GASTEC No.151L Instructions for Acetone 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. 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 you do not observe the following precautions, you may suffer injuries or damage to the product.

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, observe the following.

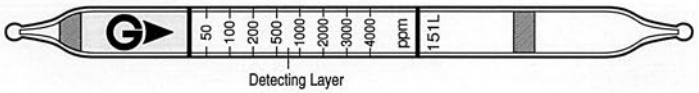
1. Use Gastec Gas Sampling Pump together with Gastec Detector Tubes only for the purposes specified in the instruction manual of the detector tube.
2. Use this tube within the temperature range of 0 - 40℃ (32 - 104℉).
3. Use this tube within the relative humidity range of 0 - 90%.
4. This tube may be interfered with by the coexisting gases. Please refer to the table "INTERFERENCES" below.
5. Shelf life and storage condition of the tube are marked on the label of the box of tube.

APPLICATION OF THE TUBE :

Use this tube for the detection of Acetone in air or the industrial areas and environmental atmospheric condition.

SPECIFICATION :

(Because of Gastec's commitment to continued improvement, specifications are subject to change without notice.)



Measuring Range	50 – 4000 ppm	4000 – 12000 ppm
Number of Pump Strokes	2	1
Correction Factor	1	3
Sampling Time	2 minutes per pump stroke	
Detecting Limit	5 ppm (n=2)	
Colour Change	Yellow → Red	
Reaction Principle	$3CH_3COCH_3 + (NH_2OH)_3H_3PO_4 \rightarrow H_3PO_4$ H_3PO_4 + Base → Phosphate	

Coefficient of Variation : 15%(for 50 to 1000ppm), 10%(for 1000 to 4000ppm)

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

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

CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE :

This tube is calibrated at 20℃ and 1013hPa. The calibration gas is prepared at RH50%. If used in other conditions, please follow below correction guide.

Temperature : Correct for temperature by the table below.

Tube Reading (ppm)	True concentration (ppm)								
	0°C (32°F)	5°C (41°F)	10°C (50°F)	15°C (59°F)	20°C (68°F)	25°C (77°F)	30°C (86°F)	35°C (95°F)	40°C (104°F)
4000	7000	6400	5600	4900	4000	3500	2700	2300	1900
3000	5600	5100	4400	3800	3000	2600	2000	1400	1200
2000	4200	3800	3200	2700	2000	1800	1300	900	700
1000	2700	2500	1900	1500	1000	800	600	450	350
500	1800	1500	1200	800	500	400	300	200	180
200	1000	700	500	300	200	180	150	100	90
100	600	400	300	200	100	80	70	50	40
50	300	200	150	100	50	40	35	25	20

Humidity : No correction is required between 0 - 90% R.H.

Pressure : To correct for pressure, use the formula below

$$\frac{\text{Tube Reading* (ppm)} \times 1013\ (\text{hPa})}{\text{Atmospheric Pressure (hPa)}}$$

* This value is after other correction(s), if any, are applied.

MEASUREMENT PROCEDURE :

1. For checking the leakage of the pump, insert a fresh sealed detector tube into the pump. Follow instructions provided with the pump operating manual.
2. Break tips off a fresh detector tube with the tube tip breaker of the pump.
3. Insert the detector tube into the pump inlet with arrow (G►) on the tube pointing toward pump.
4. Make certain the pump handle is all the way in. Align guide mark on the pump body with the guide mark on the handle.
5. Pull handle all the way out until it locks at one pump stroke (100 mL). Wait two minutes and confirm the completion of sampling. Repeat the above sampling procedure one more time.
6. For measurements higher than 4000 ppm, prepare a fresh tube and perform one pump stroke.

7. Read concentration level at the interface where the stained reagent meets the unstained reagent.
8. If temperature correction is necessary, obtain the true concentration by using the temperature correction table. Afterwards multiply the correction factor of pump stroke if necessary.
9. If pressure correction is necessary, use the pressure correction formula.

INTERFERENCES :

Substance	Concentration	Interference	Changes colour by itself to
Acrolein, Acetaldehyde	≧ 1/10	+	Red
Aromatic hydrocarbons		No	No discolouration
Methyl isobutyl ketone		+	Red
Methyl ethyl ketone		+	Red

This table of interference gases primarily expresses the interference of each coexisting gas in the gas concentration range, that is 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 Gastec representatives.

APPLICATION FOR OTHER SUBSTANCES :

Tube 151L can also be used for other substances as below :

Substance	Correction Factor	No. of Pump Strokes	Measuring Range
Methyl ethyl ketone	0.42	5	21 – 1680 ppm
Propionaldehyde	0.47	2	24 – 1880 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 more precise factor please contact your Gastec representatives.

DANGEROUS AND HAZARDOUS PROPERTIES :

Threshold Limit Value-Time Weighted Average by ACGIH (2021): 250 ppm
Threshold Limit Value –Short Term Exposure Limit by ACGIH (2021): 500 ppm

INSTRUCTIONS ON DISPOSAL :

The reagent of the 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 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
https://www.gastec.co.jp/
Telephone +81-467-79-3910 Facsimile +81-467-79-3979

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