 Northern Ireland Air - Air Quality in Northern Ireland

Monitoring Air Pollution

Air monitoring methodologies can be divided into five main types, covering a wide range of costs and performance levels. The methods and their relative merits are shown in the table below and discussed in the following section. The use of a particular type of monitoring equipment may need to be justified in review and assessment reports and therefore should be chosen appropriately.

It is also important to choose the most appropriate monitoring location for investigating a specific air pollution source or problem.

Advantages and Disadvantages of Monitoring Methods

< Back to Monitoring Methods

Passive sampling methods (diffusion tubes) - These represent a simple and cost-effective method of monitoring air quality in an area, to give a good general indication of average pollution concentrations. They are, therefore, particularly useful for assessment against annual mean objectives. A sample integrated over the exposure time is collected by diffusion to the sampler. The low cost per tube permits sampling at a number of points in the area of interest; this is useful in highlighting 'hot spots' of high concentrations, such as alongside major roads. They are less useful for identifying 'hot spots' around point sources or near to industrial locations where greater temporal resolution is required for particular objectives. Diffusion tubes surveys are simple to undertake and minimal operator training is required. Diffusion tubes are available for the following pollutants in the Air Quality Strategy:

 Diffusion tubes
 Diffusion tubes

- Nitrogen dioxide
- BTX (benzene, toluene, xylene)
- 1,3-butadiene
- (Sulphur dioxide - not suitable for R&A)

The tubes must be analysed by laboratories that can offer suitable quality assurance and quality control measures to ensure the results meet the data quality objectives defined for the method (contact the Monitoring Helpdesk for a list of suppliers and analysers of diffusion tubes). The diffusion tube data may be corrected for bias in the analytical results.

Monitoring Locations

Monitoring sites can be classified according to the type of environment in which they are located, in order to permit more meaningful evaluation of data. The site description will generally reflect the influence of a particular pollutant source or of overall land use. Typical monitoring location types, as used in national automatic monitoring networks, are described in the table below.

Type	Description	Source Influences	Objectives
URBAN	URBAN	Vehicle, commercial, space heating.	Identification of long-term urban trends.
KERBSIDE	A site sampling within 1m of the kerb of a busy road.	Local traffic.	Identifying vehicle pollution blackspots. Assessing worst case scenarios. Evaluating impacts of vehicle emission control

			technologies. Determining impacts of traffic planning/calming schemes.
ROADSIDE	A site sampling between 1m of the kerbside of a busy road and the back of the pavement. Typically this will be within 5m of the road, but could be up to 15m.	Local traffic.	Assessing worst case population exposure. Evaluating impacts of vehicle emission controls. Determining impacts of traffic planning/calming schemes.
SUBURBAN	A location type situated in a residential area on the outskirts of a town or city.	Traffic, commercial, space heating, regional transport, urban plume downwind of a city.	Traffic and land-use planning. Investigating urban plumes.
URBAN BACKGROUND	An urban location distanced from sources and therefore broadly representative of city-wide background conditions e.g. urban residential areas.	Vehicle, commercial, space heating.	Trend analysis. Urban planning. Traffic and land-use planning.
URBAN CENTRE	An urban location representative of typical population exposure in towns or city centres e.g. pedestrian precincts and shopping areas.	Vehicle, commercial, space heating.	Identification of long-term urban trends.
URBAN INDUSTRIAL	An area where industrial sources make an important contribution to the total pollution burden. Intermediate. 20-30m from the kerb of a busy road.	Industrial, motor vehicles.	Assessing local impacts on health and amenity. Process optimization. Source attribution/identification. Providing model input data. Model development/validation. Local planning and plant authorization
INTERMEDIATE	20-30m from the kerb of a busy road	Vehicle, commercial, space heating.	Identification of long-term urban trends.
AIRPORT	Monitoring within the boundary of an airport perimeter.	Aircraft, vehicle, commercial, space heating.	Determine air quality impact of airport.
OTHER	Any special source-orientated or location category covering monitoring undertaken in relation to specific emission sources such as power stations, car parks or tunnels.	As specified.	As specified.

For further information about this web site please email: info@airqualityni.co.uk

Search powered by [x] ⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚ [Search this site]

◉ Search within www.airqualityni.co.uk