# GASTEC No.142L Instructions for Butyl Acetate Detector Tube

**FOR SAFE OPERATION :**
Carefully read this manual and the instruction manual of your Gastec Gas Sampling Pump.

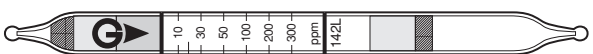
**⚠ WARNING:**
1. Use only Gastec detector tubes in a Gastec Pump.
2. Do not interchange or use non-Gastec parts or components in Gastec's detector tube and pump system.
3. Using non-Gastec parts or components in Gastec's detector tube and pump system or using a non-Gastec detector tube with a Gastec 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 you do not observe the following precautions, you may suffer injuries or damage the product.**
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 of 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" below.
5. Shelf life and storage conditions of the tube are marked on the label of the tube box.

**APPLICATION OF THE TUBE :**
Use this tube for the detection of Butyl Acetate in air or the industrial areas and determining the environmental atmospheric condition.

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



Detecting Layer

| | |
|---|---|
| Measuring Range | 10 - 300 ppm |
| Number of Pump Strokes | 2 |
| Correction Factor | 1 |
| Sampling Time | 2 minutes per pump stroke |
| Detecting Limit | 2 ppm ( n = 2 ) |
| Colour Change | Yellow → Blackish brown → Pale blue after few minutes |
| Reaction Principle | $CH_3CO_2(CH_2)_3CH_3 + Cr^{6+} + H_2SO_4 \rightarrow Cr^{3+}$ |

**Coefficient of Variation : 15% (for 10 to 100 ppm), 10% (for 100 to 300 ppm)**
**** Shelf Life : Please refer to the Validity Date printed on the tube box.**
**** Store the tubes in dark and cool place.**

**CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE :**
**Temperature :** Correct for temperature with the table below.

| Tube Reading (ppm) | True Concentration (ppm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 0°C (32°F) | 5°C (41°F) | 10°C (50°F) | 15°C (59°F) | 20°C (68°F) | 25°C (77°F) | 30°C (86°F) | 35°C (95°F) | 40°C (104°F) |
| 300 | 1300 | 1020 | 730 | 480 | 300 | 200 | 150 | 120 | 90 |
| 200 | 900 | 600 | 410 | 280 | 200 | 140 | 100 | 80 | 60 |
| 100 | 440 | 300 | 200 | 140 | 100 | 75 | 60 | 50 | 40 |
| 50 | 180 | 120 | 80 | 60 | 50 | 40 | 30 | 25 | 20 |
| 30 | 70 | 56 | 45 | 36 | 30 | 25 | 20 | 15 | 10 |
| 10 | 17 | 14 | 12 | 11 | 10 | 9.5 | 9 | 8 | 6 |

**Humidity :** No correction is required.
**Pressure :** To correct for pressure, use the formula below.

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

**MEASUREMENT PROCEDURE :**
1. For checking the leakage of the pump, insert a freshly sealed detector tube into pump. Follow instructions provided with the pump operating manual.
2. Break tips off a fresh detector tube with the tube tip breaker in the pump.
3. Insert the tube into the pump inlet with arrow G► on the tube pointing toward the pump.
4. Make certain pump handle is all the way in. Align the guide marks on the pump body with the guide marks on the handle.
5. Pull the handle all the way out until it locks on one pump stroke (100 mL). Wait 2 minutes and confirm the completion of the sampling. Repeat the above sampling procedure one more time.
6. Read the concentration level at the interface where the stained reagent meets the unstained reagent.
7. If necessary, multiply the readings by the correction factors of temperature and atmospheric pressure.

**INTERFERENCES :**

| Substance | Interference | Interference gas only |
|---|---|---|
| Alcohols, Esters, Ketones, | + | Dark brown then turns to Pale blue |
| Aromatic HCs | + | Dark brown then turns to Pale blue |

The table of this interference gases 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 our distributors in your territory.

**APPLICATION OF OTHER SUBSTANCES :**

| Substance | Correction Factor | No. of Pump Strokes | Measuring Range |
|---|---|---|---|
| Isobutyl Acrylate | 0.26 | 2 | 2.6 – 78 ppm |
| Butyl Acrylate | 0.7 | 2 | 7 – 210 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 more precise factor please contact your Gastec distributor.

**DANGEROUS AND HAZARDOUS PROPERTIES :**
Threshold Limit Value-Time Weighted Average by ACGIH (2009) : 150 ppm
Threshold Limit Value-Short Term Exposure Limit by ACGIH (2009) : 200 ppm

**DISPOSAL INSTRUCTION :**
Reagent of the 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.

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

Manufacturer : Gastec Corporation
8-8-6 Fukayanaka, Ayase-City, 252-1195, Japan
http://www.gastec.co.jp/
Telephone +81-467-79-3910 Facsimile +81-467-79-3979

IM00142LE2
Printed in Japan
10C1Z