

Technical Data Sheet: TDS 2

DIF 150 RTU - NITRIC OXIDE (NO)

This tube is designed for passively monitoring gaseous airborne nitric oxide



Description: The NO/NO₂ diffusion tube system consists of a two-tube pack.

1. A conventional nitrogen dioxide tube containing the absorbent in a closed grey cap.
2. A nitrogen oxide tube where the absorbent grid is fitted into a grey open cap. Placed onto this open cap is a black plastic cap containing a secondary absorbent.

Both tubes are exposed in parallel by removing the white plastic cap and placed in the monitoring position. During exposure, nitrogen oxides (NO /NO₂) are taken up into the tube, the NO passes through into the black cap and the NO₂ is absorbed in the grey cap. The NO is oxidised to NO₂ and is back diffused into to the grey cap. The conventional tube just absorbs NO₂.

The concentrations of nitrite ions and hence NO₂ chemically adsorbed are quantitatively determined by UV / Visible Spectrophotometry with reference to a calibration curve derived from the analysis of standard nitrite solutions (U.K.A.S. Accredited Methods). When analysed both tubes are measured for weight (ug) of nitrate collected on each tube, using the standard formula the concentration NO₂ is calculated. The difference between the two concentrations is reported as nitric oxide.

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

Recommended Exposure Period: 2 –4 weeks.

Uptake Rate: $68.8 \times 10^{-6} \text{ m}^3 \text{ hr}^{-1}$.

Air Velocity: Influence of wind speed < 10% between 1.0 and 4.5 msec⁻¹ (* based on original data).

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

Shelf Life: 8 weeks from preparation date.

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

Limit of Detection: NO_x: 3.31 ppb (6.1 ug³) over a 2-week exposure period.

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

Special Factors: Potential interference from nitrous acid, peroxy acetyl nitrate, which could increase levels of nitrate.