

Technical Data Sheet: TDS 10

DIFMLS5A - NITROUS OXIDE (N₂O) and DIFCHR-106 – OTHER ANAESTHETIC GASES

Workplace monitoring for nitrous oxide and other anaesthetic gases has been carried out in hospitals, dentists and other local health authorities for many years. Personal exposure testing has now become an issue amongst 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 personal exposure 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.



Figure 1 Pumped Sampling



Figure 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 50ml/min is connected to the non-sampling end of the tube and run for a preset period.

Nitrous oxide: A molecular sieve sorbent.

Isoflurane, Desflurane, Halothane, Sevoflurane and Enflurane: Chromosorb 106 sorbent.

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).

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

Storage: Store in a dark, cool environment free from residual airborne pollutants. Do not refrigerate.

Shelf Life: 6 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: available upon request.

Analytical Expanded Measurement Uncertainty: available upon request.

Relevant Standards: EN 14662 : EN 13528: MDHS 80