

## Technical Data Sheet: TDS 10

### DIFMLS5A - NITROUS OXIDE (N<sub>2</sub>O) and DIFTXTA – OTHER ANAESTHETIC GASES

Nitrous Oxide is widely used as an anaesthetic. The current WEL (workplace exposure limit) for 8 hour time weighted average reference period is 100 parts per million. Workplace monitoring for nitrous oxide has been carried out in hospitals, dentists and other local health authorities over many years. Personal exposure testing has now become an issue especially amongst midwives and dental staff administering this gas on a regular basis.

Diffusive sampling methods for both workplace and personal exposure monitoring have been developed using the thermal desorption diffusion tube. This tube can be worn close to the breathing zone 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. After exposure, the tube is analysed using Thermal Desorption / Gas Chromatography / Mass Spectroscopy techniques.



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

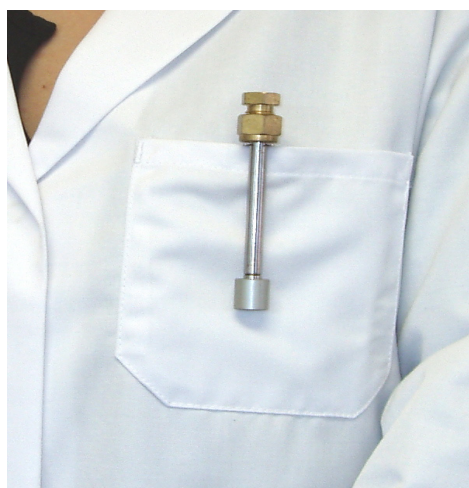


Fig 2. Passive Sampling

**Description:** Stainless steel tube filled with a solid polymer absorbent, two brass swagelock caps. For passive sampling an 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. 50ml/min is connected to the non-sampling end of the tube and run for a preset period.

**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 (Passive Sampling):** 1.25 ng.ppm<sup>-1</sup>.min<sup>-1</sup>

**Air Velocity (Passive Sampling):** Tube fitted with filter therefore negligible influence.

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

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

**Desorption Efficiency:** d = 0.99 (determined using N.I.S.T. Standard Analytes)

**Limit of Detection:**

0.03 ppb (Passive 8 hours sampling)

0.65 ppb (Active: 8 hours sampling at 50 ml/min)

**Analytical Expanded Measurement Uncertainty:** +/- 15.0%

**Relevant Standards:** EN 14662 : EN 13528: MDHS 80

In addition to Nitrous Oxide, tubes are available for the measurement of other anaesthetic gases such as: **Isoflurane, Enflurane and Halothane** – please refer to the VOC technical data sheet.

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