

NOTE: I take no responsibility or credit for any info here, this is just a collection of Info regarding control of anodizing tanks and how to test and check.

Titration instructions:

Reagents Required:

- 1, Methyl Orange Indicator - .01 g of the powder into 100 ml of DI water
powder should be made up as a 0.1% solution in deionised water,
so the 5 gram packet will make five litres
- 2, Phenolphthalein Indicator Solution
- 3, 1N Sodium Hydroxide - 20g of NaOH, make to 500 ml with water

Procedure g/l sulfuric acid:

1. Pipet 5ml sample into a 250ml Erlenmeyer Flask
2. Add approximately 50ml D.I. or distilled water
3. Add two drops of Methyl Orange Indicator
4. Titrate with 1N Sodium Hydroxide to an orange endpoint.

Calculation:

ml of 1N Sodium Hydroxide X 9.8 = grams per liter of free sulfuric acid.

dissolved aluminum

Procedure, continuing to determine dissolved aluminum,

5. To the solution in #4 above, add 8 small drops of Phenolphthalein
6. Continue the titration to a distinct PINK endpoint.

Calculation:

Additional ml of 1N Sodium Hydroxide X 1.8 = grams per liter of dissolved aluminum.

The rule of thumb for the optimum level to get .4mils on 6061 aluminum is 165 grams per liter, 70 deg F (21c) at 15 volts for 30 minutes.

Different alloys require different voltages to achieve 12 ASF, such as 2024 requires 21 volts.

NOTE: You also need to add 1 volt if you are using titanium racks.

Use full Notes:

Grams per liter is a measure of weight. Concentration may also be expressed in per cent weight. 11 g/liter is approximately 1%, so a 165 g/ liter sulfuric concentration may also be referred to as 15% by weight.

9-1/4 lbs hydrated aluminum sulfate per 100 gal of electrolyte to raise the aluminum concentration approximately one g/liter.

"typical" sulfuric acid electrolyte is controlled between five g/liter and 15 g/liter with around 20 g/liter being the absolute maximum for efficient operation of the bath.

When the concentration of dissolved aluminum reaches the maximum limit, the lab technician can determine how much of the bath to decant to bring it to the minimum aluminum level.

This is an easy calculation. For example, if the bath is to be decanted when the dissolved aluminum reaches 15 g/liter and the desired low level is eight g/liter, then $8/15$ or 47% of the tank must be decanted. If the solution is, say, 55-inch deep, then the amount to be decanted would be $55 \text{ inch} \times .47 = 26 \text{ inch}$