Emerald™ Seal 303

Emerald Seal 303 is a final rinse compound designed for use in the last stage of iron or zinc phosphatizing processes. Emerald Seal 303 is a non-chromic acid product and provides in-process flash rust protection as well as additional corrosion protection for metal under paint or adhesive coatings.

Emerald Seal 303 can also be used as a non-chrome seal to meet MIL-DTL-13924E for Class 1 coatings.

Features & Benefits

Eliminates flash rusting	Aids in elimination of reworking parts
Meets MIL-DTL-13924	Non-chrome seal for class 1 coatings
Low to no foam	Good for spray systems

Operating Conditions

Appearance	Clear, colorless liquid
Foaming ability	Controlled (low)
pH	9.9 – 10.2 @ 2% dilution
Rinsing	Superior
Solubility	Excellent
Specific gravity	1.03 – 1.06 (water =1.0)

Usage procedures
For most operations, Emerald Seal 303 should be used at 0.5 – 3 gallons per 100 gallons of water. When necessary, adjust pH to desired operating range. Consult your Hubbard-Hall representative for the optimum operating concentrations.

Material Safety
Emerald Seal 303 is safe as a final rinse / sealer on ferrous metals. Consult your Hubbard-Hall representative for instructions that best conform to your production needs.

Titration Method

1. Obtain a 25 mL sample.
2. Add approximately 5 drops of Bromophenol Blue indicator to the sample.
3. Add 0.1N Hydrochloric Acid to the sample using a burette until the test solution changes from blue to yellow.
4. Record mL used.

Calculation

Concentration = mL 0.1N HCl x 0.192

Compare the number of mL to the table below:

mL 0.1N HCl	% Concentration
0.5	0.10
1.0	0.19
1.5	0.29
2.0	0.38
2.5	0.48
3.0	0.58
3.5	0.67
4.0	0.77
4.5	0.87
5.0	0.96
5.5	1.06
6.0	1.15
6.5	1.25
7.0	1.35
7.5	1.44
8.0	1.54
8.5	1.63
9.0	1.72
9.5	1.83
10.0	1.92

mL 0.1N HCl	% Concentration
10.5	2.02
11.0	2.12
11.5	2.21
12.0	2.31
12.5	2.40
13.0	2.50
13.5	2.60
14.0	2.69
14.5	2.79
15.0	2.88
15.5	2.98
16.0	3.08
16.5	3.17
17.0	3.27
17.5	3.37
18.0	3.46
18.5	3.56
19.0	3.65
19.5	3.75
20.0	3.85

Test Kit Method

1. Fill test bottle 1/3 full of water.
2. Add 5 mL of Emerald Seal 303 working solution.
3. Add 5 drops Methyl Orange and swirl.
4. Add 0.72N Hydrochloric Acid dropwise while swirling until the solution changes from yellow to red.
5. Record the number of drops used.

Calculation

Concentration = # Drops 072N HCl x 0.25

Caution

Emerald Seal 303 should be stored in a cool dry area. Store away from incompatible substances; see an issued SDS. Please refer to the label and SDS bulletins for all warnings, recommendations for safety equipment and other regulatory information.

WARRANTY: HUBBARD-HALL INC. IS NOT RESPONSIBLE FOR THE MISUSE, MISAPPLICATION, OR MISHANDLING OF THIS PRODUCT. SEE THE TERMS AND CONDITIONS OF SALE ON OUR WEBSITE FOR ADDITIONAL TERMS AND CONDITIONS CONCERNING OUR PRODUCTS, INCLUDING BUT NOT LIMITED TO, LIMITATIONS AND DISCLAIMERS OF WARRANTIES AND LIABILITIES.

Our People. Your Problem Solvers.

For more information on this process,
please call us at 203.756.5521 or email: techservice@hubbardhall.com

Hubbard-Hall holds certifications for **ISO 9001:2015**, Responsible Distribution, as accredited by the **ACD** (Alliance for Chemical Distributors) and as a **Women-Owned Small Business**, as well as maintaining an association with **Omni-Chem**[136].