Emerald™ Seal 308

Emerald Seal 308 is an acidic, non-chromated final seal treatment for pretreatment systems prior to painting. The product's concentrated liquid form allows quick bath make-up and adjustments to minimize maintenance time. This product is designed to produce a corrosion resistant, adhesion promoting metal surface profile, which will enhance the bonding of most organic finishes to the treated parts. Comparative testing has shown that the under-film corrosion and organic delamination is reduced compared to fresh or DI water final rinsing.

Emerald Seal 308 is a non-chromic acid product and greatly reduces the cost and efforts required for safe disposal in comparison to chromate-based materials. For best results, the metal surface should be properly prepared such that clean and deoxidized parts are exposed to the Emerald Seal 308 solution.

Emerald Seal 308 meets the non-chrome seal performance specification for:

- Mil-DTL-16232 – Type Z (Mi-Phos Z-2) and Type M (Mi-Phos M-5)
- Mil-PRF-13924 – Class 1 Hot Black Oxide Products (Black Magic Infusion and Liquid ABM)

Features & Benefits

Compliments most paints	Bonds most organic finishes
Low to no foam	Uniform part coverage
Use as a non-chrome seal over black oxide	Meets MIL-DTL-13924E for class 1 coatings
Use as a non-chrome seal over phosphates	Mees MIL-DTL16232H, Type M and Type Z

Operating Conditions

Appearance	Clear, colorless liquid
Rinsing	Superior
Solubility	Excellent
Specific gravity	1.03 – 1.06 (water = 1.0)
pH 5% dilution	3.0 – 4.0

Instructions
For most operations, Emerald Seal 308 should be used at 0.5% to 1.0% by volume in water with operating pH of 4.8 to 5.0. Use at ambient to 120°F in recirculating spray washers for 30 to 60 seconds exposure. Control by using pH meter, dissolved solids readings and Hubbard-Hall titration procedures.

Titration Method

1. Add 50 mL of Emerald Seal 308 solution to an Erlenmeyer flask.
2. Add 5 drops of Phenolphthalein indicator to the flask.
3. Add 0.1 N Sodium Hydroxide dropwise using a burette until solution turns from colorless to pink.
4. Record mL used.

Calculation

Concentration = (mL 0.1 N NaOH x 0.275) – 0.21

mL of 0.1 N NaOH	% Concentration
1.7	0.25
2.6	0.50
3.5	0.75
4.4	1.00
5.3	1.25
6.2	1.50
7.1	1.75
8.1	2.00
9.0	2.25
9.9	2.50
10.8	2.75
11.7	3.00
12.6	3.25
13.5	3.50

Test Kit Method

5. Add 10 mL of Emerald Seal 308 solution to the mixing bottle using a 10 mL syringe.
6. Fill flask ¼ full of water.
7. Add 3 to 5 drops of Phenolphthalein indicator to the mixing bottle.
8. Add 0.1 N Sodium Hydroxide dropwise to the mixing bottle with swirling until solution turns from colorless to pink.
9. Record number of drops used.

Calculation

Concentration = # Drops 0.1 N NaOH x 0.034

Caution

Emerald Seal 308 should be stored in a cool dry area. Store away from incompatible substances; refer to the product SDS.

Please refer to the label and SDS bulletins for all warnings, recommendations for safety equipment and other regulatory information. Always wear all personal protection equipment.

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