

GASTEC Instructions for No.17TP Hydrogen Fluoride Tube

FOR SAFE OPERATION :

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

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

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).

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

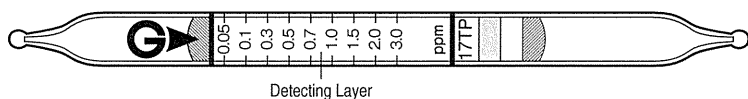
1. Recommend to use Gastec Gas Sampling device Model GSP-300FT-2 (if not available use the air sampling pump of equivalent to sample for 100 mL/min) together with Gastec Detector Tubes only for the purposes specified in the instruction manual of the detector tube.
2. Stop the sampling immediately when the tube produces the whole colour change. Otherwise the pump may be broken due to hydrogen fluoride that is sucked into the pump.
3. Use this tube within the temperature range of 10 – 35°C (50 - 95°F).
4. Use this tube within the relative humidity range of 20 - 80%.
5. This tube may be interfered with by the coexisting gases. Please refer to the table "INTERFERENCES" below.
6. Shelf life and storage condition of the tube are marked on the label of the box of tube.

APPLICATION OF THE TUBE :

Use this tube for the detection of Hydrogen fluoride in air or in the industrial areas and environmental atmospheric condition.

SPECIFICATION :

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



| | | |
|--------------------|-----------------------------------|---------------|
| Measuring Range | 0.05 – 3.0 ppm | 3.0 – 9.0 ppm |
| Sampling Rate | 100 mL/min | 50 mL/min |
| Correction Factor | 1 | 3.0 |
| Sampling Time | 10 min | 10 min |
| Detecting Limit | 0.025 ppm (1000 mL) | |
| Colour Change | Yellow → Brown | |
| Reaction Principle | HF + Indicator → Reaction Product | |

Coefficient of Variation : 10% (for 0.05 to 1.0 ppm), 5% (for 1.0 to 3.0 ppm)

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

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

CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE :

Temperature & Humidity : To correct for Humidity, use the following chart.

| Relative Humidity | Temperature | | | | | |
|-------------------|-----------------|----------------|----------------|----------------|-----------------|----------------|
| | 10 °C (50°F) | 15°C (59°F) | 20°C (68°F) | 25°C (77°F) | 30 °C (86°F) | 35°C (95°F) |
| 20% | 0.75 | 0.60 | 0.50 | 0.45 | 0.40 | 0.35 |
| 30% | 1.00 | 0.85 | 0.60 | 0.60 | 0.55 | 0.45 |
| 40% | 1.35 | 1.10 | 0.75 | 0.70 | 0.70 | 0.60 |
| 50% | 1.80 | 1.50 | 1.00 | 0.90 | 0.85 | 0.70 |
| 60% | 2.50 | 2.00 | 1.30 | 1.20 | 1.15 | 0.90 |
| 70% | - | 2.60 | 1.75 | 1.60 | 1.35 | 1.20 |
| 80% | - | - | 2.30 | 2.00 | 1.70 | 1.40 |

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 :

If automatic air sampling pump Model GSP-300FT-2 is used

1. Prior to operation please confirm if black colour inlet rubber tube holder is equipped with the pump.
2. Break tips off a detector tube with the tube tip holder supplied.
3. Insert the tube into the pump inlet with arrow (➔) on the tube pointing toward pump.
4. Set the flow metre at 100 mL/min and timer to "10 minutes" of the pump. Press the start switch of the pump to start the sampling. Stop the sampling immediately when the tube produces the whole colour change. Otherwise the pump may be broken due to hydrogen fluoride that is sucked into the pump.
5. After the sampling, remove the detector tube from the pump.
6. Read the concentration level at the interface where the stained reagent meets the unstained reagent.
7. For measurements higher than 3.0 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.
8. If necessary, multiply the readings by the correction factors of temperature, humidity, sampling volume and atmospheric pressure respectively.

INTERFERENCES :

| Substance | Concentration | Interference | Changes colour by itself to |
|-------------------|---------------|--------------|-----------------------------|
| Nitric acid | ≥ 0.5ppm | + | Pale reddish purple |
| Hydrogen chloride | ≥ 0.1ppm | + | Reddish purple |
| Hydrogen peroxide | ≤ 10ppm | No | No discolouration |

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

DANGEROUS AND HAZARDOUS PROPERTIES :

Threshold Limit Value-Time Weighted Average by ACGIH (2016) : 0.5 ppm

Threshold Limit Value-Ceiling by ACGIH (2016) : 2 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 quality of the tubes, please feel free to contact your Gastec representatives.

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

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