



# PRODUCT INFORMATION

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## MARTRON PFE-600

Iron Phosphating Compound

### Section 1: PRODUCT DESCRIPTION and FEATURES

**Martron PFE-600** is a versatile liquid cleaning and iron phosphating compound for use in one and two stage spray washers, steam processing equipment, various manual spray applications as well as immersion.

**Martron PFE-600** is designed for cleaning and phosphating steel where following rinses are not practical.

- Liquid products provide ease of addition and are safer to add than powdered products
- Minimum sodium salts compounds for better paint adhesion
- Works in both spray and immersion applications
- Provides denser and more uniform coating weights
- Combination of detergents penetrates stubborn oils and emulsifies them
- Contains no solvents or oils
- Deposits two to three times the coating weight

### Section 2: SAFETY PRECAUTIONS

Always read and understand the Safety Data Sheet (SDS) for any chemical product prior to using the product to ensure familiarity with the methods of safe handling and health hazards associated with **Martron PFE-600**.

### Section 3: MAKE UP and MAINTENANCE of *MARTRON PFE-600*

#### Equipment

Tanks and any ancillary equipment should be constructed of high-density polypropylene, mild steel, Koroseal lined steel or stainless steel. Mild steel is acceptable but not recommended. **Do not used brass, copper, or lead for plumbing.**

Heat with steam or hot water using external heat exchanger, or de-rated stainless-steel immersion heaters.

Teflon coated heaters can also be used. Ensure adequate ventilation is provided.

High temperature plastic nozzles and piping may be used to simplify maintenance.

#### Solution Make Up

	Optimum	Range
Martron PFE-600	1.5% (vol)	0.5 – 2% (vol)

**Make Up Procedures**

- Fill the tank approximately 75% of its working volume with clean warm water (100 – 120°F)
- With continuous stirring, add the required amount of **Martron PFE-600**.
- Add balance of water to bring the solution up to working level
- Stir to mix thoroughly
- Heat solution to operating temperature

**Section 4: OPERATING CONDITIONS**

	<b>Optimum</b>	<b>Range</b>
Temperature	160°F	140 - 170°F
pH	3.0	3.0 – 3.5
Dwell Time	60 sec.	0.5 – 2 mins.
Spray Pressure		10 – 20 psi

**Note:** The dwell time will depend on soil removal, required coating weight, and the speed of the process line.

**Section 5: OPERATING NOTES**

**Martron PFE-600** contains a minimum of sodium salts compared to the amount found in the average powdered type product. Since these salts are a serious cause of paint blistering when not rinsed off, **Martron PFE-600** (not rinsed) will produce much better humidity, water immersion, and salt spray results than do powdered products that are not rinsed.

A finely balanced combination of detergents produces such as “wetted-out” solution that it can penetrate extremely stubborn oils and emulsify them. Rapiest drain-off carries the soils away, leaving only the barest minimum of residual chemicals on the surface. **Martron PFE-600** contains no solvents or oils.

An unusual accelerator makes **Martron PFE-600** different from other one stage products. It deposits two or three times the usual coating weight and gives denser and more uniform coatings than competitive products. Coating weights ranging from 25 – 30 milligrams per square foot are normal and will drastically reduce the possibility of flash rust.

The liquid form of **Martron PFE-600** makes it ideal for use in automatic feeding devices for constant quality and reduction in control time. It also eliminates the usual problems of dissolving the clogging of equipment caused by powdered type phosphates.

**Automatic Spray Washers**

**Martron PFE-600** compounds may be used in mild steel equipment at normal use concentrations, although, as with all iron phosphates, it is more economical from the standpoint of equipment life use to use stainless steel plate coils and nozzles. In two stage washers, **Martron PFE-600** should be installed in both stages at the same concentration and temperature.

**Steam Equipment**

For any iron phosphate, including **Martron PFE-600**, lance, nozzles and any heating coils in contact with the solution should be of stainless steel. The most practical method is to draw steam in the lance or wand. The solution can be introduced into the lance by either siphoning, air pressure or pump. After phosphating, the parts may either be painted without further treatment or rinsed with steam or water followed by a final steam – **Martron PFE-600** rinses at 6 to 8 fl. oz./100 gallons concentration. A wide angle (90-degree angle, 6” wide or wider), flat, fan-types nozzle is desired. This nozzle is passed over the work two or three times while holding it as close as practical (not more than 12” away) to the work.

**Hand Spray Equipment**

Another effective method of application is by pumping a heated solution through a pressure nozzle or wand. This

delivers anywhere from 0.5 to 2.5 gallons per minute at 100 – 400 psi. These units can usually be clamped directly to an empty drum and the solution can be heated by means of strip or drum heaters or sprayed cold.

### Immersion

**Martron PFE-600** may also be used in immersion rack or basket applications. Standard tank design is acceptable. It is advisable to use solution movement via a pump to supply adequate movement for part exposure as well as prevent stratification in larger vessels.

### Pressure (Check and record every 2 hours of operation)

The recommended pressure operating range for spray washers is 10 – 20 psi. If the pressure is outside of the recommended range, adjust the pressure by opening (increase) or closing (decrease) the valve until pressure reading is within the operating range.

### Operating Temperature (Check and Record every 2 hours of operation)

The operating temperature range is 140 to 170°F. If the operating temperature is outside the recommended range, **STOP** processing parts until the temperature issue is rectified.

If the temperature is out of range, verify that the temperature control on the control panel is set correctly. Adjust if necessary and recheck the temperature in 30 minutes. Resume processing parts when temperature readings are within operating range.

### Process Control

Solution maintenance is a function of drag out and soil contamination and varies by application. Solution concentration is determined by wet chemical analysis.

### Analytical Method

**Note:** Always adjust the pH of the solution in the tank to 3.0 to 3.5 before analyzing for the **Martron PFE-600** concentration. If the pH is not correct in the tank, the concentration may not be correctly determined, and difficulties with operation may occur.

### Determination of Martron PFE-600 Concentration

#### Equipment

- 10.0 ml pipet
- 250 ml Erlenmeyer Flask
- 25 or 50 ml buret with stand

#### Reagents Required

- Phenolphthalein Indicator Solution
- 0.1 N Sodium Hydroxide Solution

#### Procedure

- Pipet a 10.0 ml sample of the bath into a 250 ml Erlenmeyer flask.
- Add 25 ml of distilled or deionized water.
- Add 4 – 5 drops of Phenolphthalein Indicator solution. The solution should remain clear.
- Titrate slowly with 0.1 N Sodium Hydroxide solution until the solution changes to a permanent pink color.
- Calculation:

$$(\% \text{ vol}) \text{ Martron PFE-600} = \text{ml of 0.1 N NaOH} \times 0.36$$

**Section 6: WASTE TREATMENT**

Consult appropriate Federal, State, and local regulatory agencies to ascertain proper disposal procedures. Do not discharge into waterways or sewer systems. Disposal will depend on the nature of waste material.

**Section 7: STORAGE**

Avoid freezing **Martron PFE-600**. Store the **Martron PFE-600** in an appropriate area with compatible materials. All chemicals should be stored in compliance with all applicable federal, state or local requirements.

**Section 8: NON-WARRANTY and DISCLAIMER**

The data contained in this bulletin is believed by **Martron Inc.** to be true, accurate and complete. Since the final methods of use of this product are in the hands of the customer, and beyond **Martron Inc.'s** control, **Martron Inc.** cannot guarantee that the customer will obtain any specific result. Accordingly, **Martron Inc.** does not assume any responsibility for the use of this product by the customer, the results obtained, nor the infringement of any patents of third parties.