GASTEC No.81 Instructions for Acetic Acid 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.

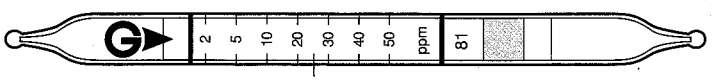
1. When breaking the tube ends, keep away from eyes.
2. Do not touch the broken glass tubes, pieces and reagent with bare hand(s).
3. The sampling time represents the time necessary to draw the air sample through the tube. The tube must be positioned in the desired sampling area for the entire sampling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

△ NOTES : For maintaining performance and reliability of the test results

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℃(32 - 104℉).
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 "INTERFERENCES".

APPLICATION OF THE TUBE : Use of this tube for the detection of Acid gases in air or the industrial areas and environmental atmospheric condition.

SPECIFICATION : (As a result of Gastec's commitment to continued improvement, specifi-cations are subject to change without notice.)



Detecting Layer

Measuring Range	1 - 2 ppm	2 - 50 ppm	50 - 100 ppm
Number of Pump Strokes	2	1	1/2
Correction Factor	1/2	1	2
Sampling Time	1 minute per pump stroke		30 seconds
Detecting Limit	0.2 ppm (n = 2)		
Color Change	Pimk → Yellow		
Reaction Principle	Acetic Acid neutralizes sodium hydroxide to discolor indicator to yellow. $CH_3CO_2H + NaOH \rightarrow CH_3CO_2Na$		

Coefficient of Variance : 10% (for 2 to 10 ppm), 5% (for 10 to 50 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.81 is based on a tube temperature of 20℃(68℉) and not the temperature of the gas being sampled, appoximately 50% relative humidity and normal atmospheric pressure.

Temperature : No Correction is required.

Humidity : Correct for humidity by the table below.

Relative Humidity (%)	0	20	40	50	60	80
Correction Factor	0.5	0.7	0.9	1.0	1.2	1.5

Pressure : To correct for pressure, multiply 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 in the tube tip breaker of the pump.
3. Insert the tube securely into pump inlet with arrow G► 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 the handle all the way out until it locks on 1 pump stroke (100ml). Wait 1 minute and confirm the completion of the sampling.
6. For lower than 2 ppm measurement, repeat the above sampling procedure one more times untill the stain attains to the first calibration mark. For higher than 50 ppm measurement, prepare fresh tube and take 1/2 pump strokes.
7. Read concentration at the interface of the stained-to-unstained reagent.
8. If correction is needed, multipty the correction factors of temperature, pump strokes and pressure.

INTERFERENCES :

Substance	Concentration	Interference	Changes color by itself to
Hydrogen chloride, Hydrogen cyanide, Nitric acid	≧ 3 times	Plus error	Yellow
chloride, Sulfur dioxide, Nitrogen dioxide	≧ 1/2	Plus error	Yellow

The table of this interference gases primarily expresses the interference of each coexisting gas in the gas concentration range, equivalent to the gas concentration. Therefore, the test result may be given positive result by the other substances not listed in the table. For more information is needed, please contact us or our distributors in your territory.

APPLICATION FOR OTHER SUBSTANCES :

Substance	Correction	No. of Pump Strokes	Measuring Range
Acetic anhydride	0.3	1	0.6 - 15 ppm
Acrylic acid	1.0	1	2 - 50 ppm
Formic acid	2.6	1	5.2 - 130 ppm
Isovaleric acid	1.0	1	2 - 50 ppm
Maleic anhydride	0.4	1	0.8 - 20 ppm
Methacrylic acid	0.9	1	1.8 - 45 ppm
Propionic acid	1.5	1	3 - 75 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. Therefore, please make use of the correction factor/chart measuring ranges as a reference. For a more precise factor please contact your Gastec distributor.

DANGEROUS AND HAZARDOUS PROPERTIES :

Threshold Limit Value-Time Weighted Average by ACGIH (2004) : 10 ppm (7-8 hours)
Threshold Limit Value-Short Term Exposure Limit by ACGIH (2004) : 15 ppm (15 min.)
Explosive Range: 4 -19.9 %

DISPOSAL INSTRUCTION : Reagent of the tube does not use any hazardous substances. When 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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