

Cu STRIKE FOR LEAD *and* **THROW OUT THE COST** of hazardous Cyanide

- *Build Additional Copper with Acid Copper*
- *Provides Stronger Adhesion Passes the Smashed Bullet Test*
- *Unique Greater Throwing Power*
- *Formulated for barrel plating bullets and lead rack applications*



E-Brite Ultra Cu-Pb non-cyanide alkaline copper plating, provides superior coverage over cyanide copper and better adhesion versus competing non-cyanide copper.

E-Brite Ultra Cu-Pb is a sustaining, easy-to-control process that lets you upgrade adhesion while taking out hazardous cyanide and its accompanying costs.

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

Send sample parts for plating.

Call 262-786-9330 or

E-mail: us-sales@epi.com

to request a Hull Cell test solution or ask to install a pilot line.

Learn More:
See reverse for
Bath Make-up,
Operating
Conditions
and Applications.

E-Brite™ Ultra Cu-Pb

A cyanide-free, alkaline copper plating process with coverage greater than cyanide copper, especially in barrel plating of lead alloys.

- Inexpensive and easy to use - replenishes the copper in the solution by dissolving copper anodes.
- Plates directly on lead bullets and lead substrates - without a separate strike and without going in live.
- Bath produces superior results in both barrel and rack installations - as a strike.
- Outstanding pre-plate copper strike for acid copper
- 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.
- Compiles with specifications: **MIL-C-14550B** and **SAE-AMS-2418F** for copper plating.

E-Brite Ultra Cu-Pb has many benefits:

- Eliminates the dangers and extensive costs of hazardous cyanide in the workplace, improving employee health and safety.
- Lower copper concentration, which means less sludge generation.
- 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-Pb process will require the addition of:*

RACK PLATING			BARREL PLATING	
CONCENTRATION	OPTIMUM	RANGE	OPTIMUM	RANGE
E-Brite Ultra Cu-Pb	40% by volume	30-50% by volume	40% by volume	30-50% by volume
E-Brite Ultra Cu-Pb "E"	10% by volume	8-12% by volume	10% by volume	8-12% by volume
E-Brite Ultra Cu-Pb "pHA"	8% by volume	5-10% by volume	8% by volume	5-10% by volume
E-Brite Ultra Cu-Pb "X"	.25% by volume	0.25-1% by volume	0.25% by volume	0.25-1% by volume

E-Brite Cu-Pb 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. The E-Brite Cu-Pb "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 Cu-Pb "E" for proper operation.

OPERATING CONDITIONS

	RACK PLATING		BARREL PLATING	
	OPTIMUM	RANGE	OPTIMUM	RANGE
pH:	9.6	9.2-10.0	9.8	9.5-10.0
TEMPERATURE:	70° F	65°-75° F	70° F	65°-75° 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.			
COOLING:	Use stainless steel colling coils and a chiller.			
RECTIFICATION:	Rack: 9 volts, Barrel: Minimum of 15 volts.			
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 163 or 153**
2. Cold water rinse
3. Electroclean in **E-Kleen 173 or 153**
4. Cold water rinse
5. Activate surface with immersion in **E-Prep 249**
6. Cold water rinse
7. Copper strike plate with **E-Brite Ultra Cu-Pb** alkaline non-cyanide copper process for a minimum thickness of .0002"
8. Cold water rinse
9. Copper plate with **E-Brite 205-K** bright acid copper if desired