



Specialty Deep Black HL3

Aluminum Dye

1. Description

Specialty Deep Black HL3 is a single component, water soluble dye, used to color anodized aluminum jet-black.

- Excellent light fastness
- Meets MIL-A-8625F, Type II, Class 2
- Fast striking
- Only requires 0.40 mil thickness to achieve consistent jet-black coatings.
- Hardcoat compatible
- RoHS compliant
- REACH compliant

2. Application instructions

	Indoor applications	Outdoor applications
Concentration:	9-11 g/l	10-12 g/l
pH:	5.5 ±0.5	5.5 ±0.5
Buffering:	Not required	Not required
Temperature:	135-145°F / 57.22-62.77°C	135-145°F / 57.22-62.77°C
Coating thickness:	0.40 mils. or greater	0.80 mils. or greater
Dye time:	10-15 minutes	20-30 minutes
Preferred sealing:	Specialty Sealant MTL Specialty Sealant Cold sealant compatible	Specialty Sealant MTL Specialty Sealant Cold sealant compatible

3. Conditions for using Specialty Deep Black HL3

Tank:	Stainless steel or other acid resistant materials such as neoprene, polyethylene and polypropylene that can withstand a constant operating temperature of 135-145°F.
Water quality:	Deionized
pH adjustments:	Raise with sodium hydroxide. Lower with acetic acid. The pH should be checked once per shift with a calibrated meter and maintained within recommended range.
Bath agitation:	Mild agitation must be used for high uniformity of color.
Rinsing:	It is important to remove all acid residues clinging to the work and acid retention in the oxide pore itself. Rinse work load thoroughly after anodizing. A minimum of two rinses is recommended, with the second rinse at over-flow. To increase rinsing effectiveness, add vigorous air agitation in all rinse tanks. This also improves your rinsing of surfaces on complicated shaped parts.

4. Light fastness

Rating: 8 (1=poor, 8=excellent)

5. Storage

Store in original container in a cool dry location.
Close package tightly after removal of dye.
In humid environments, dye powder may clump-up.

6. Preparation of a new dyebath

1. A cleaned tank is filled with deionized water to about 75% of final volume and raised to dyeing temperature.
2. The required amount of dye is weighed out and dissolved in hot deionized water (160-180°F) in a separate container until a slurry is formed. This is your stock solution.
3. With agitation turned on in tank, pour stock solution into tank.
4. Top off the tank to final working solution volume with more hot deionized water and agitate for 15 minutes.
5. Using a calibrated pH meter, check the pH and adjust if necessary.
6. The dyebath is brought to dyeing temperature, 135-145°F.

7. Conversion factor

Converting grams per liter (g/l) to ounces per gallon (oz/gal)

$$\text{g/l} \times 0.134 = \text{oz/gal}$$

8. Dyebath concentration determination

Dyebath concentration can only be determined by spectrophotometric analysis. Full instructions are available upon request.

9. Product safety

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

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