ULTRARAE AND ULTRARAE 3000 OPERATION TIPS

This document describes several helpful tips for operating the UltraRAE and UltraRAE 3000.

SAMPLING WITH THE ULTRARAE

How To Make An Airtight Seal For The Inlet Probe

When inserting a RAE-Sep tube into the inlet adapter, push the tube into the rubber gasket until you feel that the tube is properly sealed. Next screw on the tube holder cap to seal the other end of the RAE-Sep tube. Then simultaneously twist and push down on the tube cap nut to ensure that the rubber adapters inside the tube holder form good seals against both ends of the RAE-Sep tube.

How To Select The Tube Name

1. Remove the tube from the inlet. Press [Y/+] while the UltraRAE displays the "Ready..." message.
2. The display should show "No Tube" and "Manual select?" press [Y/+].
3. The display should show a tube name, such as "Benzene?" Press [N/-] if you want to change the tube name. Press [Y/+] to accept the tube name.
4. The display should show the selected tube name and "Start?" message alternately. Press [Y/+] to start the testing.

What To Do If The Tube Reader Shows "Invalid Lamp For .... Xxxx Tube"

This message means that the UV lamp installed inside the unit does not work with the given tube. The correct UV lamp information (9.8 eV, 10.6 eV or 11.7 eV) is printed on the label of the tube box. After installing the correct lamp, the user also needs to change the monitor setup because the unit will not recognize the lamp type automatically:

1. Press both the [N/-] and [MODE] keys together for 3 seconds, the display shows the first programming mode menu: "Calibrate Monitor?" Press [N/-] four times.
2. The display should show "Change Monitor?" Press the [Y/+] key.
3. The display should show "Change Measure Wait Time?" Press the [N/-] key.
4. The display should show "Change lamp?" Press the [Y/+] key.
5. The display should show "Lamp = xxxx eV?" where "xxxx" is the current UV lamp selection.
6. Press the [N/-] key until the correct UV lamp type is displayed. Then press [Y/+] key to accept the correct UV lamp. Press the [Y/+] key again to confirm the change.
7. Press the [MODE] key twice to return to normal display with "Ready..." message. The unit is now ready to accept the tube with the newly installed UV lamp.

Note About Multiple-Tube Operation

When using different types of RAE-Sep tubes in the UltraRAE, it is very important to calibrate each type of tube before using the monitor. Thereafter, simply insert the tube into the inlet adapter, and the tube reader will recognize the tube name and use the proper calibration data to perform the gas measurement. If there are more than eight different types of tubes available, the PC program (ProRAE Suite) must be used to select eight tubes and download the tube data to the monitor. See the Operation and Maintenance Manual for details on the download procedure.

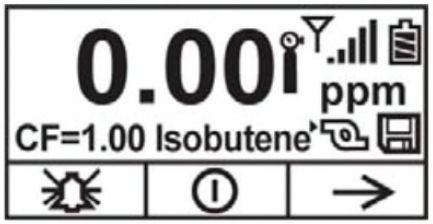
SAMPLING WITH THE ULTRARAE 3000

Before performing a compound-specific measurement for Benzene or Butadiene using a RAE-Sep separation tube, make sure the UltraRAE 3000 is in Tube Mode and that the appropriate tube type is selected. The UltraRAE 3000 only acts as a compound-specific measurement device when it is equipped with a 9.8eV lamp. Therefore, make sure the UltraRAE 3000 is equipped with a 9.8eV lamp and manually set to use it whenever it is to be used for compound-specific sampling such as for benzene.

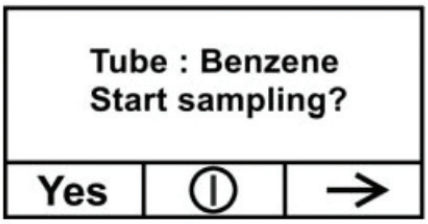
Make sure the UltraRAE 3000 is set to operate with your selected tube:

1. Enter Programming Mode.
2. Select Measurement.
3. Select Tube Selection.
4. Make a choice of Benzene or Butadiene.
5. Save your choice.

To begin measuring, turn on the UltraRAE 3000. This screen is shown, which includes the CF (correction factor) and measurement gas type (benzene, butadiene, etc.) for calibration reference:



Press [N/-] to advance. You will see this screen:



Do not begin sampling yet!

Before you start sampling, you must insert a RAE-Sep separation tube into the inlet/holder. Follow the Separation Tube Preparation and Placing A Tube Into The UltraRAE 3000 instructions before pressing any buttons on the UltraRAE 3000. Once the tube is in place, then proceed to measuring.

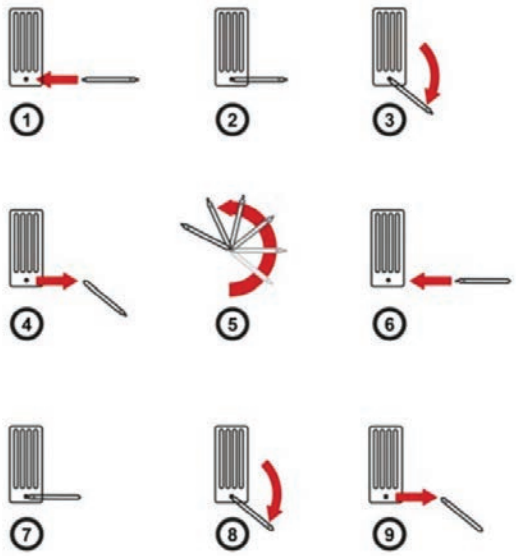
IMPORTANT! Once a tube's ends are broken off, the material inside is exposed. Therefore, use the tube for sampling as soon as possible.

Separation Tube Preparation

CAUTION! Wear hand and eye protection when breaking tube tips. Use caution in handling tubes with broken ends. Keep away from children. RAE-Sep tubes should be disposed of according to local regulations. See footnotes of data sheets for disposal information.

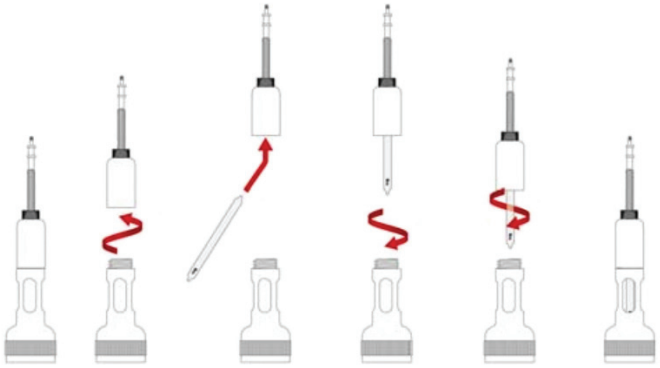
1. Open a package of RAE-Sep separation tubes and remove one.
2. Place the tip in the package's tube tip breaker (the small hole on the front) and snap off the tip.
3. Turn the tube around and snap off the other end.

CAUTION! Handle tubes with care. Tube ends are sharp after ends are broken off.



Inserting The Separation Tube

1. Unscrew the front of the sampling probe from the base.
2. Slip the tube into the rubber holder in the front portion.
3. Insert the other end of the tube into the middle of the base while turning the front portion to tighten it onto the base's threads.

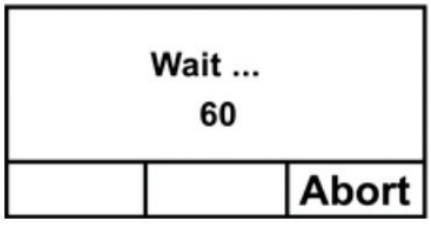


IMPORTANT! Do not overtighten any portion of the sampling assembly.

MEASURING

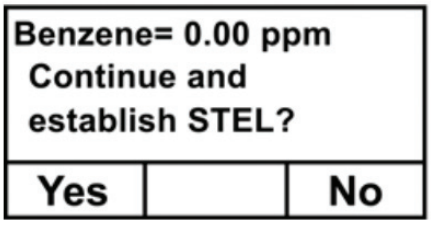
WARNING! If a 15-minute test is performed and less than 1/4 of the tube is not yellow-orange at the bottom, retest with a new tube for 1 minute. If at least 1/4 of the tube is not yellow-orange at the bottom, the test should not be considered valid, and VOCs may be dangerously high.

Once the tube is in place, begin measuring by pressing [Y/+]. The display shows a countdown (60 seconds is shown here, but sampling time depends on the type of separation tube selected and the temperature):



Note: You can abort the sampling by pressing [N/-] at any time.

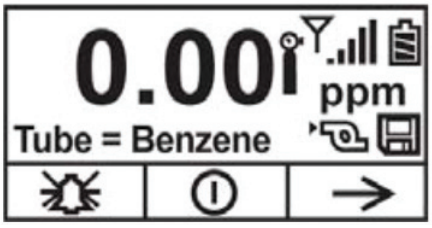
Once the countdown is complete, the reading is shown:



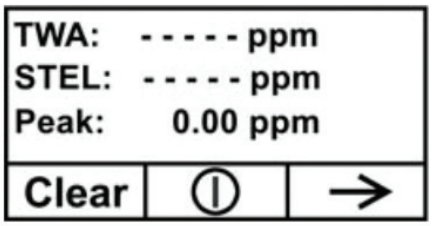
Press [Y/+] to continue sampling with the tube for 15 minutes to establish a STEL reading, or press [N/-] to return to the main menu.

WARNING! At least 1/4 of the tube should still be yellow-orange at the bottom. If not, the STEL value is not valid. Abort the measurement and change the tube. Then do a snapshot test instead of a STEL test. **Note:** If the STEL is exceeded, the UltraRAE 3000 goes into alarm.

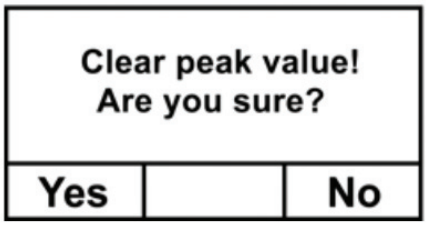
If you press [N/-] to return to the main menu, which shows the tube type instead of the CF (correction factor):



Press [N/-] to advance to this screen:

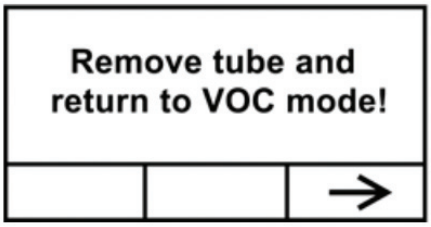


If you press [Y/+], you are asked, "Clear peak value! Are You Sure?" to confirm:

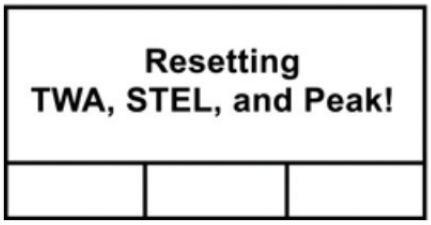


Press [Y/+] to clear the Peak value and exit to VOC operation.

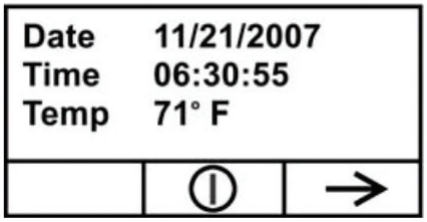
If you press [N/-], this display is shown:



Remove the tube and put the inlet back together. Then press [N/-]. This display is shown:



After a few seconds, the UltraRAE 3000 enters VOC mode and shows this display:



You can step through the rest of the steps by pressing [N/-] repeatedly until you reach the main menu again.