



## CL-Technology GmbH

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## ACID BRIGHT COPPER CL-EP 30

### Description

CL-EP 30 is a bright acid copper on sulphuric acid base. CL-EP 30 is applied for copper plating of ABS surfaces as well as for metal surfaces. It supplies an excellent levelling- as well as an impeccable brightening effect.

Also parts with difficult geometric shapes can be impeccably plated. The CL-EP 30 copper surface is free of tension and ductile.

### Equipment

Anodes	phosphor de-oxidised anodes with a phosphor content of 0,03 – 0,06% in club form or copper cuts titanium anode baskets. The anodes resp. the anode baskets must be furnished with a fully synthetic, acid proof bags.
Tank	steel with hard rubber lining made of PVC/Polyester.
Heater/Cooler	heating coils made of porcelain, hard glass or PTFE. Heat exchangers made of PTFE, PVC, titanium or graphite.
Mechanical/ Electrolyte movement	air agitation is necessary. Air quantity 12-30 m <sup>3</sup> /h. To avoid contamination of the electrolyte through oil, we recommend the use of compressors. It is advantageous to apply the usual cathode rod movement additionally.
Filtration	continuous. The total bath volume should at least be filtered 4 times per hour by a filter mesh of 5 microns.
Filter aid	kieselguhr, filter cellulose.
Suction device	necessary.

Bankverbindung : Stadt – Sparkasse Solingen, BLZ 342 500 00, Konto nr. 5353248  
HRB 5025 Amtsgericht Solingen. Ust-ID-Nr. DE 813 359 241  
Geschäftsführer : Uwe Lüdtke

### Make-up for 1 ltr.

200 g.	copper sulphate
55 g	sulphuric acid chem.. pure
0,15 ml	HCl (= 60 mg chloride)
1.00 ml	CL-EP 30 Part A
0,30 ml	CL-EP 30 Part B
4.00 ml	CL-EP 30 Part C *

### Operating range

180 – 240 g/l.
45 - 90 g/l.
40 – 100 mg chloride
0.8 – 1.4 ml/l.
0.2 – 0.5 ml/l.
3.0 – 5.0 ml/l.

- CL-EP 30 part C is only applied by a new make-up

Dissolve the copper sulphate in warm deionised water in a reserve tank up to half of its required volume.

**The solution stays dull if there are impurities in the copper sulphate, for example iron impurities.**

The basic make-up is filtered with active carbon, approx. 5,0 g/l, and stirred in well for approx. half an hour.

For a simple filtration we recommend to leave the active carbon overnight then filter the electrolyte into the working tank. The filtration must take place very carefully as residues of active carbon in the electrolyte will cause a matt and rough copper deposition.

Consequently the electrolyte is topped up with deionised water up to 90% of its make-up volume. Now add the sulphuric acid into the clear electrolyte under vigorous stirring (**Attention: wear protective clothing!**). Attention also has to be paid that the temperature does not exceed 60°C.

Cool the solution down and add the required quantity of HCl as well as the additives whilst stirring. Adjust the electrolyte to working volumes and dummy plate.

### Operating data

Cathode current density	2 – 6 A/dm <sup>2</sup>
Anodic current density	0,5 – 2,5 A/dm <sup>2</sup>
Voltage	1 – 4 Volt
Temperature	20 – 32 °C
Agitation	air agitation
Filtration	continuous
Anodes	phosphor de-oxidised copper anodes
Anode bags	necessary

### Consumption per 10000 Ah

CL-EP 30 Part A	0,6 – 1,0 ltr.
CL-EP 30 Part B	0,6 – 1,0 ltr.

## **Hazardous Indication**

Attention has to be paid to the legal regulations for the handling of dangerous working substances. Chemicals without a hazardous indication should not be seen as harmless. Also with chemicals which do not require a registration, we recommend to take care and to avoid for example skin contact-

## **Guarantee**

Above instructions and recommendations are the result of intensive testing and shop experience. They are for your information only.

Our guarantee extends to the continuous quality of our products as they leave the factory and not to their usage in the field, which is a factor beyond the control of the supplier.

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