



## **SILVER PLATING BLACK BRIGHTENER LC AND WHITE BRIGHTENER LC**

Silver plating is normally done in highly alkaline baths based on silver potassium cyanide. The brighteners and additives used to improve the properties of the deposits can be divided into metallic and non-metallic brighteners. Metallic brighteners usually contain oxides or salts of toxic metals and their use is on the decline. Moreover, the deposits are slightly on the yellowish side and cannot be compared with the natural brightness of silver.

The organic, non-metallic brighteners are non-toxic and give deposits of silver on electroplating, which are whitish in appearance and very closely resemble natural silver in appearance, because of identical crystal structure. Besides, the deposits are pore-free and, as a consequence, have higher tarnish resistance. The hardness of the deposits is in the range of 110-120HV. The electrical conductivity is the same as that for natural silver.

For these reasons, the organic brighteners are extremely popular for decorative and industrial applications. Decorative applications include jewellery, utensils, cutlery, fittings etc. Both real and artificial jewellery are coated with silver according to this process. Industrial applications include contacts, bearings, bus bars, pcbs, certain types of fasteners and so on.

### **BATH COMPOSITION:**

Silver metal	35 g/L (range 20 – 40 g/L)
Potassium Cyanide	180 g/L (range 150 – 200 g/L)
Potassium Carbonate	35 g/L (range 25 – 45 g/L)
pH	12.5 (by KOH)
Working bath temp.	22 – 30 <sup>0</sup> C.
Current density	1 A/dm <sup>2</sup>
Black Brightener LC	25 mL/L
White Brightener LC	25 mL/L

The brightener system consists of a dark-coloured brightener and an almost colourless make-up brightener. These are referred to as **Black Brightener LC and White Brightener LC**

The consumption of the brighteners is as follows :

Black Brightener LC 1000-1500mL per 1000 A.h.

White Brightener LC 200 – 300 ml/1000 A.h.

**White Brightener LC** is not consumed during the electroplating, but because of drag-out losses, it has to be added regularly, depending on the type of component being plated.

The shelf-life of the brighteners is 6 months. Upon dilution, the shelf-life is reduced. Please keep the packed material in a cool place, away from direct sunlight.

*Warranty: The above information is based on our knowledge and experience and is given in good faith. RRR does not have control over the goods and over their usage, once they leave our premises. The normal precautions while handling chemicals must be followed (hand gloves, spectacles and so on), even when no hazard label is evident on the packing. The local regulations for treatment and discharge of chemicals must be followed. No liability arises out of handling or use.*

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