

BONDERITE® M-NT 2040 R2

August 2023

PRODUCT DESCRIPTION

BONDERITE M-NT 2040 R2 provides the following product characteristics:

Technology	Conversion coating
Product type	Etch-passivation
Application	Rins application

BONDERITE M-NT 2040 R2 is a chromium-free etch passivation for aluminium in order to stabilize the electrical surface resistance and to improve adhesive bonding as well as to better bonding and paint resistance to corrosion.

Application areas:

BONDERITE M-NT 2040 R2 is used in spray- spray/immersion processes. It must be combined with a suitable cleaner.

BONDERITE M-NT 2040 R2 can be used in an immersion and spray process.

BONDERITE M-NT 2040 R2 is approved by Qualicoat and GSB. For these applications the dripping water of the final rinse shall not exceed a maximum of 30 $\mu\text{S}/\text{cm}$ at 20°C.

Direction 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.

Chemical data:

BONDERITE M-NT 2040 R2
DI water

Bath make-up:

For the preparation of 500 L of BONDERITE M-NT 2040 R2 solution add 500 L of DI water under stirring:

BONDERITE M-NT 2040 R2

preferable 15 to 20 L or 17.6 to 23.5 kg

After complete dissolution fill up with DI-water to 1,000 L.

Operating data:

Adjusting the following parameters could be necessary depending on the line conditions.

Temperature, °C	18 to 45
Time, seconds	30 to 90
Free Acid, points	7 to 10
Reaction titration, points	≤ 5

Bath control:

The BONDERITE M-NT 2040 R2 bath will be controlled by testing the Free Acid and the Aluminum concentration.

Free Acid (Points):

- Pipette 10 mL of a cold bath sample into an Erlenmeyer flask and dilute with 50 mL DI-water.
- Add 10 drops Bromocresol green.
- Titrate with 0.1 N NaOH until a blue colour via a green one is obtained.
- The milliliters of 0.1 N NaOH used is the Free Acid (points).

Free Acid range: optimal 7 to 10 points

Adjustment:

To increase the value by 1 (point) add per 1,000 (L) of solution volume:

BONDERITE M-NT 2040 R2 2.0 L = 2.3 kg

Aluminum Concentration (Points):

1. If not yet done, calibrate the pH meter with standardized pH buffer solutions.
2. Pipette 10 mL of a cold bath sample into an Erlenmeyer flask. If precipitation / cloudiness appears in the bath solution, the sample must be filtrated with a blue-ribbon filter.
3. Dilute with 50 mL DI-water and measure pH.
4. Stir the sample titrate with 0.1 N NaOH until pH 8.5 is achieved.
5. Add 12 g potassium fluoride solution (25%) and wait till it is dissolved. By this, the pH will increase.
6. Titrate with 0.1 N hydrochloric or sulfuric acid until pH 8.5 is achieved. Confirm the stability of pH by additionally adding potassium fluoride solution (2 to 4 g).
7. The titration is completed, if the pH is stable (increase ≤ 0.3 units/ min) during additional adding 2 to 4 g potassium fluoride solution.
8. The milliliters (mL) of 0.1 N hydrochloric or sulfuric acid used, is the dissolved aluminum value (points).
9. To increase / check the accuracy of the method, it is recommended to titrate frequently blank values. For this, please make up fresh bath sample: 15 g BONDERITE M-NT 2040 R2 diluted in 1 L DI water.
10. Please process with the blank value sample according to the procedure (steps 1 to 9).

Evaluation:

- Without blank value: mL used 0.1 N hydrochloric or sulfuric acid = points
- With blank value: mL used bath sample – mL used blank value = points

Operating Parameters:

Concentration range, points	≤5.0
Critical limit, points	15.0

Remark: If the aluminum concentration is higher than 15.0 points, the bath will be (partially) dumped, with DI -waterrefilled and readjusted.

Waste water treatment:

BONDERITE M-NT 2040 R2 containing solutions must be detoxified and neutralized before they are discharged. The waste water must be treated according to the discharge regulations of the local authorities.

Caution:

BONDERITE M-NT 2040 R2 contains Fluoride!

Watch safety precautions! Shield eyes with tightly fitting safety glasses, wear rubber gloves and chemical resistant safety clothes. Avoid contact with skin! Do not inhale vapours!

Provide good ventilation!

Bath Analysis:

Required equipment and reagents:

Determination of the Free Acid:

Pipette 10 mL (2)
Erlenmeyer flask 250 mL (2)
Graduated Cylinder 50 mL (2)
Buret Assembly 25 mL (2)

DI water
0.1 % alcoholic Bromkresol green solution
0.1 N Caustic solution

Determination of the dissolved aluminium:

Pipette 10 mL (2)
Erlenmeyer flask 250 mL (2)
Graduated Cylinder 50 mL (2)
Buret Assembly 25 mL (2)
DI water
Magnetic stirrer
Magnetic stir bar
pH-meter
pH-buffer solution for calibration (pH 4.01, pH 7.00, pH 10.01)
0.1 N Caustic solution
Potassium fluoride solution, 25%, p.a.
0.1 N Caustic solution
optional: blue-ribbon filter

Classification:

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

Hazardous Information**Transport Regulations****Safety Regulations****Storage:**

Recommended storage temperature, °C	5 to 50
Shelf-life (in unopened original packaging), months	12

Disclaimer

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