

# GASTEC Instructions for No.1LKC Carbon Monoxide 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 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 sampling.

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

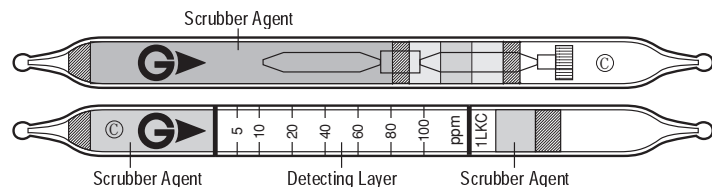
1. Use Gastec Gas Sampling Pump together with Gastec Detector Tubes only for the purposes specified in the instruction manual of the detector tube.
2. Use this tube within the temperature range of 0 - 40°C (32 - 104°F).
3. Use this tube within the relative humidity range of 0 - 90%.
4. This tube may be interfered with by the coexisting gases. Please refer to the "INTERFERENCES".
5. This tube may produce double layered colour stain. When pale green stain is found, read concentration at the end of pale green layer. When there is no pale green layer found, read concentration at the end of pale brown stain.
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 Carbon monoxide in hydrogen gas or hydrocarbons.

## SPECIFICATION :

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



Measuring Range	5 - 100 ppm
Number of Pump Strokes	3
Correction Factor	1
Sampling Time	2 minutes per pump stroke
Detecting Limit	2 ppm (n=3)
Colour Change	White → Pale brown / pale green(may produce dual layer)
Reaction principle	$5CO + I_2O_5 + H_2SO_7 \rightarrow I_2$

**Coefficient of Variation : 5% (for 5 to 100 ppm)**

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

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

## CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE :

- Temperature :** No correction is required.  
**Humidity :** No correction is 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 checking 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 into the 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 the pump body and handle.
5. Pull the handle all the way out until it locks on one pump stroke (100 mL). Wait two minutes and confirm the completion of the sampling. Repeat the above sampling procedure two more times.
6. Read concentration at the interface of the stained-to-unstained reagent. This tube may produce double layered colour stain. When pale green stain is found, read concentration at the end of pale green layer. When there is no pale green layer found, read concentration at the end of pale brown stain.
7. If necessary, multiply the correction factors of atmospheric pressure.

## INTERFERENCES :

Substance	Concentration	Interference	Interference gas only
Hydrogen	< 10 %	- 15 %	No discolouration
Paraffinic hydrocarbons C <sub>6</sub> or less (RH 0 %)	≤ 15 %	No	Pale brown when higher than 15%
Ethylene (RH 0 %)	≤ 2 %	No	Pale brown when higher than 3%
Propylene (RH 0 %)	≤ 15 %	No	Pale brown when higher than 15%
Acetylene (RH 0 %)	≤ 200 ppm	No	Pale brown when higher than 250ppm
Carbon dioxide, Nitrogen oxides		No	No discolouration
Hydrogen sulphide		No	No discolouration

When humidity is high, Paraffinic hydrocarbons (C<sub>6</sub> or less), Ethylene, Propylene, or Acetylene may cause interference even if the concentration is lower than the above values.

The table of Carbon dioxide, Nitrogen dioxide, and Hydrogen sulphide 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 Gastec representatives.

## DANGEROUS AND HAZARDOUS PROPERTIES :

Threshold Limit Value - Time Weighted Average by ACGIH (2014) : 25 ppm  
 Explosive range : 12.5 - 74%

## DISPOSAL INSTRUCTION :

Reagent of the pretreatment tube uses a small amount of hexavalent chromium. When disposing the tube regardless of used or unused, follow the rules and regulations of the local government.  
 Reagent of the detector tube uses a small amount of hexavalent chromium and selenium. When disposing 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.

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