

# GASTEC Instructions for No.230 Methyl Iodide 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 may result in property damage, serious bodily injury, and death; voids all warranties.

### ⚠ 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 results.

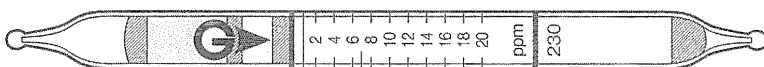
1. Use Gastec Gas Sampling Pump together with Gastec Detector Tubes only for the purposes specified in the instruction manual of the detector tube.
2. Use this tube within the temperature range of 0 - 40°C (32 - 104°F).
3. Use this tube within the relative humidity range of 0 - 90%.
4. This tube may be interfered with by the coexisting gases. Please refer to the "INTERFERENCES".
5. Shelf life and storage condition of the tube is marked on the label of the box of tube.
6. Do not expose the tube to direct sunlight. Sunlight may discolour the reagent pale yellow and inaccurate measuring result may be given.

## APPLICATION OF THE TUBE :

Use this tube for the detection of Methyl Iodide in air or industrial areas and 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        | 0.5 - 1 ppm   | (1) - 20 ppm | 20 - 46 ppm | 46 - 108 ppm |
| Number of Pump Strokes | 4   | 2            | 1           | 1/2          |
| Correction Factor      | 0.5   | 1            | 2.3         | 5.4          |
| Sampling Time          | 1.5 minutes per pump stroke   |              |             | 45 seconds   |
| Detecting Limit        | 0.2 ppm (n = 4)   |              |             |              |
| Colour Change          | White → Gray  |              |             |              |
| Reaction Principle     | Methyl iodide forms intermediate product by reacting with oxidant. The intermediate product reacts with reagent to produce gray colour. |              |             |              |

### Coefficient of Variation 5% (for 1 to 20 ppm)

**\*\*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) below.**

## CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE :

**Temperature :** Correct for temperature by the table below:

|                   |               |               |                |                |                |                |                |                |                 |
|-------------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|
| Temperature       | 0°C<br>(32°F) | 5°C<br>(41°F) | 10°C<br>(50°F) | 15°C<br>(59°F) | 20°C<br>(68°F) | 25°C<br>(77°F) | 30°C<br>(86°F) | 35°C<br>(95°F) | 40°C<br>(104°F) |
| Correction factor | 1.40          | 1.18          | 1.10           | 1.09           | 1.00           | 1.04           | 1.14           | 1.21           | 1.24            |

**Humidity :** No correction is required between 0 - 90% R.H.

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

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

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

## MEASUREMENT PROCEDURE :

1. For leak checking of the pump insert a fresh sealed detector tube into pump. Follow instructions provided with the pump operating manual.
2. Break tips off a fresh tube by bending each tube end in the tube tip breaker of the pump.
3. Insert the tube securely into the 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 and confirm the completion of the sampling. Repeat the above sampling procedure one more time.
6. For lower than 1 ppm measurement, repeat the above sampling procedure 2 more times until the stain attained to the first calibration mark. For higher than 20 ppm measurement, prepare fresh tube and take 1/2 or 1 pump stroke.
7. Read concentration at the interface of the stained-to-unstained reagent.
8. If correction is needed, multiply the correction factor of temperature, pump stroke, and pressure.

**INTERFERENCES :**

| Substance        | Concentration | Interference   | Changes colour by itself to                    |
|------------------|---------------|----------------|--|
| Chlorine         | ≧ 1/l         | + (Two layers) | Brown<br>(turns pale blue after a few minutes) |
| Nitrogen dioxide | ≧ 1/l         | - (Two layers) | Pink   |
| Methyl bromide   | ≧ 30 ppm      | No             | No discolouration                              |
| Dichloromethane  | ≧ 50 ppm      | No             | No discolouration                              |
| Carbon dioxide   | ≧ 1%          | No             | No discolouration                              |

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.

**DANGEROUS AND HAZARDOUS PROPERTIES :**

Threshold Limit Value-Time Weighted Average (TLV-TWA) by ACGIH (2019) : 2 ppm

**DISPOSAL INSTRUCTION :**

Reagent of the tube does not use toxic substances. 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.

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