



PRODUCT INFORMATION

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MARTRON FE SEAL 6107

Non-Chrome Seal for Iron and Zinc Phosphate Applications

Section 1: PRODUCT DESCRIPTION and FEATURES

Martron FE SEAL 6107 is an organo-metallic polymer applied to phosphate metal surfaces in the final stage of a pretreatment line. The organic portion of **Martron FE SEAL 6107** reacts effectively with liquid and/or powder paint resins containing hydroxyl (OH), carboxyl (COOH) or amino (NH) function groups.

The other end of the **Martron FE SEAL 6107** polymer reacts with the metal pretreatment producing a reactive chemical bond between the metal and the paint coating.

Martron FE SEAL 6107 can be safely used in both spray and immersion processes for phosphate steel, zinc, zinc alloys, and aluminum.

- Liquid products provide ease of addition and are safer to add than powdered products.
- Provides both a tight chemical and mechanical bond between coating and substrate
- Unique blend of chemical and physical properties
- Works in both spray and immersion applications
- Enhances paint adhesion
- Does not contain chrome
- Does not require a post rinse with water
- Equivalent or better performance compared to chrome

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 FE SEAL 6107**.

Section 3: MAKE UP and MAINTENANCE of MARTRON FE SEAL 6107

Equipment

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

When necessary, 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.

Solution Make Up

	Optimum	Range
Martron FE SEAL 6107	1% (vol)	0.5 – 1% (vol)

Make Up Procedures

- Fill the tank approximately 70% of its working volume with RO or DI water.
- With continuous stirring, add the required amount of **Martron FE SEAL 6107**
- Add balance of water to bring the solution up to working level
- Stir to mix thoroughly for 15 minutes
- Check the concentration and adjust to operating optimum
- If necessary, adjust solution to ambient operating temperature

Operating Conditions

	Optimum	Range
Temperature	75°F	70 - 80°F
pH	9.8 – 10.0	9.1 – 10.1
Contact Time	<30 sec	
Pressure	15 psi	10 – 20 psi

Typical Cycle

- Alkaline clean
- Flowing rinse
- Rinse Conditioner (For zinc phosphate only)
- Phosphate
- Flowing Rinse
- **Martron FE SEAL 6107**

Operating Notes**Performance Criteria**

The degree of corrosion resistance that a paint coating applied over a phosphate treated metal can achieve depends on a number of factors, including:

1. The cleanliness of the metal substrate prior to phosphatizing
2. The density and size of the phosphate crystalline structure
3. The reactivity of the Final Seal Rinse

Typical Pretreatment Applications

To ensure cleanliness, most pretreatment lines include a cleaning stage prior to the phosphate stage. Iron or zinc phosphates are then applied to the clean metal substrates. High performance iron phosphates require a minimum of 5 stages, including a final 'seal' rinse or "post" rinse. Zinc phosphates require a minimum of 6 stages and as many as 11 stages for high performance applications, such as in the automotive or appliance industries.

The final "Seal" rinse or "Post" rinse also has a significant impact on paint adhesion and corrosion resistance. If the Seal pH and/or concentration are out of Optimum Range, stop processing parts until readings are in range.

Process Control

Solution maintenance is a function of drag out and soil contamination and varies by application. The operating seal solution is maintained by concentration and pH. The concentration is determined by wet chemical analysis. For best results, it is recommended that the **Martron FE SEAL 6107** be dumped on a weekly basis.

Equipment Required

- 25.0 ml pipet
- 250 ml Erlenmeyer flask
- 25 or 50 ml buret with stand

Reagents Required

- Phenolphthalein Indicator Solution
- 0.1 Hydrochloric Acid Solution

Procedure

- Pipe a 25.0 ml sample of the Seal Solution to be analyzed into a 250 ml Erlenmeyer flask.
- Add 6 to 8 drops of Phenolphthalein Indicator Solution.
- Titrate with 0.1 N Hydrochloric Acid Solution until the color changes from pink to clear.
- Calculation:

$$\text{Points} = \text{mls of 0.1 N HCl}$$

$$\begin{aligned} \text{Free Alkalinity:} \quad \text{Operating Range} &= 0.9 - 1.7 \text{ points} \\ &\text{Optimum Range} = 1.0 - 1.5 \text{ points} \end{aligned}$$

Solution Maintenance

- If the Free Alkalinity points are less than 1.0, increase the Free Alkalinity by adding **Martron FE SEAL 6107** to the tank until the Free Alkalinity is in range.
- If the Free Alkalinity points are greater than 1.5, decrease the Free Alkalinity by turning off the feed pump until the Free Alkalinity is in range.

pH

The pH should be checked daily and adjusted to maintain the solution within the proper range. For accurate results, a pH meter should be used rather than pH papers.

Note: If fresh product was added to the Seal Tank, wait 30 minutes before measuring the pH. If any pH adjustments are made, measure pH and readjust every 30 minutes until the readings are within the Optimum Range.

$$\begin{aligned} \text{Solution pH:} \quad \text{Operating Range} &= 9.1 - 10.1 \\ &\text{Optimum Range} = 9.8 - 10.0 \end{aligned}$$

Solution Maintenance

- If the pH is less than 9.8, increase the pH by adding **Martron FE SEAL 6107** to the tank until the pH is in Optimum Range.
- If the pH is greater than 10.0, decrease the pH by adding RO or DI water until the pH is within Optimum Range.
- If any pH adjustments are made, measure the pH and readjust every 30 minutes until the readings are within Optimum Range.

Section 4: 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 5: STORAGE

Avoid freezing **Martron FE SEAL 6107**. Store the **Martron FE SEAL 6107** in an appropriate area with compatible materials. All chemicals should be stored in compliance with all applicable federal, state or local requirements.

Section 6: 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.