

## Technical Data Sheet: TDS 14

### BIO-VOC™ – NON-INVASIVE BIOLOGICAL MONITORING

(Bio-VOC is the registered trademark of Markes International Ltd)



**Description:** Plastic unit incorporating the use of a VOC thermal desorption diffusion tube.

**Components:** Sample chamber containing polyethylene plunger disc and fitted with screw top lid (Length: 145mm, Diameter: 55mm). Plunger fitted with micro porous filter, (length 120mm) designed to screw into chamber to expel air into diffusion tube. Disposable cardboard mouthpiece use to blow air into chamber. Thermal desorption VOC diffusion tube usually loaded with Tenax TA absorbent.

**Principle of Use:** Biological monitoring allows for body burden of VOC to be measured regardless of the route of exposure. This method can be used for assessment of short term (acute) and also chronic exposure i.e build up of potentially harmful VOC in the body as a result of long term low level exposure. It is a low cost simple to use method that does not require qualified medical supervision to operate.

The unit is used for personal monitoring of VOC in the workplace. The individual under assessment exhales into the sampler using the disposable mouthpiece until as much air as possible has been emptied from the lungs.

It is important that the alveolar air (from lungs) is expelled into the chamber not air from the mouth or bronchial passage. The chamber holds 129ml.

After sample collection, the mouthpiece is removed and the plunger screwed into the chamber. The thermal desorption tube is fitted to the outlet end of the chamber. The plunger is pushed steadily down to displace the trapped air into the thermal desorption tube. The diffusion tube is then analysed by GC / MS techniques.



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**Storage:** Store in a dark, cool environment free from residual airborne VOC.

**Shelf Life:** 12 weeks from conditioning date (dependant on type of solid sorbent used).

**Analytical Expanded Measurement Uncertainty:** Available upon request.

**Limit of Detection:** Available upon request.

**Packaging of Sorbents:** Each type of sorbent is packed into the thermal desorption tube under strict quality control and under laboratory environment conditions. The weight of the sorbent packed is controlled to within +/- 5%.

**Selection of Absorbents:** The choice of absorbent depends on the volatility of the analyte concerned. Sorbents or series of sorbents selected must quantitatively retain the compounds from the volume of air/gas sampled and then be released as efficiently as possible when the tube is desorbed. A general rule is to use the boiling point of the component as a guide to its volatility. Gradko International Ltd Technical Services can advise users on the correct sorbent to be used.

The more volatile the analyte, the stronger the sorbent must be.

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