#5LC GASTEC
SULFUR DIOXIDE LOW RANGE TUBE
IN THE PRESENCE OF CARBON DIOXIDE

The Gastec Detector Tube No. 5LC provides a rapid, fully quantitative analysis of the concentration of SULFUR DIOXIDE in air with an accuracy tolerance of ±25% at 1, 2 and 5 times TLV and ±35% at 1/2 TLV-TWA utilizing the Gastec Multi-Stroke Gas Sampling Pump.

PERFORMANCE:

Calibration Scale	(0.25)—10 ppm (based on 2 pump strokes)		
Measuring Range	0.1—0.25 ppm	0.25—10 ppm	10—26 ppm
Number of Pump Stroke	4	2	1
Correction Factor	0.4	1	2.5
Detecting Limit	0.02 ppm	——	——
Sampling Time	1.5 minute per pump stroke		
Color Change	Bluish Purple—White		

The 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 rubber inlet of the pump 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 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 1.5 minute until staining stops.
5. Repeat the above sampling procedure one more time and read the concentration at the interface of the stained-to-unstained reagent.
6. If the stain exceeds the highest calibration mark by 2 pump stroke sampling, use 1 stroke sampling (100 ml) in which case the true concentration can be obtained by multiplying the tube reading by 2.5.
7. If the stain does not attain the first calibration mark by 2 pump stroke sampling, repeat 2 more pump strokes and devide the tube reading by 2.5.

CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE:
Calaibration of the Gastec Detector Tube No. 5LC 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 temperature other than 20°C (68°F) tube reading must be corrected according to the Temperature Correction Factor below:

Temperature Correction Factor 5LC

Temperature	0°C (32°F)	10°C (50°F)	20°C (68°F)	30°C (86°F)	40°C (104°F)
Correction Factor	1.3	1.2	1	0.9	0.8

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

(3) To correct for pressure, multiply the tube reading by

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

CALIBRATION AND ACCURACY:
The Gastec detector tube No. 5LC is carefully calibrated as an integral part of the manufacturing process. Calibration and accuracy test are performed using combination of dynamic permeation tube method and wet chemical reaction method.

DETECTION PRINCIPLE:

$$SO_2 + I_2 + H_2O \xrightarrow{\text{starch}} H_2SO_4 + 2HI$$

INTERFERENCES:

Substance	Concentration	Interference	Changes color by itself to
Hydrogen sulfide	≧ 1/10	+	White, unclear demarcation
Nitrogen dioxide		− (Unclear demarcation)	Brown (approx. 1 mm long from the entrance)
Carbon dioxide		No	No
Nitrogen			
Sulfur hexafluoride			

DANGEROUS AND HAZARDOUS PROPERTIES:
Threshold Limit Value—Time Weighted Average by ACGIH (1996) : 2 ppm (7—8 hours)

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

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