

BONDERITE M-NT 2040 R2 METAL-PRETREATMENT

Issued 3/10/2015

INTRODUCTION

BONDERITE M-NT 2040 R2 is a concentrated, liquid, chromium-free etchant and passivate that can temporarily provide good corrosion protection and passivate aluminum surfaces. BONDERITE M-NT 2040 R2 can be used in an immersion or spray process.

OPERATING SUMMARY

<u>Chemical:</u>	<u>Bath Preparation per 1000 Gallons:</u>
BONDERITE M-NT 2040 R2	16 to 20 gallons (Typical - 18 gallons)
<u>Operation and Control</u>	
Free Acid	7.0 to 10.0 points
Aluminum Concentration	less than 5 points
Temperature	86° - 122°F (30 - 50°C)
Time	30 to 90 sec

THE PROCESS

The complete process sequence normally consists of the following steps:

- A. Cleaning with BONDERITE cleaner
- B. Water Rinsing
- C. Deoxidizing (optional)
- D. Water Rinsing
- E. Treating with BONDERITE M-NT 2040 R2 solution
- F. Water Rinsing
- G. Drying

MATERIALS

BONDERITE M-NT 2040 R2
Testing Reagents and Apparatus.



BONDERITE M-NT 2040 R2 METAL-PRETREATMENT

EQUIPMENT

The process tank, housing, pumps and piping should be constructed from 316L stainless steel. The 316L is preferred for maximum tank life. In all cases, approved welding techniques must be used.

Heat exchanger plates should be polished 316L stainless steel. Gas fired burner tubes are not recommended. All process circulation pump seals, valve seats, etc., which come into contact with the process solution and occasional acid equipment cleaners, should be EPDM, FKM or PTFE.

Chemical feed pump parts and other elastomers which may come into contact with the concentrated replenishing chemical should be FKM or PTFE.

Support equipment available from Henkel Corporation for this process includes: chemical feed pumps, level controls, transfer pumps and automatic control equipment.

Your local sales representative should be consulted for information on Henkel Corporation's automatic process control equipment for this process and any additional questions.

SURFACE PREPARATION

Cleaning:

All metal to be treated must be free from grease, oil and other foreign matter before the treatment. A complete line of BONDERITE cleaners are available and our representative should be consulted.

Water Rinsing:

After cleaning, the metal must be thoroughly rinsed with water. The rinse should be overflowed at a rate that will keep it clean and free from contamination. Use DI or RO water rinse before entering BONDERITE M-NT 2040 R2 tank.

Deoxidizing (optional):

It is recommended to deoxidize the aluminum surface before treatment with BONDERITE M-NT 2040 R2. Two additional stages will be required between the post cleaner rinse and the treatment stage. One is used for deoxidizing and the second is for the added cold water rinse. A post-rinse riser to apply a DI water mist is highly desired.

TREATING WITH BONDERITE M-NT 2040 R2 PROCESSING SOLUTION:

Buildup:

Fill the tank half full with DI water. Heat to 104°F (40°C). While recirculating or stirring, add 18 gallons of BONDERITE M-NT 2040 R2 for every 1000 gallons of final solution volume. Mix until uniform. Add sufficient water to bring the solution up to the working level and then heat to the operating temperature.

Operation:

Time: 30 to 90 seconds

Temperature: 86° - 122°F (30 - 50°C)

TESTING AND CONTROL

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



BONDERITE M-NT 2040 R2 METAL-PRETREATMENT

Never pipet by mouth, use a pipet filler.

Free Acid:

- a. Pipet 10 ml of a cold bath sample into an Erlenmeyer flask and dilute with 50 ml DI-water.
- b. Add 10 drops indicator 2.
- c. Titrate with Titrating Solution 11 until a blue color via a green one is obtained.
- d. The milliliters of Titrating Solution 11 used is the Free Acid (points).

Free Acid Range:

7.0 – 10.0 points

To increase 1 (point), add 2 gallon of BONDERITE M-NT 2040 R2 per 1000 gallons of solution.

Aluminum Concentration (points):

- a. Pipet 10 ml of a cold bath sample into an Erlenmeyer flask and dilute with 50 ml DI-water.
- b. Add 10 drops of Indicator 3.
- c. Titrate with Titrating Solution 11 until a light pink color is obtained.
- d. Add a teaspoon of Reagent 6 and dissolve. The color becomes very pink.
- e. Titrate with Titrating Solution 61 until the pink color disappears.
- f. The milliliters of Titrating Solution 61 used is the aluminum concentration (points).

Concentration range: ≤ 5.0 points

Critical limit: 15.0 points

If the aluminum concentration is higher than 15.0 points, the bath should be partially dumped, refilled with DI water and readjusted with BONDERITE M-NT 2040 R2.

Our sales representative should be consulted for the proper operating concentrations for the product based on your specific line conditions and operation.

AFTER TREATMENT:

Water Rinsing:

After treating with BONDERITE M-NT 2040 R2, a cold DI water rinse is required.

Drying:

Parts coming from the final DI water rinse should be dried as soon as possible in an indirectly fired oven or by other means which will not contaminate the metal with fumes, oil, or partially burnt gases.

STORAGE REQUIREMENTS

BONDERITE M-NT 2040 R2 chemical freezes below 32° Fahrenheit. Should the chemical become frozen, it should be agitated upon thawing, prior to use. Do not store with highly alkaline materials.



BONDERITE M-NT 2040 R2 METAL-PRETREATMENT

WASTE DISPOSAL INFORMATION

Applicable regulations covering disposal and discharge of all chemicals should be consulted and followed.

Disposal information for the BONDERITE M-NT 2040 R2 chemical is given on the Safety Data Sheet for the product..

The processing bath is acidic and contains fluorides. Waste treatment and neutralization will be required prior to discharge.

PRECAUTIONARY INFORMATION

When handling the chemical products used in this process, the first aid and handling recommendations on the Safety Data Sheets for each product should be read, understood and followed.

**BONDERITE M-NT 2040 R2
METAL-PRETREATMENT**

Testing Reagents and Apparatus
(Order only those items which are not already on hand)

<u>Code</u>	<u>Quantity</u>	<u>Item</u>
592477	2	Buret Assembly, 25-ml, automatic
592398	1 qt.	Indicator 3 (Phenolphthalein)
592441	1 gal.	Titration Solution 61 (0.1N HCl)
592427	1 gal.	Titration Solution 11 (0.1N NaOH)
592414	¼ lb	Reagent 6 (Sodium Fluoride)

Optional items and items not supplied by Henkel Corporation

<u>Quantity</u>	<u>Item</u>	<u>Vendor Part Number or Equivalent (1/9/2014)**</u>
3*	FLASK, ERLLENMEYER, 250 ML	VWR# 89000-794
3*	10 ML GLASS VOLUMETRIC PIPET	VWR# 89003-350
2	2.0 OZ DROPPING BOTTLE WITH FLIP TOP	Consolidated Plastics # 41579LH /2oz Flip Top
1	3 HOLE PIPET FILLER, BLACK RUBBER	VWR# 53497-009

* Includes breakage allowance

** VWR International, vwr.com, 1-800-932-5000

Henkel Corporation | 32100 Stephenson Highway | Madison Heights, MI 48071
PHONE: (248) 583-9300 | FAX: (248) 583-2976 | www.henkeln.com/

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.

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.

