



INSTRUCTION MANUAL CARBON MONOXIDE IN BLOOD

No. 2900C

- ★ 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.

CAUTION FOR SAFETY

- 1) Glasses and gloves should be worn to prevent injury from shattered glasses.
- 2) Reagents inside the detector tubes contain chemical reagents. In case you touch the reagents, wash your hands thoroughly.
- 3) Keep the detector tubes out of the reach of children.
- 4) Be careful during sampling as the detector tube may fall off and sampling target may be spattered.

CAUTION FOR USE

- 1) Use only aspirating pump models AP-20, AP-20S, 400B, AP-1, AP-1S or 400A. Otherwise, considerable error in indication may occur.
- 2) Before measurement, check for leakage in the aspirating pump (refer to "3. CHECKING PRIOR TO USE (LEAKAGE TEST OF ASPIRATING PUMP)").
- 3) Do not use the detector tubes beyond the stated operating temperature range.
- 4) Store the detector tubes in a cool and dark place (0-25°C/32-77°F) and use before expiration date printed on the top of the box.
- 5) Read the concentration immediately after the measurement.
- 6) Prior to use, read carefully "8. USER RESPONSIBILITY".
- 7) The scale on the detector tube shows the concentration of Carbon monoxide in the air. To measure Carbon monoxide in blood, calculation with a conversion chart is required.

1. PURPOSE

Use the detector tubes for measuring Carbon monoxide in blood only.

2. PERFORMANCE

Measuring Range	20-90 %COHb
Sampling Volume	100mL
Blood Injection Volume	0.2mL
Sampling Time	5 minutes (a flow control orifice is required)
Colour Change	Yellow → Blackish brown
Operating Temperature Range	0 ~ 60 °C (32 ~ 140°F) (Temperature correction is required.)

3. CHECKING PRIOR TO USE (LEAKAGE TEST OF ASPIRATING PUMP)

- ① Insert a sealed and unbroken detector tube into the aspirating pump securely.
- ② Align the guide marks on the handle and the stopper of the aspirating pump.
- ③ Pull the pump handle to the full stroke locked position and wait for 1 minute.
- ④ Unlock the handle and allow it to return slowly into the pump with 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 the "MAINTENANCE" procedure in the instruction manual of the aspirating pump.

4. MEASUREMENT

PRE-TREATMENT

MAKE SURE TO ATTACH THE FLOW CONTROL ORIFICE TO THE ASPIRATING PUMP PRIOR TO MEASUREMENT.

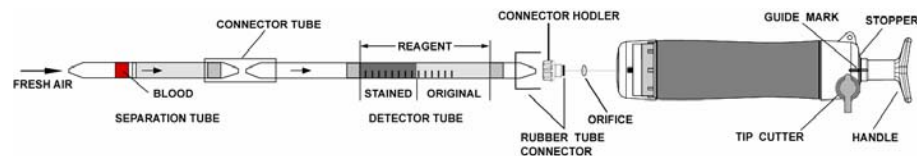


Fig.1

- ① Break both ends of the detector tube and separation tube.
- ② Connect the detector tube and separation tube with the connector tube as shown in Fig.1.
- ③ Insert the detector tube into the aspirating pump securely. (An arrow mark on the detector tube should point to the aspirating pump.)
- ④ Take 0.2mL of blood (NOTE I) into a 1mL syringe and insert it into the separation tube.
- ⑤ Align the guide marks on the handle and the stopper of the aspirating pump.
- ⑥ Pull the pump handle at full stroke locked position.
- ⑦ Insert 0.2mL of water and aspirate fresh air for 5 minutes. (NOTE II) (NOTE III)
- ⑧ Remove the detector tube from the rubber tube connector and read the scale at the maximum point of the stained layer.
- ⑨ The scale is calibrated at 20°C (68°F). Readings obtained in other circumstances should be corrected by using "5. TEMPERATURE CORRECTION TABLE".
- ⑩ Convert the tube reading by using "6. CONVERSION CHART" and obtain the true concentration

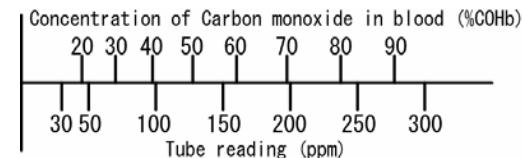
NOTE

- I. If the blood is more or less than 0.2mL, correct readings cannot be obtained.
- II. To prevent the blood from clotting, this operation is required.
- III. When aspirating outside air, make sure to aspirate fresh air. If carbon monoxide is included in the air, readings will be higher.
- IV. Blood from burned body may stop up in the separation tube. Dilute the blood with purified water to 1/2 before the measurement. In this case, the scale reading multiplied by two is the concentration.

5. TEMPERATURE CORRECTION TABLE (At 20°C)

Tube reading (ppm)	True Concentration of Carbon monoxide in blood (ppm)						
	0°C (32°F)	10°C (50°F)	20°C (68°F)	30°C (86°F)	40°C (104°F)	50°C (122°F)	60°C (140°F)
300	240	270	300	330	360	380	400
200	160	180	200	220	240	260	280
100	80	90	100	110	120	130	140
50	40	50	50	50	60	65	70
30	30	30	30	30	30	35	40

6. CONVERSION CHART



7. DISPOSAL OF TUBE

Used tubes should be disposed carefully in accordance with relevant regulations, if any.

8. 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 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.