PRODUCT INFORMATION

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MARTRON LAQ WDL

An Organo-Mineral Finish Process for Electrodeposited Zinc and Zinc Alloy Coatings

1. PROCESS and DEPOSIT DESCRIPTION

General Description

Martron LAQ WDL is a specially formulated organo-mineral liquid concentrate, used to impart increased corrosion protection to parts processed with **Martron 5090-25** conversion coatings. Developed to meet the demands of the automotive industry, **Martron LAQ WDL** is designed to protect zinc and zinc alloy finishes against corrosion in a variety of environments, including, but not limited to, the hostile conditions found in engine compartments and on automotive exteriors. The process is suitable for bulk electroplating applications and can be used in conjunction with hexavalent chromates or trivalent passivates.

Product Features

- Parts processed exhibit excellent ductility – will not crack when crimped.
- Helps provide superior white rust corrosion resistance
  (Rack >240 hours to WR, Barrel >144 hours to WR)
- Effective on all passivated zinc and zinc alloy coatings.
- Provides for control of the coefficient of friction.
- Typically used for rack applications but is suitable for bulk processing.
- Protective properties of film produced remain unchanged by repeated thermal aging at 120°C (248°F) for several hours. Superficial mechanical strain such as knocks, thread tightening, rubbing, and scratching will not adversely affect results.

2. MAKE-UP and MAINTENACE of the OPERATING SSOLUTION

Solution Composition

	Range	Typical
Martron LAQ WDL	300 - 500 ml/l (30 - 50% v/v)	400 ml/l (40% v/v)
Temperature	18 - 25°C (65-77°F)	20°C (68°F)
Time	20 - 60 sec.	45 sec.
pH	8.5 - 9.5	9.0
Agitation	Continuous, low shear mechanical mixing **(even during downtime)**	Same
Filtration	Continuous through an 80 – 150 microns filter bag or cartridge **(even downtime)**	Same
Specific Gravity	1.01 – 1.06	Same

Make-Up Procedure

1. To a perfectly clean tank, add the required amount of **Martron LAQ WDL**.
2. Add the required amount of water (preferably DI Water) to the operating tank. *Temperature is critical.*
3. Check the pH and adjust with **Martron LAQ WDL** solution (if necessary).
4. Turn on agitation and filtration and begin processing parts.

NOTE: Do not turn off agitation or filtration, even during downtime.

Operating Conditions

pH Range

The **Martron LAQ WDL** operating solution is extremely stable when the pH is maintained between 8.5 and 9.5 units. Do not allow the solution pH to drop below 8.5. The pH can be raised by slowly adding **Martron LAQ WDL**.

Temperature Range

Martron LAQ WDL will provide optimum performance when the operating solution is kept between 18-25°C (65-77°F). If conditions are such that the operating solution may drift outside the suggested temperature range, it may be necessary to make provisions to control the temperature with heating and/or cooling equipment.

Agitation

Continuous, low shear, mechanical mixing is imperative to ensure optimum performance of the **Martron LAQ WDL** solution. Likewise, barrel rotation should be as slow as practical to minimize damage imparted via part-against-part contact. Air agitation is not recommended since it can increase the tendency for polymerization of the **Martron LAQ WDL** active ingredients.

Filtration

Continuous filtration through an 80 to 150-micron cartridge or bag filter is recommended. The filter should be sized to turn the solution over at least twice per hour. The filter and pump may be constructed of polypropylene, PVC or stainless steel.

Equipment

Martron LAQ WDL solutions are non-corrosive and operate at near-neutral pH values. They also operate at room temperature. Thus, tanks can be constructed from a very wide variety of materials. Nevertheless, most shops use tanks made of PVC, Koroseal or rubber-lined steel, plastic, polyethylene, polypropylene, or stainless steel. If heating or cooling coils are needed, they should be constructed from a material similar to the processing tank itself. Ventilation equipment is not normally required.

Replenishment Additions and Control Methods

It is important to maintain the Specific Gravity of the bath at a minimum of 1.012 at 20°C (68 °F). For quick reference, a hydrometer can be used to determine SG (350 ml/l or 35% ~ 1.019; 500 ml/l or 50% ~ 1.027). Regular additions of **Martron LAQ WDL** should be used for maintenance.

The preferred, more accurate method of determining solution concentration is as follows:

1. Weigh two metal weighing dishes. Label and record their respective empty weights: W_0.
2. Place 10 ml of **Martron LAQ WDL** sample into each weighing dish. Weigh them: W_1
3. Place both dishes into 120°C (248° F) oven for one hour.
4. Remove both from oven and allow to cool. Weigh and record dried weight for each dish: W_2
5. Average two records and apply to the following equation.

$$(W_2 - W_0) / (W_1 - W_0) \times 5.21 \times 100 = \%$$ **Martron LAQ WDL**

Note: Consumption is largely dependent upon drag-in/drag-out. A general estimate is 0.1-0.3 liters/m^2.

3. PLATING SEQUENCE

Typical Processing Cycle

1. **Martron Zinc Alloy Electroplate**
2. Cold Water Rinse
3. Cold Water Rinse
4. Acid Activate
5. Cold Water Rinse
6. Cold Water Rinse
7. **Martron 5090-25**
8. Cold Water Rinse
9. Cold Water Rinse
10. Drain (with air blower to eliminate drag-in of water)

11. **Martron LAQ WDL** (20-40 seconds)
12. Drain for 1-5 minutes with air
13. Dry for 10-15 minutes in warm 80°C (176°F) air.
14. Unload

Notes

Stage 9:	If Stage 10 is skipped, maintain the pH of the cold-water rinse between 8.5 and 9.5 units with 50% by volume ammonium hydroxide solution.
Stage 10:	Parts should be allowed to drain (with air blower)
Stage 12:	Parts should drain for 1-5 minutes.
Stage 13:	Dryer should be equipped with temperature control.

When bulk processing, the dryer should also be equipped with speed control. The values of speed, temperature and time should be determined experimentally, and is a function of part configuration. A good starting point for a 24" basket is 80°C (176°F), 10 minutes and 250 rpm. The baskets should be cleaned in a sodium hydroxide solution (60 g/l or 8 opg, 60°C) and rinsed after each load. In some cases, it may be necessary to use stripper to totally clean the baskets.

4. WATER CARE and WASTE MANAGEMENT

Operating solutions of **Martron LAQ WDL** often contain small amounts of trivalent chromium compounds from material left on the surface of parts from prior processing steps. Thus, they may require treatment to remove these chrome compounds. Additionally, they contain organic polymers that require removal before an effluent can be discharged. Generally, this can be done by simply raising the pH, adding the appropriate Water Care coagulant, and filtering the effluent before discharging it to the sewer.

5. HEALTH and SAFETY

Safe Handling

The preparation, maintenance, and disposal of **Martron LAQ WDL** solutions does not require the handling of any hazardous chemicals, with the possible exception that small volumes of concentrated alkali and/or acid may be required for pH adjustment purposes. Avoid contact with the skin and eyes. Wear protective clothing and safety gear. In the event of any contact, flush affected area with a large volume of cold water and contact a physician, if necessary.

Storage Considerations

Martron LAQ WDL must be protected from freezing, and should not be stored in areas where the temperature falls below 10°C (50°F). **Martron LAQ WDL** is not combustible. The shelf-life of **Martron LAQ WDL** is one (1) year from date of manufacture.

6. WARRANTY

Product Information

Product Name:	**Martron LAQ WDL**
Appearance:	Milky White Solution
Specific Gravity:	1.06 (@ 25°C
IMDS Number:	974826

Disclaimer of Responsibility

The data set forth in this bulletin is believed by ***Martron Inc.*** to be true, accurate, and complete, but is not guaranteed. Our sole warranty is as stated in our Standard Terms and Conditions of Sale. We cannot warrant that our customers will achieve the same results from any process, chemical or product described in this bulletin because we do not have control over the conditions of use; nor can we assume any responsibility for our customer's use of any of our products in a manner which infringes the patents of third parties.