

- ★ READ CAREFULLY THIS INSTRUCTION MANUAL AND THE INSTRUCTIONS OF THE ASPIRATING PUMP PRIOR TO USING THIS PRODUCT.
- ★ DO NOT DISCARD THIS INSTRUCTION MANUAL UNTIL ALL THE TUBES IN THIS BOX ARE USED UP.

## 1. PERFORMANCE:

Measuring Range	: 3-70 g/m <sup>3</sup>
and Sampling Time	: 2 minutes
Number of pump strokes	: 1/2 (50 mL)
Colour Change	: Yellow → Brown
Detectable Limit	: 0.6 g/m <sup>3</sup>
Operating Temperature	: 24 - 45 °C (75.2-113°F) (No correction is necessary.)
Aspirating Pump	: Model AP-20, AP-20S, 400B, AP-1, AP-1S or 400A

### ⚠ CAUTION

1. DETECTOR TUBE CONTAINS REAGENTS.
2. PRETREAT TUBE CONTAINS REAGENTS (GHROMIUM).
3. DO NOT TOUCH THESE REAGENTS DIRECTLY ONCE TUBES ARE BROKEN.
4. KEEP THE TUBES OUT OF THE REACH OF CHILDREN.
5. IF THE CONCENTRATION IS OVER THE FULL SCALE, (70g/M3), THE HIGH CONCENTRATION OF METHYL BROMIDE REMAINS IN THE ASPIRATING PUMP. BE CAREFUL NOT TO BREATHE IN THE REMAINING GAS. THE REMAINING GAS IS PUSHED OUT FROM THE BOTTOM CASE WHEN THE HANDLE IS PUSHED AFTER MEASUREMENT, AND WHEN THE HANDLE IS PULLED LATER. IN CASE OF THE ABOVE, PUSH AND PULL THE HANDLE AT LEAST 5 TIMES TO REPLACE THE REMAINING GAS IN THE ASPIRATING PUMP WITH THE FRESH AIR AT THE EXHAUST PLACE..

### NOTICE

1. USE ONLY WITH PUMP MODELS AP-20, AP-20S, 400B, AP-1, AP-1S OR 400A. OTHERWISE, CONSIDERABLE ERROR IN INDICATION MAY OCCUR.
2. BEFORE TESTING, CHECK THE ASPIRATING PUMP FOR LEAKS (REFER TO ITEM 8. INSPECTION OF ASPIRATING PUMP). ANY PUMPS SHOWING SIGNS OF LEAKAGE SHOULD BE CORRECTED BEFORE USE.
3. DO NOT USE THIS TUBE OUTSIDE THE STATED OPERATING TEMPERATURE RANGE.
4. STORE TUBES IN A COOL AND DARK PLACE (0-25 °C /32-77°F), AND USE BEFORE EXPIRATION DATE PRINTED ON THE BOX.
5. PRIOR TO USE, READ CAREFULLY ITEM 9. USER RESPONSIBILITY.
6. READ THE CONCENTRATION IMMEDIATELY AFTER MEASUREMENT.

## 2. SAMPLING AND MEASUREMENT:

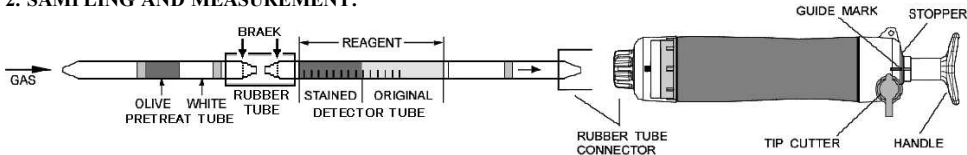


Fig.1

- ① Detector tube and pretreat tube have been connected by a rubber tube, in line. At the measurement, cut both ends of pretreat tube and detector tube. (It is possible to cut the ends in the rubber tube by bending the rubber tube by fingers). Then insert detector tube into the aspirating pump securely as shown Fig. 1. (Arrow mark shall point to the pump).

**⚠ CAUTION SAFETY GLASSES AND GLOVES SHOULD BE WORN TO PREVENT INJURY FROM SPLINTERING GLASS.**

- ② Insert the detector tube side into aspirating pump securely as shown in Fig. 1. (The arrow mark should point to the pump.)

- ③ Align the guide marks on the shaft and stopper of the aspirating pump.
- ④ Pull the pump handle at half stroke locked position and wait for 2 minutes or until the completion of sampling is confirmed with the flow indicator of the pump (See descriptions about the flow indicator in the instruction manual of the pump).
- ⑤ On completion of sampling, read the scale at the maximum point of the stained layer.

**SPECIAL NOTE:** I. The scale is calibrated at 35 °C (86°F), 50 %R.H. and 1013hPa. Readings obtained in other circumstances should be corrected (**REFER TO ITEM 3. CORRECTION FOR AMBIENT CONDITIONS**).

- II. When the maximum point of the stained layer is unclear or obliquely, read the scale at the centre between the longest and shortest points.

### 3. CORRECTION FOR AMBIENT CONDITIONS:

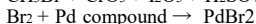
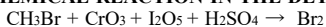
- ① Temperature; No correction is necessary.
- ② Humidity; No correction is necessary.
- ③ Atmospheric Pressure;

$$\text{True concentration} = \text{Tube reading} \times \frac{1013}{\text{Atmospheric pressure (in hPa)}}$$

### 4. INTERFERENCE:

Coexistence of more than 100ppm of Chloropicrin changes the bottom of the stained layer to light brown, however, it does not affect the reading.

### 5. CHEMICAL REACTION IN THE DETECTOR TUBE:



### 6. DISPOSAL OF TUBE:

**USED TUBES SHOULD BE DISPOSED CAREFULLY ACCORDING TO RELEVANT REGULATIONS, IF ANY.**

### 7. HAZARDOUS AND DANGEROUS PROPERTIES OF METHYL BROMIDE:

TLV-TWA ◆: 1 ppm

Explosive range in air: 10 - 15%

◆ Threshold Limit Value established by the American Conference of Governmental Industrial Hygienists, 2006.

### 8. INSPECTION OF ASPIRATING PUMP:

Checking for leaks;

- ① Insert a sealed, unbroken detector tube into the pump.
- ② Align the guide marks on the shaft and stopper of the pump.
- ③ Pull the handle to full stroke and wait for 1 minute.
- ④ Unlock the handle and allow it to return slowly into the pump by holding the cylinder and handle securely.

**⚠ CAUTION HANDLE WILL TEND TO SNAP BACK INTO THE PUMP QUICKLY. ⚠**

- ⑤ If the handle returns completely to the original position, the performance is satisfactory.

Otherwise, refer to maintenance procedure in the instruction manual of the pump to correct the leakage.

### 9. USER RESPONSIBILITY:

It is the sole responsibility of the user of this equipment to ensure that the equipment is operated, maintained, and repaired in strict accordance with these instructions and the instructions provided with each Model AP-20, AP-20S, 400B, AP-1, AP-1S or 400A aspirating pump, and that detector tubes are not used which are either beyond their expiration date or have a colour change different to that stated in the Performance specifications.

The Manufacturer and Manufacturer's Distributors shall not be otherwise liable for any incorrect measurement or any damages, whether damages result from negligence or otherwise.