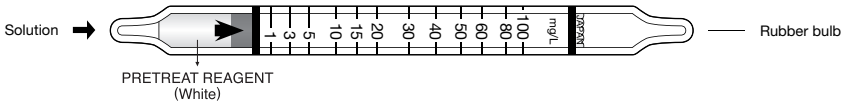
Tube No.
**203S**

# COPPER ION




## 1. PERFORMANCE

| | |
|---|---|
| 1) Sampling method | : Direct sampling method (Refer to Page 17) |
| 2) Measuring range | : 1-100mg/ℓ |
| 3) Sampling time | : 1 to 2 minutes |
| 4) Sample volume | : over 5 mℓ |
| 5) Detectable limit | : 0.5mg/ℓ |
| 6) Shelf life | : 1 year |
| 7) Operating temperature | : 0～40℃ |
| 8) Operating PH | : 2-11 |
| 9) Reading | : Direct reading from the scale |
| 10) Colour change | : White→Orange |

## 2. RELATIVE STANDARD DEVIATION

RSD-low : 10% RSD-mid. : 5% RSD-high : 5%

## 3. CHEMICAL REACTION

By reacting with Hydroxylamine sulphate, divalent Copper ion is reduced to monovalent Copper ion. This monovalent Copper ion is reacted with 2, 9-Diphenyl 1-4, 7-Dipheny l-1, 10-phenanthroline and Chelate is produced.

$Cu^{2+} + NH_2OH + H_2SO_4 \rightarrow Cu^{+}$

$Cu^{+} + C_{12}H_4N_2(CH_3)_2(C_6H_5)_2 \rightarrow$ Orange Chelate compound

## 4. CALIBRATION OF THE TUBE

CUPRIC SULPHATE STANDARD SOLUTION METHOD

## 5. INTERFERENCE AND CROSS SENSITIVITY

| Substance | mg/ℓ | Interference | mg/ℓ | Coexistence |
|---|---|---|---|---|
| Ferric ion | 20 | Similar stain is produced. | Copper ion conc.×2 | Higher readings are given. |
| Zinc ion | | The accuracy of readings in not affected. | 100 | 〃 |
| Chlorine ion | | 〃 | | 〃 |
| Manganous ion | | 〃 | | 〃 |

(NOTE)

## 6. SAMPLING METHOD

1) Cut both ends of a fresh detector tube with a file.
2) Squeeze the rubber bulb (an extra option), insert the tube end (B) into it as it is and immerse filled end (A) of the tube.
3) Put the thumb off the rubber bulb, and the sample solution shall rise up.
4) When the sample solution rises up to (C) of the tube, remove the tube from the rubber bulb and from thesample solution.
5) The concentration can be obtained directly from the reading value of scale printed on the tube.
6) When the concentration is over 100mg/ℓ, dilute the sample solution and multiply the readings obtained by the dilution ratio.