

CONVERSION RATIOS FOR NO_x AND NO₂

In modelling air dispersion of NO_x from combustion sources, the source term should be expressed as NO₂, e.g., NO_x mass (expressed as NO₂) = total NO (mole) × 46/30. Note that these conversion ratios are only considered appropriate for combustion processes, where no more than 10% of the NO_x is emitted as NO₂.

Use the following phased approach for assessment:

1. Screening/worst case scenario

50% and 100% of the modelled values should be used for short-term and long-term average concentration respectively. If PEC (process contribution + "relevant background concentration") exceeds the relevant air quality objective, then proceed to step 2.

Long-term: "Relevant background concentration" = background annual means.

Short-term: "Relevant background concentration" = 2 x background annual means.

2. Worse case scenario

35% for short-term and 70% for long-term average concentration should be considered. If PEC (process contribution + "relevant background concentration") exceeds the relevant air quality objective, then proceed to step 3.

3. Case specific scenario

Operators are asked to justify their use of percentages lower than 35% for short-term and 70% for long-term in their application reports.

- The validity of an "ozone-limiting" procedure for assessment of likely maximum conversion of NO_x to NO₂ should be assessed on a case-by-case basis.
- In some models, ozone photochemistry algorithms may have been used in the prediction of NO₂ concentrations. However, such algorithms require valid inputs of ozone concentrations, sunlight, etc, it is advised that uncertainties be quantified and justified before modelled predictions are accepted.

AQMAU CONTACT DETAILS

Telephone 08708 506506 ext. 7 26 6455
E-mail AQMAU@environment-agency.gov.uk
Fax 029 20468874
Address Air Quality Modelling and Assessment Unit,
The Environment Agency,
29 Newport Road,
Cardiff,
CF24 0TP.