

BONDERITE M-NT 1455

Cr-FREE CONVERSION COATING

(Known as BONDERITE 1455)

***For engine gasketing applications according to Ford specification ES-FT4E-6020-AA**

Issued 12/4/2015

1. Introduction:

BONDERITE M-NT 1455 (Known as BONDERITE 1455) is formulated to deposit a chromium-free conversion coating on steel, galvanized steel, and aluminum. It can be applied using a spray or immersion process without rinsing followed by drying.

The BONDERITE M-NT 1455 process produces a uniform coating which improves adhesion of liquid gasket materials. The process does not need to be rinsed following the coating treatment, which eliminates a water rinse stage and the need for treatment of that water.

2. Operating Summary:

Chemical:	Bath Preparation per 100 Gallons:
BONDERITE M-NT 1455	3 to 15% (varies with application)

Operation and Control:	
Concentration at 5%	33 points (ml)
Temperature	Ambient

3. The Process:

The complete process for the treatment normally consists of the following steps:

- A. Cleaning
- B. Deionized water rinsing
- C. Treating with the BONDERITE M-NT 1455 processing solution
- D. Drying

4. Materials:

BONDERITE M-NT 1455
BONDERITE C-AK Cleaner
Testing Reagents and Apparatus



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5. Equipment:

Process tanks and any other equipment which comes in contact with BONDERITE M-NT 1455 should be made of 316L stainless steel, CSPE (if rolls are used), or constructed of or lined with plastic.

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

Support equipment available for this process includes chemical feed pumps, level controls, transfer pumps and mix tanks.

Your local sales representative should be consulted for information on support equipment for this process.

6. Surface Preparation:

Cleaning:

All metal to be treated with the processing solution must be free from grease, oil, rust, scale, or other foreign matter. A complete line of cleaners is available and the proper one will be recommended for each installation.

Water Rinsing:

After cleaning, the metal must be thoroughly rinsed with deionized water. The rinse should be overflowed continuously at a rate which will keep it clean and free from scum and contamination.

7. Treating with BONDERITE M-NT 1455 Coating Solution:

Buildup:

Add approximately 3/4 of the required deionized water to the tank. Add, while stirring, 5 gallons of BONDERITE M-NT 1455 per 100 gallons of water. Add sufficient deionized water to bring the solution to the proper volume and mix thoroughly.

The exact dilution required for each facility is dependent upon the method of application and may vary from the recommended buildup. Our representative will assist in establishing the best concentration for each installation.

Operation:

The coating solution is applied normally at room temperature (65° to 75° Fahrenheit) by spraying or immersion. If spraying is used then misting nozzles typically provide the most uniform coating. If necessary the treated part can be passed through a dry-off oven.

8. Testing and Control:

Never pipet by mouth. Use a pipet filler.

Concentration:

The concentration of the treatment solution is determined by a simple titration.

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NOTE: The greater the concentration, the lower the number of points titration.

Solution A:

Pipet a 25.0 ml sample of the working bath into a 100-ml volumetric flask. Dilute this to the mark with deionized water. Fill a 50-ml buret with this solution.

Solution B:

Pipet (or discharge from a buret) exactly 25 ml of Titrating Solution 15 into a 150-ml beaker, add 50 ml of deionized water, then 5 ml of Reagent Solution 44.

Use solution A to titrate solution B. Add solution A to solution B while swirling to mix, until the purple color is discharged to a deep orange color.

The concentration may be determined from the following table:

<u>% by Volume Buildup</u>	<u>Titration (ml)</u>
15.0	13
12.5	15
10.0	18
7.5	23
5.0	33
4.0	41
3.0	50

Note: Titration is time-sensitive and should take no longer than 3 minutes to complete. If titration takes longer, then titrate a new sample.

9. After Treatment:

Once applied, the treatment solution film must not be disturbed until it has dried completely. Care must be taken to avoid physical contact with the part.

10. Storage Requirements:

BONDERITE M-NT 1455 should be protected from freezing. If the chemical is frozen, it may be irreversibly damaged and should not be used. BONDERITE M-NT 1455 may precipitate if stored at temperatures below 40° or above 100° Fahrenheit. The product must be stored between 40° and 100° Fahrenheit. If exposed to temperatures outside that range for short periods, the product should be immediately returned to the proper temperature and stirred.

11. Waste Disposal Information:

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



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

The processing bath contains ingredients which should not be discharged directly into streams or lakes. The bath should be discharged to the facility waste treatment works or to a municipal waste treatment works.

The processing bath and sludge 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.

12. Precautionary Information:

When handling the chemicals 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 acidic and may cause irritation of the skin and eyes. Do not get in eyes, on skin, or on clothing and do not take internally. In case of contact, follow the recommendations on the Material Safety Data Sheet for BONDERITE M-NT 1455.

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<u>Code</u>	<u>Quantity</u>	<u>Item</u>
VWR# 89000-202	2*	Beaker, 150-ml
592477	1	Buret Assembly, 25-ml Automatic
?	1	Flask, 100-ml, Glass, Volumetric
VWR # 89003-482	2	Pipet, 5-ml Volumetric
VWR # 89003-364	2	Pipet, 25-ml Volumetric
VWR# 53497-009	1	Pipet Filler
VWR# 53600-108	1	Pitcher, Graduated, Plastic
593846	2.5L	Reagent Solution 44 (50% H ₂ SO ₄)
592428	1.0L	Titration Solution 15 (0.042N KMnO ₄)

*Includes one more than actually required, to allow for possible breakage.