

BUTADIENE LOW RANGE DETECTOR TUBE

The Gastec Detector Tube No. 174L provides a rapid, fully quantitative analysis of the concentration of BUTADIENE in air with an accuracy tolerance of $\pm 25\%$ utilizing the Gastec Multi-Stroke Gas Sampling Pump.

PERFORMANCE :

Calibration Scale	(5) — 100 ppm (based on 4 pump strokes)	
Measuring Range	2.5 — 5 ppm	5 — 100 ppm
Number of Pump Stroke	8	4
Correction Factor	1/2	1
Detecting Limit*	0.5 ppm	—
Sampling Time	3 minutes per pump stroke	
Color Change	Pale Yellow — White	

*Minimum detectable concentration

SHELF LIFE :

Please refer to the term of validity of a label of a Detector Tube Box.

MEASUREMENT PROCEDURE :

1. Break tips off a fresh detector tube 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 certain the pump handle is all the way in. Align the guide marks on handle and pump body.
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. If the discoloration is before the first calibration mark with 4 pump strokes (400 ml), repeat the above sampling procedure four more times without removing the tube. Obtain true concentration by dividing the tube reading by 2.
7. To unlock the pump, turn the handle 1/4 turn in either direction.

CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE :

Calibration of the Gastec detector tube No. 174L is based on a tube temperature of 20°C (68°) and not the temperature of the gas being sampled, approximately 50% relative humidity and normal atmospheric pressure. No correction is required for tube temperature of 0° — 40°C (32° — 104°F) and for relative humidity range of 0 — 100%. To correct for pressure, multiply tube reading by

760

Atmospheric Pressure (mmHg)

CALIBRATION AND ACCURACY :

The Gastec detector tube No. 174L 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 technique.

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 :

Substance	Concentration	Interference	Changes color by itself to
Butane, Carbon monoxide		+	} Blue (whole layer)
Hydrogen, Pentane		+	
Butylene, Ethylene		+	} Blue
Propylene		+	
Hydrogen sulfide		+	Black
Hydrogen chloride		+	Pink
Acetylene		+	} White
Hydrogen cyanide		+	

Water vapor is trapped in the pretreatment (white) layer.

APPLICATION FOR OTHER GASES :

Substance	Correction	No. of pump strokes	Measuring range
1,3-Pentadiene	Factor : 8.5	4	42.5 to 850 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 a 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.

DANGEROUS AND HAZARDOUS PROPERTIES :

Threshold Limit Value-Time Weighted Average by ACGIH (1996): 10 ppm (7—8 hours).

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

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