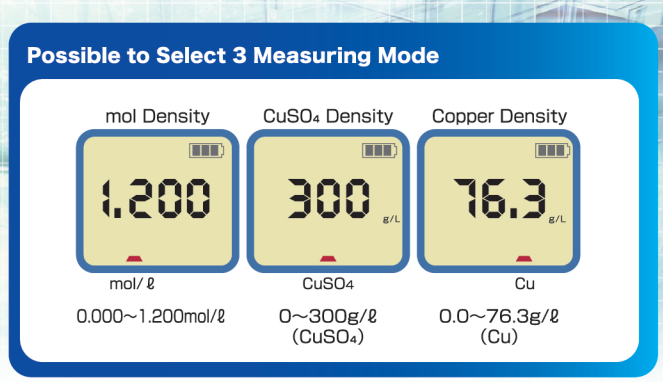
# 29 COPPER METER CU-5Z

## Copper Density Measurement for Copper Sulfate Etching Solution and Plating Solution


**Possible to Select 3 Measuring Mode**



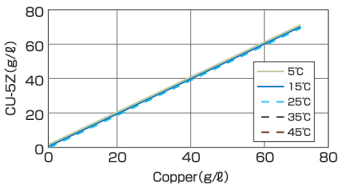

### Measurement outline

This Meter indicates Copper Density in the Solution as mol Density (mol/ℓ), Copper Sulfate Density (g/ℓ), and Copper Density (g/ℓ) by calculating the Signals in proportion to Copper Density which comes from Light Absorbance Detector through Converter which is composed of LED of suitable Wavelength for Copper Density Measurement, receiving Optics, Special Optical Window of Chemical-Resistance and Pre-Amplifier.
This Meter is equipped with Reference Light, and Automatically controls the Luminance of LED Light Source influenced by Temperature. The Materials of Liquid Junction are PFA and PVC and Excellent Chemical-Resistant Detector..

### Features

- Possible to measure High Density Copper Solution by shifting 3 Modes.
  mol Density (0.000~1.200 mol/ℓ)
  Copper Sulfate Density (0~300 g/ℓ)
  Copper Density (0~76.3 g/ℓ)
- Copper Sensor not influenced by Sulfuric Acid and Hydrogen Peroxide
- Copper Sensor with Reference Light and Automatically controlled LED Light Source

### Lineality & Temp. Caracteristic




### Specifications

| | |
|---|---|
| Product Name/Model | Portable Copper Density Meter CU-5Z |
| Measuring Method | Light Extinction Method |
| Measuring Range | 0.00~1.20 mol/ℓ (mol Density)<br>0~300g/ℓ (Copper Sulfate Density)<br>0.0~76.3g/ℓ (Copper Density) |
| Measuring Unit | ①mol/ℓ mol Density<br>②g/ℓ Copper Sulfate Density<br>③g/ℓ Copper Density |
| Resolution | ①0.01mol/ℓ mol Density<br>②1g/ℓ Copper Sulfate Density<br>③0.1g/ℓ Copper Density |
| Accuracy | Within ±2% |
| Calibration | Zero : with Pure Water or distilled Water<br>Span : with Copper standard Solution |
| Self Diagnosis | Battery Voltage : Battery Mark<br>Detector Error : "S","ERR" blinks<br>Calibration Error : "CAL", "ERR" blinks<br>Scale Over : Max. Value in measuring Range blinks |
| Sample Water Temperature | 5~50℃ |
| Power Supply | Alkaline Battery LR03×3 (DC 4.5V) |
| Outer Dimensions | Meter : 75(W)×38(H)×180(D)mm<br>Detector : ϕ40×250mm |
| Detector Model | CUD-61 |
| Cable length | 2m Standard |
| Weight | Meter : Approx. 300g<br>Detector : Approx. 500g (Without cable) |
| Standard Components | Meter(CU-5Z), Detector(CUD-61 with 2m cable)<br>Transparent Plastic Cover, Carrying Bag,<br>Instruction Manual, Guarantee, Measuring Vessel<br>Strap, Brush, Alkali AAA Batteries(LR03×3) |
| Optional Accessories | Copper Standard Solution 250ml |

### Technical Information

■Converting Calculation of mol, Copper Sulfate and Copper Density

| mol Density (mol/ℓ) | $CuSO_4$ Density (g/ℓ) | Copper Density (g/ℓ) |
|---|---|---|
| 0.050 | 12 | 3.2 |
| 0.100 | 25 | 6.4 |
| 0.200 | 50 | 12.7 |
| 0.800 | 200 | 50.8 |
| 1.000 | 250 | 63.5 |
| 1.200 | 300 | 76.3 |

Molecular weight : copper(II)sulfate pentahydrate=249.69
Copper=63.546

| | |
|---|---|
| Comparison of each density at 1 mol/ℓ | mol density : Copper Density(g/ℓ) : Copper Sulfate Density(g/ℓ)<br>1 : 63.546 : 249.69 |
| How to calculate mol Density | mol Density(mol/ℓ)=Copper Density(g/ℓ)÷63.546<br>=Copper Sulfate Density(g/ℓ)÷249.69 |
| How to calculate Copper Sulfate Density | Copper Sulfate Density(g/ℓ)=Copper Density(g/ℓ)×3.929<br>=mol Density×249.69 |
| How to calculate Copper Density | Copper Density(g/ℓ)=Copper Sulfate Density(g/ℓ)÷3.929<br>=mol Density×63.546 |