

## Seacole Aluminum and Magnesium Conditioner An Acidic Liquid Conditioner

### Product Description

SEACOLE ALUMINUM AND MAGNESIUM CONDITIONER is an acidic liquid conditioner specially formulated for use in the pre-treatment cycles for aluminum and magnesium alloys prior to electroless nickel plating. SEACOLE ALUMINUM AND MAGNESIUM CONDITIONER is especially effective for difficult to plate alloys, particularly those rich in magnesium. For applications where minimal dimensional changes and maximum reflectivity are required, SEACOLE ALUMINUM AND MAGNESIUM CONDITIONER is ideal. SEACOLE ALUMINUM AND MAGNESIUM CONDITIONER is also preferred for high-finish aluminum and magnesium surfaces because it does not appreciably change the appearance of polished aluminum or magnesium.

SEACOLE ALUMINUM AND MAGNESIUM CONDITIONER is an excellent mild conditioner for aluminum, aluminum alloys, and magnesium alloys prior to electroplating, anodizing, welding or application of chemical conversion coatings. The absence of residual, slimy aluminum or magnesium slats insures a clean surface for subsequent finishing operations. SEACOLE ALUMINUM AND MAGNESIUM CONDITIONER is free of chelators, thus making it very easy to waste treat.

### Performance Features

- SEACOLE ALUMINUM AND MAGNESIUM CONDITIONER is very uniform and provides controlled etching action and increased productivity.
- Produces bright, smooth surface.
- Mild conditioner having minimal effect on dimensions of work.
- Excellent deep recess penetration.
- Minimizes or eliminates smut formation on the work.
- Chelator free.
- Non-fuming at room temperature.
- Uniform etching action produces fewer rejects and increased productivity.
- Provides for maximum adhesion.
- Effective for pretreating parts where close tolerance is a factor.
- Complete plate coverage at reduced cost.
- Minimizes problems associated with waste treatment.
- Fewer corrosion problems surrounding equipment.

# Technical Data Sheet

## Physical Specifications

Physical State	Liquid
Appearance	Clear Solution
Odor	Odorless
Stability	Stable
Specific Gravity	1.78
pH	< 2

## Equipment Requirements

SEACOLE ALUMINUM AND MAGNESIUM CONDITIONER solutions should be contained in plastic lined steel or fiberglass tanks. Heating coils should be teflon or quartz. A dam overflow and an oil trap are advisable for keeping the surface of the solution free of oil. Exhaust ventilation is recommended to remove vapors generated by operation at elevated temperatures. Consult the American Conference of Industrial Hygienists book entitled, Industrial Ventilation, A Manual of Recommended Practice.

## Product Make-Up

	Aluminum	Magnesium
Concentration	10 to 20% by volume	2% by volume
Temperature	160° F (71° C)	160° F (71° C)
Time	1 to 3 minutes as required	30 seconds to 2 minutes

1. Fill the tank approximately 2/3 full of cool water.
2. Slowly add the required amount of SEACOLE ALUMINUM AND MAGNESIUM CONDITIONER while stirring, making certain the large quantities are not added at one time (the mixing of the SEACOLE ALUMINUM AND MAGNESIUM CONDITIONER will cause the temperature to rise).
3. Stir with a plastic paddle.
4. Fill to final volume with water and heat to operating temperature.

## Operation

Prior to immersion in the SEACOLE ALUMINUM AND MAGNESIUM CONDITIONER solution, the work should be soak cleaned in a suitable cleaner to remove light amounts of soil, light buffing compounds and marking inks. If the work is contaminated with heavy oily films, then the work should be cleaned in a cleaner more specifically designed to remove heavier contamination, per technical data sheet, prior to soak cleaning.

### Aluminum and Aluminum Alloys

The immersion time will vary for the degree of etch required. The recommended time for a solution at 10 to 20% by volume and operating at 160° F (71° C) is 2 minutes.

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After etching, the aluminum should be desmuted in a suitable desmutter.

### Magnesium Alloys

Immersion times of 30 to 120 seconds provide the adequate etch with minimal weight loss. The immersion time will vary for the amount of etch required. The recommended solution concentration is 2% by volume, and the recommended temperature is 160° F (71° C). The magnesium parts will need to be immersed in nitric acid to remove any smut produced in the SEACOLE ALUMINUM AND MAGNESIUM CONDITIONER etch. The use of ultrasonics can improve the removal of smut.

### **Control and Replenishment**

The percent by volume (% v/v) of ALUMINUM AND MAGNESIUM CONDITIONER solution can be calculated using the procedure below.

Equipment Required	Reagents Required
Buret, 50 mL	Bromocresol Green Indicator
Erlenmeyer Flask, 250 mL	Sodium Hydroxide, Standardized 1.0N
Pipet, 50 mL	

### *Procedure*

1. Pipet 5 mL of SEACOLE ALUMINUM AND MAGNESIUM CONDITIONER solution into a 250 mL Erlenmeyer flask containing 50 mL of DI water.
2. Add approximately 5-10 drops of Bromocresol Green indicator.
3. Titrate with 1.0N NaOH to the first persistent green color. Record the number of mL NaOH used.

*Calculation*                       $\frac{A \times B}{1.278} = \% \text{ by volume SEACOLE ALUMINUM AND MAGNESIUM CONDITIONER}$

Where                      A            =            volume of titrant (NaOH) required in mL  
                                  B            =            Normality of titrant (NaOH)

Replenish to original make-up concentration desired. Replenishment additions should be made slowly and with agitation to the cooled solution.

### **Safety and Handling**

Caution! SEACOLE ALUMINUM AND MAGNESIUM CONDITIONER and the operation solution may cause skin, eye and respiratory tract burns.

Read and understand this products MSDS before handling.

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### Waste Treatment

Individual users should verify the nature of spent solutions to assure compliance with local, state, and federal regulations. Contact Seacole for specific details and/or further waste treatment recommendations.

### Ordering Information

SEACOLE ALUMINUM AND MAGNESIUM CONDITIONER is available in 5 gallon pails, 55 gallon drums, and 275 gallon totes.

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