

Technical Data Sheet: TDS 1

NITROGEN DIOXIDE DIFFUSION TUBE

DIF100-20WA, DIF100-20FILTER & DIF100-50AA

This tube is designed for passively monitoring gaseous airborne Nitrogen dioxide.



Description: Acrylic tube fitted with coloured (**grey or red**) and white thermoplastic rubber caps. The coloured cap contains the absorbent. If tube has a filter, a one-micron porosity filter is fitted to the white cap to prevent the ingress of airborne particulate nitrate.

The concentrations of Nitrite ions and hence NO_2 chemically adsorbed are quantitatively determined by **UV/ Visible Spectrophotometry** with reference to a calibration curve derived from the analysis of standard nitrite solutions (**UKAS Accredited** In-house Method GLM 7).

Suitable for carrying out spatial or localized assessments for NO_2 in ambient air or workplace monitoring. It can be used for co-location projects alongside an automatic analyzer to obtain bias correction factors.

Clips and straps are not included and must be ordered separately.

Tube Dimensions: 71.0mm length x 11.0mm internal diameter.

Absorbent: Two preparations of Triethanolamine (TEA) absorbent are available:

20% Triethanolamine / De-ionised Water - *GREY CAP (with or without filter)

50% Triethanolamine / Acetone – *RED CAP (without filter, restricted for export outside UK)

Recommended Exposure Periods: 2 -4 weeks.

Air Velocity without filter: Influence of Wind Speed < 10% between 1.0 and 4.5 msec^{-1} (* based on original data).

Air Velocity with filter: Tube fitted with filter therefore negligible influence.

Storage: Store in a dark, cool environment preferably between 5-10°C.

Shelf Life: 12 weeks from preparation date.

Desorption Efficiency: $d = 0.98$ (determined using N.I.S.T. Standard Analytes).

Limit of detection:

- 20%TEA/Water – less than 1.5 ugm^{-3} over a 4-week exposure period. Specific values available upon request.
- 50%TEA/Acetone – less than 2 ugm^{-3} over a 4-week exposure period. Specific values available upon request.

Analytical Expanded Measurement Uncertainty: available upon request.

Relevant Standards: BS EN 13528 Parts 1-3: 2002/3

Reference document: ED48673043 Issue-1A Feb 2008 – AEA Energy and Environment

Special Factors: Potential interference from Nitrous Acid , Peroxy Acetyl Nitrate, which could increase levels of nitrate.