

GASTEC No.104 Instructions for Butane Detector Tube

FOR SAFE OPERATION :

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

⚠ WARNING: Use only Gastec detector tubes in a Gastec Pump. Do not interchange or use non-Gastec parts or components in Gastec's detector tube and pump system.

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.

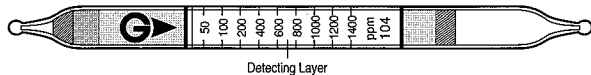
△ NOTES : For maintaining performance and reliability to the test result

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 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".
6. Shelf life and storage condition of the tube is marked on the label of the box of tube.

APPLICATION OF THE TUBE :

Use this tube for the detection of Butane 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	25 - 1400 ppm
Number of Pump Stroke	1
Correction Factor	1
Sampling Time	2 minutes per pump stroke
Detecting Limit	5 ppm
Color Change	Orange → Dark Green
Reaction Formula	Butane reduces dichromic acid to form chromic sulfate, which is dark green in color. $C_4H_{10} + K_2Cr_2O_7 + H_2SO_4 \rightarrow Cr_2(SO_4)_3$

**** 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

Calibration of the Gastec detector Tube No.104 is based on a tube temperature of 20°C (68°F) and not the temperature of the gas being sampled, approximately 50% relative humidity and normal atmospheric pressure.

Temperature : Temperature correction is not required.

Humidity : Humidity correction is required for relative humidity range of 0 - 90%.

Pressure : Pressure Correction

To correct for pressure, multiply the tube reading by

$$\frac{\text{Tube Reading (mg/m}^3\text{)} \times 1013 \text{ (hPa)}}{\text{Atmospheric Pressure (hPa)}}$$

Atmospheric Pressure (hPa)

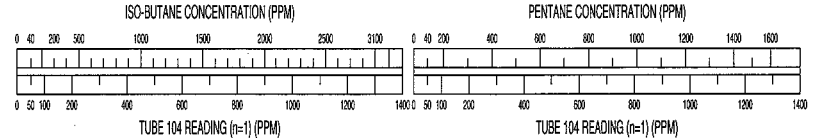
MEASUREMENT PROCEDURE :

1. For leak tight check of the pump insert a fresh sealed detector tube into pump. Follow instructions provided with the pump operation manual.
2. Break tips off a fresh detector tube in the tube tip breaker of the pump.
3. Connect both tube with rubber tubing supplied in the box of tubes.
4. Insert the tube securely into pump inlet with arrow on the tube pointing toward pump.
5. Make certain pump handle is all the way in. Align guide marks on pump body and handle.
6. Pull handle all the way out until it locks on 1 pump stroke (100ml). Wait 2 minutes. Read concentration at the interface of the stained - to - unstained reagent.

INTERFERENCES :

Substance	Concentration	Interference	Change color by itself
Methane, Ethane and Ethylene		No effect	
Propylene	Up to 0.2%	No effect	Produce entire reagent to dark brown
Acetylene	Up to 3%	No effect	"
Ester, Ketones, Alcohols & Ethers	Up to 2,000ppm	No effect	Produce similar stain

APPLICATION FOR OTHER SUBSTANCES



CORRECTION FACTOR :

Detector tubes are primarily designed to measure specific gases. But it 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 chart on tube if the correction relationship is nonlinear. Therefore, please make use of the 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.

DANGEROUS AND HAZARDOUS PROPERTIES :

Threshold Limit Value-Time Weighted Average by ACGIH (1998) : 800 ppm

DISPOSAL INSTRUCTION :

Reagent of the tube use chromic acid. 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.

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