

How to

INCREASE ADHESION and ELIMINATE THE COST of Hazardous Cyanide

Switch to the **NEW E-Brite™ Ultra Cu
Non-Cyanide Alkaline Copper Plating**



**OUTSTANDING ADHESION
FORMULATED FOR ZINC DIE CAST
LARGE OPERATING WINDOW
ONE MAINTENANCE AGENT
FOR RACK AND BARREL
NO CARBONATES**

EPI understands that today's plant environments demand copper plating meet a wide range of requirements. Our latest development, E-Brite Ultra Cu non-cyanide alkaline copper plating, provides superior coverage over cyanide copper and better adhesion versus competing non-cyanide copper.

E-Brite Ultra Cu is an inexpensive, easy-to-control process that lets you increase adhesion while eliminating hazardous cyanide and its associated costs.

**Start taking advantage
of E-Brite Ultra Cu today!**

Send sample parts for plating.
Call 262-786-9330 or
e-mail moreinfo@epi.com
to request a Hull Cell test solution
or ask to install a pilot line.

E-Brite Ultra Cu

A unique cyanide-free, non-pyrophosphate alkaline copper plating process with coverage greater than cyanide copper, especially in barrel plating.

E-Brite Ultra Cu has many benefits over cyanide copper:

- Inexpensive and easy to use – replenishes the copper in the solution by dissolving copper anodes.
- Plates directly on steel, copper, brass, stainless steel, zincated aluminum, electroless nickel and sulfamate nickel as well as die-cast zinc surfaces – without a separate strike.
- Single additive bath produces superior results in both barrel and rack installations – either as a strike or a plate bath.
- Outstanding pre-plate copper strike for bright nickel, acid copper, tin and solder plates – excellent heat-treat stop-off and EMI shield.
- No carbonates to be treated and contains no strong chelators.
- Copper deposit is fine grained, smooth, dense and ductile:
 - Non-porous with excellent bonding properties.
 - Uniform low current density distribution – excellent micro-throw.
 - Fine-grained copper deposit under nickel/chrome improves the overall corrosion resistance – helps nickel cover farther into low current areas.
- Complies with specifications MIL-C-14550B and SAE-AMS-2418F for copper plating.
- Eliminates the dangers and extensive costs of hazardous cyanide in the workplace, improving employee health and safety.
- One solution serves as both a strike and a plate bath.
- Lower copper concentration, which means less sludge generation.
- No carbonates to be treated. No carbonate sludge containing cyanide.
- Finer grain than cyanide copper – increases the density of the deposit.
- Lower operating temperatures reduce energy costs.

BATH MAKE-UP A new solution of the E-Brite Ultra Cu process will require the addition of:

		RACK PLATING		BARREL PLATING	
CONCENTRATION	OPTIMUM	RANGE	OPTIMUM	RANGE	
E-Brite Ultra Cu	40% by volume (30% by volume zinc die-cast)	30-50% by volume (25-40% by volume zinc die-cast)	40% by volume (30% by volume zinc die-cast)	30-50% by volume (25-40% by volume zinc die-cast)	
E-Brite Ultra Cu "E"	10% by volume	8-12% by volume	10% by volume	8-12% by volume	
E-Brite Ultra Cu "pHA"	5% by volume	4-8% by volume	5% by volume	5-8% by volume	
Copper Metal	1 oz/gal (0.72 oz/gal for zinc die-cast)	0.8-1.2 oz/gal (0.6-0.9 oz/gal for zinc die-cast)	1 oz/gal (0.72 oz/gal for zinc die-cast)	0.8-1.2 oz/gal (0.6-1.2 oz/gal for zinc die-cast)	

E-Brite Ultra Cu is a liquid concentrate, which contains 2.4 oz/gallon of copper and all components of the bath. It is used to make up a new solution and also for maintaining the copper concentration if it falls below 1.2 oz/gallon when the solution is initially installed and the correct anode area has not been determined. The E-Brite Ultra Cu "E" electrolyte is added to maintain the bath and complexes the copper as it is dissolved from the anodes. A properly adjusted bath in regard to anode area requires only the addition of E-Brite Ultra Cu "E" for proper operation.

OPERATING CONDITIONS

	RACK PLATING		BARREL PLATING	
	OPTIMUM	RANGE	OPTIMUM	RANGE
pH:	9.6	9.2-10.0	9.8	9.5-10
TEMPERATURE:	120° F	100°-140° F	120° F	100°-140° F
VOLTAGE:		1-6 Volts		15-18 Volts
CATHODE-CURRENT DENSITY:	10 ASF	5-25 ASF	4 ASF	2-8 ASF
	Minimum of 10 ASF in order to corrode the anodes and maintain the copper concentration in the bath.			
AGITATION:	Vigorous air mandatory for rack lines and also helpful in barrel lines. Use low pressure, large volume blowers only – not compressed air.			
RECTIFICATION:	Rack: 9 volts, Barrel: Minimum of 15 volts It is recommended that the parts go into the solution "live."			
FILTRATION:	Continuous 5 micron with carbon pack			

Step by Step Application

To plate on die-cast zinc surfaces:

1. Soak clean with *EPI's E-Kleen 140*
2. Cold water rinse
3. Electroclean in *E-Kleen 174*
4. Cold water rinse
5. Activate surface with immersion in *E-Pik 216*
6. Cold water rinse
7. Copper strike plate with *E-Brite Ultra Cu* alkaline non-cyanide copper process for a minimum thickness of .0002"
8. Cold water rinse
9. Copper plate with *E-Brite Ultra AC* bright acid copper if desired, followed by nickel plating in *E-Brite 757* followed by *E-Brite Cr* chrome

Call or e-mail for more info:
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moreinfo@epi.com



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CAUTION: Do not work with the E-Brite Ultra Cu solutions or other EPI products without first reading and understanding the MATERIAL SAFETY DATA SHEET furnished by EPI.

IMPORTANT NOTICE! For Industrial Use Only

The following is made in lieu of all warranties, expressed or implied, including the implied warranties of merchantability and fitness for purpose: seller's and manufacturer's only obligation shall be to replace such quantity of the product as proved to be defective. Before using user shall determine the suitability of the product for its intended use, and user assumes all risk and liability whatsoever in connection therewith. **Neither seller nor manufacturer shall be liable either in tort or in contract for any loss or damage, direct, incidental or consequential arising out of the use or the inability to use the product.**