

# GASTEC Instructions for No.171 Acetylene 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 or use of a non-Gastec detector tube with a Gastec pump or use of a Gastec detector tube with a non-Gastec pump may result in property damage, serious bodily injury, and death; voids all warranties; and voids all performance and data accuracy guaranties.

### ⚠ 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 sample.

### △ NOTES : For maintaining performance and reliability of the test result

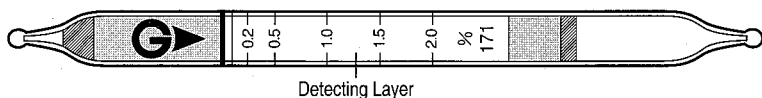
1. Use Gastec Gas Sampling Pump together with Gastec Detector Tubes only for the purposes specified in the instruction manual of the detector tube.
2. Use this tube within the temperature range of 0 - 40°C (32 - 104°F).
3. Use this tube within the relative humidity range of 0 - 90%.
4. This tube may be interfered by the coexisting gases. Please refer to the "INTERFERENCES".
5. 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 Acetylene in air or 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	0.05 - 0.1 %	0.1 - 2.0 %	2.0 - 4.0 %
Number of Pump Strokes	2	1	1/2
Correction Factor	1/2	1	2
Sampling Time	2 minutes	1 minute	30 sec.
Detecting Limit	0.02 % (n=2)		
Color Change	White → Brown		
Reaction Principle	Acetylene reduces iodine pentoxide to liberate iodine, which produces a brown in color.		

**Coefficient of Variation : 15%(for 0.1 to 0.5 %), 10%(for 0.5 to 2 %)**

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

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

## CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE :

**Temperature :** To correct for temperature multiply the corrections as below :

Temperature °C (°F)	0(32)	10(50)	20(68)	30(86)	40(104)
Correction Factor	0.8	0.9	1.0	1.05	1.2

**Humidity :** Humidity correction is not required for relative humidity range of 0 - 90 %.

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

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

## MEASUREMENT PROCEDURE :

1. For leak tight check of the pump insert a fresh sealed detector tube into pump. Follow instructions provided with the pump operating manual.
2. Break tips off a fresh detector tube in the tube tip breaker of the pump.
3. Insert the tube securely into pump inlet with arrow (G) 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 handle all the way out until it locks on 1 pump stroke (100ml). Wait 1 minute.
6. For less than 0.1% measurement, repeat the above sampling procedure one more time. If the discoloration exceeds 2% by 2 pump strokes, prepare fresh tube then take 1/2 pump stroke.
7. Read concentration at the interface of the stained-to-unstained reagent.
8. If correction is required, multiply the correction factors of sampling strokes and pressure.

## INTERFERENCES :

Substance	Concentration	Interference	Change color by itself
Carbon Monoxide	0.1 % or higher	Plus error	Produce brown stain
Ethylene	0.5 % or higher	Plus error	Produce brown stain
More than C <sub>2</sub> HCs		Plus error	Produce brown stain

## APPLICATION FOR OTHER GASES :

Tube 171 can also be used for other substances as below :

Substance	Correction Factor	Pump Strokes	Measuring Range
Benzene	0.3	4	0.03 - 0.6%
Ethylene	1.0	1	0.1 - 2%
1,1,1-Trichloroethane	0.6	1	0.06 - 1.2%

## 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. Therefore, please make use of the correction factor/chart measuring ranges as a reference. For more precise factor please contact your Gastec distributor.

## DANGEROUS AND HAZARDOUS PROPERTIES :

Explosive range : 2.5 - 81%

## DISPOSAL INSTRUCTION :

Reagents of the tube use toxic selene. On disposing the tube regardless of 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.