to 5.0
pH-value (preferred range)	4.0 to 4.2
(*) Concentration BONDERITE M-NT 1800	1.137 ± 0.1 units of extinction
(*) Concentration BONDERITE M-AD 229	0.213 to 0.948 units of extinction
Pre-Treatment time	20 to 180 sec
Temperature	20 to 40°C
Spray pressure	0.5 to 1.5 bar

(\*)analytical method described below.

Within the preferred pH range of 4.0 to 4.2 the concentrations of BONDERITE M-NT 1800 and BONDERITE M-AD 229 must be adapted to the process.

The recommended concentration for every production line will depend on process time, geometry of the treated parts and other parameters.

Typical values lie around 1.137 ± 0.1 units of extinction for BONDERITE M-NT 1800\* and 0.423 ± 0.05 units of extinction for BONDERITE M-AD 229\*.

If the concentration of one of these process components drops below the desired value, it must be increased by adding the relevant product.

If the concentrations of BONDERITE M-NT 1800 and BONDERITE M-AD 229 lie within the recommended working range, the pH-value of the bath must be adjusted within the recommended range with BONDERITE M-AD 252 (decreases the pH-value) or BONDERITE M-AD 700 (increases the pH-value).

A change in the following process data can be necessary and must be carried out in compliance with the line.

### Process description:

1. Degreasing
2. Rinse (industrial water)
3. Rinse (DI water)
4. Conversion bath (BONDERITE M-NT 1800)
5. Rinse (DI water)
6. Drying (optional, depending on the paint system)

#### 1. Degreasing

The cleaning step is preferably carried out with an adapted alkaline cleaner. Details regarding the state-of-the-art products are to be found in the corresponding Technical Data Sheets.

#### 2. Industrial water rinse

Cleaning is followed by rinsing with water. A rinse occurring directly after the degreasing step can normally be operated with industrial water. A continuous overflow should be maintained to avoid contamination

### 3. DI water rinse

Prior to the conversion coating, rinse with DI water or alternatively with low conductivity water. A continuous overflow should be maintained to avoid contamination.

### 4. Conversion bath

The recommended values are to be maintained.

### 5. DI water rinse

The rinse after the conversion zone must continuously be overflowed with fresh water to keep electrolytic conductivity below 50 µS/cm (25 µS recommended).

### 6. Drying (optional, depending on the paint system)

#### **Bath monitoring:**

The bath is monitored through pH-value and concentration of the process components BONDERITE M-NT 1800 and BONDERITE M-AD 229.

#### Determination of the pH-value:

The pH is determined using a fluoride stable pH meter standardized at pH 4 and pH 7. Alternatively, pH paper can be used.

pH-value (working range)	3.8 to 5.0
pH-value (preferred range)	4.0 to 4.2

#### Adjustment of the pH-value:

To reduce pH-value add BONDERITE M-NT 1800 or BONDERITE M-AD 252.

To increase pH-value add BONDERITE M-AD 700.

Frequent measurements of the pH-value and small and regular additions of the process chemicals are preferred. Addition of large quantities of process chemicals should be avoided.

#### Determination of the concentration of BONDERITE M-NT 1800:

Photometer: WTW pHotoFlex

Cuvette / vessel: Diameter 28 mm

Analyte: BONDERITE M-NT 1800

Method-No.: 908

Measurement range: 0.2 to 1.384 units of extinction

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

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

#### Preparation of the WTW pHotoFlex:

- Turning-on of the device.
- Select "Photometry" and confirm with "ENTER".
- Select program 908 (Press button "PROG" and

determine the measurement method with the numeric input, then confirm with "ENTER").

- For the zero compensation fill the 28 mm cuvette with demineralised water and follow the instructions on the photometer's display.
- Execute the measurement

#### Preparation of the sample:

- Pipette 50 mL of Reagent 908-1 into a 100 mL beaker.
- Add 200 µl of the bath sample to the beaker (use 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 cuvette and start the measurement (remark: the volume is not specified, just make sure that enough solution to decanted to cover the light beam of the photometer).

Multiply the reading by the correction factor (see below) and record it as extinction.

The defined limit for BONDERITE M-NT 1800 is  $1.137 \pm 0.1$  units of extinction. For each missing 0.1 unit of extinction have to be added per 1,000 litre bath solution:

BONDERITE M-NT 1800                      2.66 kg = 2.63 L

#### Determination of the correction factor:

- Prepare 100 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 0.2 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)

$$\text{Correction factor} = \frac{0.760}{\text{Extinction (A)}}$$

#### Determination of the concentration of BONDERITE M-AD 229:

Photometer: WTW pHotoFlex

Cuvette / vessel: Diameter 28 mm

Analyte: BONDERITE M-AD 229

Method-No.: 912

Measurement range: 0 to 0.97 units of extinction

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

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

#### Preparation of the WTW pHotoFlex:

- Turning-on of the device.
- Select "Photometry" and confirm with "ENTER".
- Select program 912 (Press button "PROG" and determine the measurement method with the numeric input, then confirm with "ENTER").
- For the zero compensation fill the 28 mm cuvette with



demineralised water and follow the instructions on the photometer's display.

- Execute the measurement.

#### Preparation of the sample:

- Pipette 1.0 mL of the bath sample into the cuvette / vessel.
- Add 9.0 mL demineralised water.
- Add one tip of a spatula Reagenz 912-1 and mix the solution gently.
- Add one tip of a spatula Reagenz 912-2 and mix the solution gently to the complete dissolving of the reagents.
- Wait 3 min.
- Add 0.5 mL of Reagenz 912-3 and mix the solution gently; then start the measurement.

The product concentration is in its target range, if the displayed measurement value is within the defined limits.

For BONDERITE M-AD 229 the defined range is  $0.423 \pm 0.05$  units of extinction. For each missing 0.05 unit of extinction have to be added per 1,000 litre bath solution:

BONDERITE M-AD 229                      22.5 g = 17.3 mL

#### Special Remarks:

Containers for the BONDERITE M-NT 1800 product, and the bath containers, spraying systems, pumps and heating facilities for the BONDERITE M-NT 1800 bath should be made of fluoride resistant material. 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, °C	5 to 40
Shelf-life, months (in unopened original packaging)	9

#### 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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Reference 0.0