

- ★ 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. FEATURE:

The 290P detector tube has strong sensitivity against Aromatic hydrocarbons of low-boiling point contained in Gasoline and/or Kerosine, and is useful to discriminate Gasoline and/or Kerosine included in the object. Kindly note that the purpose of this tube is only for screening test.

### 2. PERFORMANCE:

Sampling time	: 30 seconds (100mL, 1 pump stroke)
Colour change	: Refer to the undermentioned <b>ITEM 4. DISCRIMINATION</b>
Operating temperature	: 0 - 40 °C (32-104°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. DO NOT TOUCH THESE REAGENTS DIRECTLY ONCE TUBES ARE BROKEN.
3. 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 COOL AND DARK PLACE (0-25 °C/32-77°F), AND USE BEFORE EXPIRATION DATE PRINTED ON TOP OF THE BOX.
5. PRIOR TO USE, READ CAREFULLY **ITEM 9. USER RESPONSIBILITY**.

### 3. SAMPLING AND MEASUREMENT:

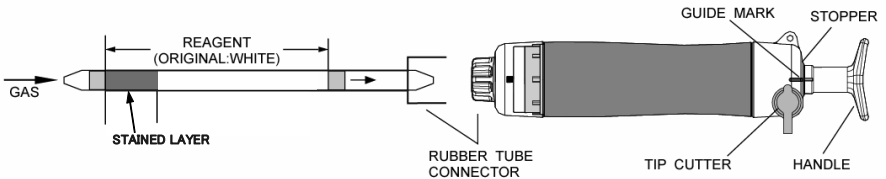


Fig.1

- ① Break both ends of the 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.
- ③ Put the top end (filled with the reagent) of the detector tube near the object to be examined such as burnt clothes, cloth, a carpet, and soil & sand, etc. as much as possible.
- ④ Align the guide marks on the shaft and stopper of the aspirating pump.
- ⑤ Pull the pump handle at full stroke locked position and wait for 30 seconds 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). Here, gas near the object to be examined is sampled into the detector tube.

**NOTE: Don't suck water attached on the object into the detector tube.**

- ⑥ After completion of sampling, remove the detector tube from the pump and heat the stained layer of the detector tube from the outside by match, lighter, etc. for 2 ~ 3 seconds, and wipe the soot off from the detector tube. Then, examine the stained layer length and discolouration.

ρ **NOTE (1) IT MAY BE POSSIBLE TO CHANGE THE DISCOLOURATION TO BLACK IF THE HEATING WAS STRONG, AND NOT BE POSSIBLE TO DISCRIMINATE GASOLINE AND KEROSENE.**  
**(2) AFTER THE MEASUREMENT, CLEAN THE PUMP INSIDE BY PULLING-PUSHING OF HANDLE SEVERAL TIMES, AND RESIDUAL GASOLINE AND/OR KEROSENE WILL BE EXHAUSTED FROM THE PUMP INSIDE.**

#### 4. DISCRIMINATION:

- ① In case that the stained layer length is one third (1/3) or more of total reagent length:  
Gasoline: Yellow/Brown/Dark brown stains are produced from the gas inlet of detector tube.  
Reddish brown stain may be produced between the above Yellow and Brown stains.  
Kerosine: Dark brown/Brown stains are produced from the gas inlet of detector tube.
- ② In case that the stained layer length is less than one third (1/3) of total reagent length:  
Brown stain is produced by each of Gasoline and Kerosine and it is impossible to discriminate.

#### 5. INTERFERENCE:

Light oil will produce a pale purple stain near the gas inlet and almost the same stained layer with Kerosine.  
Lubricating oil will produce very pale brown stained layer.  
Cooking oil will not produce any stained layer.

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

By reacting with Marquis reagent is discoloured.

#### 7. DISPOSAL OF TUBE:

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

#### 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.