

BONDERITE M-NT 5992

May 2021

PRODUCT DESCRIPTION

BONDERITE M-NT 5992 provides the following product characteristics:

Technology	Surface treatment
Product Type	Conversion coating for Aluminum
Application	Dip and Spray

BONDERITE M-NT 5992 is a product, trivalent chromium based, capable of producing a hexavalent chrome free conversion layer on aluminium and its alloys.

According to the application and to the treated materials, the conversion layer colour changes from colourless to light green.

The conversion layer is designed to improve the paint adhesion and to increase the anticorrosive protection.

In case of bare metal finishing it provides a high corrosion protection and a low electrical contact resistance.

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.

Process Description:

BONDERITE M-NT 5992 is used in spray/cascade or immersion application in typical multistage processes with final DI water rinse.

The best application process of BONDERITE M-NT 5992 consists in the following steps:

1. Acid or alkaline cleaning
2. Rinsing
3. Acid de-oxidation
4. Rinsing with Tap or DI water
5. Treatment with BONDERITE M-NT 5992
6. Rinse with DI water
7. Drying (suggested temperature <80 °C)

Application:

BONDERITE M-NT 5992 is used in aqueous solution at the following average working parameters:

Bare corrosion protection:

Concentration, %	5 to 25
pH	3.6 to 4.3
Temperature, °C	20 to 40
Time	0.5 to 10 min

Painting pretreatment:

Concentration, %	4 to 5
pH	3.6 to 4.3
Temperature, °C	20 to 35
Time	0.5 to 1.5 min

The Technical Service will suggest the best working parameters and operating sequence according to the plant.

Bath Make-up:

- To prepare a 1,000 L bath use 30 to 250 kg of BONDERITE M-NT 5992 which are added to the tank full of DI water and heated to the operating temperature.
- Homogenise the bath under pump recirculation, and make controls.
- Check pH value just before start working; in case of pH value is lower than 3.6 increase it by addition of BONDERITE M-AD 700.

Control Points:

The BONDERITE M-NT 5992 bath is controlling through the determination of Chromium pointage and pH.

Chromium pointage:

Take a sample of the solution and let it cool to the room temperature. Transfer 10 mL of the bath in 250 mL beaker and add 1 mL of Hydrogen peroxide 3% solution (H₂O₂); in case BONDERITE M-NT 5992 is used more than 15%, use 2 mL of H₂O₂ solution. Then add 25 mL of 1 N NaOH and dilute to 100 mL with DI water.

Heat slowly to boiling for 30 minutes, in case of strong evaporation add DI water.

Then cool down to room temperature and add 50 mL of DI water, 20 mL of KI 10% and 10 mL of H₂SO₄50% and stir for 3 minutes.

The solution becomes red-brown.

Titrate with 0.1 N Na₂S₂O₃ solution until discoloration to straw coloured / orangy yellow.

Then add 4 to 5 drops of starch solution.

The solution becomes very dark, continue the titration until discoloration.

The total consumption of 0.1 N Na₂S₂O₃ used for the titration is the chromium pointage of the bath.
A new 10% BONDERITE M-NT 5992 titrates 15.5 mL of 0.1 N Na₂S₂O₃.

pH-value:

Pipette 100 mL bath into a beaker and cool it down to room temperature (about 20 °C). By using a previously calibrated pH-meter with Fluoride resistant electrode, measure and read the pH value, after stabilisation.

Coating weight determination:

The coating weight can be determined by the following method:

Treat a panel with a well-know surface (S in dm²) in the application cycle. Take the panel before the final drying and dry it with compressed air.

Then weight the panel with an analytical balance to nearest 0.1 mg and record value (W1 in g). Immerse the panel in a solution of Oxalic ACID 1N (oxalic acid bi-hydrate 63 g/L) at room temperature for 10 minutes. Then rinse the panel with DI water and dry it with compressed air, weight again and record value (W2 in g).

Coating weight in g/m² is calculated as follows:

$$\text{Coating weight} = \frac{(W1-W2)}{S} \times 100$$

It is advisable to maintain the coating weight value between 0.2 and 1.5 g/m² (recommended range prior painting: 0.2 to 1.0 g/m²).

Our tech service will suggest, case by case, possible changes to maintain coating weight in the right range.

Replenishment:

The bath is replenished with BONDERITE M-NT 5992 according to Chromium pointage.
Add 6.5 kg of BONDERITE M-NT 5992 for each 1,000 L of bath and for each missing point.

Advices:

Tanks and all relevant accessories (risers, nozzles, pumps, etc.) should be made of stainless steel. Small differences in product aspect do not affect its performances. The bath surface has to be kept free from oil or organic pollutants, through periodical skimming.

Classification:

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

Hazards identification
Transport information
Regulatory information

Storage:

Recommended Storage Temperature, °C	0 to 40
Shelf life, months	24

(in unopened original packaging)

ADDITIONAL INFORMATION

Disclaimer

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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Reference 0.1