

# GASTEC Instructions for No.131LB Vinyl Chloride Low Range 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.

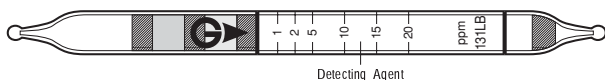
1. When breaking the tube ends, keep away from eyes.
2. Do not touch the broken glass tubes, pieces and reagent with bare hand(s).
3. The sampling time represents the time necessary to draw the air sample through the tube. The tube must be positioned in the desired sampling area for the entire sampling time or until the flow finish indicator indicates the end of the sample.

### ⚠ NOTES : For maintaining performance and reliability of the test 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 5 - 40°C (41 - 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 Vinyl Chloride 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        | 0.25 - 1 ppm   | 1 - 20 ppm | 20 - 70 ppm |
| Number of Pump Strokes | 4  | 2          | 1           |
| Correction Factor      | 1/4  | 1          | 3.5         |
| Sampling Time          | 1.5 minutes per pump stroke  |            |             |
| Detecting Limit        | 0.05 ppm (n = 4)   |            |             |
| Colour Change          | Yellowish → Reddish Brown  |            |             |
| Reaction Principle     | $\text{CH}_2\text{CHCl} + \text{PbO}_2 + \text{H}_2\text{SO}_4 \rightarrow \text{HCl}$<br>$\text{HCl} + \text{Base} \rightarrow \text{Chloride}$ |            |             |

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

**\*\* Store the tubes in the refrigerator to keep at 10°C (50°F) or below.**

## CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE :

Temperature: Correct for temperature by the table below.

| Tube Reading (ppm) | 5°C (41°F) | 10°C (50°F) | 20°C (68°F) | 30°C (86°F) | 40°C (104°F) |
|--------------------|------------|-------------|-------------|-------------|--------------|
| 20                 | 100        | 50          | 20          | 12          | 8            |
| 15                 | 70         | 35          | 15          | 9           | 6            |
| 10                 | 40         | 25          | 10          | 7           | 4            |
| 5                  | 20         | 10          | 5           | 3           | 2            |
| 2                  | 6          | 4           | 2           | 1.5         | 1            |
| 1                  | 3          | 2           | 1           | 0.8         | 0.6          |

Humidity : No correction is required.

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

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

## MEASUREMENT PROCEDURE :

1. For leak tight checking 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. Insert the tube securely into pump inlet with arrow(▶) 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 handle all the way out until it locks on 1 pump stroke (100ml). Wait 1.5 minutes.  
Repeat the above sampling procedure one more time. Read concentration at the interface of the stained-to-unstained reagent.
6. For lower than 1 ppm measurement, repeat the above sampling procedure 2 more times until stain attained to the first calibration mark. For higher than 10 ppm measurement, prepare fresh tube and take 1 pump stroke.
7. Read concentration at the interface of the stained-to-unstained reagent.
8. If correction is needed, multiply the correction factors of temperature, pump strokes and pressure.

## INTERFERENCES :

| Substance                              | Concentration | Interference | Changes colour by itself to |
|--|---------------|--------------|-----------------------------|
| Chlorine, Hydrogen chloride            | $\geq 1/10$   | +            | Purple                      |
| Alcohols, Esters, Ketones              |               | No           | No                          |
| 1,2-Dichloroethylene                   | $\geq 1/10$   | +            | purple                      |
| Trichloroethylene, Tetrachloroethylene | $\geq 1/10$   | +            | purple                      |
| Aromatic Hydrocarbons                  |               | No           | No                          |

## DANGEROUS AND HAZARDOUS PROPERTIES :

Threshold Limit Value-Time Weighted Average by ACGIH (2006) : 1 ppm

**DISPOSAL INSTRUCTION :** Reagent of the tube uses small amount of lead. When dispose of 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

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