

## Technical Data Sheet: TDS 17

### DIFRAM-VOC: RAPID AIR MONITOR - VOCs



**Description:** A plastic (H.D.P.E.) circular diffusive sampler containing a sorbent for measuring gaseous volatile organic compounds in ambient air. This sampler is designed to provide a considerably higher uptake rate than the passive axial diffusion tube, and allows a higher flexibility of air pollution monitoring in outdoor and indoor environments. It can be used as an effective personal sampler for health and safety monitoring in workplace and public/social environments.

It is recommended that one sampler is used as a blank for each batch of samplers ordered.

The VOCs absorbed on to the sampler are extracted using solvent and determined by GC-MS analysis with reference to calibration curves from the analysis of standard solutions.

**RAM Dimensions:** 44mm diameter, 18mm height, 28mm sampling surface diameter.

**Absorbent:** Charcoal-based disc.

**Recommended Exposure Periods:** 4 hours (high concentration areas) to 1-week (time-weighted average studies).

#### Uptake Rates:

- Benzene - 21 ml/min at 20 °C.
- Toluene - 18 ml/min at 20 °C.
- m/p Xylene - 16 ml/min at 20 °C.

**Air Velocity:** No substantial effect (above +/- 10%) of air velocity on the sampler performance in the range 0.15 to 0.8m/s.

**Orientation:** Not critical with respect to direction of air flow

**Back Diffusion:** No significant effect of exposure to zero concentration on the sampler performance.

**Leak test meets EN13528 criteria**

**Storage:** Store in tins provided for up to 14 days 4-20°C in low humidity

**Shelf Life:** 14 days to start of exposure, 1 month after exposure when stored in accordance with published storage instructions.

**Limit of Detection:** Quantitative BTEX: <math><11\text{ugm}^{-3}</math>.

Semi-quantitative analysis as toluene equivalent: <math><0.2\text{mgm}^{-3}</math> over an 8-hour exposure period. Specific values available upon request.

**Expanded Measurement Uncertainty** (95% confidence level) based on field validation tests:

- Benzene at <math>5\text{ugm}^{-3}</math>: +/- 15.0%
- Toluene at <math>13\text{ugm}^{-3}</math>: +/- 9.7%
- m/p Xylene - at <math>2.3\text{ugm}^{-3}</math>: +/- 17.0%

**Desorption Efficiency:**  $d = >0.96$  for Benzene, Toluene, Ethylbenzene and Xylene.

**Relevant Standards:** The sampler has been validated for compliance to European Standard EN 13528-2: 2008 by an independent accredited laboratory.