Technical Data Sheet

ALUMA SEAL™ 144

- ***Seals clear and colored aluminum.***
- ***Increased abrasion resistance.***
- ***Meets MIL-A-8625.***
- ***Formulated to produce a smut-free surface.***
- ***Better UV resistance.***
- ***Non-yellowing, and low-foaming.***
- ***Outstanding salt spray resistance.***
- ***Self regulating pH.***

SEAL FOR ANODIZED ALUMINUM

ALUMA SEAL 144 is an outstanding concentrated liquid material for the sealing of anodized, dyed and clear and electrolytically colored aluminum. It will produce a *smut-free* seal on aluminum that is far superior to competitive seals and standard nickel acetate.

ALUMA SEAL 144 is specifically formulated to eliminate smut conditions that often occur when dark shades and black colors are required, making it ideal for architectural aluminum products.

ALUMA SEAL 144 is a low-foaming, mid-temperature process that will produce a non-yellowing surface with better corrosion resistance, up to 1000 hours, as well as better abrasion and wear resistance than conventional seals.

ALUMA SEAL 144 is supplied as a highly concentrated liquid material that is economical to make-up and maintain. No buffer needed and with its self regulating pH, it offers low maintenance and ease of use as well as extended bath life and high tolerance to contamination.

OPERATING DATA

For Clear or Electrolytically Colored Anodize

ALUMA SEAL 144	2.0%/vol.
Temperature	160-190° F. (71-87° C)
Time	5-15 minutes (Depends on coating thickness)
pH	5.1-6.0* * See Processing Notes

For Organic Dyed Finishes

ALUMA SEAL 144	4.0%/vol.
Temperature	160-190° F. (71-87° C)
Time	5-20 minutes (Depends on coating thickness)
pH	5.1-6.0* * See Processing Notes

SOLUTION MAKE UP

Fill tank ¾ full of deionized water and adjust pH to 5.5-6.0 with acetic acid. Add required amount of ***ALUMA SEAL 144*** and mix thoroughly. Fill tank to final volume with deionized water and heat to operating temperature. Check pH and adjust if necessary prior to starting production.

RINSING CYCLES

Thorough rinsing before and after sealing is necessary to prevent contamination of sealant solution, achieve good seal quality, consistent color results and to extend the life of the bath. The following rinse cycles are recommended.

Before Sealing

1) First rinse after anodizing or after coloring is a immersion or spray in good quality water at room temperature.
2) Second rinse is an overflow rinse with quality water at room temperature.
3) Third rinse is with DI water at room temperature with a pH of 5.5-6.5.

After Sealing

Following the sealing step, a final warm rinse in DI water at 120-140° F is recommended to facilitate drying. The pH of this water should be 5.2-5.9.

PROCESSING NOTES

The guidelines suggested in this Technical Bulletin, are based on a wide cross-section of field experience with ***ALUMA SEAL 144.*** The correct sealing conditions for any given operations are dependent upon many factors including the quality of the aluminum, proper pre-treatment, anodizing thickness, quality of anodize coating, rinsing, equipment available and the personnel operating the process.

- DI water is recommended for seal bath make-up and maintenance.
- After sealing, use a warm water rinse with a pH below 6.0
- Anodic film thickness dictates sealing time. A typical time is 2-3 minutes per 0.10 oxide coating thickness.
- Temperatures higher than 190° F (87° C), may cause seal to coat too quickly and promote smutting.

- Filtration is strongly recommended. This provides a cleaner seal and extends sealer life. Use a 10-15 micron filter. Tank should be turned over 2-3 times per hour.
- While ***ALUMA SEAL 144*** does have self regulating pH, from time to time pH may need manual adjustment. Use acetic acid to lower pH or ammonium hydroxide to raise pH.
- Anodize tank should be kept below 75° F (24° C). Vigorous air agitation should be used.
- It is ***not*** recommended to seal both clear and colored aluminum in the same solution, however, many installations do so with excellent results.
- pH of the final rinse tank should be maintained from 5.5-6.5 to neutralize sulfates prior to the seal tank.
- Good rinsing after the anodize process ***is the key to success in sealing***. Air agitation is recommended.
- After sealing, a deionized rinse is highly recommended to eliminate water spotting and stains.
- Smut may appear on some alloys of aluminum after the seal has become saturated with dyes. An extra addition of ***ALUMA SEAL 144*** will help overcome the problem.

SOLUTION CONTROL

Analytical

1) 25 ml sample of bath (let cool to room temperature).
2) add 50 mls of DI water.
3) Add 15 mls of concentrated ammonium hydroxide.
4) Add 0.5 grams of murexide indicator.
5) Titrate with 0.1M EDTA to deep purple-violet color.

Calculation: Mls EDTA x 0.71 = percent by volume ***ALUMA SEAL 144.***

- Maintain bath pH at 5.2-6.0 with additions of ***ALUMA SEAL 144*** and/or ammonium hydroxide or acetic acid.

EQUIPMENT

Tank: A Koroseal lined tank, stainless steel or polypropylene are satisfactory. **Heater:** Stainless steel or teflon, flexible or plate coils. **Ventilation:** Solutions operate at elevated temperatures and generate steam vapor. PVC, polypropylene or polyethylene are satisfactory.

CONVERSION INFORMATION

Typically sealing compounds vary considerably from one manufacturer to another, even though products may be designed to perform similar functions. Conversions from existing seal solutions to ***ALUMA SEAL 144*** is not suggested. The life of most seals as well as the low cost of ***ALUMA SEAL 144,*** makes it more attractive to discard the present solution and begin with a new make up of ***ALUMA SEAL 144*** when a change is contemplated.

STORAGE/HANDLING

ALUMA SEAL 144 is stable upon standing and exhibits excellent shelf life. Store in a dry area in closed containers. It is not combustible. The maintenance and disposal of ***ALUMA SEAL 144*** solutions require the handling of acidic materials. Avoid contact with skin and eyes. If salts or solution is splashed on skin or eyes, flush with large volumes of water. Seek medical assistance. ***Refer to the Material Safety Data Sheet for more complete information before using this product.***

WARRANTY

The information presented herein, while not guaranteed, is to the best of our knowledge true and accurate. No warranty or guarantee expressed or implied is made regarding the performance of any products, since the manner of use is beyond our control. No suggestion for product use nor anything contained herein, shall be construed as a recommendation for its use in infringement of any existing patent, and we assume no responsibility or liability for operations which do infringe any such patents. The above includes confidential and proprietary information of ***A BRITE COMPANY*** and is furnished to you for your use solely on products or processes supplied to you by us.

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