

ALZON CF

CYANIDE-FREE ALUMINUM ZINCATE

INTRODUCTION

Alzon CF is a cyanide-free process specifically developed to produce, a thin, tightly adherent, zinc alloy film on aluminium. This film provides a first class adhesion undercoat for electroless nickel and other electroplating processes.

Alzon CF is supplied as a 2-part process:

Alzon CF Make Up
Alzon CF Replenisher

BENEFITS

- Long solution life
- Consistent coatings
- Excellent solution stability

SOLUTION MAKE-UP

Alzon CF Make Up 25% v/v

EQUIPMENT

Tanks	PVC lined or polypropylene
Heaters	Stainless steel (316)
Ventilation	Recommended

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OPERATING DATA

Zinc Metal	5.5 – 6.5 g/L (23.0 – 27.0% Make Up)
Sodium hydroxide	60 – 70 g/L
Immersion Time	10 – 30 secs
Temperature	68 – 86°F

INSTALLATION

It is essential that the tanks to be used are thoroughly clean and free from all foreign matter.

1. Fill tank $\frac{3}{4}$ full with water.
2. Add Alzon CF Make Up
3. Mix well.

MAINTENANCE AND CONTROL

For small volume users of Alzon the long life of the process will make it more economical to dump and replace rather than analyze and replenish.

For large volume users replenishment can be carried out by the addition of Alzon CF Replenisher according to analysis.

NOTES

Observe how uniform the zincate coating is. Most aluminum alloys produce a uniform coating when set up for double coating. In addition, more exotic alloys, ie., 4000 Series, may take some experimenting with additional sodium hydroxide, time and temperature.

Because aluminum alloys vary considerably in their makeup, selecting the right pretreatment chemistry is of paramount importance to ensure optimum adhesion of the electroless nickel or electroplated deposits.

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NOTES (cont'd)

A typical sequence is as follows:

1. Soak clean (Cleaner 505)
2. Cold water rinse
3. Acid etch 50% nitric acid containing 50 g/L Econovate A. Room temperature, 30 secs
4. Cold water rinse
5. Cold water rinse
6. Alzon CF, 30 secs at 68 - 86°F
7. Cold water rinse.
8. Zincate strip 50% nitric acid
9. Cold water rinse
10. Cold water rinse
11. Alzon CF, 20 secs at 68 - 86°F
12. Cold water rinse
13. Cold water rinse
14. Electroless or electro nickel plate

ANALYSIS METHOD

1. Alzon CF Make Up

Reagents

0.1M EDTA or 0.0575M EDTA (see 2 calculations below)

Eriochrome Black T indicator

Formaldehyde 35-37%

Ammonium chloride buffer solution - dissolve 54 g ammonium chloride in 500 ml DI water. Add 350 ml 0.88 S.G. ammonia and make up to 1 liter.

Method

1. Pipette a 5 ml sample of the plating solution into a 500 ml conical flask.
2. Add 25 ml DI water
3. Add 10 mls formaldehyde
4. Add 25 ml buffer solution.
5. Add a **trace** Eriochrome Black T indicator.
6. Titrate slowly with 0.1M EDTA or 0.0575 M EDTA from a violet to a blue end point (use a light source).
7. Record titre = t mls.

Calculation

$t \times 5.45$ (using 1.0M EDTA) OR $t \times 3.13$ (using 0.0575M EDTA) = % Alzon CF Make Up

Replenishment

To raise the concentration of Alzon CF Make Up by 1%, add 5 ml/L Alzon CF Replenisher.

A complete solution "replenishment" is achieved when 125 ml/L of Alzon CF Replenisher has been made.

ANALYSIS METHOD (cont.)

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2. Sodium hydroxide

This analysis should only be carried out after Alzon CF Replenisher additions have been made.

Reagents

1N sulfuric acid (standard volumetric solution) – note
1113 indicator (available from ACS)

Method

1. Pipette 10 mls of working solution into a 250 ml conical flask.
2. Add 50 mls DI water and 3-4 drops 1113 indicator.
3. Titrate using 1N sulfuric acid from a yellow end point.
4. Record titre = t mls.

Calculation:

$t \times 4 = \text{g/L Sodium hydroxide}$

Replenishment

For every 1 g/L required add 2 ml/L 32% sodium hydroxide solution

STORAGE

Store in original containers above 40°F

SAFETY

CAUTION! Alzon CF concentrates and working solutions contain strong alkaline ingredients. Avoid contact with eyes, skin and clothing. Wear chemical handler's gloves, goggles and protective clothing when handling. Read and understand Material Safety Data Sheet before using this product.

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PRODUCT GROUPS

The following products are referred to in this data sheet.

PRODUCT NAME	PRODUCT NUMBER
Cleaner 505	206001
Econovate A	223004
Alzon CF Make Up	225003
Alzon CF Replenisher	225004

NOTICE

The information and recommendations of PMD (UK), Ltd. and Automated Chemical Solutions, Inc., and its representatives, regarding this product are, to the best of our knowledge, true and accurate. We make no guarantee of results because the conditions of actual use are beyond our control. We assume no liability for damages or penalties resulting from the use of this product or following our recommendations. Our recommendations and suggestions for use of this product are not intended to grant license to operate under or infringe any patent.

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