

Technical Data Sheet: TDS 8C

PERSONAL SAMPLING OF VOCs

Workplace and personal monitoring has been carried out in laboratories and in industrial, petrochemical and other areas where close contact with hazardous chemicals over many years may occur. Personal exposure testing has now become an issue in order to meet stringent safety, health and environmental standards. Diffusive sampling methods for both workplace and personal exposure monitoring have been developed using the thermal desorption diffusion tube packed with a number of combinations of absorbent. This tube can be worn close to the breathing zone for personal monitoring for up to 8 hours or exposed in areas adjacent to the gas administration for workplace assessment. Passive or active (pumped) sampling can be selected using this type of tube.



Fig 1. Pumped Sampling
(Pump can be fitted to pocket or belt).



Fig 2. Passive Sampling

Description: Stainless steel tube filled with a solid polymer absorbent, two brass swagelock caps. An appropriate sorbent is selected to suit the application required.

For passive sampling an aluminium air diffuser is supplied which is fitted to the sampling end of the tube (groove end) during exposure.

For active sampling, an air pump set to approx. 50 ml/min is connected to the non-sampling end of the tube and run for a preset period.

Concentrations absorbed by the tube are measured by thermal desorption and analysis by Gas Chromatography / FID or Mass Spectroscopy (U.K.A.S. Accredited Methods).

Tube Dimensions: 6.3mm OD x 5.0mm ID x 90mm length.

Recommended Exposure Periods:

Passive Sampling : 8 hours – 24 hours

Active (Pumped) Sampling: 8 hour periods are normally run, if the periods are longer, the safe sampling volumes for this compound should be considered (published figures).



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Uptake Rates: Determined by calibration in a standard atmosphere or quoted from published data.

Air Velocity: Tube fitted with filter therefore negligible influence.

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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