

GASTEC Instructions for No.131L Vinyl Chloride Low Range Detector Tube

FOR SAFE OPERATION :

Read this manual and the instruction manual of your Gastec Gas Sampling pump carefully.

⚠ 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).

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

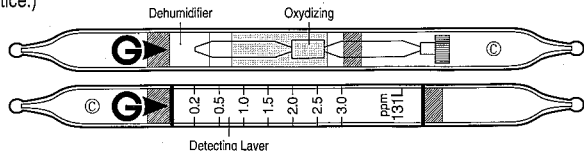
1. Use Gastec Gas Sampling pump together with Gastec Detector Tubes only for the purposes specified in the instruction manual of the detector tube.
2. Use this tube within the temperature range of 0 - 40°C (32 - 104°F).
3. Use this tube within the relative humidity range of 0 - 90%
4. This tube may be interfered by the coexisting gases. Please refer to the "INTERFERENCES".
5. Shelf life and storage conditions of the tube are 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 out white. This does not use the tube for measurement of the gas.

APPLICATION OF THE TUBE :

Use this tube for the detection of Vinyl Chloride 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	0.1 - 0.2 ppm	0.2 - 3.0 ppm	3.0 - 6.6 ppm
Number of Pump Strokes	4	2	2
Correction Factor	1/2	1	2.2
Sampling Time	1.5 minutes per pump stroke		
Detecting Limit	0.02 ppm (n = 4)		
Color Change	Yellow → Reddish Brown		
Reaction Principle	$\text{CH}_2\text{=CHCl} + \text{Cr}^{6+} + \text{H}_2\text{SO}_4 \rightarrow \text{HCl}$ $\text{HCl} + \text{Base} \rightarrow \text{Chlorides}$		

**** 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°C) or below.**

CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE :

Calibration of the Gastec detector Tube No.131L 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) Temperature Correction :

Temperature	°C	0	10	20	30	40
	(°F)	32	50	68	86	104
Correction Factor		1.7	1.3	1.0	0.9	0.8

(2) Humidity Correction : No correction is required for relative humidity range of 0 - 90 %.

(3) Pressure Correction : 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 of a fresh detector tube and analyzer tube in the tube tip breaker of the pump.
3. Connect both tubes with rubber tubing supplied in the box of tubes.
4. Insert the analyzer tube securely into pump inlet with arrow (G) on the tube pointing toward pump.
5. Make certain pump handle is all the way in. Align guide marks on pump body and handle.
6. Pull handle all the way out until it locks on 1 pump stroke (100ml). Wait 1.5 minute.
Repeat the above sampling procedure one more time.
Read concentration at the interface of the stained-to-unstained reagent.
7. If the discoloration is before the first calibration mark (0.2 ppm), repeat the above sampling procedure 2 more times without removing the tube. Obtain true concentration by dividing the tube reading by 2.
8. If the discoloration exceeds 1.5 ppm by 1 pump stroke, stop further pump stroke and obtain true concentration by multiplying the tube reading by 2.2.

INTERFERENCES :

Substance	Concentration	Interference	Change color by itself
Ethylene	200 ppm or higher	Minus error	No discoloration
Tetrachloroethylene	Higher than 1/3 conc.	Plus error	Produce reddish brown
Trichloroethylene	Higher than 1/5 conc.	Plus error	Produce reddish brown
Benzen, Toluene	200 ppm or higher	Minus error	No discoloration

APPLICATION FOR OTHER SUBSTANCES :

Substance	Correction	No. of pump strokes	Measuring range
Allyl chloride	Factor : 16	2	3.2 - 48 ppm
1,1,2,2-Tetrachloroethane	Factor : 10	2	2 - 30 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. 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 range as a reference. Moreover, this factor may vary slightly between production batches. For a more precise factor please contact your Gastec distributor.

DANGEROUS AND HAZARDOUS PROPERTIES:

Threshold Limit Value - Time Weighted Average by ACGIH (1997): 5 ppm.

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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