GASTEC No.221L Instructions for Chloride 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.

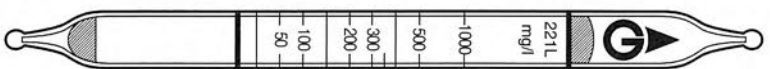
1. Use this tube within the temperature range of 0 - 50℃(32 - 122℉) in water.
2. Use this tube between pH values of 3.0 to 11.0.
3. This tube may be interfered with by the coexisting substances. Please refer to the table "INTERFERENCES" below.
4. The shelf life and storage condition of the tube are marked 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 the detecting Chloride Ion in the waste water.

SPECIFICATION :

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



The minimum scale value (25mg/L) is not printed on the tube, but only the scale line is printed.

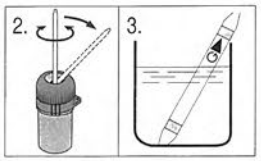
Measuring Range	(25) - 1000 mg/L
Sampling Time	3 minutes
Detecting Limit	1 mg/L
Colour Change	Brown → White
Reaction Principle	$2Cl^- + Ag_2CrO_4 \rightarrow 2AgCl$

Coefficient of Variation: 15% (for 25 to 300 mg/L), 10% (for 300 to 1000 mg/L)
**** 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 3.0 - 11.0.

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 chloride ion, the brown reagent in the tube turns to white 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 mg/L), 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 diluent (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
Cyanide ion	CN^-	≧ 1 mg/L	+	White
Bromide ion	Br^-	≧ 10 mg/L	+	White
Thiocyanate ion	SCN^-	≧ 30 mg/L	+	White
Iron (Ⅱ)	Fe^{2+}	≧ 200 mg/L	−	No discolouration up to 1000 mg/L
Iron (Ⅲ)	Fe^{3+}	≧ 200 mg/L	−	White
Fluoride ion	F^-	≧ 500 mg/L	−	No discolouration up to 1000 mg/L
Iodide ion	I^-	≧ 50 mg/L	+	White
Sulphide ion	S^{2-}	≧ 5 mg/L	+	Blackish gray
Sulphuric acid ion	SO_4^{2-}	≧ 2000 mg/L	−	White

This table of interference substances primarily expresses the interference of each coexisting substance in the concentration range, that is equivalent to concentration of the target substance. 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.

APPLICATION FOR OTHER SUBSTANCES :

Substance	Formula	Correction Factor	Measuring Range
Bromide ion	Br^-	2.2	55 - 2200 mg/L

CORRECTION FACTOR :

Detector tubes are primarily designed to measure specific gases. But it is also possible to measure other substances of similar chemical properties with the aid of a correction factor or chart. Therefore, please make use of the correction factor/chart measuring ranges as a reference. For more precise factor please contact your Gastec distributor.

INSTRUCTIONS ON DISPOSAL :

The reagent of the tube uses a small amount of hexavalent chromium. 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.

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