

## BONDERITE M-FE 68

Known as Duridine 68

April 2016

### PRODUCT DESCRIPTION

BONDERITE M-FE 68 provides the following product characteristics:

<b>Technology</b>	Cleaner coater
Product Type	Iron phosphating
<b>Application</b>	Spray
Concentration	0.2 to 1 %
Temperature	50 to 60°C

BONDERITE M-FE 68 is a powder product based on acidic phosphates.

It is used in combination with surfactants, for example BONDERITE C-AD C 68, for simultaneously cleaning and producing an iron-phosphate coating on ferrous metals as pretreatment prior to painting.

In combination with a surfactant package BONDERITE M-FE 68 degreases and cleans steel, iron, zinc and aluminium.

On cold rolled steel and iron is simultaneously generates an uniform iron phosphate layer with a coating weight up to 0.8 g/m<sup>2</sup>.

The iron phosphate layer provides an excellent adhesion for organic coatings and improves the corrosion resistance.

Even on zinc and aluminium surfaces BONDERITE M-FE 68 increases the adhesion for organic coatings.

If aluminium or HDG-parts (more than 10 %) are treated in the iron phosphating line, the product BONDERITE M-AD 338 has to be added to avoid a disturbance of the iron phosphating.

BONDERITE M-FE 68 is used in spray applications. The temperature depends on the surfactant package used.

Iron phosphating baths can be controlled by measuring the pH value or the conductivity.

### Process components:

- BONDERITE M-FE 68
- Degreasing agent
- BONDERITE M-AD 565, if needed
- BONDERITE M-AD 338 or BONDERITE M-AD 339 L, if needed

### 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.

#### Application:

Modification of the following data may be necessary due to specific needs of the phosphating line.

#### Bath make-up:

Fill the bath with water and heat it to operating temperature. Add the correct amount of BONDERITE M-FE 68 and the degreasing agent. Please note that BONDERITE M-FE 68 together with the degreasing agent generates foam when the spray equipment starts working at temperatures below 40°C.

Build-up for 1,000 L solution:

BONDERITE M-FE 68	2.0 to 10 kg
Degreasing additive	0.5 to 3 kg
BONDERITE M-AD 565	to adjust the pH-value

#### Remarks:

A BONDERITE M-FE 68 bath with a concentration of 10 g/L in deionized water has a pH-value of approx. 3.2. The pH-value depends on the concentration and the hardness of the water. With addition of BONDERITE M-AD 565 the pH-value increases. At the same time, the Total Acid pointage decreases. The correct amount of BONDERITE M-AD 565 has to be determined on site. A start pH-value of 4.5 to 4.8 is recommended.

#### Operating data:

(recommended conditions)

Total Acid, points	1.7 to 8.4
pH-value	4.5 to 6.0
Temperature, °C	50 to 60*
Time for the spray process, min	2 to 3
Spray pressure, bar	1 to 2

\*depends on the degreasing agent

#### Bath Control:

BONDERITE M-FE 68 bath can be checked by titration of Total Acid and by pH-measurement.

- Pipette a 10 mL sample into a 150 mL beaker and dilute with about 50 mL deionized water.
- Add 3 to 5 drops of indicator Phenolphthalein.
- Titrate with 0.1 N sodium hydroxide from colorless to the development of a permanent pink color.
- The mL of 0.1 N sodium hydroxide required indicates the Total Acid value in points.

It is also possible to titrate the Total Acid with a pH-electrode. The consumption of mL 0.1 N sodium hydroxide until a pH-value of 8.5 is the Total Acid pointage.

#### Bath Replenishment:

To increase 1 point Total Acid add per 1,000 L BONDERITE M-FE 68 bath:

BONDERITE M-FE 68	1.19 kg
(Degreasing additive	0.3 kg)

**Remark:**

Whenever a portion of the bath is discarded or lost by leakage, the volume should be restored with the same proportion of chemical and water as used in the original bath.

**After Treatment:****Water rinsing:**

After phosphating, the work is thoroughly rinsed with water at ambient temperatures for 20 to 40 sec. The rinse should be continuously overflowed, and the flow should be regulated with the rate of production so that the main body of the rinse never becomes excessively contaminated.

**Deionized water rinse:**

A water rinse may be required following the post treatment. Deionized water is preferred but relatively pure tap water may be used. The paint used and the quality required for the finished part will determine if rinsing is necessary and if deionized water must be used.

**General Maintenance:**

In the operation of the process, a small quantity of sludge will be formed as a by-product of the coating reaction. This residue settles to the bottom of the tank and should be removed before its presence causes dusty coating, or interferes with the operation of the spraying system. A satisfactory method of removal is to transfer the solution to a rinse tank, leaving as much sludge as possible in the bottom of the processing tank. The sludge may then be removed by any convenient means.

When the solution has been heated for some time, scale will form on the heating unit and must be removed at intervals so that adequate heat transfer will occur and the proper processing temperature will be maintained. To remove the scale, dry the heat transfer surface either by removing it from the solution or by pumping the solution from the tank. The scale may then be removed by a suitable chemical or mechanical method.

**Waste water Treatment:**

Disposal information for the chemical, in the form as supplied, is given on the Material Safety Data Sheet.

The processing bath is slightly acidic and contains phosphate. Neutralization and/or waste treatment of rinse water or processing solution may be required prior to discharge.

The processing bath and sludge which accumulates in the bath can contain ingredients other than those present in the chemical as supplied and analysis of the solution and/or sludge may be required prior to disposal.

**Special Remarks:**

When handling the chemical products used in this process, the first aid and handling recommendations on the Material Safety Data Sheet for each product should be read, understood and followed. The processing bath is slightly acidic and may cause irritation of skin and eyes. Do not get in eyes, on skin or on clothing. In case of contact, follow the recommendations on the Material Safety Data Sheet for BONDERITE M-FE 68.

**Equipment:**

Process tanks and housings may be fabricated from mild steel plate, however, equipment life will be greatly extended by using stainless steel.

In case of using BONDERITE M-AD 338 or BONDERITE M-AD 339 L (Fluoride-component) it is necessary to use stainless steel or plastic-laminated steel. In all cases approved welding techniques must be used.

All process circulation pump seals, valve seats, door seals etc. which come into contact with the process solution and occasional acid equipment cleaners, should be Buna-N, Viton (TM) or Teflon (TM).

Chemical feed pump parts and other elastomers which may come into contact with the concentrated replenishing chemical should be Buna-N, Hypalon (TM), Viton (TM) or Teflon (TM).

**Materials for analysis:****"Total acid" with indicator:**

Pipette 10 ml (2)  
Erlenmeyer-flask 300 ml (2)  
Burette 25 ml (2)  
Distilled water  
0.1 % alcoholic solution of Phenolphthaleine  
0.1 N Sodium hydroxide solution  
Dropping bottle 25 ml (2)  
Pipette filler

**Total acid with pH-electrode:**

Beaker 200 ml (2)  
Magnetic stirrer  
Stirring device  
pH-meter  
Dosing unit (Dosimat)

Two pieces of the glass equipment is recommended because of the risk of cracking.

**Storage**

Recommended Storage Temperature, °C	0 to 40
Shelf-life, months	24
(in unopened original packaging)	

**Classification**

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

**Hazardous Information**  
**Transport Regulations**  
**Safety Regulations**



**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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