



Specialty Ano-EE

Hardcoat Additive

1. Description

Specialty Ano-EE is a unique liquid additive for higher temperature Type III anodizing.

- Hardcoat at 60°F
- Requires less refrigeration, thus savings on chilling energy cost.
- Complies with Military Specifications for Type III hardcoat anodizing.
- Improves the uniformity of film thickness throughout the entire anodizing tank.
- Virtually eliminates burning.
- Will not yellow or stain the coating.
- Parts will be clearer in appearance.
- The dye-ability of hardcoat films is improved.

2. Application instructions

Use of Ano-EE to produce 2.0 mils, "Hardcoat" anodic oxide coatings.

Ano-EE concentration: 3%-4% by volume

Sulfuric acid concentration: 170-190 g/l

Dissolved aluminum concentration: 5-15 g/l

Temperature: 50°-60°F

Current: 24-48 ASF

3. Titration procedure

Reagents: 0.1N ferrous ammonium sulfate (FAS)
50% sulfuric acid
Ferriin indicator
0.1N ceric sulfate solution

Procedure: Step 1 of 2 (standardization)

1. Pipette 25-mls of the 0.1N ferrous ammonium sulfate into a 400 ml beaker.
2. Add 100-mls of distilled water.
3. Add 25-mls of 50% sulfuric acid solution.
4. Add 4 drops of ferriin indicator.
5. Titrate with 0.1N ceric sulfate solution until the orange color disappears.

Calculation: $\frac{\text{mls of ceric sulfate}}{25} = "F"$

Note:

FAS solution should be discarded if the amount of 0.1N ceric sulfate solution required for this titration is less than 15 milliliters.

Procedure: Step 2 of 2 (anodize bath analysis)

1. Pipette 10-mls of the anodizing solution into a 1-liter volumetric flask.
2. Add deionized water to the 500-ml mark and mix well.
3. Pipette 25-mls of the dilute solution into a 400-ml beaker.
4. Add 25-mls of 50% sulfuric acid.
5. Using a pipette, accurately add 25-mls of 0.1 ceric sulfate solution.
6. Add 2-3 pieces of glass bead and boil 10-15 minutes.
7. Cool and add distilled water to the 200-ml mark.
8. Add 4 drops of ferroin indicator and titrate to an orange end point with 0.1N FAS. Record mls of FAS as "A".

Calculation: $\frac{25 - (A \times F)}{2.67} = \% \text{ by volume Specialty Ano-EE}$

4. **Storage**

Store in original container in a dry location.

5. **Packaging**

5 gallons
55 gallons

6. **Product safety**

We recommend that the company/operator read and review the **Material Safety Data Sheet** for the appropriate health and safety warnings before use.

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