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London 2024 NO_2 Diffusion Tubes - Executive Summary

Air pollution is monitored by the London boroughs and the GLA actively encourage the monitoring of air pollution in areas where pollution is expected to be highest. There are a number of different monitoring methods available, including passive diffusion tubes. These diffusion tubes are small, passive samplers which measure the concentration of nitrogen dioxide (NO_2) in the air at a certain location, providing a monthly average measurement. The monthly data are then annualised and bias adjusted using collocated tubes at reference-grade monitoring stations, to estimate NO_2 annual mean concentrations. The diffusion tubes supplement the existing network of more accurate reference analysers across London (see London Air Quality Network and Air Quality England). Diffusion tubes are low-cost, and boroughs can install as many as they like.

London boroughs collate and report their diffusion tube monitoring data to the GLA and individually publish the results on their own websites. The GLA has collated the results from all London boroughs together into one spreadsheet. Diffusion tube data has been published yearly on the London Datastore since 2022.

2024 diffusion tube data key findings summary:

- Of the 33 London boroughs, 31 submitted their diffusion tube results at the time of compiling this data.
- The results show strong progress in improving London's air quality, with approximately 98% of monitoring sites meeting the UK NO_2 annual concentration legal limit of 40 µg/m^3 in 2024.
- The remaining 2% of sites were spread across 17 boroughs who recorded one or more monitoring sites exceeding the UK annual mean NO_2 legal limit. Overall, 39 out of 1,945 monitoring sites exceeded the UK NO_2 legal limit. This marks a drop by more than a third, compared with 2023, when 62 out of 1,900 sites (around 3.2%) exceeded the limit.
- Eight monitoring sites met the WHO (2021) NO_2 annual concentration guideline of 10 µg/m^3. This represents a significant improvement compared to 2023 and 2022, when just one site met the WHO guidelines.

Notes on data:

- The data is presented in Excel format with a summary note as the first tab, and a tabular data summary as the second tab. This document serves as a high-level text summary and interpretation.
- The concentrations measured are reflective of the sites selected by the boroughs and therefore comparing levels between boroughs is not an equal or fair comparison. Diffusion tubes are typically placed in locations where pollution is expected to be highest, to help boroughs identify hotspots and define the extent of exceedances. Therefore, data from these sites alone do not provide a representative picture of overall air quality in each borough, as diffusion tubes

are less accurate and require bias adjustment using reference-grade monitoring at collocated sites.

- The accuracy of the data is dependent on the monitoring and reporting practices of each borough.
- The diffusion tube sites included in this dataset do not meet the criteria for inclusion in Defra's Automatic Urban and Rural Network (AURN) or UK Urban NO_2 Network (UUNN) and were therefore excluded from Defra's legal compliance assessment. Data from the AURN and UUNN networks indicate that London met the NO_2 Air Quality Standards for the first time in 2024.