

GASTEC Instructions for No. 211 Sulphide Ion Detector Tube

FOR SAFE OPERATION:

Carefully read this manual prior to use.

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

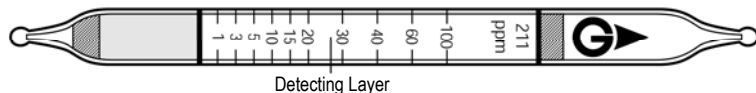
- When breaking the tube ends, keep away from eyes.
- Do not touch the broken glass tubes, broken pieces and reagent with bare hand(s).

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

- Use this tube within the temperature range of 0 - 40°C (32 - 104°F) in water.
- Use this tube between pH values of 3.5 to 12.0.
- Co-existing substances may interfere with this tube. Refer to the section, "INTERFERENCES".
- The shelf life and storage conditions of the tube are marked on the label of the tube box.
- Keep the upper end of the plug packing of the tubes above the water surface.
- If tubes are kept more than 30 minutes in the water, the printed scale on the tube may peel off. Immediately read the concentration after the sampling has been completed.

APPLICATION OF THE TUBE: Use this tube for detecting sulphide ion in waste water.

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



Measuring Range	1 - 100 ppm
Sampling Time	2 minutes
Detecting Limit	0.5 ppm
Colour Change	White → Brown
Reaction Principle	$S^{2-} + Pb(CH_3COO)_2 \rightarrow PbS$

Coefficient of Variation: 10% (for 1 to 10 ppm), 5% (for 10 to 100 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: There is no effect in water temperatures between 0° - 40° C (32° - 104° F).

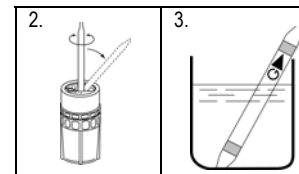
pH Value : Use the tube in waste water having a pH value between 3.5 and 12.0.

MEASUREMENT PROCEDURE:

- Sample approximately 100 mL of water with a dry, clean beaker.
- Snap off the tip of a fresh detector tube using the tip breaker in the tube.
- Immerse the filled end of the tube into the sample water as illustrated below. Capillary action occurs and the sample water instantly rises through the reagent. If the sample contains sulphide ion, the white

reagent in the tube changes to brown.

- When the sample water rises up to the top end plug, remove the tube.
- Read the concentration at the interface of the stained-to unstained reagent.
- If the stain exceeds the highest calibration mark (100 ppm), dilute the sample with pure water and re-test using a fresh tube. Obtain the correct concentration by multiplying the tube reading with the dilution ratio.



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

V1 : Volume of sample water

V2 : Volume of diluent (pure water)

NOTES:

Keeping the tube in the waste water longer than 30 minutes will cause the calibration marking to peel off. If capillary action does not begin immediately after immersing the tube into the water, we recommend using a rubber bulb to help start the action. Connect the squeezed rubber bulb at the top end of the glass tube. When the tube begins capillary action, remove the rubber bulb from the tube. Immediately read tube after the test. Do not immerse the tube into the sample waste water past the top end plug.

INTERFERENCES:

Substance	Formula	Concentration	Interference	Interference gas only
Sulphurous acid ion	SO_3^{2-}	≥ 300 ppm	-	No discoloration
Chloride ion	Cl^-	≥ 5000 ppm	+	No discoloration
Chromate ion	CrO_4^{2-}	≥ 25 ppm	-	Yellow
Carbonate ion	CO_3^{2-}	≥ 500 ppm	+	No discoloration
Thiosulphate ion	$S_2O_3^{2-}$	≥ 50 ppm	Unclear demarcation	No discoloration

This table of interference substances primarily expresses the interference of each co-existing substance in the concentration range, equivalent to the substance concentration. Therefore, the test results may be positive due to other substances not listed in the table. For more information, please contact us or our distributors in your territory.

DISPOSAL INSTRUCTION: The tube reagent uses a small amount of lead. When disposing of a 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 measurement and quality of the tubes, freely contact your Gastec representatives.

Manufacturer: Gastec Corporation
8-8-6 Fukayanaka, Ayase-City, 252-1195, Japan
<http://www.gastec.co.jp/>
Telephone +81-467-79-3910 Fax +81-467-79-3979

IM01211E1
Printed in Japan
09/J/D