

Soil Probe Instructions: Active Sampling

VOC Tube Shelf life: This tube has a shelf life of 6 weeks. Tubes must be exposed and returned for analysis within this period. If tubes are not used they must be returned within 5 weeks and marked clearly that analysis is not required. Soil Probes must also be returned within 5 weeks.

VOC Tube storage and preparation: Tubes should be stored in a dark place away from a heat source before exposure. A desk drawer is ideal. Tubes should always be stored and handled in clean environments, for example a well-ventilated office, well away from laboratory solvents or major emission sources like photocopiers or laser printers. Brief exposure of the tubes to moderately contaminated air (such as would be typical of laboratory, factory or clinical environments) is inevitable when preparing for sample collection and analysis. However, contamination accumulated during these brief periods should not be significant and can be corrected with the appropriate use of blanks. Once sampling or analysis is completed, tubes should be recapped with the brass storage caps as soon as possible and returned to the clean environment for storage. If using a blank tube, do not remove the end caps from the tube. Store in the same conditions as the sampling tubes.

Advised pumping periods: Gradko recommends a flow rate of 50 ml per minute. Pumping time should reflect the expected concentration of compounds; if high concentrations are expected, pump for shorter periods. Pumping times should be between 2 and 8 hours.

Exposure:

IMPORTANT: CHECK THERE ARE NOT ANY UTILITY PIPES OR CABLES NEAR THE SOIL SURFACE IN THE SAMPLING LOCATION

1. Remove the Soil Probe cap unit
2. Using an impactor, drive Soil Probe into the ground until approximately 5cm is protruding above the ground.



3. Remove the brass end cap from the NON-GROOVED end of the VOC Tube using the Tubelock tool.



4. Using Tubelock tool, unscrew the lower brass nut cap from the Soil Probe cap unit, until it is loose enough to slide the VOC Tube into.



5. Slide the VOC Tube into the Soil Probe cap unit and tighten using Tubelock tools. The nut should be finger-tight and then turned $\frac{1}{4}$ turn ONLY with the Tubelock tool. **DO NOT OVER TIGHTEN, DO NOT USE SPANNERS.** Tightness of the tube can be checked by gently pulling it to ensure that it does not slide out.



6. Remove the remaining brass end cap from the GROOVED end of the VOC Tube.



7. Push the assembled Soil Probe cap unit into the Soil Probe. The unit is now ready for sampling.
8. Push the pump tubing on to the Soil Probe cap nozzle. Lift up small plastic flap on the air pump and press small black button. The pump should now start (confirmed by a green flashing L.E.D.).
9. Run the sampling for the required period – maximum 8 hours. Safe sampling volumes of the target compounds should be considered.
10. At the end of the sampling period, shut pump down. Remove pump tubing from Soil Probe.



11. Remove the Soil Probe cap unit from the Soil Probe. Refit the brass end cap with the coloured spot to the open end of the VOC Tube. Caps should be finger-tight and then turned ¼ turn ONLY with the Tubelock tool. **DO NOT OVER TIGHTEN, DO NOT USE SPANNERS.**
12. Loosen the lower brass nut from the Soil Probe cap unit and remove the VOC Tube. Tighten the brass nut.
13. Replace the remaining brass end cap on to the VOC Tube. Caps should be finger-tight and then turned ¼ turn ONLY with the Tubelock tool. **DO NOT OVER TIGHTEN, DO NOT USE SPANNERS.**



14. Test the tightness of the caps by gently pulling them.
15. **Label the tube with the labels provided, stick the smallest area to the tube as possible, do not cover the whole tube with a label. Do not cover tubes with sticky tape. If you want to provide additional protection to the tube, please wrap in tin foil – this is optional.**

Returning tubes: Tubes should be returned as soon as possible after exposure. Fill in exposure sheet including **pumping time** and **flow rate**. Please inform our laboratory that the presence of **moisture** is expected on the tube by indication on the exposure data sheet. Tubes should be returned in a sealed container, such as the plastic bag that they are received in. Remember to return all Soil Probe components and Tubelock tools with the VOC Tubes.

Return address:

Gradko International Ltd, St Martins House, 77 Wales Street, Winchester, Hampshire, SO23 0RH.

Tel: +44 (0) 1962 860 331

Email: diffusion@gradko.com or enquiries@gradkolab.com