

GASTEC Instructions for No.91TP Formaldehyde Detector Tube

FOR SAFE OPERATION :

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

⚠ 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.

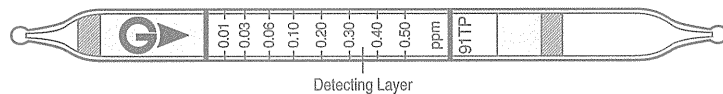
1. Recommend to use Gastec Gas Sampling device Model GSP-300FT-2 (if not available use the air sampler of equivalent to sample for 100 mL/min) together with Gastec Detector Tubes only for the purposes specified in the instruction manual of the detector tube.
2. Use this tube within the temperature range of 5 - 35°C (41 - 95°F).
3. Use this tube within the relative humidity range of 0 - 80%.
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 Formaldehyde in the air or in industrial areas and for determining the environmental atmospheric condition.

SPECIFICATION :

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



Measuring Range	0.01 – 0.50 ppm	0.50 – 1.75 ppm
Sampling Rate	100 mL/min	50 mL/min
Correction Factor	1	3.5
Sampling Time	10 min	10 min
Detection Limit	0.005 ppm (1000 mL)	
Colour Change	Yellow → Pale orange	
Reaction Principle	$3\text{HCHO} + (\text{NH}_2\text{OH})_3\text{H}_3\text{PO}_4 \rightarrow \text{H}_3\text{PO}_4$ $\text{H}_3\text{PO}_4 + \text{base} \rightarrow \text{Phosphate}$	

Coefficient of Variation : 10% (for 0.01 to 0.1 ppm), 5% (for 0.1 to 0.5 ppm)

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

****Store the tubes in the refrigerator to keep at 10°C (50°F) or below.**

CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE :

Temperature : Correct for temperature by the tables below:

Temperature °C(°F)	5 (40)	10 (50)	15 (59)	20 (68)	25 (77)	30 (86)	35 (94)
Correction Factor	1.6	1.30	1.05	1.00	0.90	0.70	0.55

Humidity : No correction is required for 0 - 80% R.H.

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

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

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

MEASUREMENT PROCEDURE :

If automatic air sampler Model GSP-300FT-2 is used

1. Prior to operation please confirm if black colour inlet rubber tube holder is equipped with the sampler.
2. Break both end of the tips of the detector tube by the tube tip holder supplied. Connect the detector tube to the pump with arrow (G) on the tube pointing toward pump.
3. Set the flow meter at 100 mL/min and timer to "10 minutes" of the sampler. Press the start switch of the sampler to start the sampling.
4. After the sampling, remove the detector tube from the sampler.
5. Read the concentration level at the interface where the stained reagent meets the unstained reagent. For measurements higher than 0.50 ppm, prepare a fresh tube. Set the flow metre at 50 mL/min and timer to "10 minutes" of the pump and start the sampling again.
6. If temperature correction is necessary, obtain the true concentration by using the temperature correction factor. Afterwards multiply the correction factor of sampling volume if necessary.
7. If pressure correction is necessary, use the pressure correction formula.

INTERFERENCES :

Substance	Concentration	Interference	Changes colour by itself to
Acetaldehyde		+	Pale orange
Acetone		+	Pale orange
Ethyl alcohol	0.15%	-	Yellow
Xylene	50 ppm	No	No discolouration
Ammonia	≥ 1 ppm	-	Yellow
Nitrogen dioxide	≤ 1 ppm	No	No discolouration

Moisture exceeds RH80% may cause weak colour change or unclear demarcation.

The table of this interference gases primarily expresses the interference of each coexisting gas in the gas concentration range, equivalent to the gas concentration. Therefore, the test result may be given positive result 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 (2021) : 0.1 ppm

Threshold Limit Value-Short Term Exposure Limit by ACGIH (2021) : 0.3 ppm

INSTRUCTIONS ON DISPOSAL :

The reagent of the tube does not use toxic substances. 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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