



Better Chemistry. **Better Business.**

Mi-Clean™ 12 LT-LS

Product Code: 2001013
Revised Date: 06/18/2009

Mi-Clean™ 12 LT-LS Reverse Current Cleaner For Steel

Mi-Clean™ 12 LT-LS is a very efficient, highly conductive, strong alkali cleaner especially formulated for the use of either high or low current densities. Since anodic or reverse current cleaning has proven to be more effective than cathodic cleaning, **Mi-Clean™ 12 LT-LS** has been formulated so that it is essentially a reverse current cleaner, although it is very effective when used cathodically.

This cleaner is also formulated so that it has excellent free-rinsing qualities, effective in hard or soft water and highly buffered to maintain the pH value along with long life. It is essentially a cleaner for steel but copper can be cleaned using a concentration of 6 to 8 ounces per gallon of water.

Concentrations of 8 to 16 ounces of **Mi-Clean™ 12 LT-LS** per gallon of water are used for cleaning steel. As the concentration is increased from 8 to 12 ounces, the conductivity is also increased. The higher concentrations are, therefore, used to facilitate more rapid cleaning and smut removal. However, in most cases, 12 ounces per gallon is applicable. The current density range is from 50 amps per square foot to 125 per square foot and the solution is maintained at a temperature of 120. to 210 F.

It is recommended that **Mi-Clean™ 12 LT-LS** be used anodically as this has now been proven to be the best cleaning method. By using this cleaner anodically, smut and films are removed which are not normally removed cathodically.

The removal of those type films insures adherent and lustrous electro deposits. However, the cleaner can also be used cathodically. Cleaning is normally accomplished in from one to three minutes. Longer time cycles can be used without any detrimental effects. **Mi-Clean™ 12 LT-LS** can also be used effectively as a soak cleaner for steel.

TITRATION PROCEDURE

1. Pipette a 5 ml sample of the bath into a 250 Erlenmeyer flask.
2. Add 50 mls DI water and 5 drops phenolphthalein indicator.
3. Titrate with 0.5 N hydrochloric acid to a clear end point.

$$\text{oz/gallon Mi-Clean™ 12 LT-LS} = \text{mls } 0.5 \text{ N HCL} \times 0.82$$



Product Bulletin

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TEST KIT PROCEDURE

1. Fill sample bottle 1/3 full with water.
2. Using syringe, add ½ ml sample of **Mi-Clean™ 12** and 5 drops phenolphthalein indicator.
3. Add N-94 test kit solution until the pink color completely disappears.

$$\text{oz/gallon Mi-Clean™ 12 LT-LS} = \text{drops N-94 solution} \times 0.4$$

PRECAUTIONS FOR HANDLING AND OPERATING MI-CLEAN™ 12 LT-LS

DANGER: THIS MATERIAL CONTAINS CAUSTIC SODA.....MAY CAUSE SEVERE BURNS

Do not get in eyes, on skin or clothing. Avoid breathing dusts or mists. **DO NOT TAKE INTERNALLY.** When handling, wear goggles or face shield. While making up solutions, add slowly to surface of solution to avoid violent spattering. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. For eyes, call a physician.

The **Mi-Clean™ 12 LT-LS** solution should be adequately exhausted. Do not use galvanized iron, bronze, copper, tin or aluminum metal for baskets, racks, etc., as these metals will contaminate the solution.

WARRANTY

THE QUALITY OF THIS PRODUCT IS GUARANTEED ON SHIPMENT FROM OUR PLANT. IF THE USE RECOMMENDATIONS ARE FOLLOWED, DESIRED RESULTS WILL BE OBTAINED. SINCE THE USE OF OUR PRODUCTS IS BEYOND OUR CONTROL, NO GUARANTEE EXPRESSED OR IMPLIED IS MADE AS TO THE EFFECTS OF SUCH USE, OR THE RESULTS TO BE OBTAINED.