

# GASTEC Instructions for No.151 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.

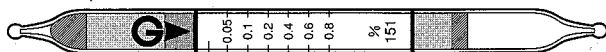
1. When breaking the tube ends, keep away from eyes.
2. Do not touch the broken glass tubes, pieces and reagent with bare hand(s).
3. The sampling time represents the time necessary to draw the air sample through the tube. The tube must be positioned in the desired sampling area for the entire sampling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

### ⚠ NOTES : For maintaining performance and reliability of the test 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 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 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 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	0.05 - 0.8 %	0.8 - 2.0 %
Number of Pump Strokes	2	1
Correction Factor	1	2.5
Sampling Time	2 minutes per pump stroke	
Detecting Limit	0.003 % (n = 2)	
Color Change	Yellowish brown → Greenish brown	
Reaction Principle	Acetone reduces potassium dichromate to form chromic sulfate, which produces a greenish brown color. $CH_3COCH_3 + Cr^{6+} + H_2SO_4 \rightarrow Cr^{3+}$	

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

**\*\* Store the tubes under dark and cool place.**

### CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE :

Calibration of the Gastec detector Tube No.151 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 tube temperature other than 20°, tube reading must be corrected according to the Temperature Correction Table below.

Temperature C(°F)	0°(32°)	10°(50°)	20°(68°)	30°(86°)	40(104°)
<b>Tube Reading</b>					
<b>0.8</b>	--	1.0	0.8	0.7	0.6
<b>0.6</b>	1.0	0.8	0.6	0.5	0.4
<b>0.4</b>	0.75	0.55	0.4	0.3	0.25
<b>0.2</b>	0.45	0.3	0.2	0.16	0.12
<b>0.1</b>	0.25	0.15	0.1	0.08	0.06
<b>0.05</b>	0.15	0.1	0.05	0.04	0.03

2. Humidity correction is not required.

3. Pressure correction To correct for pressure, multiply the tube reading by  

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

### MEASUREMENT PROCEDURE :

1. For leak checking of the pump insert a fresh sealed detector tube into pump. Follow instructions provided with the pump operation manual.
2. Break tips off a fresh detector tube by bending each tube end in the tube tip breaker of the pump.
3. Insert the 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 (100ml). Wait 2 minutes.  
Repeat the above sampling procedure one more time.
6. If the stain exceeded 0.8% mark after 2 pump stroke, prepare fresh tube. Pull 1 pump stroke, then multiply the correction factor.
7. Read concentration at the interface of the stained-to-unstained reagent.
8. If correction is required, multiply the tube reading by temperature, pressure respectively.

### INTERFERENCES :

Substance	Concentration	Interference	Change color by itself
Sulfur dioxide	500 ppm or higher	Plus error	Discolors to green
Hydrogen sulfide	500 ppm or higher	Plus error	Discolors to greenish brown
Alcohols, Esters, Ketones		Plus error	Discolors to greenish brown
Propane	0.2% or higher	Cannot use	Discolors to greenish brown for whole layer
Aromatic HCs.	500 ppm or higher	Plus error	Discolors to greenish brown

### DAINGEROUS AND HAZARDOUS PROPERTIES :

Threshold Limit Value-Time Weighted Average by ACGIH(1999) : 500 ppm

Threshold Limit Value-Short Term Exposure Limit by ACGIH(1999) : 750 ppm

Flammable Range : 2.1-13%

**APPLICATION FOR OTHER GASES :** Tube 151 can be used for other substances as below :

Substance	Correction Factor	Pump Strokes	Measuring range
Cyclohexene	1.0	1	0.05 - 0.8 %

**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 uses toxic substance as chromic acid. 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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