

21

GASTEC
CARBONYL SULFIDE DETECTOR TUBE NO. 21

The Gastec Detector Tube No.21 provides a rapid, fully quantitative analysis of CARBONYL SULFIDE in air with an accuracy tolerance of $\pm 25\%$ utilizing the Gastec Multi-Stroke Gas Sampling Pump.

PERFORMANCE :

Calibration Scale	10—100 ppm.(based on 1 pump stroke)		
Measuring Range	:5—10 ppm	10—100 ppm	100—200 ppm
Number of Pump Stroke	2	1	1/2
Correction Factor	1/2	1	2
Detecting Limit*	1 ppm	—	—
Sampling Time	3 minutes per pump stroke		
Color Change	Blue—Yellow		

*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 analyzer tube and primary tube for pretreating sample by bending each tube end in the tube tip breaker of the pump.
2. Connect the ends of the analyzer tube and primary tube, marked with © using the rubber tubing. Insert the analyzer tube securely into the rubber inlet of the pump with the arrow on both tubes 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 or for more accurate measurement of less than 20 ppm, repeat the above sampling procedure one more time without removing the tube. Obtain true concentration by dividing the tube reading by 2. For 2 pump stroke (200 ml), unlock the handle by making 1/4 turn in either direction to return it to the starting position.
7. If the stain exceeds the highest calibration mark (100 ppm), use 1/2 pump stroke (50 ml). Obtain true concentration by multiplying the tube reading by 2.

CORRECTION FOR TEMPERATURE, HUMIDITY AND PRESSURE :

Calibration of the Gastec detector tube No.21 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. No correction is required for tube temperature of 0°—40°C (32°—104°F) and for relative humidity range of 0—100%.
2. Tube reading is proportional to absolute pressure. To correct the tube reading for pressure multiply by

760

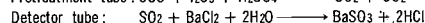
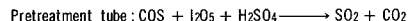
Atmospheric Pressure (mmHg)

CALIBRATION AND ACCURACY :

The Gastec detector tube No.21 is carefully calibrated as an integral part of the manufacturing process. Calibration and accuracy test are performed using combinations of dynamic permeation Tube method and gas chromatographic technique.

DETECTION PRINCIPLE :

Carbonyl sulfide is oxidised by iodine pentoxide and sulfuric acid to generate sulfur dioxide. Sulfur dioxide reacts with barium chloride to liberate hydrogen chloride which discolors pH indicator (BCG) to yellow.

**INTERFERENCES :**

Substance	Concentration	Interference	Changes color by itself to
Carbon disulfide		+	Yellow
Sulfur dioxide		+	
Butane	≧ 5000 ppm	—	No
Propane	≧ 5000 ppm	—	

Up to 500 ppm of hydrogen sulfide is trapped in the white layer in the pretreatment tube.

TUBE MUST BE STORED AT TEMPERATURE 10°C(50°F) BELOW.

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