

BONDERITE M-NT 161

Known as Alodine 161
January 2021

PRODUCT DESCRIPTION

The BONDERITE M-NT 161 Process provides the following product characteristics:

Technology	Conversion coating
Product Type	Liquid Chrome Free
Application	Dip
Process components:	BONDERITE M-NT 160 BONDERITE M-NT 161 BONDERITE M-AD 252

The BONDERITE M-NT 160/161 process is a liquid, chrome-free, 2-component passivation process.

When aluminum, magnesium or their alloys are dipped in an BONDERITE M-NT 160/161 bath solution, a yellowish conversion coating forms on the surface of the metal.

The coatings provide excellent protection against corrosion as well as very good adhesion properties for subsequent painting.

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.

Bath Make-up:

Fill 1/2 of the bath tank with DI water and add for each 1,000 L of final bath volume:

BONDERITE M-NT 160	5 to 20 kg
BONDERITE M-NT 161	6 to 24 kg

Fill up the tank to final volume with DI water.

Operating Data:

BONDERITE M-NT 160, mL	4.0 to 16.0
BONDERITE M-NT 161, mL	2.0 to 8.0
Temperature, °C	15 to 30
Time, sec	15 to 180

Changes in the above mentioned process parameters may be necessary. They have to be evaluated individually and documented specifically for each line.

Bath Control:

BONDERITE M-NT 161 titration (Method 1):

- Pipette a 100 mL sample into an Erlenmeyer-flask and dilute with 50 mL of deionized water.
- Titrate with 0.1 N NaOH solution into the bath solution until the pH is 4.0, as measured by a calibrated pH electrode.
- The volume (mL) of 0.1 N sodium hydroxide solution titrated into the bath solution is equivalent to the concentration of BONDERITE M-NT 161.

The result should be in the range: 4.0 to 16.0 mL

Bath replenishment:

For each 1.0 mL of titrated sodium hydroxide solution (0.1 N), add 1.3 kg BONDERITE M-NT 161 per 1,000 L bath solution.

BONDERITE M-NT 161 fluoride analysis (Method 2):

- This method can be used to control the BONDERITE M-NT 161 bath if very little or no aluminum is being treated.
- The fluoride content is determined by means of suitable measuring systems such as fluoride-sensitive electrodes.

Use the method of:

determining total fluoride concentration with TISAB buffer.

The result should be in the range: 150 to 600 ppm fluoride

Bath replenishment:

For each 20 ppm fluoride, add 0.8 kg BONDERITE M-NT 161 per 1,000 L bath solution.

After the BONDERITE M-NT 161 bath correction, adjust the pH-value to 2.4 with the help of BONDERITE M-AD 252.

BONDERITE M-NT 161 titration:

- Pipette a 25 mL sample into an Erlenmeyer-flask and dilute with 100 mL of deionized water.
- Add 10 mL 50 % sulfuric acid and 1 to 2 g potassium iodide.
- After 1 min, slowly add 0.1 N sodium thiosulfate solution from a burette, while shaking the flask gently, until a color change to yellow occurs.
- Add 5 mL starch solution (color change to blue-black).
- Continue the titration until the blue-black color disappears.
- The volume (mL) of 0.1 N sodium thiosulfate solution added to the flask corresponds to the BONDERITE M-NT 161 concentration.

The result should be in the range: 2.0 to 8.0 mL

Bath replenishment:



For each 1.0 mL sodium thiosulfate solution (0.1 N), add 3.0 kg BONDERITE M-NT 161 per 1,000 L bath solution.

Equipment:

Containers of plasticizer-free rigid PVC or austenitic steel 1.4571 can be used to store BONDERITE M-NT 161 and BONDERITE M-NT 161 as supplied.

For BONDERITE M-NT 161, fluoride-resistant plastic such as plasticizer-free rigid PVC or PP should be used.

Containers of plasticizer-free rigid PVC, PP or stainless steel 1.4571 can be used for the BONDERITE M-NT 161 bath solution.

Steel containers lined with a fluoride-resistant plastic are also suitable.

Suspension hooks and baskets should be made of aluminum, stainless steel 1.4571 or plastic (rigid PVC, PP).

BONDERITE M-NT 161 baths should not be discharged into the public sewage system without first being detoxified and neutralized.

Caution:

BONDERITE M-NT 160 contains complex fluoride compounds.
BONDERITE M-NT 161 contains potassium permanganate.

Follow the safety instructions! Wear eye protection! Use protective goggles, rubber gloves and acid-proof protective clothing! Avoid skin contact! Do not inhale vapor! Provide good ventilation!

See data sheets [Merkblätter] of the professional association of the chemical industry "Ätzende Stoffe, Reizende Stoffe" and "Fluorwasserstoff, Flußsäure and anorganische Fluoride" ["caustic substances, irritant substances" and "hydrogen fluoride, hydrofluoric acid and inorganic fluorides"].

Classification and labelling are given according to the German Hazardous Materials Act (Gefahrstoffverordnung).

Bath Analysis:

Instruments and reagents

Pipettes: 5, 10, 25, 100 mL

Graduated cylinders 100 mL (2)

Burette 25 mL

Wide-neck Erlenmeyer flasks 300 mL (2)

Distilled water

0.1 N sodium hydroxide solution

0.1 N sodium dithionite

pH meter

Fluoride meter

In view of the risk of breakage, the list shows double the necessary number of glass instruments in some cases.

Classification:

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

Hazards identification

Transport information

Regulatory information

Storage:

Process Component	Recommended Storage Temperature, °C	Shelf life, months (in unopened original packaging)
BONDERITE M-NT 160	0 - 50	24
BONDERITE M-NT 161	0 - 50	12

ADDITIONAL INFORMATION

Disclaimer

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Reference 0.3