BONDERITE

Technical Data Sheet

BONDERITE M-FE 3993 W

Known as Duridine 3993 W
August 2020

PRODUCT DESCRIPTION

BONDERITE M-FE 3993 W provides the following product characteristics:

Technology	Cleaner - coater
Product Type	Acid 1-component
Application	
Concentration	10 to 30 g/L
Temperature	40 to 60°C

BONDERITE M-FE 3993 W is a liquid product based on acidic phosphates and a combination of highly efficient surfactants for multimetal conversion coating treatment.
BONDERITE M-FE 3993 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. On cold rolled steel and iron it simultaneously generates a uniform iron phosphate layer with a coating weight up to 0.8 g/m² .
The iron phosphate layer provides an excellent adhesion for organic coatings and improves the corrosion resistance. With the use of a new accelerator system for the conversion coating BONDERITE M-FE 3993 W provides an excellent corrosion resistance.
Also on galvanized steel and aluminium surfaces the adhesion of organic coatings is improved by BONDERITE M-FE 3993 W.
When parts out of aluminium or galvanized steel are treated in the same line at a high amount (> 10 %), BONDERITE M-AD 338 should be added to avoid a distortion of the iron phosphating process.
Subsequent partial continuous renewal rinse and possibly a final rinse with demineralized water is suggested. A suitable final passivation improves results.

Application Areas:
BONDERITE M-FE 3993 W is used in spray- and spray/immersion processes. It must be combined with a suitable cleaning booster.

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 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)	~1.2
pH-value (100%)	~1.6

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 3993 W is used in two or more stages spray treatments with the following indicative working parameters:

Total Acid	2 to 10
pH-value	4 to 5.5
Temperature, °C	40 to 60 °C
Treatment time	1.5 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 to 30 kg BONDERITE M-FE 3993 W for each 1,000 lt bath volume and, if necessary BONDERITE M-AD 565 to adjust the pH.

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

Make the controls

Henkel

Bath Monitoring:

The BONDERITE M-FE 3993 W 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 sec.
- The mL of 0.1 N NaOH used for the titration is the Total Acid value (V).

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 3993 W to lower the pH.
  BONDERITE M-AD 565 to increase the pH.

Replenishment:
The bath is replenished with BONDERITE M-FE 3993 W according to the Total Acid value. To increase Total Acid by 1 point, add about 3 kg BONDERITE M-FE 3993 W for each 1,000 L of bath. Automatic dosage/control with Henkel Lineguard against pH is suggested.

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 bar 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 3993 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:
Hazards identification
Transport information
Regulatory information

Waste Water Treatment:
Neutralization is required. Disposal must be carried out according to the local directives.

Storage:

Recommended Storage Temperature	-5 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.

In case products are delivered by Henkel Belgium NV, Henkel Electronic Materials NV, Henkel Nederland BV, Henkel Technologies France SAS and Henkel France SA please additionally note the following:
In case Henkel would be nevertheless held liable, on whatever legal ground, Henkel's liability will in no event exceed the amount of the concerned delivery.

In case products are delivered by Henkel Colombiana, S.A.S. the following disclaimer is applicable:
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. 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.

In case products are delivered by Henkel Corporation, Resin Technology Group, Inc., or Henkel Canada Corporation, the following disclaimer is applicable:
The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

Trademark usage
Except as otherwise noted, all trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

Reference 0.1

Henkel AG & Co. KGaA
40191 Düsseldorf, Germany
Phone: +49-211-797-0

Henkel Corporation USA
Madison Heights, MI 48071
Phone: +1-248-583-9300

Henkel (China) Co. Ltd.
201203 Shanghai, China
+86.21.2891.8000