

GASTEC Instructions for No.121S Benzene in Aromatic Hydrocarbons 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, 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

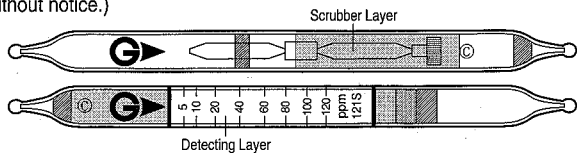
1. Use Gastec Gas Sampling Pump together with Gastec Detector Tubes only for the purposes specified in the instruction manual of the detector tube.
2. Use this tube under the temperature range of 0 - 40°C (32 - 104°F).
3. Use this tube under the relative humidity range of 0 - 90%.
4. This tube may be interfered by the coexisting gases. Please refer to the "INTERFERENCES".
5. 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 Benzene 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 - 10 ppm | 5 - 120 ppm | 120 - 312 ppm |
|------------------------|--|-------------|---------------|
| Number of Pump Strokes | 4 | 2 | 1 |
| Correction Factor | 2.5 | 1 | 2.3 |
| Sampling Time | 2 minutes per pump stroke | | |
| Detecting Limit | 0.5 ppm (n = 4) | | |
| Color Change | White → Dark green | | |
| Reaction Principle | Benzene reduces iodine pentoxide to liberate iodine, which produces a dark green in color $C_6H_6 + I_2O_5 + H_2S_2O_7 \rightarrow I_2$ | | |

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

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

CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE

Calibration of the Gastec Tube No.121S 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 for 0 - 40°C (32 - 104°F).

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

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. Follow instructions provided with the pump operation manual.
2. Break tips off a fresh primary tube and analyzer tube in the tube tip breaker of the pump.
3. Connect both tubes with rubber tubing supplied in the box of tubes.
4. Insert the analyzer tube securely into pump inlet with arrow (G) 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. Repeat the above sampling procedure one more time.
7. Read concentration at the interface of the stained-to-unstained reagent.
8. For less than 5 ppm measurement, repeat the above sampling procedure 2 more times. If the discoloration exceeds 120 ppm by 2 pump strokes, prepare fresh tube then take 1 pump stroke.
9. If correction is required, multiply the correction factors of sampling strokes and pressure respectively.

INTERFERENCES :

| Substance | Concentration | Interference | Change color by itself |
|-----------|------------------|--------------|------------------------|
| Hexane | 100 ppm or lower | No effect | No discoloration |
| Toluene | 200 ppm or lower | No effect | No discoloration |
| Xylene | 300 ppm or lower | No effect | No discoloration |

Aromatic hydrocarbons other than benzene are trapped in the brown layer in the pretreatment tube. If the pretreatment reagent is entirely consumed (whole brown layer turns to dark brown), a higher reading will be given.

DANGEROUS AND HAZARDOUS PROPERTIES :

Threshold Limit Value-Time Weighted Average by ACGIH (1998) : 0.5 ppm

Threshold Limit Value-Short Term Exposure Limit by ACGIH (1998) : 2.5 ppm

DISPOSAL INSTRUCTION :

Reagent of the tube uses toxic 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.