

★ DO NOT DISCARD THIS INSTRUCTION MANUAL UNTIL ALL THE TUBES IN THIS BOX ARE USED UP.

### 1. PERFORMANCE:

Measuring Range and Sampling Time:	1 - 100 mg/L (1 to 2 minutes)
Sampling Volume:	over 5 mL
Colour Change:	White → Orange
Detectable Limit:	0.5 mg/L
Operating temperature:	0 - 40 °C (32-104°F) (No corrections are necessary.)
Operating pH :	2 - 11 (No correction is necessary.)
(Sample solution)	

### ▲ CAUTION

1. DETECTOR TUBE CONTAINS REAGENTS.
2. DO NOT DIRECTLY TOUCH THESE REAGENTS ONCE TUBES ARE BROKEN.
3. KEEP THE TUBES OUT OF THE REACH OF CHILDREN.

#### NOTICE

1. READ THE READING VALUE AFTER THE TEST. IF THE TUBE IS LEFT WET, THE PEELING OF THE SCALE PRINTED MAY BE OCCURRED.
2. 10 PCS OF A FILTER PAPER IS ATTACHED AS STANDARD ACCESSORIES. IN CASE THAT THE SAMPLE SOLUTION CONTAINS FINE MATERIAL AND THE CUT-END OF THE TUBE IN THE SOLUTION MIGHT BE CLOSED WITH THE FINE MATERIAL, WRAP THE TUBE-END WITH A FILTER PAPER BEFORE PUTTING INTO THE SOLUTION.

### 2. SAMPLING AND MEASUREMENT:

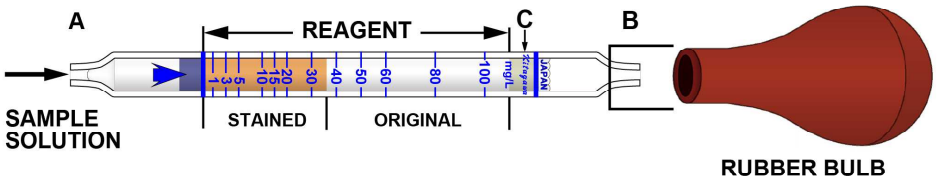


Fig.1

- ① Break both ends of a new detector tube with the file attached.

**▲ CAUTION SAFETY GLASSES AND GLOVES SHOULD BE WORN TO PREVENT INJURY FROM SPLINTERING GLASS.**

- 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 in sample solution.
- ③ Put the thumb off the rubber bulb, and the sample solution shall rise up. Copper ion in the sample solution makes orange stains.
- ④ When the sample solution rises up to (C) completely, remove the tube from the rubber bulb.
- ⑤ Replace the tube out of the sample solution. A reading can be obtained directly from the scale printed on the tube.
- ⑥ When the concentration is over the full scale (100 mg/L), dilute the sample solution and multiply the reading value with the dilution ratio.

#### SPECIAL NOTE:

- I. The reading values are shown as total concentration of monovalent copper ion ( $\text{Cu}^+$ ) and divalent copper ion ( $\text{Cu}^{2+}$ ).
- II. When the maximum point of the discoloured layer is made unclear or slanted, read the concentration in the middle between the longest and the shortest points of the discoloured layer. The total stain length should be read, even if the stained layer gets multi-colour discolouration.

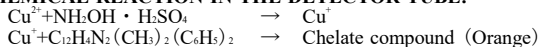
### 3. CORRECTION FOR AMBIENT CONDITIONS:

Temperature; No temperature correction is necessary

### 4. INTERFERENCE:

Ferric ion of more than 20 ppm produces a similar stain and the coexistence (with Copper ion) of more than doubled concentration of Copper ion will give higher readings. Zinc ion does not affect the tube discolouration by itself but the coexistence (with Copper ion) of more than 100 mg/L will give higher readings. Chlorine ion or Manganese ion does not affect the reading value.

### 5. CHEMICAL REACTION IN THE DETECTOR TUBE:



### 6. DISPOSAL OF TUBE:

**USED TUBES SHOULD BE DISPOSED OF CAREFULLY ACCORDING TO ANY RELEVANT REGULATIONS.**

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