

GASTEC WATER VAPOR DETECTOR

The Gastec Detector Tube No. 6 provides a rapid, fully quantitative analysis of the concentration of WATER VAPOR in air with a minimum accuracy of $\pm 25\%$ utilizing the Gastec Multi-Stroke Gas Sampling Pump.

PERFORMANCE :

Calibration Scale	1—18 mg/l (based on 1 pump stroke)		
Measuring Range	0.5—1 mg/l	1—18 mg/l	18—32 mg/l
Number of Pump Strokes	2	1	1/2
Correction Factor	2	1	※
Detecting Limit ※ ※	0.1 mg/l	—	—
Sampling Time	1 minute per pump stroke		
Color Change	Yellowish Green—Purple		

※ Refer to Fig. 1 (1/2 pump stroke —50ml)

※ ※ Minimum detectable concentration.

SHELF LIFE :

Please refer to the term of validity on a Tube Box Label.

MEASUREMENT PROCEDURE :

1. Break tips off a fresh detector tube by bedding 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 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 (1 mg/l). repeat the above sampling procedure one more time without removing the tube. Obtain true concentration by dividing the tube reading by 2. For repeated pump strokes, the handle must be turned 1/4 turn in either direction to unlock the pump so the handle can be returned to the starting position.
7. If the stain exceeds the highest calibration mark (18 mg/l) with 1 pump stroke (100 ml), use 1/2 pump stroke (50 ml). Obtain true concentration from the Temperature Correction Chart (Fig. 1).

CORRECTION FOR TEMPERATURE, AND PRESSURE :

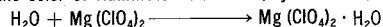
Calibration of the Gastec detector tube No. 6 is based on a tube temperature of 20°C (68°F) and normal atmospheric pressure. Tube temperature must be kept higher than the dew point to avoid condensation of water in the tube, which results in an erroneously low reading. For tube temperature other than 20°C, tube reading must be corrected according to the Temperature Correction Chart (Fig 1 & 2). For 2 pump strokes (200 ml), however, temperature correction is unnecessary. Tube reading is proportional to absolute pressure.

CALIBRATION AND ACCURACY :

The Gastec detector tube No. 6 is carefully calibrated as an integral part of the manufacturing process. Calibration and accuracy test are performed using combinations of vapor pressure and dynamic gas flow techniques, and gravimetric analysis.

DETECTION PRINCIPLE :

Water vapor is absorbed by magnesium perchlorate to produce an alkaline, which changes the color of Hammett indicator (crystal violet).



INTERFERENCES :

Substance	Concentration	Interference	Changes color by itself to
Acrylonitrile	≥ 5000 ppm	+	} No
Alcohols	≥ 2000 ppm	+	
Ammonia	≥ 1000 ppm	+	
Esters	≥ 5000 ppm	+	
Hydrogen chloride	≥ 2000 ppm	+	
Hydrogen cyanide	≥ 500 ppm	+	
Hydrogen sulfide		No	
Ketones	≥ 2000 ppm	+	
Nitrogen dioxide	≥ 500 ppm	+	
Sulfur dioxide	≥ 2000 ppm	+	

TO OBTAIN RELATIVE HUMIDITY, USE TUBE READING-RELATIVE HUMIDITY CONVERSION CHART (FIG. 2).

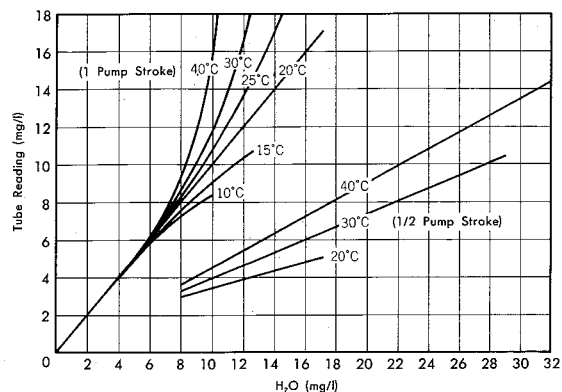


Fig. 1 Temperature Correction Chart
1 and 1/2 pump stroke

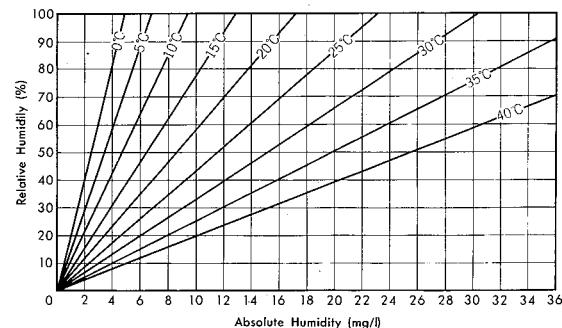


Fig. 2 Relative Humidity vs. Mass of Water Vapor

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