

#180L

**GASTEC**  
**AMINES LOW RANGE DETECTOR TUBE**  
**(Calibrated for methylamine)**

The Gastec Detector Tube No.180L provides a rapid, fully quantitative analysis of the concentration of amines in air with an accuracy tolerance of  $\pm 25\%$  utilizing the Gastec Multi-Stroke Gas Sampling Pump.

**PERFORMANCE:**

Calibration Scale	(0.5) - 10 ppm (based on 1 pump stroke)
Measuring Range	0.25 - 39 ppm
Number of Pump Strokes	1
Correction Factor	See the APPLICATION table
Detecting Limit *	0.1 ppm (1 pump stroke)
Sampling Time	1 minute per pump stroke
Color Change	Pink to Yellow to Pale yellowish orange / Graysh purple

\* 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 the handle and pump body.
4. Pull the handle all the way out until it locks on 1 pump stroke (100 ml). Wait 1 minute until staining stops.
5. Read concentration at the interface of the stained - to - unstained reagent.
6. Obtain true concentration according to the APPLICATION TABLE.

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

Calibration of the Gastec detector tube No. 180L 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.

1. For temperature other 20°C (68°F) tube reading must be corrected according to the Temperature Correction Factor below :

**Temperature Correction Factor No.180L**

2. No correction is required for relative humidity range of 0 - 90%.
3. To correct for pressure, multiply by

Temperature °C (°F)	0 (32)	10 (50)	20 (68)	30 (86)	40 (104)
Correction Factor	1.3	1.15	1.0	0.95	0.9

760

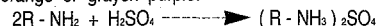
Atmospheric Pressure (mmHg)

**CALIBRATION AND ACCURACY :**

The Gastec detector tube No.180L is carefully calibrated as an integral part of the manufacturing process. Calibration and accuracy test are performed using combinations of dynamic diffusion tube method and gas chromatographic technique.

**DETECTION PRINCIPLE:**

Amines neutralize sulfuric acid to change the color of pH indicator to yellow to pale yellowish orange or graysh purple.

**INTERFERENCES :**

This tube cannot detect specific amines if another amines are coexisted. These give plus error to amine concentration.

**APPLICATION :**

Substance	Correction factor	Measuring range	Changes color to
Ethanolamine	3.9	1.95 to 39 ppm	} Groysch Purple
Diethylenetriamine	1.9	0.95 to 19 ppm	
Hexamethylenediamine	3.1	1.55 to 31 ppm	
Pentamethylenediamine	1.5	0.75 to 15 ppm	
Tetramethylenediamine	1.6	0.8 to 16 ppm	
Butylamine	1.1	0.55 to 11 ppm	
Cyclohexylamine	1.0	0.5 to 10 ppm	
Di-n-butylamine	0.8	0.4 to 8 ppm	
Diethylamine	0.9	0.45 to 9 ppm	
Diethylaminoethanol	1.2	0.6 to 12 ppm	
Diisopropylamine	0.6	0.3 to 6 ppm	
Dimethylamine	0.9	0.45 to 9 ppm	
2-Dimethylaminoethanol	1.3	0.65 to 13 ppm	
Dimethylaminopropylamine	1.2	0.6 to 12 ppm	
N,N-Dimethylethylamine	0.6	0.3 to 6 ppm	} Yellow or Pale orange
Dipropylamine	0.7	0.35 to 7 ppm	
Ethylamine	0.9	0.45 to 9 ppm	
Ethylenediamine	1.8	0.9 to 18 ppm	
N-Ethylmorpholine	0.6	0.3 to 6 ppm	
Hexylamine	1.3	0.65 to 13 ppm	
Isopropylamine	0.9	0.45 to 9 ppm	
Methylamine	1.0	0.5 to 10 ppm	
N-Methylmorpholine	0.6	0.3 to 6 ppm	
Morpholine	1.0	0.5 to 10 ppm	
Propylamine	1.0	0.5 to 10 ppm	
Propyleneimine	0.7	0.35 to 7 ppm	
Triethylamine	0.6	0.3 to 6 ppm	
Trimethylamine	0.5	0.25 to 5 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.

Manufacturer : Gastec Corporation,  
 6431 Fukaya, Ayase-City, 252, JAPAN

97G - 180L - 1  
 Printed in Japan