

# 70L

**GASTEC**  
**TOTAL MERCAPTANS LOW RANGE TUBE**

The Gastec Detector Tube No. 70L provides a rapid, fully quantitative analysis of the concentration of TOTAL MERCAPTANS in air with an accuracy tolerance of  $\pm 25\%$  utilizing the Gastec Multi-Stroke Gas Sampling Pump.

**PERFORMANCE:**

Calibration Scale	0.5—4 ppm (based on 1 pump stroke)			
Measuring Range	0.1—0.5 ppm	0.2—0.5 ppm	0.5—4 ppm	4—8 ppm
Number of Pump Strokes	4	2	1	1/2
Correction Factor	0.2	0.4	1	2
Detecting Limit*	0.05 ppm	—	—	—
Sampling Time	1.5 minutes per pump stroke			
Color Change	Yellow—Red			

\*Minimum detectable concentration

**SHELF LIFE:**

Please refer to the term of validity of a label of a Detector Tube Box.

**MEASUREMENT PROCEDURE:**

1. Break tips off a fresh detector tube by bending each tube end in the tube tip breaker of the pump.
2. Insert the tube securely into the rubber inlet of the pump with the arrow on the tube pointing toward the pump.
3. Make certain the pump handle is all the way in. Align the guide marks on handle and pump body.
4. Pull the handle all the way out until it locks on 1 pump stroke (100 ml).
5. Read concentration at the interface of the stained-to-unstained reagent.
6. If the stain exceeds the highest calibration mark with one pump stroke, use 1/2 pump stroke (50 ml). Obtain true concentration by doubling the tube reading.
7. For repeated pump strokes, the handle must be turned 1/4 turn in either direction to unlock the pump so the handle can be returned to the starting position.
8. If the discoloration is before the first calibration mark after one pump stroke, repeat one or three more pump strokes. Obtain true concentration by dividing the tube reading by 2.5 or 5 respectively.

**CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE:**

Calibration of the Gastec detector tube No. 70L is based on a tube temperature of 20°C (68°F) and not the temperature of the gas being sampled, approximately 50% relative humidity, and normal atmospheric pressure. No correction is required for relative humidity range of 30—90%. To correct for pressure, multiply the tube reading by

$$\frac{760}{\text{Atmospheric Pressure (mmHg)}}$$
**CALIBRATION AND ACCURACY:**

The Gastec detector tube No. 70L is carefully calibrated as an integral part of the manufacturing process. Calibration and accuracy test are performed using combinations of dynamic permeation tube method and wet chemical colorimetric technique.

**DETECTION PRINCIPLE:**

Total Mercaptans reacts with mercuric chloride to liberate hydrogen chloride which discolors the indicator to red.

**INTERFERENCES:**

Substance	Concentration	Interference	Changes color by itself to
Acid gases		+	Red
Hydrogen sulfide	$\geq 200$ ppm	No	No

Up to 200 ppm of hydrogen sulfide is trapped in the pretreatment (white) layer.

**APPLICATION FOR OTHER MERCAPTANS:**

Substance	Correction	No. of pump strokes	Measuring range
Butyl mercaptan	Factor : 1.6	} 1/2, 1, 2, or 4	0.16 to 12.8 ppm
tert-Butyl mercaptan	Factor : 1.0		0.1 to 8 ppm
Ethyl mercaptan	Factor : 1.0		0.1 to 8 ppm
Methyl mercaptan	Factor : 1.0		0.1 to 8 ppm
Propyl mercaptan	Factor : 1.2		0.12 to 9.6 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. A correction factor is a figure which is multiplied by the concentration interpreted from the color starting on the detector tube. The correction may also be presented as a chart on tube if the correction relationship is nonlinear. Therefore, please make use of the correction factor/chart measuring ranges as a reference. Moreover, this factor may vary slightly between production batches. For a more precise factor please contact your Gastec distributor.

SEE OPERATING INSTRUCTIONS INCLUDED WITH THE GASTEC MULTI-STROKE GAS SAMPLING PUMP.

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