

# GASTEC Instructions for No.172 Ethylene Detector Tube

## FOR SAFE OPERATION :

Read this manual and the instruction manual of your Gastec Gas Sampling Pump carefully.

### ⚠ 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. The use of non-Gastec parts or components in Gastec's detector tube and pump system may result in property damage, serious bodily injury, and death ; voids all warranties.

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

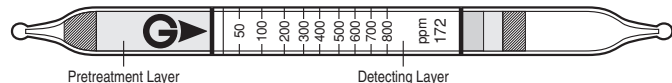
1. When breaking the tube ends, keep away from eyes.
2. Do not touch the broken glass tubes, piece and reagent with bare hand(s).
3. The sampling time represents the time necessary to draw the air sample through the tube. The tube must be positioned in the desired sampling area for the entire sampling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

### ⚠ NOTES : For maintaining performance and reliability to the test result

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 under the temperature range of 0 - 40°C (32 - 104 °F).
3. Use this tube under the relative humidity range of 0 - 90%.
4. This tube may be interfered by the coexisting gases. Please refer to the "INTERFERENCES".
5. The reagent of this tube may change colour to pale blue when measure in low temperature or with 1/2 pump strokes, but it is not affect indication accuracy.
6. 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 Ethylene for the industrial areas and environmental atmospheric condition.

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



Measuring Range	25 - 800 ppm	800 - 1680 ppm
Number of Pump Strokes	1	1/2
Correction Factor	1	2.1
Sampling Time	3 minutes per pump stroke	1.5 minutes
Detecting Limit	5 ppm ( n = 1 )	
Colour Change	Pale yellow → Blue	
Reaction Principle	$\text{CH}_2 : \text{CH}_2 + \text{PdSO}_4 + (\text{NH}_4)_2\text{MoO}_4 \rightarrow \text{molybdenum blue}$	

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

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

## CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE


**Temperature :** Correct for temperature by the table below:

Temperature °C ( °F)	0(32)	10(50)	20(68)	30(86)	40(104)
Correction factor	0.9	0.95	1.0	1.0	1.0

**Humidity :** Humidity correction is not 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 leak tight check of the pump insert a fresh sealed detector tube into pump.
2. Break tips off a fresh detector tube in the tube tip breaker of 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 guide marks on pump body and handle.
5. Pull the handle all the way out until it locks on 1 pump stroke (100mL). Wait 3 minutes and confirm the completion of the sampling.
6. For higher than 800 ppm measurement, prepare fresh tube and take 1/2 pump strokes.
7. Read concentration at the interface of the stained-to-unstained reagent.
8. If correction is needed, multiply the correction factors of pressure.

## INTERFERENCES :

Substance	Concentration	Interference	Changes colour by itself to
Ammonia, Hydrogen cyanide		+	White
Carbon monoxide, Hydrogen		+	Blue for whole layer
Hydrogen chloride		+	Pink
Hydrogen sulphide		+	Black
Butadiene		+	White
Butane, Pentane		+	Blue for whole layer
Butylene, Propylene	≥ 1/4	+	Blue

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 (2008): 200ppm

Explosive range : 2.7 - 36 %

## APPLICATION FOR OTHER SUBSTANCES :

Substance	Correction	No. of pump strokes	Measuring range
Acetylene	Factor : 1.3	1	32.5 - 1040 ppm

## 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. A correction factor is figure which is multiplied by the concentration interpreted from the color starting on the detector tube. The correction may also be presented as a correction factor/chart measuring ranges as a reference. Moreover, this factor may vary slightly between production batches. For a more precise factor please contact your Gastec distributor.

## DISPOSAL INSTRUCTION :

Reagent of the tube does not use toxic substances. When dispose of 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.

Manufacturer : Gastec Corporation  
 8-8-6 Fukayanaka, Ayase-City, 252-1195, Japan

<http://www.gastec.co.jp/>

Telephone +81-467-79-3910 Facsimile +81-467-79-3979

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