

KITAGAWA

CARBON MONOXIDE COLOR INTENSITY DETECTOR TUBES

Kitagawa Gas Detector Tube No.106B,C provide an accurate, on-the-spot measurement of Carbon monoxide concentration in air using the Model 400, 400A or APS aspirating pump. No.106 serves in two forms to estimate CO in many chemically difficult environments. No.106B is not interfered by Ethylene; and No.106C also Ethylene and/or Nitrogen dioxide.

PERFORMANCE :

Measuring Range : 10 - 1,000 ppm
 Sampling Time : 30 seconds - 5 minutes
 Color Change : Pale Yellow - Green/Blue

**FLOW CONTROL ORIFICE IN THE PUMP SHOULD BE REMOVED BEFORE SAMPLING.

SAMPLING AND MEASUREMENT:

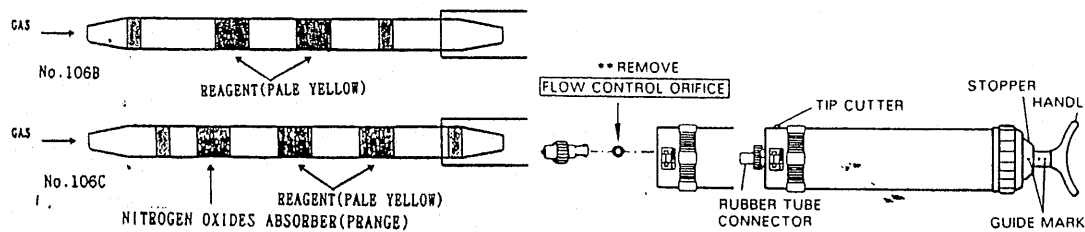


Fig. 1

1. Break tips of a fresh detector tube by bending each tube end in the tube tip cutter and then insert the tube end of the detector tube marked with red dot, securely into pump inlet, as shown in Fig.1.
2. Use of Model 400 aspirating pump;
Align the guide marks (red points) on shaft and back plate of the pump. And pull the handle at a full stroke and lock it with 1/4 turn (90°). Wait 30 seconds as it is.
Use of Model 400A or APS aspirating pump;
Align the guide marks (red points) on shaft and stopper of the pump. And pull the handle at a full stroke. Wait 30 seconds as it is.
The sampling time should be counted from the precise time when the handle is pulled out.
3. Remove the detector tube from the pump inlet after 30 seconds. For tube temperatures of 15 - 20 °C (59 - 68 °F), wait 2 minutes for the discoloration to be completed. For other temperatures, consult Temperature Correction Table. The waiting time must be counted from the precise moment when the sampling is completed.
4. After 2 minutes waiting period, compare the discoloration of the reagent nearest to the red dot with the color standard chart to obtain the concentration reading.

5. At concentration below 100 ppm, use other sampling time and get true concentration by using the following calculating formula.

$$\text{True concentration} = \text{Reading from color standard} \times \frac{30 \text{ seconds}}{\text{Other sampling time}}$$

TEMPERATURE CORRECTION AND WAITING TIME

The color standard chart and waiting time are calibrated on the tube temperature of 15 °C (59 °F), therefore when testing at the other temperatures, readings from the color standard chart should be corrected with the temperature correction table.

INTERFERENCES:

(No.106B)

Nitrogen dioxide does not change the reagent by itself but coexistence of more than 1 ppm with Carbon monoxide gives lower readings. Coexistence of more than 5 ppm of Ethylene or more than 1,000 ppm of Hydrogen sulfide can not be removed in the first yellow reagent and produce blue or black stains and gives higher readings. Coexistence of more than 10 % of Hydrogen at 40 °C (104 °F) changes the whole reagent to blue and gives higher readings.

(No.106C)

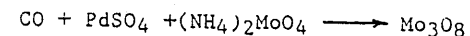
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HAZARDOUS AND DANGEROUS PROPERTIES OF CARBON MONOXIDE:

T.L.V.*** : 50 ppm
 Explosive range in air : 12.5 - 74 %

***Threshold Limit Value established by the American Conference Governmental Industrial Hygienists, 1984.

CHEMICAL REACTION IN THE DETECTOR TUBE:



BEFORE TESTING, THE PUMP SHOULD BE CHECKED FOR PROPER PERFORMANCE.
 LEAKAGE OF AIR WILL AFFECT ACCURATE READINGS.