

# GASTEC Instructions for No.136H Methyl Bromide High 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 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, 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

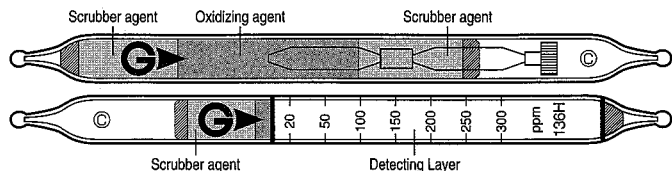
1. Use Gastec Gas Sampling Pump together with Gastec Detector Tubes only for the purposes specified in the instruction manual of the detector tube.
2. Use this tube under the temperature range of 0 - 40°C (32 - 104°F).
3. Use this tube under the relative humidity range of 0 - 90%. Although this tube can be used in the humidity range of 0 - 90%, for more detailed tube reading to correct by absolute humidity to obtain true concentration.
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.
6. If the tubes are exposed under the sunlight for 1 hour or longer, the reagent of the tube will be deteriorated to turn to white and cannot use the tube for measurement of the gas.

## APPLICATION OF THE TUBE :

Use this tube for the detection of Methyl Bromide 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	10 - 20 ppm	20 - 300 ppm	300 - 600 ppm
Number of Pump Stroke	2	1	1/2
Correction Factor	1/2	1	2
Sampling Time	2 minutes per pump stroke		
Detecting Limit	4 ppm (n = 2)		
Color Change	White → Yellow		
Reaction Principle	Methyl bromide is oxidized by nascent oxygen to liberate bromine. It reacts with o-tolidine to produce yellow stain.		

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

**\*\* Store the tube in the dark and cool place.**

## CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE:

Temperature : Temperature correction is not required.

Humidity : Humidity correction is not 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 check 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 detector 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 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 the handle all the way out until it locks on 1 pump stroke (100ml). Wait 2 minutes.
7. For lower than 20 ppm measurement, repeat the above sampling procedure one more time. For higher than 300 ppm measurement, prepare fresh tube and take 1/2 pump stroke.
8. Read concentration at the interface of the stained-to-unstained reagent.
9. If atmospheric correction is needed, refer to the "Corrections for Temperature, and Pressure".

## INTERFERENCES :

Substance	Concentration	interference	Change color by itself
Cl <sub>2</sub> , Br <sub>2</sub> , NO <sub>x</sub>		Plus error	Discolors to yellow
Saturated halogenated HCs		Plus error	Discolors to yellow

Carbon tetrachloride and unsaturated halogenated hydrocarbons can be removed in the scrubber agent.

## APPLICATION FOR OTHER GASES :

Tube 136H can also be used for other substances as below :

Substance	Concentration Factor	Pump Strokes	Measuring Range
1,2-Dibromoethane	0.7	1	14-210ppm

## 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 measuring ranges as a reference. For a more precise factor please contact your Gastec representative.

## DANGEROUS AND HAZARDOUS PROPERTIES :

Threshold Limit Value-Time Weighted Average by ACGIH (2000) : 1 ppm (7-8hours)

## DISPOSAL INSTRUCTION :

Reagent of the tube uses Chromic acid as toxic substances. On disposing the tube regardless of whether 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  
6431 Fukaya, Ayase-City, 252-1103, Japan

IM00136HE1  
Printed in Japan  
01D1Z