GL Sciences

INSTRUCTION MANUAL
VINYL CHLORIDE DETECTOR TUBES

No.132SB

★ 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	: 5 - 500 ppm
and Sampling Time	: 1.5 minutes
Number of Pump Stroke	: 1 (100mL)
Colour Change	: White → Reddish orange
Detectable Limit	: 2 ppm
Operating temperature	: 0 - 40 ℃ (32-104°F) (Temperature correction is necessary.)
Aspirating Pump	: Model AP-20, AP-20S, 400A, AP-1, AP-1S or 400A

⚠CAUTION
1. DETECTOR TUBE CONTAINS REAGENTS.
2. PRETREAT TUBE CONTAINS REAGENTS (READ).
3. DO NOT TOUCH THESE REAGENTS DIRECTLY ONCE TUBES ARE BROKEN.
4. KEEP THE TUBES OUT OF THE REACH OF CHILDREN.

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 DARK AND REFRIGERATED PLACE NOT TO EXCEED 10 ℃ (50°F), AND USE BEFORE EXPIRATION DATE PRINTED ON TOP OF THE BOX.
5. PRIOR TO USE, READ CAREFULLY **ITEM 9. USER RESPONSIBILITY**.
6. READ THE CONCENTRATION IMMEDIATELY AFTER MEASUREMENT.

2. SAMPLING AND MEASUREMENT:

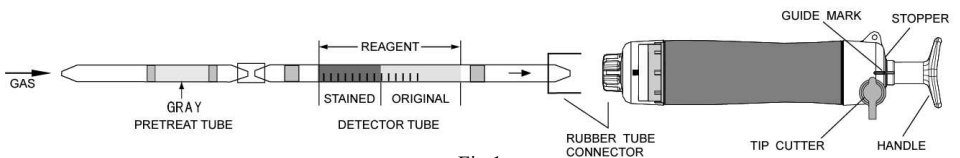


Fig.1

① Break both ends of detector tube and pretreat tube, and connect each end of the detector tube and pretreat tube with rubber tube connector as shown in Fig.1.

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

② Insert the detector tube into aspirating pump securely as shown in Fig.1 (Arrow mark shall point to the pump)
③ Align the guide marks on the shaft and stopper of the aspirating pump.
④ Pull the pump handle at full stroke until it locks and wait for 1.5 minutes or until the completion of sampling is confirmed with the flow indicator of the pump (See descriptions about the flow indicator in the instructions 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 20 ℃ (68°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 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; Correct the tube reading by following temperature correction table.

Temperature Correction Table

Tube Readings (ppm)	Corrected Concentration (ppm)						
	0 ℃ (32°F)	5 ℃ (41°F)	10 ℃ (50°F)	15 ℃ (59°F)	20 ℃ (68°F)	30 ℃ (86°F)	40 ℃ (104°F)
500	-	-	820	600	500	430	400
400	-	850	610	470	400	340	310
300	-	640	440	350	300	250	230
200	750	400	300	230	200	160	140
100	340	200	150	120	100	80	70
50	150	100	70	60	50	40	30
20	50	40	30	25	20	15	10
10	25	20	15	12	10	8	6
5	15	10	8	5	5	5	5

② Humidity; No correction is necessary.

③ Atmospheric Pressure ;

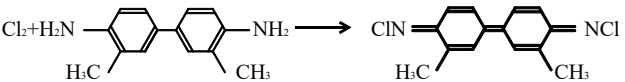
$$\text{True concentration} = \text{Temperature corrected concentration} \times \frac{1013}{\text{Atmospheric pressure (in hPa)}}$$

4. INTERFERENCES.

Hydrogen Chloride, Chlorine and other Halogens, other Halogenated hydrocarbons produce a similar stain and will give higher reading.

5. CHEMICAL REACTION IN THE DET

$CH_2{=}CHCl + PbO_2 \rightarrow Cl_2$



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6. DISPOSAL OF TUBE:

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

7. HAZARDOUS AND DANGEROUS PROPERTIES OF VINYL CHLORIDE:

TLV-TWA ◆ : 1 ppm

Explosive range in air : 3.6 - 33 %

◆ Threshold Limit Value established by American Conference of Governmental Industrial Hygienists 2004.

8. INSPECTION OF ASPIRATING PUMP:

Checking for leaks;

① Insert 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 pump instructions to correct the fault.

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.

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