

# GASTEC Instructions for No.132HA Trichloroethylene High Range 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.

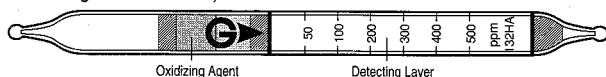
1. When breaking the tube ends, keep away from eyes.
2. Do not touch the broken glass tubes, pieces and reagent with bare hand(s).
3. The sampling time represents the time necessary to draw the air sample through the tube. The tube must be positioned in the desired sampling area for the entire sampling 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 conditions of the tube are marked on the label of the box of tube.

**APPLICATION OF THE TUBE :** Use of this tube for the detection of Trichloroethylene 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.)



	Oxidizing Agent	Detecting Layer	
Measuring Range	20 - 50 ppm	50 - 500 ppm	500 - 1300 ppm
Number of Pump Strokes	2	1	1/2
Correction Factor	0.4	1	2.6
Sampling Time	45 seconds per pump stroke		
Detecting Limit	4 ppm (n = 2)		
Color Change	Yellow → Reddish Purple		
Reaction Formula	Trichloroethylene is decomposed by nascent oxygen by oxidizing agent to liberate hydrogen chloride which discolors indicator to reddish purple. $\text{C}_2\text{Cl}_4 : \text{CHCl} + \text{PbO}_2 + \text{H}_2\text{SO}_4 \rightarrow \text{HCl}$ $\text{HCl} + \text{Basic Compound} \rightarrow \text{Chloride}$		

- \*\* 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 :

1. **Temperature :** Since the tube is affected by the temperature, multiply the correction factor to the tube reading.

Temperature °C (°F)	0 (32)	10 (50)	20 (68)	30 (86)	40 (104)
Correction Factor	1.4	1.15	1.0	0.8	0.65

2. **Humidity :** Humidity correction is not required.
3. **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 checking 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 into the 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 45 seconds
6. For lower than 50 ppm measurement, repeat the above sampling procedure one more time until the stain attained to the first calibration mark.  
For higher than 500 ppm measurement, prepare fresh tube, pull 1/2 full pump stroke.
7. Read concentration at the interface of the stained-to-unstained reagent.
8. If atmospheric correction is required, refer to the "Corrections for Temperature, and Pressure".

## INTERFERENCES :

Substance	Concentration	Interference	Change color by itself
Nitric Oxide, Nitrogen dioxide		No effect	No discoloration
Hydrogen chloride, Chlorine, Bromine		Plus error	Produce reddish purple stain
Acetone	200 ppm or less	No effect	No discoloration
1,1,1-Trichloroethane		Plus error	Produce reddish purple at 3000ppm
Unsaturated Halogenated		Plus error	Produce reddish purple stain
Aromatic hydrocarbons	100 ppm or higher	Minus error	No discoloration

## DANGEROUS AND HAZARDOUS PROPERTIES :

Threshold Limit Value-Time Weighted Average by ACGIH (1998) : 50 ppm (7-8 hours)  
 Threshold limit Value-Time Short Term Exposure Limit by ACGIH (1998) : 100 ppm (15 min)

## DISPOSAL INSTRUCTION :

Reagent of the tubes does not use toxic substance. On disposing the tube regardless of whether 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 tube please feel free to contact your Gastec representatives.