#174 GASTEC

BUTADIENE DETECTOR TUBE

The Gastec Detector Tube No. 174 provides a rapid, fully quantitative analysis of the concentration of BUTADIENE in air with a minimum accuracy of ±25% utilzing the Gastec Multi-Stroke Gas Sampling Pump.

PERFORMANCE :

Calibration Scale	50—800 ppm (based on 1 pump stroke)
Measuring Range	50—800 ppm
Number of Pump Stroke	1 stroke only
Correction Factor	Tube reading×1
Detecting Limit*	50—800 ppm
Sampling Time	3 minutes per pump stroke
Color Change	Pale Yellow—White
Shelf Life	3 years

* Minimum detectable concentration.

MEASUREMENT PROCEDURE :

1. Break tips off a fresh detector tub by bending each tube end in the tube tip breaker of the pump.
2. Insert the tube securely into the pump inlet with the arrow on the tube pointing toward the pump.
3. Make certan the pump handle is all the way in. Align the guide marks on the shaft and housing of the pump.
4. Pull the handle all the way out until it locks on 1 pump stroke (100 ml). Wait until staining stops.
5. Read concentration at the interface of the stained-to-unstained reagent.
6. To unlock the pump, turn the handle 1/4 turn in either direction.

CORRECTION FOR TEMPERATURE, HUMIDITY OR PRESSURE :

Calibration of the Gastec detector tube No. 174 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°C, tbbe reading must be corrected according to the Temperature Correction Table below :

Temperature Correction Table

Tube Reading (ppm)	Correct Concentration (ppm)				
	0°C (32°F)	10°C (50°F)	20°C (68°F)	30°C (86°F)	40°C (104°F)
800	——	——	800	710	660
700	——	850	700	630	600
600	900	700	600	550	520
500	710	560	500	460	430
400	550	450	400	360	340
300	410	340	300	275	250
200	260	220	200	185	175
100	120	110	100	95	85
50	65	55	50	45	40

(2) No humidity correction is required for relative humidity range of 0—100%.

(3) Tube reading is proportional to absolute pressure. Multiply the tube reading by

$$\frac{760}{\text{Atmospheric Pressure (mmHg)}}$$

CALIBRATION AND ACCURACY :

The Gastec detector tube No. 174 is carefully calibrated as an integral part of the manufacturing process. Calibration and accuracy test are performed using combinations of standard reference gases of known concentration and dynamic gas mixing system, and gas chromatographic technipue.

DETECTION PRINCIPLE :

Butadiene reacts with palladium sulfate to form an additive compound, which reacts with ammonium molybdate to produce a white compound. Within a few minutes after sampling, molybdenum blue is produced.

INTERFERENCES :

Interferent	Concentration	Result	Comment
Ammonia			Produces similar stain by itself
Hydrogen			〃
Carbon monoxide			Produces blue stain by itself
Acetylene			〃
Ethylene			〃
Hydrogen sulfide			Produces black stain by itself

DANGEROUS AND HAZARDOUS PROPERTIES :

Threshold Limit Value by American Conference of Governmental Industrial Hygienists (1989): 10 ppm

SEE OPERATING INSTRUCTIONS INCLUDED WITH THE GASTEC MULTI-STROKE GAS SAMPLING PUMP.

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