

# GASTEC No.7H Instructions for 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 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).
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 of the test results, observe the following.

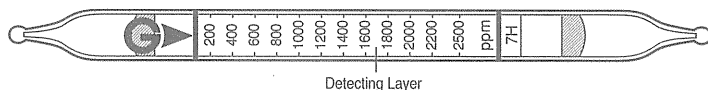
1. Use Gastec Gas Sampling Pump together with Gastec Detector Tubes only for the purposes specified in the instruction manual of the detector tube.
2. Use this tube within the temperature range of 0 - 40°C (32 - 104°F).
3. Use this tube within the relative humidity range of 0 - 90%.
4. This tube may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

## APPLICATION OF THE TUBE :

Use this tube for detecting Phosphine in the air or in industrial areas and for determining the environmental atmospheric condition.

## SPECIFICATION :

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



Measuring Range	200 – 2500 ppm	2500 – 5500 ppm
Number of Pump Strokes	1	1/2
Stroke Correction Factor	1	2.2
Sampling Time	1 minute per pump stroke	30 seconds
Detecting Limit	5 ppm (n=1)	
Colour Change	Yellow → Blackish brown	
Reaction Principle	$\text{PH}_3 + \text{Na}_2\text{Pd}(\text{SO}_3)_2 \rightarrow \text{Pd}$	

**Coefficient of Variation : 10% (for 200 to 800 ppm), 5% (for 800 to 2500 ppm)**

**\*\*Shelf Life: Please refer to the validity date printed on the tube box.**

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

## CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE :

**Temperature :** Correct for temperature with the table below.

Tube Reading (ppm)	True Concentration (ppm)						
	0°C (32°F)	5°C (41°F)	10°C (50°F)	15°C (59°F)	20°C (68°F)	30°C (86°F)	40°C (104°F)
2500	3950	3600	3200		2500		2500
2200	3400	3100	2800		2200		2200
2000	3050	2800	2500		2000		2000
1800	2750	2550	2250		1800		1800
1600	2400	2250	2000		1600		1600
1400	2100	1900	1700		1400		1550
1200	1800	1650	1450		1200		1400
1000	1400	1350	1150		1000		1200
800	1050	1050	800		800		1000
600	750	750	600		600		750
400	450	450	400		400		550
200	200	200	200		200		300

**Humidity :** No correction is required between 0 - 90% R.H.

**Pressure :** To correct for pressure, use the formula below.

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

\* This value is after other correction(s), if any are applied.

## 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 the pump.
4. Make certain the pump handle is all the way in. Align the guide marks on the pump body with the guide marks on the handle.
5. Pull the handle all the way out until it locks at one pump stroke (100 mL). Wait one minute and confirm the completion of the sampling.
6. For measurements higher than 2500 ppm, prepare a fresh tube and perform a half pump stroke.

7. Read the concentration level at the interface where the stained reagent meets the unstained reagent.
8. If temperature correction is necessary, obtain the true concentration by using the temperature correction table. Afterwards multiply the correction factor of pump stroke if necessary.
9. If pressure correction is necessary, use the pressure correction formula.

**INTERFERENCES :**

Substance	Concentration	Interference	Changes colour by itself to
Ammonia	≤2500 ppm	No	No discolouration
Carbon Monoxide		+	Blackish brown from 5 ppm
Carbon Dioxide	≤2%	No	No discolouration

This table of interference gases primarily expresses the interference of each coexisting gas in the concentration range, that is equivalent to the gas 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.

**DANGEROUS AND HAZARDOUS PROPERTIES :**

Threshold Limit Value-Time Weighted Average by ACGIH (2019): 0.05 ppm

Threshold Limit Value-Ceiling by ACGIH (2019): 0.15 ppm

**INSTRUCTIONS ON DISPOSAL :**

The reagent of the tube does not use toxic substance. 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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IM007HE2  
 Printed in Japan  
 20F1Z