

Replenishing copper ion
to insoluble anode process,
with excellent solubility.

Cupric Oxide DCL



Cupric Oxide DCL is suitable for replenishing copper ion to a variety of copper sulfate plating baths, especially, insoluble anode process.

Cupric Oxide DCL may also be used as raw materials in manufacturing of the other copper salts or the other applications as impurities level of Cupric Oxide DCL is low.

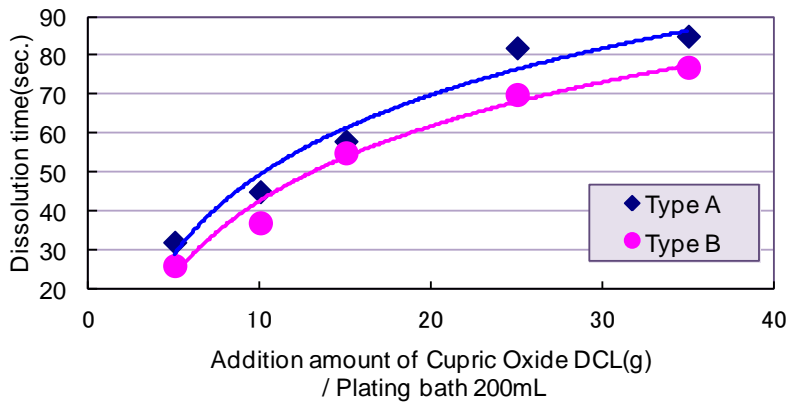
Features

1. Excellent solubility in copper sulfate plating bath.
2. Low impurities.
3. Stable solubility throughout a bath age.
4. Suitable for via filling process.

Analysis example

| | Cupric Oxide DCL |
|----|------------------|
| Cu | 75.0 % |
| Fe | 0.0005 % |
| Pb | Max. 0.0003 % |
| Cl | 0.003 % |

Comparison of Solubility



| Composition of bath | Type A | Type B |
|-----------------------------|---------|---------|
| Copper Sulfate pentahydrate | 200 g/L | 100 g/L |
| Sulfuric acid | 100 g/L | 200 g/L |

Temperature : 25°C

Advantages of Non-Soluble Anode

【Advantages】

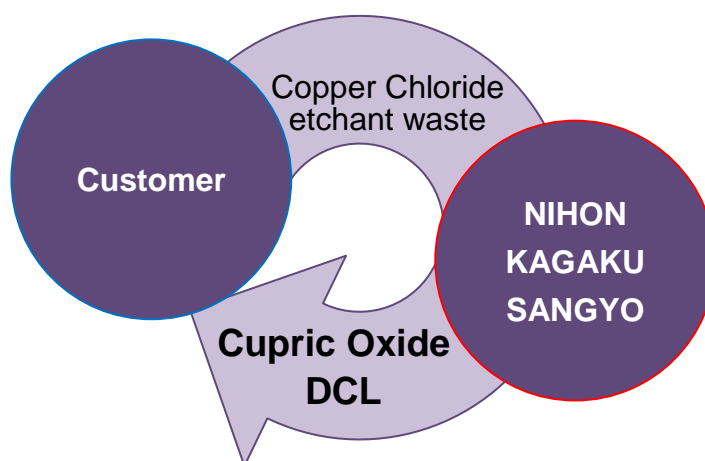
1. As the advantage of insoluble anode, stable current density can be achieved and which contributes in uniformity of plating thickness..
2. Anode debris and cleaning of anode bag are eliminated. This contributes in less down-time, and hence higher productivity.
3. Higher current density can be applied and which gives higher production capacity.
4. Enables plating bath downsizing.

【Remarks】

- Running cost may be higher than the process using conventional phosphorus-containing copper anode depending on the market price of copper metal.
- Cost of installation of insoluble anode is added.
- Installation of dissolution tank for Cupric Oxide DCL is necessary.

Recycle of waste of Copper Chloride etchant

- We are collecting copper chloride etchant waste from our customers and recycling them as raw materials for “Cupric Oxide DCL” production.
- As an advantage of the recycle system, the cost control of chemicals for the customer’s plating process will be more stable because the price of ‘Cupric Oxide DCL’ is based on the cost of our purchase price of copper chloride-etchant waste from the customer.



※Please feel free to contact our sales for details.

 **日本化学産業株式会社**
NIHON KAGAKU SANGYO CO., LTD.
<http://www.nihonkagakusangyo.co.jp/>

Head Office: 2-20-5 Shitaya, Taito-ku, Tokyo 110-0004
Phone: +81-3-3876-3135 Fax: +81-3-3876-0559

Osaka Branch: 1-23-10 Uemachi, Chuo-ku, Osaka 540-0005

Nagoya Branch: 2-16-13 Shinsakae, Naka-ku, Nagoya 460-0007

Sales Agent

May 2015