PRODUCT INFORMATION

MARTRON INC.® PO BOX 309, MONROE, NC 28111 PH: (704) 289-1934 FAX: (704) 283-7400

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EMERGENCY: MARTRON 704-289-1934
CHEMTREC 800-424-9300

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MARTRON RSS-100 PROCESS

Martron RSS-100 is an electrolytic rack stripper for removing multiple plated coatings from type 304 or 316 stainless steel rack tips.

Martron RSS-100 removes a variety of coatings, including nickel, nickel iron, chrome, copper, zinc, cadmium, tin, and tin-lead solders.

Martron RSS-100 is easily controlled to provide uniform results and does not contain cyanide.

Martron RSS-100 removes multi-layer deposits in one operation and has a long operating life.

Martron RSS-1 MU is used for initial solution make-up and is then controlled with **Martron RSS-1 MA**.

	Optimum	Range
Martron RSS-1 MU	25% by vol. (250 ml/l)	20-30% by vol. (200-300 ml/l)
pH		5.5 – 7.0
Voltage		12 – 15 volts
Anodic Current Density		300-600 Amps/ft2 (32-64 mps/dm2)

NOTE: Because heat is generated, the current should not exceed 10 amps per gallon.

Cathode	Type 301, 304, or 316 stainless steel
Cathode to Anode Ratio	At least 4:1
Cathode to Anode Spacing	4-10"
Temperature	Ambient to 130°F (54°C)

Heaters - Normally not needed. If desired, Quartz, PTFE, or stainless steel can be used. If excessive heat is generated, cooling coils of PTFE or type 316 stainless steel should be used.

Tanks - Steel lined with Koroseal, PVC or high temperature rubber. All fittings and pipes should be plastic or coated with a non-conductive surface.

Buss bars and cathode rail should be covered with plastic pipe to reduce chance of drippage or corrosion on copper base and cathode rail.

Tank Capacity - Tank should have 25% excess capacity with the depth being at least 25% deeper than the longest rack. This is for collection of sludge below racks.

Ventilation - Localized ventilation is required. Ducts constructed of rigid PVC are recommended.

Section 1: Solution Operation

The solution should be made-up using **Martron RSS-1 MU** at 20-30% by volume. The pH should be maintained between 5.5 to 7.0. Additions of **Martron RSS-1 MA** will reduce the pH. The pH normally rises slowly as metals are stripped.

Section 2: Solution Make Up

The tank should be free of all metals and fluoride or chloride ions and leached prior to use with 2% by vol. (2ml/l) nitric acid solution followed by thorough rinsing with water.

1. Fill the tank one-half full with water and then add the required amount of **Martron RSS-1 MU** and stir.
2. Check pH. If pH is below 5.5, add ammonia. If it is too high (> 7.0), add **Martron RSS-1 MA**.
3. Fill tank to operating level that is over all contacts to be stripped, and below any exposed copper on rack hooks. When solution is ready, load rack and operate at proper amperage. Rack stripper is 100% efficient and, therefore, stripping is proportional to amp-minutes applied to the stainless steel tips.

Section 3: Operating Procedures

1. The solution should be analyzed for **Martron RSS-1 MU**. As its concentration drops below 22%, the stripping rate slows down. Adjust concentration to 25% by adding **Martron RSS-1 MU** is lost by drag out.
2. Check pH. If pH is above 6.5, lower it by adding **Martron RSS-1 MA** until it is approximately 5.5. As the bath ages, additions of **Martron RSS-1 MA** to change the pH become larger, but less frequent.
3. Contacts on the racks should be checked to assure proper current to the racks.
4. Inspect cathodes on a monthly basis to assure they are all working and free of sludge. If sludge is being formed, the pH is too high or the cathode area is too small.

Section 4: Operating Temperature

To provide proper conductance, the solution may need to be heated. However, the current used for stripping will heat the solution. Excessive current can cause the tank to overheat, which should be avoided. Temperatures greater than 130°F (54°C) can cause deterioration of racks and tank liners. High temperatures will cause excessive chemical consumption.

Section 5: Rate of Attack on Contact Points

The etch rate of bare stainless steel rack tips is negligible. After repeated stripping, the rack tips will become polished.
Weight loss on type 316 stainless steel operated at 400 Amps/ft2 (43 Amps/dm2) for 1 hour is less than 0.1%.
Weight loss on type 301, 302, and 304 stainless steel is less than 0.2% under the same conditions.
These materials are non-magnetic. Types 200 and 400 series stainless steel should not be used for rack tips.

Section 6: Solution Contamination

Racks should be thoroughly rinsed before entering the strip tank. Contamination of the solution by fluoride, silica fluoride from chrome solutions or chloride from nickel solutions will accelerate the attack on rack tips.

The junction between rack tip and rack splines must be completely protected by a rack coating, and be free of holes, cracks, tears, or other defects such as loose coatings.

Water should be treated to remove chlorides prior to initial make up of the strip solution. Chloride concentrations greater than 25 ppm can cause accelerated deterioration of rack tips.

Accelerated attack on rack tips will occur if:

1. Improper amount of **Martron RSS-1 MA** is used.
2. The pH of solution is not within the recommended operating range.
3. The stripper solution is too hot.
4. Chlorides, fluorides, or silica fluorides are present.
5. The wrong type of stainless steel is used.

Section 7: Analysis Procedures

Determination of Martron RSS-1 MU

Equipment Required

- 2-25 ml burettes
- 1-10 ml pipette and 1-5 ml pipette
- 1-Erlenmeyer Flask
- 1-50 ml graduated cylinder

Reagents Required

- 0.1N Silver nitrate solution stored in a brown bottle
- Concentrated nitric acid
- 0.1N Potassium Thiocyanate
- Ferric ammonium sulfate saturated solution

Procedure

1. Rinse flask with distilled water.
2. Add 75 ml of distilled water, and 10 ml of concentrated nitric acid.
3. Pipette 5 ml of stripping solution into flask.
4. Add approximately 5 ml of ferric ammonium sulfate solution.
5. Pipette 10 ml of silver nitrate.
6. Back titrate with 0.1N potassium thiocyanate until the solution turns a brownish hue and maintains this color after swirling.
7. Calculate the concentration of **Martron RSS-1 MU**:

Martron RSS-1 MU (% by vol.) = [(ml of silver nitrate x Normality) minus (ml of thiocyanate X Normality)] x 43.8

Example:
It takes 4.5 ml of 0.1 N thiocyanate to back titrate 10 ml of 0.1N silver nitrate
[(10 ml x .1) - (4.5 x .1)] x 43.8 = 24.1% **Martron RSS-1 MU**

Section 8: Safety Information

Additives may cause burns or skin irritation. Use chemical goggles and rubber gloves when handling. Always read the Safety Data Sheet (SDS) for any chemical product to ensure familiarity with the methods of safe handling and the health hazards associated with the product.

Section 9: Waste Disposal

Wastes must be tested using methods described in 40 CFR Part 261. It is the generator's responsibility to determine if the waste meets applicable definitions of hazardous wastes. Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations. When empty, containers may still be hazardous because of product residue. All labeled hazard precautions must be observed.

Consult Safety Data Sheet (SDS) for additional safety and waste treatment information.

Section 10: Non-Warranty

The data contained in this bulletin is believed by ***Martron Inc.*** to be true, accurate and complete. However, since final methods of use for 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. ***Martron Inc.*** cannot assume any responsibility for the use of this product by the customer in any process, that may infringe the patents of third parties.