Technical Process Bulletin

BONDERITE M-AC M
POWDERED CONDITIONING AGENT
(KNOWN AS FIXODINE M)

Issued 6/10/2013

1. Introduction:

BONDERITE M-AC M (known as FIXODINE M) is a powdered conditioning agent used for articles of iron and steel, ahead of a BONDERITE M-MN LUBRITE treatment. It eliminates the coarse, crystalline coatings sometimes obtained on iron and steel surfaces, which have been pickled with acids or cleaned with strong alkalis. It promotes the formation of a dense and fine crystalline phosphate coating.

2. Operating Summary:

Chemical:	Bath Preparation per 100 Gallons:
BONDERITE M-AC M (known as FIXODINE M)	3.5 pounds
Operation and Control:	
Time	1 minute
Temperature	120° to 190° Fahrenheit

3. Materials:

BONDERITE M-AC M (known as FIXODINE M)

4. Equipment:

The processing tank for use with the treatment solution should be constructed of mild steel, while the mixer shaft and impeller should be of any of the 300 series of stainless steel. The heat transfer surface should be of type 316 stainless, if steam-heated, but of Schedule 80 mild steel pipe or equivalent, if gas fired.

5. The Process:

The complete process normally consists of the following steps:

A. Cleaning using the recommended PARCO® CLEANER
B. Water rinsing
C. BONDERITE M-AC M (known as FIXODINE M) treatment
D. Treating with a BONDERITE M-MN LUBRITE solution
E. Water rinsing
F. Soluble oil (optional)

BONDERITE M-AC M (known as FIXODINE M) is not a cleaner. The treatment is effective only on surfaces, which are free from grease, oil, scale or other foreign matter.

6. Buildup:

Fill the tank with water. Add 3.5 pounds of BONDERITE M-AC M (known as FIXODINE M) for each 100 gallons (U.S.) of working volume. Sometimes lower concentrations may be more desirable. A Henkel Surface Technologies representative will assist in selecting a proper concentration range. The bath is ready for use as soon as it is thoroughly mixed. Heat to the operating temperature. Proper operating temperature of the BONDERITE M-AC M (known as FIXODINE M) tank is at/or 20°F less than the operating temperature of the BONDERITE M-MN LUBRITE product chosen. See recommended temperatures below.

	Lubrite Temperature range	BONDERITE M-AC M (known as FIXODINE M) Temperature Range
BONDERITE M-MN LUBRITE 2 (known as PARCO LUBRITE 2)	205 to 210° F	180 to 190° F
BONDERITE M-MN LUBRITE 5 (known as PARCO LUBRITE 5)	180 to 185° F	160 to 185° F
BONDERITE M-MN LUBRITE LT-10 (known as PARCO LUBRITE LT-10)	135 to 155° F	115 to 140° F

BONDERITE M-AC M (known as FIXODINE M) does not require elevated temperatures to perform its function. Operating BONDERITE M-AC M (known as FIXODINE M) at elevated temperatures is to prevent cooling of the BONDERITE M-MN LUBRITE baths when processing massive parts. A means of continuous agitation, such as a mixer, must be provided to keep the BONDERITE M-AC M (known as FIXODINE M) in suspension.

7. Operation and Control:

Operation:
The properly cleaned articles are treated with the BONDERITE M-AC M (known as FIXODINE M) suspension at 120° to 190° Fahrenheit for a minimum of one minute. Longer periods of time (up to 10 minutes) are not detrimental to the coating process, but are not normally required. Longer times may, however, cause some sediment to deposit on the parts affecting the aesthetics of the coating. Periodic small additions of BONDERITE M-AC M (known as FIXODINE M) are required to maintain activity. The bath life will depend on the particular operations; however, dumping at the end of each week's operation is advisable.

Testing and Control:
(This analysis requires the use of a Hach DR/2000 spectrometer, a DR/2400 spectrometer, a DR/820 colorimeter, or a “Pocket Colorimeter” specific to manganese).

Obtain a sample of the operating bath. Filter a small amount of the bath (approximately 15 –20 ml) through Whatman No. 42 filter paper. Pipette 10 mls into a clean 100 ml graduated cylinder or 100 ml volumetric flask. Dilute to line with DI water and mix well. Follow Hach procedure 8034 for method of analysis if using models DR/2000, DR/2400 or DR/820. If using Hach “Pocket Colorimeter”, follow procedure provided for manganese (Mn), High Range.

Multiply reading by 10 to obtain ppm active BONDERITE M-AC M (known as FIXODINE M).

Concentration	Reading	Active BONDERITE M-AC M (known as FIXODINE M)
0.8 lbs/100 gallons (1 g/L)	2.3	23 ppm
1.7 lbs/100 gallons (2 g/L)	4.6	46 ppm
2.5 lbs/100 gallons (3 g/L)	6.9	69 ppm
3.5 lbs/100 gallons (4.2 g/L)	9.7	97 ppm

The addition of 0.35 lbs (159 g)/100 gallons BONDERITE M-AC M (known as FIXODINE M) increases active concentration 10 ppm.
From use, and upon aging, the BONDERITE M-AC M (known as FIXODINE M) bath becomes less effective. Whenever the BONDERITE M-MN LUBRITE coating is not sufficiently uniform and finely crystalline in texture, the bath should be replenished by adding about three-fourths pound of BONDERITE M-AC M (known as FIXODINE M) per 100 gallons. If two or three additions of BONDERITE M-AC M (known as FIXODINE M) do not produce the desired coating, discard the bath and build up a fresh one. With experience, these additions can be made at appropriate periodic intervals so that the PARCO LUBRITE coating is always finely crystalline. Frequently, an addition at the beginning of each shift is satisfactory.

After conditioning, the articles go directly into the BONDERITE M-MN LUBRITE solution without a water rinse.

8. Waste Disposal Information:

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

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

The treatment solution contains heavy metal and phosphate. Waste treatment may be required prior to discharge to the sewer. (Refer to Waste Treatment Information Bulletin WT1007, available on request.)

Wastewater treatment sludge from electroplating (metal treatment) operations are normally hazardous waste unless delisted or exempted. (Title 40 Code of Federal Regulations 261.3).

The treatment solution 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.

9. Precautionary Information:

When handling the chemical, in the form as supplied, the precautionary, first aid and handling recommendations on the Material Safety Data Sheet for the product should be read, understood and followed.

The treatment solution is alkaline and can cause irritation of the skin and eyes. Do not get in eyes, on skin or on clothing. In case of contact, follow the recommendations on the Material Safety Data Sheet for BONDERITE M-AC M (known as FIXODINE M).

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

Code	Quantity	Item
***	..... 1	Graduated Cylinder, Glass, 100 ml (VWR #14212-332 recommended)
***	..... 1	Whatman # 42 Filter Paper (VWR #28480-106 recommended)

Other Equipment

Supplier	Catalogue	Quantity	Item
Hach Co.	5930000	1	Hach Spectrophotometer DR/2400 or
P.O. Box 389	4844000	1	DR/820
Loveland, CO	4670015	1	Hach “Pocket Colorimeter” Manganese
80539			(Mn) High Range (100 tests included)
	24300-00	1	Hach Test Kit for Manganese, HR (Enough for 100 tests)
	12791-42	100 ml	Manganese standard solution, (1000mg/L Mn)
	14258-10	16/pkg	Manganese standard solution, 10 ml Voluette Ampoule, 250 mg/L Mn.

(800)227-4224 (Price Information & Ordering)

- * * * * * -

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