



PRODUCT INFORMATION

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MARTRON IMPABOND 40

"A CONCENTRATED LIQUID ZINCATE FORMULATION FOR THE PRETREATMENT OF ALUMINUM AND ITS ALLOYS"

Martron Impabond 40 is a cyanide free dilute zincate process for processing aluminum and its alloys. **Martron Impabond 40** removes aluminum oxide and applies a thin zinc film on the aluminum alloy by immersion to prevent its re-oxidation. This film can then be electroplated with copper, nickel and certain other electrolytic processes as well as with Electroless nickel. The dilute **Martron Impabond 40** solution has low viscosity that rapidly penetrates the water film present on the cleaned aluminum. This new alloy process produces a denser, more uniform zinc film than what can be found with most other conventional zincates. This film has improved adhesion to the aluminum, helping to insure excellent adhesion of the subsequent plate.

Martron Impabond 40 meets ASTM B253-11 Specification.

SECTION 1 - FEATURES AND BENEFITS

- Promotes excellent adhesion of electroplated and Electroless processes: eliminates rejects and improves quality.
- Cyanide-free process: eliminates cost of waste treatment to destroy cyanide.
- Improves surface conditioning: reduces necessity for double zincating.
- Can be used in both rack and barrel installations: reduces number of materials to be stocked and handled; saves storage space.
- Low drag out: economical to use.
- Free rinsing: minimum carry-over of zincate into plating baths.
- Uniform zinc coating on complex parts: excellent for plating screw threads, blind holes, grooves, porous castings.
- Resists lateral corrosion: improved corrosion resistance at scratches, edges, etc.
- Wide range of operating conditions: precise control not necessary.

SECTION 2 - OPERATING CONDITIONS

Concentration	Martron Impabond 40	20 - 32% by vol.*
	Water	68 - 80% by vol.
Temperature	70 – 115°F ** (21 - 46°C)	
Time	15 sec - 2 min	

* A 30% concentration is recommended for certain difficult-to-plate alloys.

** Temperatures below 70°F may require a longer immersion time on some aluminum alloys.

SECTION 3 - EQUIPMENT

Tank	Mild Steel, Stainless Steel, Polyethylene, Polypropylene, PVC
Heating/Cooling	Mild Steel Stainless Steel Plate Coils
Ventilation	Local Exhaust to remove gaseous mists
Agitation	Mild mechanical
Racks	Spring-loaded Stainless Steel or Aluminum to maintain secure contact.

SECTION 4 - MAKE-UP

Martron Impabond 40 is a prepared concentrate and is convenient to use. For make-up, slowly add the required amount of **Martron Impabond 40** liquid to water and stir thoroughly. The solution does not heat up during mixing and can be used immediately. For replenishment, simply add **Martron Impabond 40** directly to the operating solution as required.

SECTION 5 - TEMPERATURE

For most purposes **Martron Impabond 40** operates at room temperature. The solution may be heated to a maximum of 115°F (46°C) to shorten the immersion time or for treating very passive aluminum surfaces.

SECTION 6 - IMMERSION TIME

Immersion time depends on the temperature, the alloy and the passivity of the aluminum surface. If the alloy reacts vigorously with the **Martron Impabond 40**, the immersion time must be short. If there is no visible reaction, the immersion time can be extended from 30 seconds to 2 minutes. A uniform light gray coating should be deposited. If the coating is spotty or bare in certain areas, the preparation of the aluminum surface was incomplete. Occasionally a mottled appearance can occur on certain alloys. This film is satisfactory for plating and provides excellent adhesion.

SECTION 7 - DOUBLE ZINCATING

While normally not necessary with **Martron Impabond 40**, a double zincate may be used for better adhesion on difficult-to-plate alloys. This consists of a one-minute dip in **Martron Impabond 40**, stripping of the zinc coating in Nitric Acid, and then re-immersion in **Martron Impabond 40** for 15 - 30 seconds. The same Nitric acid dip should not be used for both smut removals prior to the first dip in **Martron Impabond 40** and for stripping zinc. Use a separate Nitric Acid bath for zinc removal prior to the second **Martron Impabond 40** immersion.

SECTION 8 - PLATING CYCLES

Since cycles vary from one aluminum alloy to another, please contact your **Martron, Inc.** service representative for the best cycle for your application.

SECTION 9 - CONTROL

The **Martron Impabond 40** solution can be easily controlled in three ways. Each method has been successfully used with varying degrees of accuracy. The method that best suits the customer should be used.

Method #1

The simplest control is by observing the gassing which occurs at the surface of the aluminum article which is being processed. As the solution becomes depleted, there will be a noticeable increase in gassing. At this point the solution should be replenished with an addition of approximately 10% of the original make-up. Reproducing this in a beaker first is always recommended.

Method #2

The **Martron Impabond 40** can also be readily controlled by specific gravity measurement. Suggested control limits are 13 - 19 Baume or 1.10 - 1.15 sg at 70°F Replenishments with the original concentrate is all that is required.

Method #3

If desired, the bath may be controlled by chemical analysis for zinc metal content. The bath should be analyzed for zinc content when first made up and maintained at that value by additions of **Martron Impabond 40**. A typical analysis

for zinc is as follows:

Apparatus Needed

5 ml. pipette
250 ml. Erlenmeyer flask
50 ml. burette
10 ml. graduate
50 ml. graduate
Spatula

Reagents Needed

0.0575 M EDTA, Disodium Salt - Dissolve 21.4 grams EDTA and 6.0 grams of NaOH in deionized or distilled water and dilute to 1 liter.
Triethanolamine, 50% by vol.
Indicator Powder - 1 gram of Erichrome Black T Indicator with 100 grams NaCL.
Buffer Solution - 125 grams AR grade Ammonium chloride dissolved in concentrated AR grade Ammonium Hydroxide and diluted to 1 liter with Ammonium Hydroxide.

Procedure

1. Pipette 5 ml. sample of **Martron Impabond 40** working solution into 250 ml Erlenmeyer flask.
2. Add 40 ml. of 50% triethanolamine.
3. Add 10 ml. buffer solution.
4. Dilute to 100 ml. with deionized water.
5. Add 0.25 grams to 0.50 grams of Erichrome Black T Indicator.
6. Immediately titrate with 0.0575 M EDTA solution until color changes from red-purple to blue.

Calculations: Martron Impabond 40 concentration:

(# ml. EDTA titrated) x 1.70 = fl oz/gal **Martron Impabond 40**

Or

(# ml. EDTA titrated) x 13.28 = ml/l **Martron Impabond 40**

Replenishment

The optimum concentration is 38.4 fluid ounces of **Martron Impabond 40** per gallon of operating solution or 300 ml/l. Replenishment as required.

SECTION 10 - WASTE TREATMENT

The **Martron Impabond 40** concentrate and operating solutions are strongly Alkaline and contain heavy metals. The metals should be precipitated by slowly lowering the pH with 10% Sulfuric Acid to a pH of 6 -8 and filtering to remove the Metallic Hydroxides. A metallic precipitant, **Martron Meta Plex**, is available for this operation if necessary. See the separate

Safety Data Sheet (SDS) on **Martron Meta Plex** for further details.

SECTION 11 - CAUTION

The **Martron Impabond 40** concentrate and operating solutions are strongly Alkaline. In case of contact, flush skin with large amounts of clean, cold water and wash with diluted vinegar. For eyes, flush for at least 15 minutes with clean, cold water and obtain medical attention immediately. When handling **Martron Impabond 40** or its operating solutions, always wear protective clothing, chemical safety goggles, face shield and rubber gloves. Store away from Acids and Oxidizing Agents. Clean up any spills with water and flush to sewer or settling lagoon. Always consult local, state and federal authorities for the most up-to-date regulations in your area.

SECTION 12 - STANDARD PACKAGING

55-gallon drum

SECTION 13 - WARRANTY

This product is guaranteed as to quality upon shipment from our plant. If the use recommendations are followed, desired results will be obtained. Since the use of our product is beyond our control, no guarantee expressed or implied is made as to the effects of such use or the results to be obtained.