



PRODUCT INFORMATION

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MARTRON 5090-25

A THICK-FILM TRIVALENT CONVERSION COATING FOR ZINC

- Martron 5090-25** is a high performance, thick-film trivalent conversion coating for electroplated zinc.
- Martron 5090-25** produces a slightly iridescent, multicolor finish (hues of yellow, green, purple and pink) which is unique among high corrosion trivalent chromate processes.
- Martron 5090-25** provides a finish that consistently exceeds 250 hours of neutral salt spray to white corrosion products *without top coats*, when applied properly.
- Martron 5090-25** is an easy to use one-part system that *does not* require multiple starter, adjuster, and replenishes type additives.
- Martron 5090-25** operates at a wider, and more user-friendly pH range (pH = 1.4 to 3.4) than conventional trivalent chromates.
- Martron 5090-25** is chelator-free, and does not rely on chelate ligand technology making it waste treatment friendly.
- Martron 5090-25** provides over 500 hours to white corrosion when top coated with **Martron 5090-25 Sealer**.
- Martron 5090-25** is ideal for both and rack and barrel installations utilizing cyanide, alkaline cyanide-free or acid-chloride zinc plating electrolytes.

SECTION 1: OPERATING INSTRUCTIONS

GENERAL APPLICATION

GMW 3044 APPLICATION

Concentration	8% to 10% by volume	8% to 10% (Optimum 9%)
Dip time	45 to 120 seconds	50 to 70 seconds (Optimum 60 seconds)
Temperature	50° to 110°F (10° to 42°C)	80° to 100°F
pH	1.4 to 3.4	2.0 to 2.5 (Optimum 2.3)
Zinc deposit thickness	Minimum 0.3 Mil (8 Microns)	8 to 16 Microns

NOTE: Dip times can vary depending upon the concentration and the age of the chromate.

SECTION 2: MAINTENANCE ADDITIONS

Periodic titrations should be made to ensure correct concentration. If the analysis shows the proper amount of **Martron 5090-25** and the pH is high, small additions of 50% by volume of nitric acid can be made to adjust the pH.

SECTION 3: ANALYTICAL PROCEDURE**TRITRATION PROCEDURE****Items Needed**

1. DI Water
2. 20% Sodium Hydroxide Solution
3. 35% Hydrogen Peroxide Solution
4. 10% Nickel Chloride Solution
5. Conc. Hydrochloric Acid
6. Ammonium Bi-fluoride
7. 10% Potassium Iodide Solution
8. Starch Indicator Solution
9. 0.010N Sodium Thiosulfate Solution

Procedure

1. Pipette a 10 ml chromate sample into a 100 ml volumetric flask. Dilute to 100 ml with distilled water and mix well.
2. Pipette 10 ml of the above diluted solution into a 250 ml Erlenmeyer flask and dilute to 100 ml with distilled water.
3. Add 5 ml 20% Sodium Hydroxide and 1 ml 35% Hydrogen Peroxide.
4. Boil solution approximately 5 minutes.
5. Add 1 ml 10% Nickel Chloride Solution and continue boiling for an additional 2 minutes.
6. Cool solution to room temperature.
7. With mixing, add 10 ml Concentrated Hydrochloric Acid, 1 g Ammonium Bi-fluoride, 10 ml 10% Potassium Iodide and 2 ml Starch Indicator Solution.
8. Titrate the solution to a clear/green endpoint using 0.010 N Sodium Thiosulfate.

Calculation

Percent **Martron 5090-25** = ml 0.010 N Sodium Thiosulfate x 0.332

SECTION 4: TYPICAL CYCLE

- Plate
- Rinse
- Nitric Acid pre-dip (0.5% by volume)
- Rinse
- **Martron 5090-25**
- Cold water rinse
- Hot water rinse
- Dry

SECTION 5: IRON CONTAMINATION

Iron contamination is a problem for all of the high-end/high performance trivalent passivation technologies. Iron can cause yellowing, staining, discoloration and reduced corrosion protection.

Extreme care should be used to keep iron from entering the working **Martron 5090-25** chromate solution. The process tank should be cleaned at least once or twice per 8-hour shift to eliminate the potential for dissolving fallen parts. Adequate rinsing should always be maintained and nitric pre-dips prior to chromating should be dumped frequently to reduce drag-in of iron. Also, tubular parts should be allowed to completely drain before entering the chromate solution.

SECTION 6: HELPFUL HINTS

1. A Nitric Acid pre-dip is recommended to increase the life of the chromate particularly when an alkaline zinc electrolyte is utilized.
2. Although the pH for a new solution make-up may be below the recommended operating range of 1.4 to 3.4, parts

can be processed since the pH will climb after only a few hours.

3. Sulfuric Acid or Nitric Acid can be used to adjust the pH down in a working **Martron 5090-25** solution.

SECTION 7: HANDLING and STORAGE

CAUTION

Martron 5090-25 is corrosive and contains chromium compounds and strong mineral acids. Contact with the skin or eyes should be carefully avoided. Protective clothing and eye shields or goggles should be worn when handling **Martron 5090-25**.

In case of contact, flush with large amounts of water. Remove contaminated clothing. For more detailed handling and storage instructions, please refer to the Safety Data Sheet (SDS).

FREEZABILITY

As with most chemical products, it is preferable that freezing be avoided. However, if freezing should occur during transportation or storage, directions for handling the products covered in this technical data sheet are as follows:

If **Martron 5090-25** freezes, warm container to 95-105°F/35-41°C in a warm water bath. Thoroughly mix until precipitates are completely dissolved.

SECTION 8: NON-WARRANTY

The data contained in this bulletin is believed by **Martron Inc.** to be accurate, true, and complete. Since, however, final methods of use of this product are in the hands of the customer and beyond our control, we cannot guarantee that the customer will obtain the results described in this bulletin, nor can we assume responsibility of the use of this product by the customer in any process which may infringe the patents of third parties.