



## ANODAL® COLOR TSN LIQUID

**Anodal Color TSN Liquid** is a fully blended concentrate of stabilizer/enhancer and stannous sulfate that is used for electrolytic coloring anodized aluminum. This simple one-component system is used for bath make-up as well as maintenance. The use of *Anodal Color TSN Liquid* insures excellent electrolyte stability, outstanding throwing power and exceptional color uniformity. ***It is especially formulated for applications where tin electrodes are employed.***

### **PROPERTIES:**

Specific gravity: 9.8 lb/gal

### **APPLICATION CONDITIONS:**

When converting an existing tin based electrolytic coloring bath, add 5 g/l *Anodal Color S2*, followed by maintenance additions of *Anodal Color TSN*.

To prepare a new bath:

1. Fill tank to 3/4 full with de-ionized water.
2. Add 1% v/v 66 Be sulfuric acid.
3. Add 10 % v/v *Anodal Color TS-2* (equals 18 g/l stannous sulfate)
4. Top off with water

NOTES: The temperature of the bath should be held at 68-75 F, otherwise uniformity issues and off-color hues may be experienced. Coloring time can range from 20 seconds to 15 minutes depending upon color chosen and the bath composition. For more detailed information on electrolytic coloring, contact Reliant Aluminum Products.

### **CONTROL METHOD:**

*Anodal Color TSN* additions depend upon the tin consumption rate hence the titration below is for stannous sulfate. The recommended target concentration for stannous sulfate is 15-20 g/l. Acid level should also be monitored, and maintained between 15 and 25 g/l.

### **Stannous Sulfate Concentration:**

1. Pipette 10 ml of bath into a 300 ml flask
2. Add about 75 ml of DI water
3. Add about 5 ml HCl (conc)
4. Add about 1 ml of soluble starch indicator.
5. Titrate with 0.1N iodine until color change.

Calculate: **Stannous sulfate (g/l) = ml HCl x 1.15**

*Addition Guide: If 1g/l stannous sulfate needs to be added to a 1000 gal tank add 5 gal Anodal Color TSN*

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### **CONTROL METHOD (CONT'D):**

#### **Sulfuric Acid Concentration:**

1. Pipette a 50 ml bath sample into a 500 ml beaker
2. Add 200 ml of DI water
3. Titrate using 1N NaOH until a pH of 2.1 is reached.

Calculate: **Sulfuric acid (g/L) = ml NaOH x 0.98**

*Addition Guide: If 1g/l sulfuric acid needs to be added to a 1000 gal tank carefully add 0.6 gal of 66Be acid.*

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.