STATUTORY RULES OF NORTHERN IRELAND

2003 No. 240

ENVIRONMENTAL PROTECTION

The Air Quality (Ozone) Regulations (Northern Ireland) 2003

Made - - - - - *17th April 2003*

Coming into operation *9th September 2003*

The Department of the Environment, being a Department designated(**a**) for the purposes of section 2(2) of the European Communities Act 1972(**b**) in relation to measures relating to the control of pollution in ambient air, in exercise of the powers conferred on it by that section and of every other power enabling it in that behalf, hereby makes the following Regulations:

Citation, commencement and interpretation

1.—(1) These Regulations may be cited as the Air Quality (Ozone) Regulations (Northern Ireland) 2003 and shall come into operation on 9th September 2003.

(2) The Interpretation Act (Northern Ireland) 1954(**c**) shall apply to these Regulations as it applies to an Act of the Northern Ireland Assembly.

Definitions

2.—(1) In these Regulations:

"agglomeration" means a zone with a population concentration in excess of 250,000 inhabitants, or, where the population concentration is 250,000 inhabitants or less, a population density per km^2 for which the Department considers that the need for ambient air be assessed or managed is justified;

"alert threshold" has the meaning given by Regulation 9(3);

"ambient air" means outdoor air in the troposphere, excluding workplaces;

"assessment" means any method used to measure, calculate, predict or estimate the level of ozone precursor substances in ambient air;

"fixed measurements" means measurements taken at fixed sites either continuously or by random sampling, the number of measurements being sufficiently large to enable the levels observed to be determined;

"information threshold" has the meaning given in Regulation 9(3);

"level" means the concentration of ozone precursor substances in ambient air;

"long-term objective" has the meaning given in Regulation 4;

"ozone precursor substances" means substances which contribute to the formation of ground-level ozone, including those listed in Schedule 4;

(**a**) S.I. 1988/785
(**b**) 1972 c. 68
(**c**) 1954 c. 33 (N.I.)

"public" has the meaning given in Regulation 8(6);

"rural background station" has the meaning given by Part I of Schedule 2;

"target value" has the meaning given by Regulation 3;

"volatile organic compounds" or "VOCs" means all organic compounds from anthropogenic and biogenic sources, other than methane, that are capable of producing photochemical oxidants by reactions with nitrogen oxides in the presence of sunlight;

"the Department" means the Department of the Environment; and

"zone" means an area within Northern Ireland which is designated for the purposes of these Regulations and shown on a map published by the Department, the Scottish Executive, the National Assembly for Wales, and the Department for Environment, Food and Rural Affairs in January 2001, a copy of which is deposited at the offices of the Department, Calvert House, 23 Castle Place, Belfast, BT1 1FY.

Target values

3.—(1) The target values for ozone concentrations in ambient air are set out in Part II of Schedule 1.

(2) The definitions and provisions of Part I of Schedule 1 shall apply to Parts II and III of that Schedule.

Long-term objectives

4. The long-term objectives for ozone concentrations in ambient air are set out in Part III of Schedule 1.

Assessment of concentrations of ozone and ozone precursor substances in ambient air

5. The Department shall take the measures necessary to ensure that throughout Northern Ireland in each zone, concentrations of ozone and ozone precursor substances are assessed in accordance with Regulations 6 to 7.

Classification of zones

6.—(1) The Department shall classify each zone in relation to ozone according to whether ambient air quality for ozone is required to be assessed by –

(a) fixed continuous measurement; or

(b) a combination of measurement campaigns of short duration and results from emissions inventories and modelling.

(2) Fixed continuous measurement must be used to assess ambient air quality in relation to ozone in a zone if within the last five years concentrations of ozone in that zone have exceeded a long-term objective.

(3) A combination of measurement campaigns of short duration, at times and locations likely to be typical of the highest pollution levels, and results from emissions inventories and modelling, may be used to assess ambient air quality in relation to ozone in a zone if fewer than five years' data are available to determine exceedances.

Method of assessment of ambient air quality

7.—(1) The Department shall ensure that ambient air quality is assessed in each zone by following the appropriate method for ozone in accordance with its current classification.

(2) For each zone classified under Regulation 6(2) in relation to ozone, the Department shall ensure that the minimum number of fixed sampling points determined in accordance with Part I of Schedule 3 is used for sampling the concentrations of ozone in that zone.

(3) For zones to which Regulation 7(2) applies, the Department shall ensure that measurements of nitrogen dioxide are made at a minimum of 50 per cent of the ozone sampling points required by Part I of Schedule 3.

(4) The measurements of nitrogen dioxide required by paragraph (3) shall be continuous, except at rural background stations, where other measurement methods may be used.

(5) For zones to which Regulation 7(3) applies, the number of fixed sampling points required by Part I of Schedule 3 may be reduced provided that –

(a) the supplementary methods prescribed by Regulation 6(3) provide an adequate level of information for the assessment of air quality with regard to target values, information and alert thresholds;

(b) the number of sampling points to be installed and the spatial resolution of other techniques are sufficient for the concentration of ozone to be established in accordance with the data quality objectives specified in Part I of Schedule 5 and lead to assessment results as specified in Part II of Schedule 5;

(c) the number of sampling points in each zone amounts to at least one sampling point per two million inhabitants, or one sampling point per 50,000 km^2, whichever produces the greater number of sampling points;

(d) each zone contains at least one sampling point; and

(e) nitrogen dioxide is measured at all remaining sampling points except rural background stations.

(6) The results of modelling and/or indicative measurements carried out in zones to which paragraph (5) applies shall be taken into account for the assessment of air quality with respect to target values.

(7) For zones where five years of measurement have been carried out, and during each of the previous five years of measurement concentrations are below the long-term objectives, the number of continuous measurement stations shall be determined in accordance with Part II of Schedule 3.

(8) Schedule 2 shall have effect for determining the location of sampling points for the fixed measurement of ozone.

(9) For ozone precursor substances, the Department shall ensure that –

(a) at least one measuring station to supply data on concentrations of the ozone precursor substances listed in Schedule 4 is installed and operated within Northern Ireland; and

(b) in choosing the number and siting of measuring stations for ozone precursor substances, account shall be taken of the objectives, methods and recommendations set out in Schedule 4.

(10) Reference methods for analysis of ozone are set out in Schedule 6, and these methods must be used unless other methods are used which the Department considers can be demonstrated to give equivalent results.

(11) For ozone, measurements of volume must be standardised at a temperature of 293K and a pressure of 101.3kPa.

Programmes and measures to address ozone levels

8.—(1) The Department shall draw up a list of zones in which:

(a) levels of ozone in ambient air, as assessed in accordance with Regulations 6 and 7, are higher than target values;

(b) levels of ozone in ambient air, as assessed in accordance with Regulations 6 and 7, are higher than the long-term objectives, but equal to or below the target levels; and

(c) ozone levels meet the long-term objectives.

(2) The Department, after consultation with other Northern Ireland Departments, shall draw up and implement for each zone listed under paragraph (1)(a), a plan or programme for attaining the target values from the date specified in Part II of Schedule 1.

(3) Paragraph (2) will not apply if the Department considers that attaining the target values would not be achievable through proportionate measures.

(4) The Department, after consultation with other Northern Ireland Departments, shall, in drawing up and implementing plans or programmes under paragraph (2), ensure that where appropriate, these are integrated with plans or programmes under Regulation 9 of the Air Quality Limit Values Regulations (Northern Ireland) 2002.

(5) Plans or programmes drawn up under paragraph (2) shall at least contain the information specified in Schedule 7 to The Air Quality Limit Values Regulations (Northern Ireland) 2002, and shall be made available to the public.

(6) For the purposes of paragraph (5), the public includes, but is not limited to, health care bodies and organisations having an interest in ambient air quality and representing the interests of sensitive populations, consumers and the environment.

(7) The Department shall prepare and implement for each zone listed under paragraph (1)(b) measures which it considers to be cost-effective with the aim of achieving the long-term objectives.

(8) The Department shall ensure that the measures described in paragraph (7) are, at least, consistent with the plans or programmes drawn up under paragraph (2).

(9) The Department shall, for zones to which paragraph (1)(c) applies –

(a) as far as factors including the transboundary nature of ozone pollution and meteorological conditions permit, ensure that ozone levels are kept below long-term objectives;

(b) preserve through proportionate measures the best ambient air quality which it considers to be compatible with sustainable development and a high level of protection for the environment and human health.

Public Information

9.—(1) The Department shall ensure that up-to-date information on concentrations of ozone in ambient air is routinely made available to the public.

(2) The information on concentrations of ozone in paragraph (1) shall be updated –

(a) where appropriate and practicable, on an hourly basis; and

(b) in all other cases, as a minimum, on a daily basis.

(3) The information threshold and alert threshold for ozone set out in Part I of Schedule 7 shall apply.

(4) Information made available under paragraph (1) shall include –

(a) an indication of each time and the extent to which ozone concentrations exceeded –

(i) the long-term objectives for the protection of health;

(ii) the information threshold; or

(iii) the alert threshold for the relevant averaging period; and

(iv) a short assessment of those exceedances and their effects on health;

(b) comprehensive annual reports; and

(c) timely information about actual or predicted exceedances of the alert threshold.

(5) The annual reports referred to in paragraph (4)(c) shall, at least, contain –

(a) for human health, an indication of all exceedances of the target value, long-term objective or alert threshold for the relevant averaging period;

(b) for vegetation –

(i) an indication of any exceedance of the target value or long-term objective; and

(ii) where appropriate, a short assessment of the effects of any such exceedance.

(6) The information referred to in paragraph (5)(b) may include, where appropriate –

(a) further information and assessments on vegetation protection, which sets out for suburban, rural and rural background stations based on one hour averaging, accumulated

from May to July, a report of value for each year, where levels of ozone concentrations in ambient air exceed 6,000$\mu g/m^3 \cdot h$; and

(b) information on precursor substances insofar as these are not covered by existing European Community legislation.

(7) Information and reports required to be published by these Regulations shall be published by appropriate means, including, as appropriate, broadcast media, press, publications, information screens, the internet or other computer network services.

(8) Where there has been an exceedance of the information threshold or alert threshold for ozone, the information specified in Part II of Schedule 7 shall be supplied to the public.

(9) Where practicable, the information specified in Part II of Schedule 7 shall be provided to the public where an exceedance of the information threshold or alert threshold for ozone is predicted.

(10) Information made available to the public under this Regulation shall be clear, comprehensible and accessible.

Action plans

10.—(1) The Department, after consultation with other Northern Ireland Departments, shall draw up action plans indicating the measures to be taken in the short term where there is any risk of the alert threshold being exceeded –

(a) if there is in its opinion significant potential to reduce such a risk; and

(b) in order to reduce the duration or severity of such an occurrence.

(2) In making the assessment required by paragraph (1), the Department shall take account of national geographical, meteorological and economic conditions.

(3) The Department shall make available to the public –

(a) the results of investigations undertaken in the preparation of action plans under these Regulations;

(b) the action plans; and

(c) information on the implementation of the action plans.

Transboundary pollution

11. Where the ozone concentrations in Northern Ireland exceed target values and long-term objectives, and this is due largely to precursor emissions in other Member States, the Department shall notify the Secretary of State for Environment, Food and Rural Affairs.

Information requirements

12.—(1) The Department shall ensure that the information specified in Part I of Schedule 8 is obtained and collated.

(2) The criteria for aggregating data and calculating statistical parameters specified in Part II of Schedule 8 shall apply.

Revocation of the Ozone Monitoring and Information Regulations 1994

13. The Ozone Monitoring and Information Regulations 1994(**a**) are hereby revoked.

Sealed with the Official Seal of the Department of the Environment on 17th April 2003.

(L.S.) *Judena Goldring*

A senior officer of the Department of the Environment

(**a**) S.I. 1994/440

SCHEDULE 1

TARGET VALUES AND LONG-TERM OBJECTIVES FOR OZONE CONCENTRATIONS IN AMBIENT AIR

PART I

DEFINITIONS AND INTERPRETATION

In this Schedule-

(a) all values shall be expressed in $\mu g/m^3$;

(b) the volume shall be standardised at the following conditions of temperature and pressure: 293K and 101.3kPa;

(c) the time shall be specified in Central European Time;

(d) "AOT40" (expressed in $(\mu g/m^3)$·hours) means the sum of the difference between hourly concentrations greater than $80\mu g/m^3$ (which equals 40 parts per billion) and $80\mu g/m^3$ over a given period using only the 1 hour values measured between 8:00 and 20:00 Central European Time each day;

in order to be valid, the annual data on exceedances used to check compliance with the target values and long-term objectives below must meet the criteria set out in Part II of Schedule 8.

PART II

TARGET VALUES FOR OZONE

	Parameter	*Target value for 2010* (a)
1. Target value for the protection of human health	Maximum daily 8-hour mean (b)	$120\mu g/m^3$ not to be exceeded on more than 25 days per calendar year averaged over three years (c)
2. Target value for the protection of vegetation	AOT40, calculated from 1h values from May to July	$18{,}000\mu g/m^3$·h averaged over five years

(a) compliance with target values will be assessed as of this value. That is, 2010 will be the first year the data for which is used in calculating compliance over three or five years, as appropriate.

(b) the maximum daily 8-hour mean concentration shall be selected by examining 8-hour running averages, calculated from hourly data and updated each hour. Each 8-hour average so calculated shall be assigned to the day on which it ends – that is, the first calculation period for any one day shall be the period from 17:00 on the previous day to 01:00 on that day; the last calculation period for any one day will be the period from 16:00 to 24:00 on that day.

(c) if the three or five year averages cannot be determined on the basis of a full and consecutive set of annual data, the minimum annual data required for checking compliance with the target values shall be as follows:

(i) for the target value for the protection of human health, valid data for one year; and

(ii) for the target value for the protection of vegetation, valid data for three years.

PART III

LONG-TERM OBJECTIVES FOR OZONE

	Parameter	*Long-term objective*
1. Long-term objective for the protection of human health	Maximum daily 8-hour mean within a calendar year	$120\mu g/m^3$
2. Long-term objective for the protection of vegetation	AOT40, calculated from 1h values from May to July`	$6{,}000\mu g/m^3$·h

SCHEDULE 2

CLASSIFICATION AND LOCATION OF SAMPLING POINTS

The following considerations will apply to fixed measurements:

PART I

MACROSCALE SITING

Type of station	*Objective of measurement*	*Representativeness* (a)	*Macroscale siting criteria*
Urban	**Protection of human health:** to assess the exposure of the urban population to ozone, i.e. where the population density and ozone concentration are relatively high and representative of the exposure of the general population.	A few km^2	Away from the influence of local emissions such as traffic, petrol stations etc.; vented locations where well-mixed levels can be measured; locations such as residential and commercial areas of cities, parks (away from the trees), big streets or squares with very little or no traffic, open areas characteristic of education, sports or recreation facilities.
Suburban	**Protection of human health and vegetation:** to assess the exposure of the population and vegetation located in the outskirts of the agglomeration, where the highest ozone levels, to which the population and vegetation is likely to be directly or indirectly exposed, occur.	Some tens of km^2	At a certain distance from the area of maximum emissions downwind following the main wind directions during conditions favourable to ozone formation; where population, sensitive crops or natural ecosystems located in the outer fringe of an agglomeration are exposed to high ozone levels; where appropriate, some suburban stations also upwind of the area of maximum emissions, in order to determine the regional background levels of ozone.
Rural	**Protection of human health and vegetation:** to assess the exposure of population, crops and natural ecosystems to sub-regional scale ozone concentrations.	Sub-regional levels (a few km^2)	Stations can be located in small settlements and/or areas with natural ecosystems, forests or crops; representative for ozone away from the influence of immediate local emissions such as industrial installations and roads; at open area sites, but not on higher mountain-tops.
Rural background	**Protection of vegetation and human health:** to assess the exposure of crops and natural ecosystems to regional-scale ozone concentrations as well as exposure of the populations.	Regional/national/ continental levels (1,000 to 10,000km^2)	Station located in areas with lower population density, e.g. with natural ecosystems, forests, far removed from urban and industrial areas and away from local emissions; avoid locations which are subject to locally enhanced formation of near-ground inversion conditions, also summits of higher mountains; coastal sites with pronounced diurnal wind cycles of local character are not recommended.

(a) sampling points should also, where possible, be representative of similar locations not in their immediate vicinity.

For rural and rural background stations, consideration should be given, where appropriate, to co-ordination with the monitoring requirements of Commission Regulations (EC) No. 1091/94(**a**) concerning protection of the Community's forests against atmospheric pollution.

PART II

MICROSCALE SITING

The following guidelines should be followed, as far as practicable:

1. the flow around the inlet sampling probe should be unrestricted (free in an arc of at least 2700) without any obstructions affecting the air flow in the vicinity of the sampler, i.e. away from buildings, balconies, trees and other obstacles by more than twice the height the obstacle protrudes above the sampler.

2. in general, the inlet sampling point should be between 1.5m (the breathing zone) and 4m above the ground. Higher positions are possible for urban stations in some circumstances and in wooded areas.

3. the inlet probe should be positioned well away from such sources as furnaces and incineration flues and more than 10m from the nearest road, with distance increasing as a function of traffic intensity.

4. the sampler's exhaust outlet should be positioned so as to avoid recirculation of exhaust to the sampler inlet.

The following factors may also be taken into account:

(a) interfering sources;

(b) security;

(c) access;

(d) availability of electrical power and telephone communications;

(e) visibility of the site in relation to its surroundings

(f) safety of public and operators;

(g) the desirability of co-locating sampling points for different pollutants; and

(h) planning requirements.

PART III

DOCUMENTATION AND REVIEW OF SITE SELECTION

Site selection procedures should be fully documented at the classification stage by such means as compass point photographs of the surroundings and a detailed map. Sites should be reviewed at regular intervals with repeated documentation to ensure that selection criteria are still being met.

This requires proper screening and interpretation of the monitoring data in the context of the meteorological and photochemical processes affecting the ozone concentrations measured at the respective site.

(**a**) O.J.No. L125, 18.5.1994, p. 1

SCHEDULE 3

CRITERIA FOR DETERMINING MINIMUM NUMBERS OF SAMPLING POINTS FOR FIXED MEASUREMENTS OF CONCENTRATIONS OF OZONE

PART I

MINIMUM NUMBER OF SAMPLING POINTS FOR FIXED CONTINUOUS MEASUREMENT TO ASSESS AIR QUALITY IN VIEW OF COMPLIANCE WITH THE TARGET VALUES, LONG-TERM OBJECTIVES AND INFORMATION AND ALERT THRESHOLDS WHERE CONTINUOUS MEASUREMENT IS THE SOLE SOURCE OF INFORMATION

Population (× 1,000)	*Agglomerations (urban and suburban) (a)*	*Other zones (suburban and rural)* (a)	*Rural background*
0 - 250		1	1 station/50,000 km^2 as an average density over all zones per country (b)
251 - 500	1	2	
501 – 1,000	2	2	
1,001 – 1,500	3	3	
1,501 – 2,000	3	4	
2,001 – 2,750	4	5	
2,751 – 3,750	5	6	
>3,750	1 additional station per 2 million inhabitants	1 additional station per 2 million inhabitants	

(a) at least 1 station in suburban areas, where the highest exposure of the population is likely to occur. In agglomerations, at least 50% of the stations should be located in suburban areas.

(b) 1 station per 25,000 km^2 for complex terrain is recommended.

PART II

MINIMUM NUMBER OF SAMPLING POINTS FOR FIXED MEASUREMENTS FOR ZONES ATTAINING THE LONG-TERM OBJECTIVES

The number of sampling points for ozone must, in combination with other means of supplementary assessment such as air quality modelling and co-located nitrogen dioxide measurements, be sufficient to examine the trend of ozone pollution and check compliance with the long-term objectives. The number of stations located in agglomerations and other zones may be reduced to one-third of the number specified in Part I. Where information from fixed measurement stations is the sole source of information, at least one monitoring station should be kept. If, in zones where there is supplementary assessment, the result of this is that a zone has no remaining station, co-ordination with the number of stations in neighbouring zones must ensure adequate assessment of ozone concentrations against long-term objectives. The number of rural background stations should be 1 per 100,000 km^2.

SCHEDULE 4

MEASUREMENTS OF OZONE PRECURSOR SUBSTANCES

Objectives

The main objectives of measurements of ozone precursor substances are to analyse any trend in ozone precursors, to check the efficiency of emission reduction strategies, to check the consistency of emissions inventories and to help attribute emission sources to pollution concentration.

An additional aim is to support the understanding of ozone formation and precursor dispersion processes, as well as the application of photochemical models.

Substances

Measurements of ozone precursor substances must include at least nitrogen oxides, and appropriate volatile organic compounds (VOCs). A list of VOCs recommended for measurement is given below.

ethane	1-butene	isoprene	ethyl benzene
ethylene	trans-2-butene	n-hexane	m+p-xylene

acetylene	cis-2-butene	i-hexane	o-xylene
propane	1.3-butadiene	n-heptane	1,2,4-trimeth.benzene
propene	n-pentane	n-octane	1,2,3-trimeth.benzene
n-butane	i-pentane	i-octane	1,3,5-trimeth.benzene
i-butane	1-pentene	benzene	formaldehyde
	2-pentene	toluene	total non-methane hydrocarbons

Reference methods

The reference method for the analysis of oxides of nitrogen shall be that specified in Part II of Schedule 6 to the Air Quality Limit Values Regulations (Northern Ireland) 2002, (S.R.2002/94).

Siting

Measurements should be taken in particular in urban and suburban areas at any monitoring site set up in accordance with the requirements of the Air Quality Limit Values Regulations (Northern Ireland) 2002 and considered appropriate with regard to the monitoring objectives in this Schedule.

SCHEDULE 5

DATA QUALITY OBJECTIVES AND COMPILATION OF RESULTS OF AIR QUALITY ASSESSMENT

PART I

DATA QUALITY OBJECTIVES

The following data quality objectives, for allowed uncertainty of assessment methods, and of minimum time coverage and of data capture of measurement, are provided to guide quality-assurance programmes:

	For ozone, NO_x and NO_2
Continuous fixed measurement	
Uncertainty of individual measurements	15%
Minimum data capture	90% during summer 75% during winter
Indicative measurement	
Uncertainty of individual measurements	30%
Minimum data capture	90%
Minimum time coverage	>10% during summer
Modelling	
Uncertainty	
1 hour averages (daytime)	50%
8 hours daily maximum	50%
Objective estimation	
Uncertainty	75%

The uncertainty (on a 95% confidence interval) of the measurement methods shall be evaluated in accordance with the principles laid down in the 'Guide to the Expression of Uncertainty of Measurements' (ISO 1993)(**a**) of the methodology in ISO 5725-1 'Accuracy (trueness and precision) of measurement methods and results' (ISO 1994) or equivalent. The percentages for uncertainty in the table are given for individual measurements, averaged over the period for calculating target values and long-term objectives,

(**a**) Copies of these International Standards Organisation publications can be purchased from the British Standards Institution 'BSI' sales department either by telephone on 020-8996-9001 or by post from the BSI, Standards House, 389 Chiswick High Road, London, W4 4AL

for a 95% confidence interval. The uncertainty for continuous fixed measurements should be interpreted as being applicable in the region of the concentration used for the appropriate threshold.

The uncertainty for modelling and objective estimation means the maximum deviation of the measured and calculated concentration levels, over the period for calculating the appropriate threshold, without taking into account the timing of events.

'Time coverage' means the percentage of time considered for settling the threshold value during which the pollutant is measured.

'Data capture' means the ratio of the time for which the instrument produces valid data, to the time for which the statistical parameter or aggregated value is to be calculated.

The requirements for minimum data capture and time coverage do not include losses of data due to the regular calibration or normal maintenance of the instrumentation.

PART II

RESULTS OF AIR QUALITY ASSESSMENT

The following information should be compiled for zones within which sources other than measurements are employed to supplement information from measurement:

- a description of the assessment activities carried out;
- specific methods used, with references to descriptions of the method;
- sources of data and information;
- a description of results, including uncertainties and, in particular, the extent of any area within the zone over which concentrations exceed long-term objectives or target values;
- for long-term objectives or target values whose object is the protection of human health, the population potentially exposed to concentrations in excess of the threshold.

The Department shall ensure that maps are compiled showing concentration distributions within each zone.

SCHEDULE 6

REFERENCE METHODS FOR ANALYSIS OF OZONE AND CALIBRATION OF OZONE INSTRUMENTS

The reference method for analysis of ozone shall be the UV photometric method (ISO FDIS 13964).

The reference method for calibration of ozone instruments shall be the Reference UV photometer method (ISO FDIS 13964, VDI 2468, B1.6).

SCHEDULE 7

INFORMATION AND ALERT THRESHOLDS

PART I

INFORMATION AND ALERT THRESHOLDS FOR OZONE

	Parameter	*Threshold*
Information threshold	1 hour average	$180\mu g/m^3$
Alert threshold	1 hour average (a)	$240\mu g/m^3$

(a) The exceedance of the threshold is to be measured or predicted for three consecutive hours.

PART II

MINIMUM DETAILS TO BE SUPPLIED TO THE PUBLIC WHEN THE INFORMATION OR ALERT THRESHOLD IS EXCEEDED OR EXCEEDANCE IS PREDICTED

Details to be supplied to the public on a sufficiently large scale as soon as possible should include:

1. Information on any observed exceedance:

(a) the location or area of the exceedance;

(b) the type of threshold exceeded (information threshold or alert threshold);

(c) the time at which the exceedance began and its duration; and

(d) the highest 1-hour and 8-hour mean concentration.

2. Forecast for the following afternoon, day or days:

(a) the geographical area of expected exceedances of an information threshold or alert threshold; and

(b) the expected change in pollution (that is, improvement, stabilisation or deterioration)

3. Information on the type of population concerned, possible health effects and recommended conduct:

(a) information on population groups at risk;

(b) description of likely symptoms;

(c) recommended precautions to be taken by the population concerned; and

(d) where to find further information.

4. Information provided under this Schedule shall also include:

(a) information on preventive action to reduce pollution or exposure to it;

(b) an indication of main source sectors; and

(c) recommendations for action to reduce emissions.

SCHEDULE 8

INFORMATION TO BE OBTAINED AND COLLATED ON OZONE CONCENTRATIONS, AND CRITERIA FOR AGGREGATING DATA AND CALCULATING STATISTICAL PARAMETERS

PART I

INFORMATION ON OZONE CONCENTRATIONS

The following information on ozone concentrations shall be obtained and collated:

	Type of station	*Level*	*Averaging/ accumulation time*	*Provisional date for each month from April to September*	*Report for each year*
Information threshold	Any	180μg/m^3	1 hour	– for each day with any exceedance: date, total hours of exceedance, maximum 1 hour ozone and related NO_2 values when required. – monthly 1 hour maximum ozone.	–for each day with any exceedance: date, total hours of exceedance, maximum 1 hour ozone and related NO_2 values when required.

	Type of station	*Level*	*Averaging/ accumulation time*	*Provisional date for each month from April to September*	*Report for each year*
Alert threshold	Any	240μg/m^3	1 hour	– for each day with any exceedance: date, total hours of exceedance, maximum1 hour ozone and related NO_2 values.when required	– for each day with any exceedance: date, total hours of exceedance, maximum 1 hour ozone and related NO_2 values when required.
Health protection	Any	120μg/m^3	8 hours	– for each day with any exceedance: date, 8 hours maximum (b)	– for each day with any exceedance: date, 8 hours maximum (b)
Vegetation protection	Suburban, rural,rural= background	AOT40 (a) 6,000 μg/m^3·h	1 hour, accumulated from May to June		Value
Forest protection	Suburban, rural, rural= background	AOT40 (a) 20,000 μg/m^3·h	1 hour, accumulated from April to September		Value
Materials	Any	40μg/m^3	1 year		Value

(a) in this Schedule, “AOT40” has the same meaning as in paragraph (d) of Part I to Schedule 1.

(b) maximum daily 8-hour mean.

Where they do not do so already, annual reports must also contain:

(a) for ozone, nitrogen dioxide, oxides of nitrogen and the sums of ozone and nitrogen dioxide (added as parts per billion and expressed in mg/m^3 ozone) the maximum, 99.9th, 98th and 50th percentiles and annual average and number of valid data from hourly series; and

(b the maximum, 98th and 50th percentile and annual average from a series of daily 8-hour ozone maxima.

Data submitted in monthly reports are considered provisional and shall be updated where necessary in subsequent submissions.

PART II

CRITERIA FOR AGGREGATING DATA AND CALCULATING STATISTICAL PARAMETERS

In this Part, percentiles are to be calculated using the method specified in Council Directive 97/101/EC(**a**).

The following criteria are to be used for checking validity when aggregating data and calculating statistical parameters:

Parameter	*Required proportion of valid data*
1 hour values	75% (45 minutes)
8 hour values	75% of values (6 hours)
Maximum daily 8 hours mean from hourly running 8 hours averages	75% of the hourly running 8 hour averages (8 hours per day)
AOT40	90% of the 1 hour values over the time period defined for calculating the AOT40 (b)

(**a**) O.J. No. L35, 5.2.1997, p. 14

Parameter	*Required proportion of valid data*
Annual mean	75% of the 1 hour values over summer (April to September) and winter (January to March, October to December) seasons separately
Number of exceedances and maximum values per month	90% of the daily maximum 8 hours mean value (27 available daily values per month) 90% of the 1 hour values between 8:00 and 20:00 Central European Time
Number of exceedances and maximum values per year	Five out of six summer months over the summer season (April to September)

(b in cases where all possible measured data are not available, the following factor shall be used to calculate AOT40 values:

$$\text{AOT40 (estimate)} = \text{AOT40 (measured)} \times \frac{\text{total possible number of hours*}}{\text{number of measured hourly values}}$$

* being the number of hours within the time period of AOT40 definition (that is, 8:00 to 20:00 Central European Time from 1 May to 31 July each year, for vegetation protection and from 1 April to 30 September each year for forest protection).

EXPLANATORY NOTE

(This note is not part of the Regulations.)

These Regulations are made in the implementation in Northern Ireland of European Council Directive 2002/3/EC relating to ozone in ambient air.

Regulation 3 sets the target values for the protection of human health and vegetation in respect of the concentrations of ozone in ambient air.

Regulation 4 sets the long-term objectives for the protection of human health and vegetation in respect of the concentrations of ozone in ambient air.

Regulation 5 requires the Department of the Environment ("the Department") to assess the concentrations of ozone and ozone precursor substances in accordance with Regulations 6 to 7.

Regulation 6 requires the Department to classify each zone in relation to ozone in accordance with the method of assessment that is required, and which is dependent on either the history of ozone concentrations or the available data in each zone.

Regulation 7 requires the Department to ensure that specified methods are used for assessing ambient air quality in respect of ozone. Part I of Schedule 3 specifies the minimum number of fixed sampling points required where continuous measurement is the only source of information. The Regulation also specifies the minimum number of sampling points that are required for the measurement of nitrogen dioxide. It provides details of when the number of sampling points required by Part I of Schedule 3 may be reduced. Schedule 2 determines the location of sampling points for the fixed measurement of ozone. Schedule 4 lists the recommended ozone precursor substances of which concentrations must be measured. Schedule 6 prescribes reference methods for the analysis of ozone.

Regulation 8 requires the Department to compile a list of zones, and draw up and implement a plan or programme where the levels of ozone in ambient air are: (i) higher than the target value, save where achieving the target value would not be done so through proportionate measures; and (ii) higher than the long-term objectives but equal to or below the target values. The information shall be made available to the public. The Department is also required to ensure that in those zones where ozone levels meet the long-term objectives, levels are kept below long-term objectives, and are preserved through proportionate measures.

Regulation 9 requires the Department to ensure that up-to-date information on concentrations of ozone in ambient air is made available routinely to the public, which shall include an indication of each time and the extent to which ozone concentrations were exceeded; a short assessment of those exceedances and their effect on public health; comprehensive annual reports; and timely information about actual or predicted exceedances of the alert threshold. The information made available to the public shall be clear, comprehensive and accessible.

Regulation 10 requires the Department to draw up action plans indicating the measures to be taken in the short term where there is any risk of the alert threshold being exceeded, if there is significant potential to reduce such a risk and in order to reduce the duration or severity of such an occurrence. The Department shall make the results of investigations undertaken in the preparation of these action plans, the action plans and information on implementation of the action plans available to the public.

Regulation 11 requires the Department to notify the Secretary of State for the Environment, Food and Rural Affairs should transboundary pollution incidents arise in Northern Ireland, and where the cause is due largely to precursor emissions in other Member States.

Regulation 12 requires the Department to ensure that the information specified in Part I of Schedule 8 is obtained and collated. The criteria for aggregating data and calculating statistical parameters specified in Part II of Schedule 8 shall apply to this Regulation.

Regulation 13 revokes the Ozone Monitoring and Information Regulations 1994.

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