



BONDERITE M-FE 3960 W

Known as Duridine 3960 W
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PRODUCT DESCRIPTION

BONDERITE M-FE 3960 W provides the following product characteristics:

Technology	Cleaner coater
Product Type	Acid 1-component
Application	
Concentration	10 to 20 g/l
Temperature	45 to 70°C

BONDERITE M-FE 3960 W is a liquid double action chemical process for simultaneously cleaning and iron phosphating ferrous material. BONDERITE M-FE 3960 W forms on the treated surface an amorphous phosphatic coating, mainly composed by iron phosphates, which provides good adhesion for liquid, powder or electrophoretic paints. BONDERITE M-FE 3960 W is high concentration, high efficiency product also suitable for aluminium and galvanized steel (Bonderite M-AD 338 should be added when non-ferrous metal are used > 10%). Subsequent partial continuous renewal rinse and possibly a final rinse with demineralized water is suggested. A suitable final passivation improves results.

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.).

Composition

- Acid phosphates
- Phosphating accelerants
- Nonionic surfactants

TECHNICAL DATA

Appearance	clear, yellowish liquid
Density at 20°C (DIN 51757)	~1.28
pH-value	~2

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.

Operation:

BONDERITE M-FE 3960 W is used in two or more stages spray treatments as well as in high pressure equipments.

Spray application:

Total Acid	3.8 to 11.4
pH-value	4.5 to 5.6
Temperature, °C	45 to 70 °C
Treatment time	2 to 3 min
Spray pressure	1 to 2 atm.

Bath make-up:

Fill the tank with tap water to 3/4 of the operating volume. Start recirculating pumps and heat up to the working temperature. Add 10-20 Kg BONDERITE M-FE 3960 W for each 1000 lt bath volume and, if necessary, up to 35 Kg BONDERITE M-AD 565 for each 100 Kg BONDERITE M-FE 3960 W as per our Technical Service instructions.

Fill up the tank to the final level, heat to operating temperature and let recirculate for 15-20'. Make the controls

Bath monitoring:

The bath solution is controlled by the following analysis.

Titration of Total Acid:

- Pipette 10 ml of working bath into a 250 ml flask.
- Add about 10 ml DI water and some drops of Phenolphthalein Indicator.
- Titrate with 0.1 N sodium hydroxide (NaOH) until the colour turns to stable pink for at least 20".
- The ml of 0,1 N NaOH used for the titration is the Total Acid value (V).

A standard BONDERITE M-FE 3960 W bath made up at 15 gr/l has a TA value = 5 pts.

Titration of pH-value:

- Transfer 100 ml bath in a 250 ml beaker and cool it to 20°C.
- Measure the pH value preferably with a pHmeter previously set at pH 4 and 7.
- If correction are needed act as follows:
BONDERITE M-FE 3960 W to lower the pH.
BONDERITE M-AD 565 to increase the pH.

Replenishment:

The bath is replenished with BONDERITE M-FE 3960 W according to the Total Acid value.
To increase Total Acid by 1 point, add about 2.5 kg BONDERITE M-FE 3807 for each 1000 lt of bath.
Automatic dosage/control with Henkel Lineguard against pH



is suggested.

High Pressure Application:

BONDERITE M-FE 3960 W is furthermore designed to be used with a high pressure apparatus, for the treatment of voluminous, large parts that do not fit in a metal pre-treatment line. Parts displaying rust or scale need to be deoxidised before the treatment. Shot blasting is also an adequate surface preparation.

High pressure application recommended parameters are as follows:

Concentration	3 to 10 g/l measured at the High Pressure nozzle
pH-value	4.5 to 5.5
Temperature, °C	60 to 90 °C
Treatment Time	45 to 60 sec per treated m ²
Pressure, atm.	20 to 80 bars

The desired concentration at the nozzle is obtained by setting the flow rate of the pump.

Parts should be treated at a distance of 20 to 40 cm from the nozzle until no de-wetting can be seen; this is normally achieved after 45 seconds/m².

Special Remarks:

In case of oil accumulation on the bath surface, a partial overflow is advisable in order to avoid contamination on the treated material.

Tanks and other parts of the plant should be made of stainless steel even if the product is compatible with soft steel.

The pumps to be installed in single areas have to grant a spray pressure not lower than 1,5 atm in all active phases, except for final passivation, where the required spray pressure can be < 0.8÷1.0. Higher pressures can help degreasing

Caution:

BONDERITE M-FE 3960 W is an acid product! Follow the safety regulations. Shield eyes with tightly fitting safety glasses, wear protection gloves and acid-resistant safety clothes! Avoid contact with skin! Do not inhale vapours!

Classification:

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

Hazardous Information
Transport Regulations
Safety Regulations

Waste water Treatment:

Neutralization is required. Disposal must be carried out according to the local directives.

Storage

Recommended Storage Temperature	4 to 40°C
Shelf life, months	36

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. 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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