

Pump Operations

1. All pumps are pre-calibrated based on a predetermined flow rate and tubing/TD media setup. Changes to the set-up could change the flow rate and affect results unless a field calibration can be conducted.
2. CARO generally calibrates flow rates at approximately 100mL/min, unless requirements dictated otherwise.
3. Pump's may stop working for the following reasons:
 - The flow rate has changed due to a blockage or a kink in the line causing the flow to change; any flow changes longer than 10 seconds causes the pump to shut off in order to preserve the flow rate.
 - Insufficient battery power; there should be an indicator showing the battery status. Rechargeable batteries will discharge and should be kept charged until use to maximize battery time.
 - A fuse blows in the pump; we can fix this fairly easily at the lab and/or send spare fuses in your kit for onsite fixing.
4. Pump instruction manuals are available.

Sample Collection Set Up

1. Ensure that TD tubes and other media are oriented in the correct direction with the flow of air following the arrow.
2. Do not write on the sample media. Use serial numbers to track tubes instead. This ensures that the media is not affected by labels (containing glue/VOCs) or pens (VOCs also).
3. CARO recommends hard Teflon or Nylon tubing from the sample media inlet to the well head to eliminate potential for contamination from sample train. Use the shortest tube length possible from the well head to the sample media. This will eliminate potential for contamination from sample train materials and minimize adsorption effects.
4. Softer and larger diameter tubing is used at connection points. Small lengths of soft tubing (~1 inch) are placed over the hard tubing and sample media using a butt joint.
5. Ensure that the pump and any monitoring devices are downstream from the sample media. Refer to Figures 1 and 2 for common set ups.

General Sampling Tips

1. TD sample volumes should be less than 10 liters. Contact the laboratory for recommended sampling volumes based on analytes, regulatory limits and site conditions. Lower sampling volume enables you to save time in the field and avoid running pumps too long and having pump problems.
2. Do not sample during or just after wet weather. This ensures representative vapour samples are collected, and minimizes water saturation on thermal desorption tube (TD) media.
3. Flow rates for sampling from wells should not exceed 200mL/min.
4. It is good practice to purge vapor wells prior to sampling. Usually the sampling pump and spare tubing can be used. A general rule is to purge three well volumes before sampling.
5. Do not smoke, drive or have nearby materials that can contaminate the samples. Keep sample train material (tubing, fittings, etc...) sealed and away from any VOC emitting sources to avoid possible contamination.
6. Ambient samples and field blanks may be collected to ensure that the conditions in the ambient air are not contributing to the site's soil vapour profile.

Project Management

1. Please ensure that you have adequately communicated your project requirements to the laboratory. This will include regulatory requirements, analyte lists and expected analyte levels.
2. Contact Patrick or Stephen with any questions or concerns from the field as we can sometimes help solve problems over the phone while you are onsite.

Contact us anytime to discuss your project needs:

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Figure 1 – Single Media Sample Collection Set-Up:

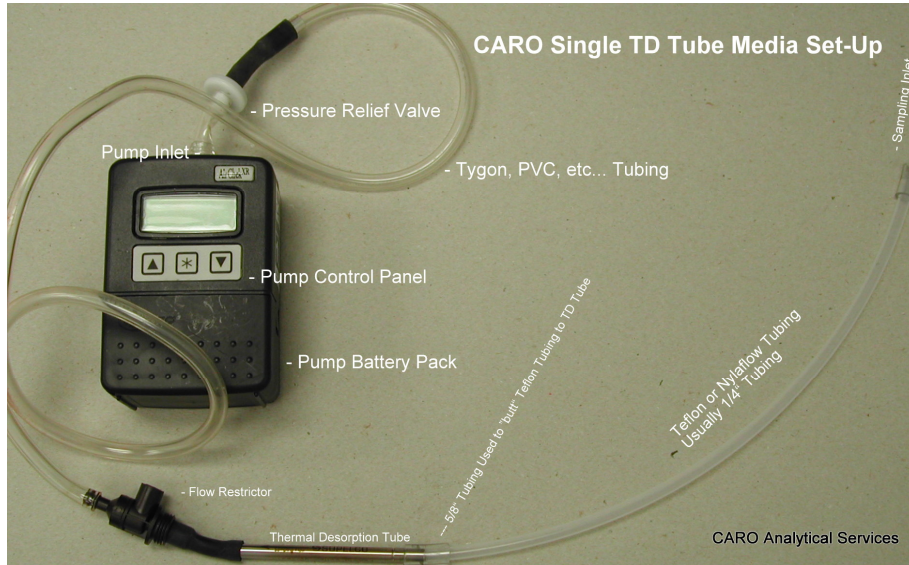


Figure 2 – Dual Media Sample Collection Set Up

