



ANODAL® SH-1 LIQUID

Anodal SH-1 Liquid is a hot water seal additive that enables smut free sealing of anodic coatings on aluminum. This product exercises a buffering action, which maintains the pH of the sealing water within the proper operating range, however exceptional performance can be expected even when the seal pH climbs to 7.0 or higher. Hot water seals containing this product are particularly suitable for clear, electrolytic color (two-step) and iron oxalate gold coatings.

PHYSICAL PROPERTIES:

Appearance: Colorless and odorless solution
Specific gravity: 1.01 (8.4 lbs/gallon)

APPLICATION DETAILS:

Water: De-ionized or R/O
Concentration: 1-2 g/l clear work
2-3 g/l colored work
Temperature: 205 - 212 °F
Time: 5 minutes per tenth mil for optimum results
Materials: Austenitic stainless steel

PRECAUTIONS:

Excessively high concentrations of *Anodal SH-1* should be avoided since it may detract slightly from the sealing quality as measured by the acid dissolution test method. If the solution is made up with pure water it is not necessary to provide a final rinse. In the case of tap water, a drying residue may form thus requiring the additional rinsing treatment.

CONTROL METHOD:

Maintenance additions of Anodal SH-1 are commonly made based on empirical data (smut loading), however the actual content can be measured colorimetrically using the procedure which follows. First prepare solutions A, B, & C.

- Solution A: Dilute 3.0 ml. Anodal SH_1 Liquid with about 800 ml water and adjust the pH to 3.0 ± 0.1 with 0.5% nitric acid. Make up to a volume of 1000 ml.
- Solution B: Dissolve 2.0 g aluminum sulfate.18H₂O in water and fill up to a volume of 100 ml.
- Solution C: Dissolve 3.2 g iron chloride (FeCl₃) and 1.6 grams of ammonium bifluoride in about 800 ml of 5% nitric acid then fill with 5% nitric acid to a volume of 1000 ml. Filter the solution if it is not entirely clear.

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CONTROL METHOD (CONT'D):

1. Place 45 ml. Solution A in a 50 ml. graduate, mix in 1 ml. Solution B and 2 ml. Solution C.
2. Fill up with water to a volume of 50 ml.
3. Take about 100 ml. of the sealing solution and adjust the pH to 3.0 ± 0.1 with a few drops of 5% nitric acid.
4. Place 45 ml. of this solution in a 50 ml. graduate, mix with 2.0 ml. Solution C, fill with water and mix thoroughly.
5. After allowing both the control solution and the bath solution to stand for at least 15 minutes for complete development of the violet color, hold both graduates side by side over a white background and make a visual comparison of the color intensities.
6. Pour off some of the control solution until the color intensity of both samples is the same.
7. Read the volume of the remaining control solution

Calculate: **Anodal SH-1 (g/l) = Volume remaining (mls) x 0.06**

Note: The procedure should be repeated several times. The color intensity of the bath sample should not be greater than the control solution. If this occurs, the analysis should be repeated using less than the prescribed 45 ml. of sealing bath solution. The results must then be adjusted accordingly.

Recommendations, notices or instructions as to handling, use, storage or disposal of this product, including its use alone or in combination with other products, or as to any apparatus or process for its use are based upon information believed to be reliable. No liability is taken with respect to any such recommendations or instructions. Sole and exclusive warranty is that products comply with published chemical and physical specifications as provided on the certificate of analysis. No other warranties, either express or implied are given.