

GASTEC Instructions for No.180 Amines 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 guaranties.

⚠ 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 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%.
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 Amines for 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	5 - 100 ppm
Number of Pump Strokes	n = 1
Correction Factor	1
Sampling Time	1 minute per pump stroke
Detecting Limit	0.5 ppm (n = 1)
Color Change	Pink → Yellow to Brown
Reaction Principle	Amines neutralize sulfuric acid to discolor the pH indicator to yellow.

Coefficient of Variation : 10% (for 5 to 20 ppm) , 5% (for 20 to 100 ppm)

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

**** Store the tubes in dark and cool place.**

CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE :

Calibration of the Gastec detector Tube No.180 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.

Temperature °C (°F)	0 (32)	10 (50)	20 (68)	30 (86)	40 (104)
Correction Factor	1.8	1.3	1.0	0.8	0.6

Humidity : No correction is required for 0 - 90% relative humidity.

Pressure : $\text{Tube Reading (ppm)} \times 1013 \text{ (hPa)}$
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 in the tube tip breaker of the pump.
3. Insert the detector tube securely into 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 (100 ml). Wait 1 minute.
6. Read concentration at the interface of the stained-to-unstained reagent.
7. If the correction is needed, multiply the tube reading by the factor.

Substance	Concentration	Interference	Change color by itself
Aniline, Hydrazine, Pyridine		Plus error	Discolor to yellow / brown color
Amidos		No effect	No discoloration
Amines, Ammonia		Plus error	Discolor to yellow / brown color

APPLICATION FOR OTHER SUBSTANCES :

The Tube 180 can also be used to detect the following substances with correction factors.

Substance	Correction	Pump Strokes	Color Change	Detecting Range
Ammonia	0.3	1	Yellow	1.5 ~ 30
Isopropylamine	1.1	1	Salmon Pink	5.5 ~ 110
Ethylamines	1.0	1	Yellow	5 ~ 100
N - Ethyl Morpholine	1.0	1	Yellow	5 ~ 100
Ethylene diamine	2.8	1	Yellow	14 ~ 280
Diisopropylamine	1.0	1	Pale orange	5 ~ 100
Diethylamine	1.1	1	Pale brown	5.5 ~ 100
Diethylethanolamine	1.2	1	Pale brown	6 ~ 120
Cyclohexyl amine	1.4	1	Salmon Pink	7 ~ 140
Di - n - Butylamine	1.0	1	Pale orange	5 ~ 100
Dipropylamine	0.8	1	Yellow	4 ~ 80
Dimethyl aminopropylamine	1.6	1	Grayish Red	8 ~ 160
Dimethylamine	1.1	1	Salmon Pink	5.5 ~ 110
Dimethylethanolamine	1.3	1	Pale Orange to yellow	6.5 ~ 130
N, N - Dimethylethylamine	0.8	1	Yellow	4 ~ 80
Tetramethylenediamine	1.9	1	Purple to yellow	8.5 ~ 170
Triethyl Amine	0.7	1	Yellow	4.5 ~ 90
Trimethylamine	0.7	1	Yellow	3.5 ~ 70
n - Butylamine	1.6	1	Grayish red to red	8 ~ 160
t - Butylamine	1.1	1	Pale brown	5.5 ~ 110
Propylamine	1.2	1	Salmon Pink	6 ~ 120
Propyleneimine	1.1	1	Yellow	5.5 ~ 110
n - Hexylamine	1.8	1	Pale Orange	9 ~ 180
Methylamine	1.0	1	Pale brown to yellow	5 ~ 100
N - Methyl Morpholine	1.0	1	Yellow	5 ~ 100
Monoethanolamine	1.4	3	Yellow	7 ~ 140
Morpholine	1.8	1	Yellow	9 ~ 180
n-Methyl pyrrolidone	2.7	1	Yellow	2.7 ~ 270

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 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.

DISPOSAL INSTRUCTION : Reagent of the tube does not use toxic substance. On disposing 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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