

# GASTEC Instructions for No.151L Acetone 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.

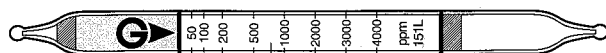
### △ NOTES : For maintaining performance and reliability of the test results.

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°C (32 - 104°F).
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 "INTERFERENCES".
5. Shelf life and storage condition of the tube is 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 :** (As a result of Gastec's commitment to continued improvement, specifications are subject to change without notice.)



Measuring Range	50 - 4000 ppm	400 - 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 )	
Color Change	Yellow → Red	
Reaction Principle	Acetone reacts with hydroxylamine phosphate to produce phosphoric acid which discolors pH indicator to red. $\text{CH}_3\text{COCH}_3 + (\text{NH}_2\text{OH})_3 \cdot \text{H}_3\text{PO}_4 \rightarrow \text{H}_3\text{PO}_4$ $\text{H}_3\text{PO}_4 + \text{Base} \rightarrow \text{Reddish product}$	

**Coefficient of Variation : 15% (for 50 to 500 ppm), 10% (for 500 to 4000 ppm)**

**\*\* 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 :

Calibration of the Gastec detector Tube No.151L 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 :** Correction for temperature by the table upper right :

**Humidity :** No correction is required.

**Pressure :** To correct for pressure, multiply by the tube reading by

$\text{Tube Reading (\%)} \times 1013 \text{ (hPa)}$

Atmospheric Pressure (hPa)

Tube Reading (ppm)	True Concentration (ppm)				
	0°C (32°F)	10°C (50°F)	20°C (68°F)	30°C (86°F)	40°C (104°F)
4000	6800	5200	4000	3200	2100
3000	5400	4000	3000	2200	1300
2000	3900	2850	2000	1250	620
1000	2400	1650	1000	520	250
500	1600	1000	500	290	160
200	580	300	200	120	80
100	260	150	100	70	40
50	130	80	50	35	20

## 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 handle all the way out until it locks on 1 pump stroke (100ml). Wait 2 minutes and confirm the completion of the sampling. Repeat the above sampling procedure one more time.
6. For higher than 4000 ppm measurement, prepare fresh tube and take 1 pump stroke.
7. Read concentration at the interface of the stained-to-unstained reagent.
8. If correction is needed, multiply the correction factors of temperature, pump strokes and pressure.

## INTERFERENCES :

Substance	Concentration	Interference	Changes color by itself to
Acrolein, Acetaldehyde	$\geq 1/10$	Plus error	Red
Aromatic hydrocarbons		No effect	No discoloration
Methyl isobutyl ketone		Plus error	Red
Methyl ethyl ketone		Plus error	Red

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 :

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 primary 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 distributor.

## DANGEROUS AND HAZARDOUS PROPERTIES :

Threshold Limit Value-Time Weighted Average by ACGIH (2004) : 500 ppm  
 Threshold Limit Value-Short Term Exposure Limit by ACGIH (2004) : 750 ppm  
 Explosive Range : 2.1 - 13 %

## DISPOSAL INSTRUCTION :

Reagents of the tube uses toxic Cromic acid. 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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