



ANODAL® CS-3 POWDER

Anodal CS-3 Powder, when added to water, produces a long-life, cobalt free room temperature seal. This nickel fluoride based seal can be used for clear and color anodized aluminum coatings. Some of the benefits to using *Anodal CS-3* include:

- Very low or no energy costs.
- Reduction of excess humidity in the workplace.
- No ventilation needed.
- Virtual elimination of sealing smut.

Coatings sealed with *Anodal CS-3* in accordance with the recommended procedure meet or surpass the requirements of the following internationally recognized tests:

Dye Stain Test	ASTM-B136	ISO 2143
Acid Dissolution	ASTM-B680	ISO 3210
CASS Test	ASTM-B368	ISO 3770
Impedance/Admittance	ASTM-B457	ISO 2931
Kesternicht Test	DIN 50018	

APPLICATION CONDITIONS:

Unlike hydrothermal sealing, the chemical conversion reaction of *Anodal CS-3* continues for up to several days with continued improvement of sealing quality. However, if so desired, all seal test requirements are normally achieved or surpassed immediately after a short hot water dip following the seal. The final hot water (160°-180°F) dip is recommended since this will shorten the time required to complete the sealing reaction, reduce the possibility of finger print marks, speed the drying time, and minimize "crazing" of hard coat films.

Concentration:	3 - 5 g/l	
Fluoride	300 - 1100 ppm (500 - 800 ppm optimal)	
Temperature:	80°- 90° (27°- 32° C)	
pH range:	5.5 - 6.5	
Materials:	Stainless steel or plastic	
Agitation:	Not recommended	
Immersion Time:	Without hot dip	With hot dip
< 0.5 mils:	10 min.	5 min. + 5 min.
> 0.5 mils:	15 min.	8 min. + 5 min.

CONTROL PROCEDURE:

1. Dilute 5 ml of seal solution with 100 ml DI water.
2. Add 20 ml concentrated ammonium hydroxide
3. Add small amount of Murexide indicator.
4. Titrate with 0.01 molar EDTA to a violet end point.

Calculation: **Anodal CS-3 (g/l) = ml EDTA x 0.42**

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CONTROL PROCEDURE (CONT'D):

Fluoride Analysis:

1. Pipette 25 ml. of seal solution into a small beaker
2. Pipette 25 ml. TISAB (total ionic strength buffer)
3. Using a calibrated meter with specific ion fluoride electrode* read the concentration of fluoride.

*The meter should be pre-calibrated with 100 & 1000 ppm F- standards diluted 50% v/v with TISAB.

The addition of 0.1 g/l sodium fluoride will raise the fluoride level by 45 ppm.

TANK LIFE:

Unlike other nickel based seals, discolored room temperature seals can be decolorized by filtration through a carbon filter.

PRECAUTIONS:

Wear goggles and protective gloves when handling this product.

ENVIRONMENTAL CONSIDERATIONS:

This product contains nickel and fluoride. A common method of disposal is via pH elevation, precipitation and filtration.

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.