

CADOBRITE FB42

BRIGHT CADMIUM

INTRODUCTION

Cadobrite FB42 is a liquid additive system for cyanide cadmium plating specifically designed to produce brilliant, extremely fine grained metal deposits over a wide current density range. It significantly improves the throwing power and high current density covering power of the cadmium plating solution.

Cadobrite FB42 will provide uniform brightness over a wide range of operating current densities and is therefore suitable for use in both rack and barrel plating applications.

Cadobrite FB42 has a long operating life and provides for low cost bath operation.

Cadobrite FB42 will operate over a wide range of bath compositions with outstanding throwing power and high current density brightness.

Cadobrite FB42 readily accepts most conventional types of post treatments and chromate conversion coatings.

BENEFITS

- Wide operating range
- Outstanding throwing power
- Wide current density range

SOLUTION MAKE-UP

It is essential that the tanks to be used for Cadobrite FB42 are thoroughly cleaned and leached before any chemistry is introduced. If in any doubt as to the cleaning procedure please contact PMD (UK) Technical Department.

	<u>Rack</u>	<u>Barrel</u>
Sodium cyanide	135g/l	132g/l
Cadmium oxide	24g/l	20g/l
Sodium hydroxide	-	10g/l
Cadobrite FB 42 Part A	10ml/l	10ml/l
Cadobrite FB 45 Part B	35ml/l	35ml/l



1. Fill the tank to 1/3 volume with warm water.
2. Add the sodium cyanide and sodium hydroxide (barrel only) and mix to dissolve.
3. Add the cadmium oxide and stir until dissolved.
4. Fill to operating level with water.
5. Add the Cadobrite FB42 Parts A and B and mix.
6. Heat to operating temperature.

OPERATING DATA

	Rack	Barrel
Cadmium	15 – 34g/l	7.5 – 22.5g/l
Sodium cyanide	90 – 150g/l	75 – 135g/l
Sodium hydroxide	9 -19g/l	7.5 – 22.5g/l
Cadobrite FB42 Part A	7.5 – 12.5ml/l	
Cadobrite FB42 Part B	25 – 45ml/l	
Voltage	3 – 6	9 - 15
Temperature	21 – 35°C	

EQUIPMENT

Tanks	Polypropylene or rubber lined mild steel.
Heaters	PTFE or mild steel immersion.
Agitation	Work movement recommended for rack
Anodes	High purity cadmium balls in steel cages.

MAINTENANCE AND CONTROL

Replenishment of Cadobrite FB42 Parts A and B is based on amphotours:

Part A 300ml/1000Ahr
Part B 100ml/1000Ahr

ANALYSIS METHODS

1. Cadmium

Reagents

Buffer solution (dissolve 54gm ammonium chloride in 500ml deionised water. Add 350ml 0.88 S.G. ammonia and make up to 1 litre).



Erichrome Black T indicator
8% formaldehyde solution
0.05M EDTA

Method

1. Pipette a 2ml sample in to a 250ml conical flask.
2. Add 100ml DI water.
3. Add 20ml buffer solution.
4. Add a spatula tip of Erichrome Black T indicator
5. Add 20ml 8% formaldehyde solution.
6. Titrate immediately with 0.05M EDTA solution to a blue endpoint.
7. Record titre = t mls.

Calculation

$t \times 2.8 = \text{g/L Cadmium}$

2. Sodium Hydroxide

Reagents

20% sodium cyanide solution.
1113 indicator
1N Sulphuric acid

Method

1. Pipette a 5ml sample in to a 250ml conical flask.
2. Add 50ml DI water.
3. Add 20ml sodium cyanide solution.
4. Add a few drops of 1113 indicator.
5. Titrate with 1.0N sulphuric acid to a yellow end point.
6. Record titre = t mls.

Calculation

$t \times 8 = \text{g/L Sodium hydroxide}$

3. Sodium Cyanide

Reagents

Buffer solution (dissolve 54gm ammonium chloride in 500ml deionised water. Add 350ml 0.88 S.G. ammonia and make up to 1 litre).
Potassium iodide
0.1N silver nitrate

Method

1. Pipette a 2ml sample in to a 250ml conical flask.
2. Add 50ml DI water.



3. Add 50ml buffer solution.
4. Add 0.5g potassium iodide.
5. Titrate with 0.1N silver nitrate to first permanent turbidity.
6. Record titre = t mls.

Calculation

$t \times 4.9 = \text{g/L Sodium cyanide}$

TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
Poor throw	High cadmium metal	Dilute bath, reduce anode area
HCD Burn/Overall Dull	Low Cadmium	Increase anode area
LCD Haze	High Cyanide	Stop cyanide additions
LCD Dullness / Poor Throw Cadmium Metal Decreases	Low Cyanide	Increase cyanide concentration
LCD Dullness / Overall Dull	High sodium hydroxide	Stop additions of sodium hydroxide
Anode Polarization / Cadmium Metal Decreases / Staining	Low sodium hydroxide	Maintain sodium hydroxide within limits
Overall Dullness / HCD Burning	Low Brightener	Add 2.5-10ml/L Cadobrite FB42 Part A and/or FB42 Part B
Blistering	Chromium Contamination	Treat bath with 0.03g/L sodium bisulphate per 15ppm chromium
Black Deposit After Bright Dip	Copper Contamination	Treat bath with 0.12 kg/1000 liters zinc dust to remove 10 ppm of metallic contaminant /dummy plate.

DISPOSAL

Dispose of in accordance with local authority requirements

PRODUCT FAMILIES

The following products are referred to in this data sheet.

PRODUCT NAME	PRODUCT NUMBER
CADOBRITE FB42 PART A	585024
CADOBRITE FB42 PART B	585025

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