

INSTRUCTION MANUAL

No.102SA

Kitagawa ACETONE DETECTOR TUBES

(TETRAHYDROFURAN WITH CONVERSION CHART)

- ★ 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:

Gas to be measured:	Acetone	*)Tetrahydrofuran	
Measuring Range :	***)0.1-2.0%	1.0-5.0%	0.2-3.0% 2.0-5.0%
Sampling Stroke :	1 pump stroke	1/2 pump strokes	1 pump stroke 1/2 pump strokes
Sampling Time :	1.5 minutes	***)45 seconds	1.5 minutes ***)45 seconds

- *)Tetrahydrofuran can be measured with conversion chart undermentioned.
- ***)The graduations printed on the detector tube are based on 1 pump stroke of Acetone measurement.
- ***)These sampling times are when using Model AP-1 or 400A pumps.

In case of Model AP-400, sampling time is 1.5 minutes.
Colour Change : Orange → Dark brown
Detectable Limit: 200ppm (Acetone), 20ppm (Tetrahydrofuran)
Operating temperature: 0-40°C (32-104°F) (Temperature correction is necessary.)
Aspirating Pump : Model AP-1, 400A or AP-400

- CAUTION**
1. DETECTOR TUBE CONTAINS CORROSIVE REAGENTS (CHROMIUM OXIDE.).
 2. DO NOT TOUCH THESE REAGENTS DIRECTLY ONCE TUBES ARE BROKEN.
 3. KEEP THE TUBES OUT OF THE REACH OF CHILDREN.

NOTICE

1. THE USE OF ASPIRATING PUMPS OTHER THAN MODELS AP-1, 400A OR AP-400 MAY CAUSE CONSIDERABLE ERROR IN INDICATION.
2. DO NOT USE FLOW CONTROL ORIFICE WITH THIS TUBE. (FOR MORE DETAIL, REFER TO THE INSTRUCTIONS OF THE ASPIRATING PUMP.)
3. BEFORE TESTING, CHECK THE ASPIRATING PUMP FOR LEAKS (REF. TO ITEM 9). ANY PUMPS SHOWING SIGNS OF LEAKAGE SHOULD BE CORRECTED BEFORE USE.
4. DO NOT USE THIS TUBE OUTSIDE THE STATED OPERATING TEMPERATURE RANGE.
5. STORE TUBES IN A COOL AND DARK PLACE (0-25°C/32-77°F), AND USE BEFORE EXPIRATION DATE PRINTED ON TOP OF THE BOX.
6. PRIOR TO USE, READ CAREFULLY ITEM 10 "USER RESPONSIBILITY".
7. READ THE CONCENTRATION IMMEDIATELY AFTER MEASUREMENT.

2. SAMPLING AND MEASUREMENT:

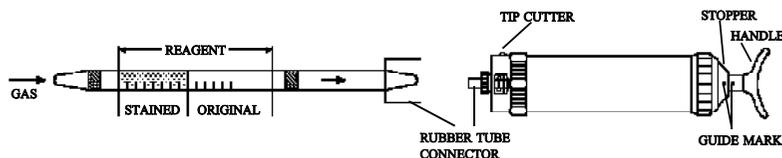


Fig.1

- ① Break both ends of detector tube.

•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 (100ml) until it locks and wait for 1.5 minutes as it is or until the sampling is confirmed as to be completed. (See descriptions of the flow indicator in the pump instruction manual)

NOTE: If using model AP-400, pull the pump handle at full stroke (100ml) and lock it by 1/4 turn (90°), and then wait for 1.5 minutes as it is.
 - ⑤ After the sampling is completed, read the scale at the top of the stained layer. True concentration of **Acetone** can be obtained after temperature correction.
 - ⑥ In case of **Tetrahydrofuran** measurement, convert the reading value by using the conversion chart (II) undermentioned and correct it by the temperature correction table for Tetrahydrofuran.
 - ⑦ If the discolouration is over the scale, change the tube newly and carry out the following 1/2-pump-strokes procedure:
 - Use of Model AP-1 or 400A aspirating pump;
 - 1) Insert the new tube to the pump inlet. Pull the pump handle at 1/2 stroke (to 50 ml line), and it will be automatically locked. And wait for 45 seconds as it is.
 - 2) Remove the detector tube from the pump and read the concentration.
 - 3) Convert the reading value by using the conversion chart (I) undermentioned and correct it by the temperature correction table for Acetone.
 - 4) In case of **Tetrahydrofuran** measurement, convert the reading value by using the conversion chart (III) and correct it by the temperature correction table for Tetrahydrofuran.
 - Use of Model AP-400 aspirating pump.
 - 1) Without connecting the detector tube, pull the handle at 1/2 stroke (to 50 ml line).
 - 2) Insert the new tube to the pump inlet, pull the handle at full stroke (100 ml) and lock it by 1/4 turn (90°), and then wait for 1.5 minutes as it is.
 - 3) Remove the detector tube from the pump and read the concentration.
 - 4) Convert the reading value by using the conversion chart (I) undermentioned and correct it by the temperature correction table for Acetone.
 - 5) In case of **Tetrahydrofuran** measurement, convert the reading value by using the conversion chart (III) undermentioned and correct it by the temperature correction table for Tetrahydrofuran.
- SPECIAL NOTE:** I. The scale is calibrated at 20°C (68°F) and 1013hPa. Readings obtained in other circumstances should be corrected with the following **ITEM 3**.
 II. When the top 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.
- ② Humidity; No corrections are necessary.
- ③ Atmospheric Pressure;

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

Tube Reading (%)	Temperature Correction Table for Acetone				
	Corrected Concentration (%)				
	0 °C (32°F)	10 °C (50°F)	20 °C (68°F)	30 °C (86°F)	40 °C (104°F)
2.0	—	2.38	2.0	1.78	1.60
1.5	2.20	1.76	1.5	1.30	1.16
1.0	1.44	1.18	1.0	0.86	0.76
0.5	0.72	0.60	0.5	0.42	0.36
0.2	0.30	0.25	0.2	0.16	0.14
0.1	0.16	0.12	0.1	0.08	0.08