# GASTEC No.211H Instructions for Sulphide Ion Detector Tube

**FOR SAFE OPERATION :**

Carefully read this manual before use.

**⚠ CAUTION : If you do not observe the following precautions, you may suffer injuries or damage the product.**

1. When breaking the tube ends, keep away from eyes.
2. Do not touch the broken glass tubes, broken pieces and reagent with bare hand(s).

**△NOTES : For maintaining performance and reliability of the test results, observe the following.**

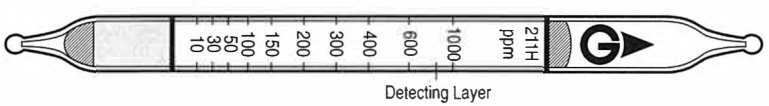
1. Use this tube within the temperature range of 0 -50℃(32 - 122℉) in water.
2. Use this tube between pH values of 5.0 to 12.5.
3. This tube may be interfered with by the coexisting gases. Please refer to the table "INTERFERENCES" below.
4. The shelf life and storage condition of the tube are marked on the label of the tube box.
5. Place the higher end plug packing of the tubes above the water surface.

**APPLICATION OF THE TUBE :**

Use this tube for detecting Sulphide Ion in the Waste Water.

**SPECIFICATION :**

(Because of Gastec's commitment to continued improvement, specifications are subject to change without notice.)




Detecting Layer

| | |
|---|---|
| Measuring Range | 10 - 1000 ppm |
| Sampling Time | 2 minutes |
| Detecting Limit | 1 ppm |
| Colour Change | White → Brown |
| Reaction Principle | $S^{2-} + Pb(CH_3COO)_2 \rightarrow PbS$ |

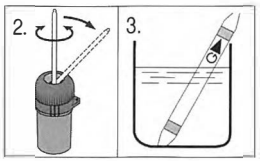
**Coefficient of Variation: 10% (for 10 to 100 ppm), 5% (for 100 to 1000 ppm)**
**** Shelf Life: Please refer to the validity date printed on the tube box.**
**** Store the tubes in a dark and cool place.**

**EFFECT BY ATMOSPHERIC CONDITION :**

**Water Temperature :** No effect by the water temperature between 0 - 50℃ (32-122℉).
**pH Value :** Use the tube in the pH value of 5.0 - 12.5.

**MEASUREMENT PROCEDURE :**

1. Take sample water into an approximately 100 mL capacity of dry, clean beaker.
2. Break tips off a fresh detector tube by bending each tube end in the tube tip holder (optional).
3. Immerse the filled end of the tube into the sample water as illustrated. Capillary action occurs and the sample water instantly rises through the reagent. If the sample contains sulphide ion, the white reagent in the tube turns to brown colour.
4. When the sample water rises up to the upper end plug, remove the tube.
5. Read the concentration level at the interface where the stained reagent meets the unstained reagent.
6. If the stain exceeds the highest calibration mark (1000 ppm), dilute the sample with pure water and retest using a fresh tube. Obtain true concentration by multiplying the tube reading by the dilution ratio.




$$\text{True Concentration} = \frac{V1 + V2}{V1} \times \text{Tube Reading}$$

V1 : Volume of Sample water
V2 : Volume of dilution (pure water)

**△NOTES :**

Do not immerse the tube into sample water past the upper end plug.

**INTERFERENCES :**

| Substance | Formula | Concentration | Interference | Changes colour by itself to |
|---|---|---|---|---|
| Sulphite ion | $SO_3^{2-}$ | ≧100 ppm | − | No discolouration |
| Chloride ion | $Cl^-$ | ≧15000 ppm | + | No discolouration |
| Chromate ion | $CrO_4^{2-}$ | ≧100 ppm | − | Yellow |
| Carbonate ion | $CO_3^{2-}$ | ≧500 ppm | + | No discolouration |
| Thiosulphate ion | $S_2O_3^{2-}$ | ≧100 ppm | + | No discolouration |

This table of interference substances primarily expresses the interference of each coexisting substance in the concentration range, that is equivalent to the target substances concentration. Therefore, the test result may show positive results due to other substances not listed in the table. If more information is needed, please contact us or our distributors in your territory.

**INSTRUCTIONS ON DISPOSAL :**

The reagent of the tube uses a small amount of lead. When disposing the tube regardless of whether it has been used or not, follow the rules and regulations of your local government.

**WARRANTY :**

If you have any questions regarding gas detection and the quality of the tubes, please feel free to contact your Gastec representatives.

Manufacturer : Gastec Corporation
8-8-6 Fukayanaka, Ayase-City, Kanagawa 252-1195, Japan
https://www.gastec.co.jp/
Telephone +81-467-79-3910 Facsimile +81-467-79-3979

IM01211HE2
Printed in Japan
21G1Z