

CUBRITE 200

ALKALINE (NON-CYANIDE) COPPER

INTRODUCTION

Cubrite 200 is an excellent cyanide-free alkaline copper. The process allows direct deposition on to steel, copper alloys, zincated aluminum and zinc die-cast.

BENEFITS

- Cyanide-free process
- Low copper concentration
- High efficiency (100% copper from anodes)
- Excellent coverage
- Easy-to-polish surface versus acid copper
- Direct plate zinc die-cast
- Set up as a plating bath or strike

SOLUTION MAKE-UP

Cubrite 200 Make Up	30% v/v (plating bath) 3% v/v (strike bath)
Cubrite 200 Additive	6.5% v/v

Manufactured for North America exclusively by **Focus Tech, Inc.**



2810 S. Roosevelt St.
Tempe, AZ 85282
Telephone (602) 268-3500
www.gmfchemicals.us

OPERATING DATA

	Range	Optimum
Copper (Plating Bath)	7.5 – 18 g/L	9.5 g/L
Phosphorus : Copper Ratio	4:1	
pH	9.2 – 9.8 (for Steel & Copper) 9.0 – 9.4 (for Aluminum & Zinc Die-Cast)	9.5 9.2
Temperature	120 – 160°F	130°F
Cathode Current Density	Rack 5 – 28 ASF Barrel 1 – 10 ASF	14 ASF 5 ASF
Strike Current Density & Time	15 ASF (5 – 10 mins) – nonferrous: go in “live” (Al, Zinc Die-Cast)	
Plating Rate	0.72 mils/hr at 14 ASF	
Agitation	Vigorous Air	

EQUIPMENT

Tanks	Polypropylene or PVC lined tanks
Heaters	Stainless steel or PTFE heaters with thermostatic control
Filtration	Continuous filtration through 5 µm filter cartridges or carbon
Anodes	OFHC copper anodes or chips in titanium baskets
Ventilation	Recommended

CONVERTING CYANIDE TO NON-CYANIDE

Polypropylene Tank Leaching:

1. Empty tank and treat/dispose of cyanide solution properly.
2. Rinse tank thoroughly with water.
3. Re-fill tank with water and determine how much cyanide is present (use cyanide analysis from current product).
4. Add sodium hypochlorite to destroy cyanide.
5. Analyze and continue to add sodium hypochlorite till all cyanide is destroyed.
6. Rinse out with water 2 times.
7. Leach tank with 5% caustic.
8. Rinse out thoroughly.
9. Make up Cubrite bath.

Manufactured for North America exclusively by **Focus Tech, Inc.**



2810 S. Roosevelt St.
Tempe, AZ 85282
Telephone (602) 268-3500
www.gmfchemicals.us

Page 2 of 6
CB200-08/23
NA-ISSUE 09

INSTALLATION

It is essential that the tanks to be used for Cubrite 200 are thoroughly cleaned and leached before any product is introduced. If there is any doubt as to the cleaning procedure contact Automated Chemical Solutions.

1. Half fill tank with DI water.
2. Add 6.5% v/v Cubrite 200 Additive.
3. Adjust pH with 50% potassium hydroxide solution.
4. Add 30% v/v Cubrite 200 Make Up.
5. Recheck pH and adjust if required.
6. Make up to final volume with DI water.
7. Heat to operating temperature.

PROCESS SEQUENCE

A general pretreatment sequences is as follows:

Steel:

1. Soak Clean (Alkaline Cleaner 45)
2. Rinse
3. Periodic Reverse Electroclean (Alkaline 45)
4. Rinse
5. Pickle or 30-50% HCl or Econovate Dry Acid Salts
6. Rinse
7. Rinse
8. Pre dip (1% v/v Cubrite 200 Additive)
9. Cubrite 200 Bath
10. Rinse
11. Continue dependent on application

Aluminum:

1. Soak Clean (Cleaner 505)
2. Rinse
3. Acid or Alkaline Etch (Nitric Acid+Econovate A) or (EtchAL)
4. Rinse
5. Desmut for alkaline etch (Nitric Acid+Econovate A)
6. Rinse
7. Zincate (Alzon CF) 30 sec RT
8. Rinse
9. Zincate Strip (50% Nitric Acid)
10. Rinse
11. Zincate (Alzon CF) 20 sec RT
12. Rinse
13. Cubrite 200 Bath
14. Rinse
15. Continue dependent on application

Manufactured for North America exclusively by **Focus Tech, Inc.**



2810 S. Roosevelt St.
Tempe, AZ 85282
Telephone (602) 268-3500
www.gmfchemicals.us

Page 3 of 6
CB200-08/23
NA-ISSUE 09

MAINTENANCE AND CONTROL

The solution should be analyzed regularly and replenished as necessary. (See Analysis Methods)

1. Copper is maintained by dissolution of the anodes. Additional copper provided by Cubrite 200 Make Up if necessary
2. Cubrite 200 Additive is maintained by amp-hour additions at the rate of 1 – 2 L/1000 AH. Check pH after additions and adjust accordingly.
3. pH is corrected by the addition of Cubrite 200 Additive to lower or 50% potassium hydroxide to raise.

NOTE: pH range for aluminum and zinc based die-cast is operated at 9.0 – 9.4

Impurities in the bath must be kept to a minimum:

- Cyanide contamination produces dark layers and poor adhesion. Treat bath with hydrogen peroxide.
- Lead >50 ppm produces dark deposits in high current density areas. Plate out at high current density.
- Iron >2 g/L give poor adhesion in high current density areas. Plate out at high current density.

ANALYSIS METHODS

1. Copper

Reagents

Ammonium persulfate
Ammonia solution
PAN indicator
0.1N EDTA

Method

1. Pipette 5 ml sample in to a 250 ml Erlenmeyer flask.
2. Add 50 mls DI water.
3. Add 2-3 g ammonium persulfate.
4. Stir for 15 min.
5. Add 5 mls ammonia solution.
6. Add 5 drops PAN indicator.
7. Titrate with 0.1N EDTA to a green end point.

Calculation

Copper (g/L) = mls of 0.1N EDTA X 1.27

Replenishment

For every 1 g/L copper required add 33 ml/L Cubrite 200 Make Up

Manufactured for North America exclusively by **Focus Tech, Inc.**



2810 S. Roosevelt St.
Tempe, AZ 85282
Telephone (602) 268-3500
www.gmfchemicals.us

Page 4 of 6
CB200-08/23
NA-ISSUE 09

ANALYSIS METHODS (cont.)

2. Phosphorous

Reagents

Dr Lange Test Kit LCK350

Method

1. Pipette 0.5 ml sample in to a 100 ml volumetric flask and make up to the mark with DI water.
2. Label as A.
3. Pipette 2 ml of (A) into a 50 ml volumetric flask and make up to the mark with DI water.
4. Label as C.
5. Remove the Dosing cap from a cuvette.
6. Pipette 0.4 ml (A) in to this and shake.
7. Add 0.5 ml Reagent B.
8. Close the cuvette and leave to stand for 30 min.
9. Measure and record the result as A.
10. Remove the dosing cap from a cuvette.
11. Pipette 0.4 ml (C) in to this.
12. Replace cap, fluted end up, and shake.
13. Heat to 212°F (100°C) for 1 hour.
14. Cool to room temperature.
15. Add 0.5 ml Reagent B.
16. Close the cuvette and leave to stand for 10 min.
17. Measure and record result as C.

Calculation

$$\frac{(B \times 5) - (A \times 0.2)}{\text{Copper (g/L)}} = \text{ratio P:Cu}$$

Replenishment

Calculate the addition required as follows:

$$\text{Cubrite 200 Additive required (ml/L)} = 4 - (\text{ratio P:Cu}) \times \text{copper (g/L)} \times 12$$

STORAGE

Store in original containers above 40°F

Manufactured for North America exclusively by **Focus Tech, Inc.**



2810 S. Roosevelt St.
Tempe, AZ 85282
Telephone (602) 268-3500
www.gmfchemicals.us

Page 5 of 6
CB200-08/23
NA-ISSUE 09

SAFETY

CAUTION! Cubrite 200 Make Up concentrates and working solutions contain alkaline ingredients. Cubrite 200 Additive concentrate contains acidic 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.

PRODUCT GROUPS

The following products are referred to in this data sheet.

PRODUCT NAME	PRODUCT NUMBER
Cubrite 200 Make Up	567002
Cubrite 200 Additive	567001

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.

Manufactured for North America exclusively by **Focus Tech, Inc.**



2810 S. Roosevelt St.
Tempe, AZ 85282
Telephone (602) 268-3500
www.gmfchemicals.us

Page 6 of 6
CB200-08/23
NA-ISSUE 09