

GASTEC Instructions for No.1L Carbon Monoxide Low Range Detector Tube

FOR SAFE OPERATION :

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

⚠ 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).

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

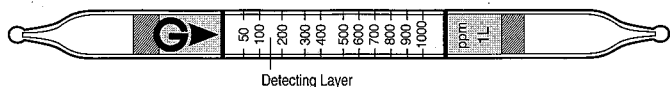
1. Use Gastec Gas Sampling Pump together with Gastec Detector Tubes only for the purposes specified in the instruction manual of the detector tube.
2. Use this tube within the temperature range of 0 - 40°C (32 - 104°F).
3. Use this tube within the relative humidity range of 0 - 90%.
4. This tube may be interfered by the coexisting gases.
Please refer to the "INTERFERENCES".
5. Shelf life and storage conditions of the tube are marked on the label of the box of tube.

APPLICATION OF THE TUBE :

Use of this tube for the detection of Carbon Monoxide 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	2.5 - 25 ppm	25 - 1000 ppm	1000 - 2000 ppm
Number of Pump Strokes	2 - 10	1	1/2
Correction Factor	1/2 - 1/10	1	2
Sampling Time	1 minute per pump stroke		
Detecting Limit	1 ppm (n = 10)		
Color Change	Yellow → Blackish Brown		
Reaction Principle	$\text{CO} + \text{Na}_3\text{Pd}(\text{SO}_3)_2 \rightarrow \text{Pd} + \text{CO}_2 + \text{SO}_2 + \text{Na}_2\text{SO}_4$		

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

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

CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE :

Temperature : Temperature correction is not required.

Humidity : Humidity correction is not required.

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

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

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 pump body and handle.
5. Pull the handle all the way out until it locks on 1 pump stroke (100ml). Wait 1 minute and confirm the completion of the sampling.
6. For lower than 25 ppm measurement, repeat the above sampling procedure 1 - 9 more times until the stain attained to the first calibration mark.
For higher than 1000 ppm measurement, prepare fresh tube, then pull 1/2 pump stroke.
7. Read concentration at the interface of the stained-to-unstained reagent.
8. If atmospheric correction is needed, refer to the "Corrections for Temperature, and Pressure".

INTERFERENCES :

Substance	Concentration	Interference	Change color by itself
Acetylene	1/50 times or higher	Plus error	Discolors blackish brown
Ethylene	2000 ppm or over	No error	Discolors whole layer to black
Hydrogen	5000 ppm or higher	Plus error	1% H_2 gives black stain
Sulfur dioxide	1/10 times or higher	Plus error	Discolors blackish brown
Nitrogen dioxide	40 ppm or higher	Plus error	60 ppm NO_2 gives reddish stain
Carbon disulfide	1/50 times or higher	Plus error	Discolors blackish brown
Halogens	1/5 times or higher	Plus error	" "
Mercaptans	1/5 times or higher	Plus error	" "
Hydrogen sulfide	1/5 times or higher	Plus error	" "

DANGEROUS AND HAZARDOUS PROPERTIES :

Threshold Limit Value-Time Weighted Average by ACGIH (1997) : 25 ppm

DISPOSAL INSTRUCTION :

Reagent of the tube does not use toxic substances. On disposing the tube regardless of whether used or unused, follow the rules and regulations of the local government.

WARANTY :

If you have any questions regarding gas detection and quality of the tubes, please feel free to contact your Gastec representatives.