

GASTEC No.77 Instructions for tert-Butyl Mercaptan & Dimethyl Sulphide 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.

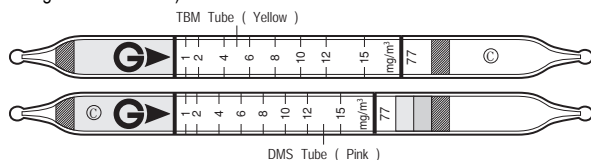
1. When breaking the tube ends, keep away from eyes.
2. Do not touch the broken glass tubes, broken pieces and reagent with bare hand(s).
3. The sampling time represents the time necessary to draw the air sample through the tube. The tube must be positioned in the desired sampling area for the entire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

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

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 - 80%.
4. This tube may be interfered with by the coexisting gases. Please refer to the table "INTERFERENCES" below.
5. Do not expose the tube to direct sunlight. If the tube is exposed to direct sunlight for more than one hour, the reagent stains white for whole layer and lose its performance.
6. In case a sampling bag is used to collect the sample gas, conduct the gas sampling as quickly as possible not so as to be interfered by the other contaminants.
7. The shelf life and storage condition of the tube are marked on the label of the tube box.

APPLICATION OF THE TUBE : Use this tube for detecting tert-Butyl Mercaptan and Dimethyl Sulphide 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.)



Detector Tube	TBM Tube	DMS Tube
Measuring Range	1 - 15 mg/m ³	1 - 15 mg/m ³
Number of Pump Stroke	1	1
Stroke Correction Factor	1	1
Sampling Time	2 minutes per pump stroke	
Detecting Limit	0.2 mg/m ³ (n = 1)	0.2 mg/m ³ (n = 1)
Colour Change	Yellow → Pink	Pink → Pale Yellow

Reaction Principle	TBM: (CH ₃) ₃ CSH + HgCl ₂ → (CH ₃) ₃ CSHgCl + HCl HCl + Base → Chloride DMS: (CH ₃) ₂ S + KMnO ₄ → Reaction product
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Coefficient of Variation: 10% (for 1 to 5 mg/m³), 5% (for 5 to 15 mg/m³)

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

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

CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE :

Temperature : TBM : Correct for the temperature with the table below.

DMS : No correction is required.

Temperature °C (°F)	0 (32)	5 (41)	10 (50)	15 (59)	20 (68)	25 (77)	30 (86)	35 (95)	40 (104)
Correction Factor	1.2	1.15	1.1	1.05	1.0	0.95	0.9	0.85	0.8

Humidity : No correction is required.

Pressure : To correct for pressure, use the formula below:

$$\frac{\text{Tube Reading (mg/m}^3\text{)} \times 1013 \text{ (hPa)}}{\text{Atmospheric Pressure (hPa)}}$$

MEASUREMENT PROCEDURE :

1. For checking the leakage of the pump, insert a freshly sealed detector tube into the pump. Follow the instructions provided with the pump operation manual.
2. In case a sampling bag is used to collect sample gas, conduct the gas measurement as quickly as possible not so as to be interfered by the other contaminants.
3. Break tips off a fresh detector tubes (TBM & DMS) using the tube tip breaker of the pump.
4. Connect the tubes at Ⓞ marked ends with rubber tubing. Place the TBM tube prior to DMS tube.
5. Insert the DMS tube into the pump inlet with arrow **G** on the tube pointing toward the pump.
6. Make certain the pump handle is all the way in. Align the guide marks on the pump body with the guide marks on the handle.
7. Pull the handle all the way out until it locks at one pump stroke (100 mL). Wait two minutes and confirm the completion of sampling
8. Read the concentration level at the interface where the stained reagent meets the unstained reagent.
9. If necessary, multiply the readings by the correction factors of the pump strokes, temperature and atmospheric pressure.

INTERFERENCES :

TBM Tube

Substance	Interference	Interference gas only
Mercaptans	+	Pink
Hydrogen Sulphide	+	Pink

DMS Tube

Substance	Interference	Interference gas only
Olefins	+	Pale yellow
Tetrahydrothiophene	+	Pale yellow

Hydrogen Sulphide and Mercaptans do not give any effect on tube reading of DMS until the primary tube (TBM) becomes wholly discoloured.

This table of interference gases primarily expresses the interference of each coexisting gas in the concentration range, that is equivalent to the gas concentration. Therefore, the test result may show positive results due to other substances not listed in the table. If more information is needed, please contact us or our distributors in your territory.

INSTRUCTIONS ON DISPOSAL :

The reagent of the TBM tube uses a small amount of inorganic mercury. The reagent of the DMS 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 the quality of the tubes, please feel free to contact your Gastec representatives..

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

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