

PLATING PRODUCTS IND PVT LTD

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Technical Data Sheet

Metalox MSC 81

Combination Electrolytic and Soak Cleaner for Steel and Copper

Metalox MSC 81 is a heavy duty, strong alkaline, highly conductive electrolytic cleaner for steel and copper. It is most effective when used as a reverse current (anodic) cleaner, although it may also be used cathodically. The current density ranges from 50 amp per square foot to 125 amp per square foot with a concentration of 60 to 120 grams per litre of water and operating temperatures of 70°C to 100°C. At concentrations of 90 to 120 grams per litre, the conductivity of the solution will be increased and will facilitate more rapid cleaning and smut removal (anodic).

Metalox MSC 81 also makes an excellent **soak cleaner** for steel or copper because it is very free rinsing, effective in hard water and is buffered to maintain its alkalinity and produce long solution life.

Metalox MSC 81 is the preferred soak cleaner to be used without an intervening water rinse prior to an electrolytic solution of **Metalox MSC 81**.

The required cleaning time will depend upon the type and degree of soil on the steel surfaces and on the concentration and temperature of the solution as well as the current density when used electrolytically. Typical times are from 3 to 6 minutes.

EQUIPMENT

Tanks should be constructed of mild steel or stainless steel. Racks, baskets and barrels must be compatible with other metal finishing solutions used thereafter. Do not use galvanized steel, bronze, copper, tin or aluminum. Immersion heaters may be of mild steel. Adequate forced ventilation must be provided.

SOLUTION MAKE-UP

Dissolve the powdered **Metalox MSC 81** in warm water while stirring. When charging a production tank, pre-mixing in a partially filled tank is recommended.

The **Metalox MSC 81** solution concentration is maintained with periodic additions of cleaner to replace that consumed by removing soils and by dragout. When making replenishments to a hot cleaning solution they should be made cautiously to avoid spattering of the solution due to heat being generated when the chemicals are dissolved.

The strength of the solution is determined chemically with either a burette titration or dropping bottle test. When the cleaning solution becomes excessively contaminated with soils, it should be dumped and a new cleaning solution madeup.

SOLUTION CONTROL

A. Titration Method

1. Take a sample of the **Metalox MSC 81** solution and cool to room temperature.
2. Pipette 25 ml of the sample into a clean 125 ml Erlenmeyer flask. Add 25 ml water.
3. Add five drops of Methyl Orange Indicator to produce a yellow solution.
4. Titrate with 1.0N Hydrochloric Acid (HCl) to an orange-pink color.
5. Calculation:
Concentration of **Metalox MSC 81**(gm/ltr) = ml HCl x 0.3 x Normality of HCl x 7.489

B. Dropping Bottle Method (Test Kit Available from PPI)

1. Take a 10 ml sample of the cleaner solution and add along with 10 ml of water to a 150 ml beaker.
2. Add 4 to 5 drops of Phenolphthalein Indicator to beaker.
3. Add dropwise 5N Sulfuric Acid from dropping bottle while counting the number of drops and swirling the solution.
4. Stop adding drops when the color changes suddenly from pink to colorless.
5. Calculation:
Concentration of **Metalox MSC 81**(gm/ltr) = number drops acid x 0.214 x 7.489

CAUTION

THIS MATERIAL CONTAINS CAUSTIC SODA. MAY CAUSE SEVERE BURNS. Do not get in eyes, on skin or on clothing. Avoid breathing dusts or mists. Do not take internally. When handling, wear goggles or face shield. While making up solutions, or adding powder to 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.

Do not mix **Metalox MSC 81** with acidic materials, or any other chemical substances. **Do not** work with **Metalox MSC 81** without first reading and understanding the **MATERIAL SAFETY DATA SHEET** furnished by PPI.

1 kg & 5 kg in plastic lined, non-returnable containers. Keep lid on when not in use. Store indoors in a dry area.