

GASTEC Instructions for No.7 Phosphine Detector Tube

FOR SAFE OPERATION :

Carefully read this manual and the instruction manual of your Gastec Gas Sampling Pump.

⚠ WARNING :

1. Use only Gastec detector tubes in a Gastec Pump.
2. Do not interchange or use non-Gastec parts or components in Gastec's detector tube and pump system.
3. Using non-Gastec parts or components in Gastec's detector tube and pump system or using a non-Gastec detector tube with a Gastec pump or using a Gastec detector tube with a non-Gastec pump may damage your detector tube and pump system, or may cause serious injuries, or death to the end-user. It will also void all warranties, and guarantees regarding performance and data accuracy.

⚠ CAUTION : If not observed, injuries to the operator or damage to the product may result.

1. When breaking the tube ends, keep away from eyes.
2. Do not touch the broken glass tubes, pieces and reagent with bare hand(s).
3. The sampling time represents the time necessary to draw the air sample through the tube.
The tube must be positioned in the desired sampling area for the entire sampling time or until the flow finish indicator indicates the end of the sampling.

△ NOTES : For maintaining performance and reliability to the test results.

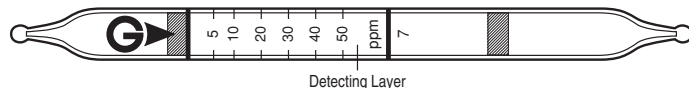
1. Use Gastec Gas Sampling Pump together with Gastec Detector Tubes only for the purposes specified in the instruction manual of the detector tube.
2. Use this tube within the temperature range of 0 - 40°C (32 - 104°F).
3. Use this tube within the relative humidity range of 0 - 90%.
4. This tube may be interfered with by the coexisting gases. Please refer to the "INTERERENCES".
5. Shelf life and storage conditions of the tube are marked on the label of the box of tube.

APPLICATION OF THE TUBE :

Use this tube for the detection of Phosphine in air and environmental atmospheric condition.

SPECIFICATION :

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



Measuring Range	2.5 - 5 ppm	5 - 50 ppm	50 - 100 ppm
Number of Pump Strokes	4	2	1
Correction Factor	1/2	1	2
Sampling Time	1.5 minutes per pump stroke		
Detecting Limit	0.5 ppm (n = 4)		
Colour Change	White → Pale yellow		
Reaction Principle	$2PH_3 + 6HgCl_2 + 3H_2O \rightarrow Hg_2P_2 \cdot 3HgCl_2 \cdot 3H_2O + 6HCl$		

Coefficient of Variation : 10% (for 5 to 10 ppm), 5% (for 10 to 50 ppm)

**** Shelf Life : Please refer to the Validity Date printed on the box of tube.**

**** Store the tubes in dark and cool place.**

CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE :


Temperature : No correction is required.

Humidity : No correction is required.

Pressure : To correct for pressure, multiply the tube reading by

$$\frac{\text{Tube Reading (ppm)} \times 1013 \text{ (hPa)}}{\text{Atmospheric Pressure (hPa)}}$$

MEASUREMENT PROCEDURE :

1. For checking the leakage of the pump, insert a freshly sealed detector tube into pump. Follow instructions provided with the pump operating manual.
2. Break tips off a fresh detector tube with the tube tip breaker in the pump.
3. Insert the tube into the pump inlet with arrow  on the tube pointing toward pump.
4. Make certain pump handle is all the way in. Align the guide marks on pump body with the guide marks on the handle.
5. Pull the handle all the way out until it locks on one pump stroke (100 mL). Wait 1.5 minutes and confirm the completion of the sampling. Repeat the above sampling procedure one more times.
6. For smaller measurements less than 5 ppm, repeat the above sampling procedure two more times until the stain reaches the first calibration mark. For measurements higher than 50 ppm, prepare a fresh tube and perform one pump stroke.
7. Read the concentration level at the interface where the stained reagent meets the unstained reagent.
8. If necessary, multiply the readings by the correction factors of pump strokes and atmospheric pressure respectively.

INTERFERENCES :

Substance	Concentration	Interference	Interference gas only
Arsine	≥20ppm	+	Brown
Hydrogen selenide	≥20ppm	+	Brown
Hydrogen sulphide	≥10ppm	+	Dark brown

This table of this interference gases primarily expresses the interference of each coexisting gas in the gas in the gas concentration range, equivalent to the gas concentration. Therefore, the test result may be given positive results by the other substances not listed in the table. For more information is needed, please contact us or our distributors in your territory.

DANGEROUS AND HAZARDOUS PROPERTIES :

Threshold Limit Value - Time Weighted Average by ACGIH (2009) : 0.3 ppm

Threshold Limit Value - Short Term Exposure Limit by ACGIH (2009) : 1 ppm

DISPOSAL INSTRUCTION :

Reagent of the tube uses a small amount of inorganic mercury. When disposing the tube regardless of whether used or unused, follow the rules and regulations of the local government.

WARRANTY :

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

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