

GASTEC Instructions for No.174D 1,3- Butadiene Passive Dosi-Tube

FOR SAFE OPERATION :

Carefully read this manual before use.

⚠ CAUTION : If you do not observe the following precautions, you may suffer injuries or damage the product.

1. When breaking the Passive Dosi-Tube, keep away the tube from eyes.
2. Do not touch any broken glass tubes, pieces or reagent with bare hand(s).
3. Keep tubes out of Direct Sunlight. The sunlight fades the discolouration of the tube.

△NOTES : For maintaining performance and reliability of the test results, observe the following.

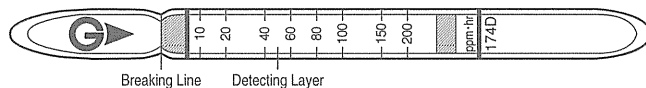
1. Use this tube within the temperature range of 0 - 40°C (32 - 104°F).
2. Use this tube within the relative humidity range of 0 - 90%.
3. This tube may be interfered with by coexisting gases. Please refer to the table "INTERFERENCES" below.
4. Shelf life and storage condition of the Passive Dosi-tube are marked on the label of the box of tube.

APPLICATION OF THE TUBE :

Use this tube for detecting 1,3-Butadiene in the air or in industrial areas and for determining the environmental atmospheric condition.

SPECIFICATION :

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



This tube measures TWA (time-weighted average) gas concentration by utilising natural diffusion of the target gas without a gas sampling pump.

| | |
|--------------------|--|
| Measuring Range | 1.3 – 200 ppm |
| Sampling Hours | 1 – 8 hours |
| Detecting Limit | 1.3 ppm (8 hours) |
| Colour Change | Reddish purple → Pale brown |
| Reaction Principle | $\text{CH}_2\text{CHCH:CH}_2 + \text{MnO}_4 \rightarrow \text{Reaction product}$ |

Coefficient of Variation: 10% (for 10 to 200 ppm-hr)

****Shelf Life:** Please refer to the validity date printed on the box of tubes.

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

CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE :

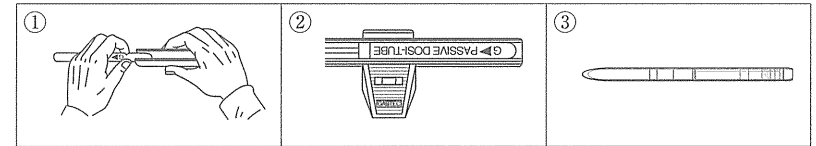
Temperature : Correct for temperature by the table below:

| | | | | | |
|--------------------|-----------|------------|------------|------------|-------------|
| Temperature °C(°F) | 0 (32) | 10 (50) | 20 (68) | 30 (86) | 40 (104) |
| Correction Factor | 1.5 | 1.2 | 1.0 | 0.9 | 0.8 |

Humidity : No correction is required.

Pressure : No correction is required.

MEASUREMENT PROCEDURE :



1. Break a Dosi-tube at the breaking line of the tube by the optional Passive Dosi-Tube Holder No.710.
2. Set the Dosi-tube into the tube holder firmly so the broken tip doesn't appear from the edge of the tube holder. To protect the tube holder at the shirt collar from dropping during operation, it is advisable to support the tube holder with a string through the small hole of the tube holder. Record the measurement starting time on a peel-off numbered label supplied with each box of the tubes and put the label on the Dosi-tube in the tube holder.
3. Clip the tube holder to the clothing (e.g. shirt collar) for personal sampling or place the Dosi-tube in the workplace where the measurement is required. When the sampling is finished, record the measurement finishing time on the label on the Dosi-tube. If necessary, multiply the readings by the correction factors of temperature with the table.
4. Average gas concentration can be obtained from an hour to 8 hours sampling.
Calculate the actual sampling time and the average gas concentration can be obtained by the following formula:

$$\text{Average Concentration} = \frac{\text{Dosi-Tube Reading} * (\text{ppm-hour})}{\text{Actual Sampling Time (hours)}}$$

* This value is after other correction(s), if applied any.

INTERFERENCES :

| Substance | Interference | Changes colour by itself to |
|--------------------------|--------------|-----------------------------|
| Unsaturated hydrocarbons | + | Pale brown |

This table of interference gases primarily expresses the interference of each coexisting gas in the gas concentration range, that is equivalent to the gas concentration. Therefore, the test result may give a positive result from other substances not listed in the table. If more information is needed, please contact us or your Gastec representatives.

APPLICATION FOR OTHER SUBSTANCES :

Tube 174D can also be used for the other substances as below :

| Substance | Correction factor | Sampling time | Measuring range |
|----------------------------|-------------------|---------------|-----------------|
| Ethylene | 1.2 | 1 – 8 hours | 1.5 – 240 ppm |
| Vinyl chloride | 1.2 | 1 – 8 hours | 1.5 – 240 ppm |
| Isoprene | 2.0 | 1 – 8 hours | 2.5 – 400 ppm |
| trans-1,2-Dichloroethylene | 3.0 | 1 – 8 hours | 3.8 – 600 ppm |

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 a more precise factor please contact your Gastec representatives.

DANGEROUS AND HAZARDOUS PROPERTIES :

Threshold Limit Value-Time Weighted Average by ACGIH (2018) : 2 ppm

INSTRUCTIONS ON DISPOSAL :

The reagent of the tube does not use toxic substances. When disposing the tube regardless of whether it has been used or not, follow the rules and regulations of your 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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