



BONDERITE C-IC 182A ACID CLEANER (Known as DEOXIDINE 182A)

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1. Introduction:

BONDERITE C-IC 182A (Known as DEOXIDINE 182A) is a phosphoric acid based detergent-type metal cleaner and surface rust remover for steel. BONDERITE C-IC 182A can be used in spray or immersion systems to remove rust and light deposits of mill oil, it also destroys corrosion stimulators. BONDERITE C-IC 182A is specifically designed for steel surfaces. The organic surfactants contained in BONDERITE C-IC 182A are classified by the manufacturer as biodegradable.

BONDERITE C-IC 182A prepares the steel surface for the application of a conversion coating of choice. Our representative can recommend a suitable conversion coating product.

Spray application is used in lieu of dip processing whenever the production volume is too large to be economically and conveniently handled by dip.

2. Operating Summary:

<u>Chemical:</u>	<u>Bath Preparation per 100 gallons:</u>
BONDERITE C-IC 182A	5 to 30 gal
<u>Operation and Control:</u>	
Free Acid	5 to 30 ml
Iron Titration	3.0 ml maximum
Temperature	
Spray	125 - 180°F (52 to 82°C)
Immersion	Ambient to 180°F (82°C)
Time	1 to 5 minutes

3. The Process:

- A. Cleaning (optional)
- B. Water rinsing (optional)
- C. Treating with the BONDERITE C-IC 182A solution
- D. Water rinsing
- E. Conversion coating of choice



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4. Materials:

BONDERITE C-IC 182A
Testing Reagents and Apparatus

5. Equipment:

The process tank, housing, pumps and piping for use with process solution be constructed of 316L stainless steel. In spray applications, nozzles should be fabricated from 316L stainless steel or suitable plastic. The heat exchanger should be of polished 316L stainless steel when using steam or hot water heat. If gas fired burner tubes are used, they should be made of 316L stainless steel or equivalent. All process circulating pump seals, valve seats, door seals, and other elastomers which come in contact with the working process solution should be EPDM, PTFE or FKM.

All chemical pump seals, valve seats and other elastomers which come in contact with the concentrated solution should be EPDM, PTFE or FKM.

Support equipment available from Henkel for this process includes: chemical feed pumps, level controls, transfer pumps and bulk storage tanks.

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

6. Surface Preparation:

Cleaning:

Work coated with mill oil usually requires no precleaning. However, heavy deposits of grease or drawing compounds should be removed prior to BONDERITE C-IC 182A treatment. A number of cleaners are available which can be used for this purpose. Our representative can recommend a suitable product.

Water Rinsing:

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

7. Treating with BONDERITE C-IC 182A:

Buildup:

Concentration: 5 to 30 gallons per 100 gallons of bath volume. Fill the tank approximately one-half full with water. Slowly and with stirring, add the required amount of BONDERITE C-IC 182A. Add water to the operating level and heat to the operating temperature.

NOTE: The concentration of the BONDERITE C-IC 182A bath may be varied in proportion to the rust and soil present. The concentration may be increased to achieve rust and soil removal within the available processing time.



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Operation:

Time: usually 1 to 5 minutes.

Temperature:

Spray: 125 - 180°F (52 to 82°C)

Immersion: Ambient to 180°F (82°C)

Application: power spray or immersion

The bath should be operated at the lowest temperature practicable for processing the work in the allotted time. Since the strength of the bath and the operating temperature affect the cleaning time, these factors should be adjusted so that the treatment will be completed within the desired time. Once the optimum conditions of concentration, time and temperature have been established, they should be closely maintained. Temperature should be controlled within $\pm 5^\circ\text{F}$ ($\pm 3^\circ\text{C}$).

8. Testing and Control:

Never pipet by mouth. Use a pipet filler.

Free Acid:

Pipet a 10 ml sample of the BONDERITE C-IC 182A bath into a 250-ml beaker and dilute to approximately 100 ml with water. Add 6 to 10 drops of Indicator 4. Titrate slowly with Titrating Solution 142, while stirring the sample, until the color of the sample turns from pink or orange to a pure yellow.

The milliliters of Titrating Solution 142 used is the free acid value in points.

Free acid range: 5 to 30 points. Maintain the bath within ± 1 ml of the value which gives the best results.

To increase value 1 point: 1.0 gallon of BONDERITE C-IC 182A per 100 gallons of bath volume.

Mechanical Loss:

Processing solution lost due to carryout on the work or lost by leakage should be restored with the same proportion of chemical and water as used to prepare the original bath.

Iron Titration:

Pipet a 1 ml sample of the BONDERITE C-IC 182A bath into a 150-ml beaker and dilute to about 25 ml with distilled water. Add 1 ml of Reagent Solution 44. Fill the automatic buret to zero mark with Titrating Solution 18. While stirring the sample, slowly run in Titrating Solution 18 from the automatic buret until a pink color is obtained which lasts for at least 15 seconds. Record the number of milliliters of Titrating Solution 18 used as the Iron Titration.

Removal of Iron:

The following factors determine the amount of iron that can be tolerated in the BONDERITE C-IC 182A bath:

1. Strength of the bath.
 2. Type of scale, rust, etc., to be removed.
 3. Time available for the Bonderizing treatment.
 4. Type and cleanliness of rinsing available.
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NOTE: When the iron level becomes excessive, treating time becomes longer and rinsing becomes difficult (because of the high concentrations of the brownish, gelatinous iron salts remaining on the work).

The Iron Titration operational level for each BONDERITE C-IC 182A acid cleaner bath will be determined by your technical representative. The Iron Titration of a BONDERITE C-IC 182A bath should not generally be allowed to exceed 3.0 ml (1/4 lb of iron per gallon or 30 grams per liter).

Should the Iron Titration exceed the specified level, either (1) discard the bath and make up a fresh bath or (2) overflow a portion of the bath and then replenish with the proper amount of BONDERITE C-IC 182A.

9. After Treatment:

Water Rinsing:

After the BONDERITE C-IC 182A treatment the work is thoroughly rinsed in cold water. The rinse should be continuously overflowed, and the flow should be regulated with the rate of production so that the main body of the rinse never becomes excessively contaminated.

The clean metal, wet from rinse water, is ready for immediate treatment with a conversion coating system of choice. Our representative can recommend a suitable conversion coating product.

10. 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 chemical.

The processing bath is acidic. Neutralization of rinse water or processing solution may be required prior to discharge to the sewer. Neutralization with lime will precipitate phosphate which is contained in the solution and is recommended where removal of these components is required.

The bath and sludge which may accumulate in the bath 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.

11. Precautionary Information:

When handling the chemical products 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 cleaner bath is acidic and may cause burns to skin and eyes. Do not get in eyes, on skin or on clothing. Wear face shield, rubber gloves and protective clothing when handling. In case of contact, follow the recommendations on the Material Safety Data Sheet for BONDERITE C-IC 182A.



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Testing Reagents and Apparatus

(Order only those items which are not already on hand)

<u>Code</u>	<u>Quantity</u>	<u>Item</u>
VWR# 89000-204	2*	Beaker, 250-ml
592477	1	Buret Assembly, 25-ml Automatic
592399	250 ml	Indicator 4 (methyl orange)
Consolidated Plastics # 41579LH/2oz Flip Top	1	Indicator Dropping Bottle
VWR# 89003-350	2*	Pipet, 10-ml Volumetric
VWR# 53497-009	1	Pipet Filler
Thomas Scientific Part # 30250 Floating Dairy	1	Thermometer, Floating
592420	4.0 L	Titration Solution 142 (0.857N NaOH)
592429	1.0 L	Titration Solution 18
592434.....	4.0 L	Reagent Solution 44

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

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