

## Stack Sampling - Active Sampling Only

**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.

**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 25-50 ml per minute and a pumping time commensurate with the expected concentration of pollutants:

- High concentrations expected: 5-10 minutes pumping, maximum 30 minutes
- Low concentrations expected: 1-2 hours pumping

Safe sampling volumes for the target compounds should be considered.

**Gas preparation:** Consider using two tubes in series as gases may breakthrough the initial tube. **Stack gas should be cooled** to ambient temperature to prevent condensation in the tube. **Note:** Water may condense as gas is cooled so polar organic analytes may be removed. **It is very important that moisture does not enter the tube – if the sample is humid, please contact us for advice.**

### Exposure:



1. Use Tubelock tool to remove both brass end caps from the VOC tube.
2. **Consider using a trap before the sorbent tube to prevent moisture.** Please inform our laboratory as to the potential presence of moisture on the tube by indication on the exposure data sheet. If a trap tube is used before the sorbent tube please contact the laboratory for analysis advice.
3. Identify the NON-GROOVED end of the tube – fit the pump tubing to this end of the tube.
4. Lift up small plastic flap on air pump and press small black button. The pump should now start (confirmed by a green flashing L.E.D.).
5. Run the sampling for the required period. (See advice above).
6. At the end of sampling, shut pump down. Remove pump tubing from diffusion tube. Use the Tubelock tool to place the brass end caps on to the tube. **DO NOT OVERTIGHTEN, DO NOT USE SPANNERS.** Test the tightness of the caps by gently pulling them.
7. **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 indicate on the exposure sheet that **moisture is expected**. Tubes should be returned in a sealed container, such as the plastic bag that they are received in. Tubelock tools should also be returned, if hired.

### 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