

TIME-WEIGHTED-AVERAGE CARBON MONOXIDE DETECTOR TUBES

PERFORMANCE:

- Measuring Range: 5 to 400 ppm TWA concentration
 (depending on sampling duration)
 5 to 60 ppm (4 to 8 hours duration sampling)
 10 to 100 ppm (1 to 4 hours duration sampling)
 50 to 400 ppm (0.5 to 1 hour duration sampling)
 * The scale printed on the tube is calibrated at 8 hours sampling,
 and the air flow rate of 6 ml/min.

Color Change: White to Brown Ring

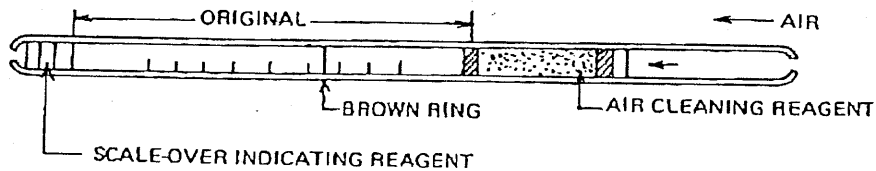


Fig. 1

SAMPLING:

1. Break tips of a TWA CO tube and insert it into the special tube holder provided.
2. Connect the tube holder to the sampling pump with suitable tubing (silicone rubber, pvc, etc.); and if the tube holder is away from the breathing zone, load sampled air from the breathing zone to the tube holder through teflon tubing.
3. Turning the pump on, start sampling with the flow rate of 6 ml/min, and record the starting time or the number figured by a counter on the personal sampler.
4. After completion of sampling, turn the pump off and record the finished time or number on the counter of the sampler.

MEASUREMENT:

1. In case of 8 hours, with 6 ml/min sampling correctly, the TWA concentration can be read directly by the scale printed on the tube at the top of brown ring.
2. If the sampling duration is less than 8 hours, the actual TWA concentration can be obtained graphically from the chart provided below.
3. If the flow rate is not 6 ml/min, divide the scale reading by the ratio of sampled air volume to 2880 ml.

$$\text{Actual TWA concentration (ppm)} = I \times \frac{2880}{n \times Kv}$$

I = Scale reading

n = Sampling finished number on the counter - starting number : strokes (minus)

Kv = Volume coefficient : ml/stroke

TEMPERATURE AND HUMIDITY CORRECTION:

No temperature corrections is necessary from 10°C (50°F) to 30°C (86°F).
 Up to 100% (25°C = 77°F) relative humidity, no need for correction.

INTERFERENCE:

Coexistence of Sulfur dioxide or Nitrogen dioxide does not affect accurate readings.
 Coexistence of more than 50 ppm of Butane, and/or Hexane will give higher reading.

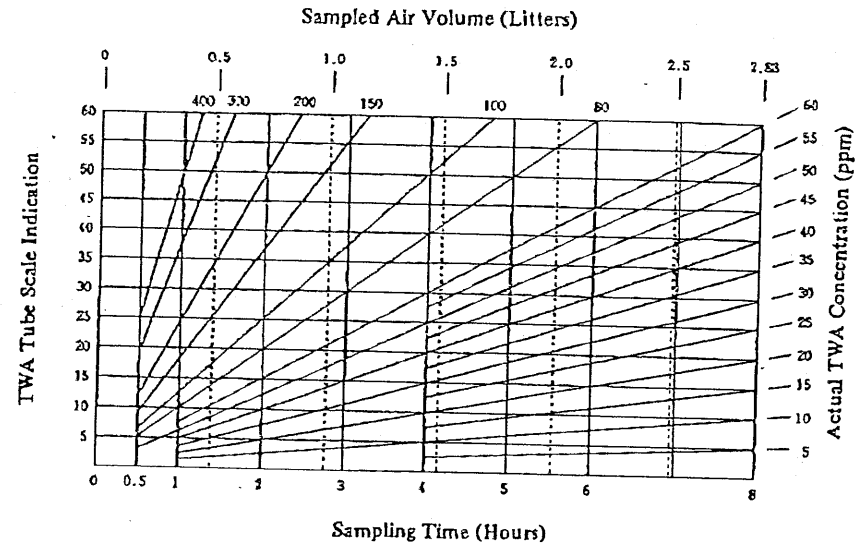


Fig. 2 SCALE CONVERSION CHART

- Example: (1) If sampling time is 3 hours and scale reading is 15, the Actual TWA concentration is 40 ppm.
 (2) If sampled air volume is 1.5, and scale reading is 10, the Actual TWA concentration is 20 ppm.