



STATUTORY INSTRUMENTS.

**S.I. No. 180 of 2011**



AIR QUALITY STANDARDS REGULATIONS 2011

**(Prn. A11/0604)**

AIR QUALITY STANDARDS REGULATIONS 2011

I, PHIL HOGAN, Minister for the Environment, Heritage and Local Government, in exercise of the powers conferred on me by Section 3 of the European Communities Act 1972 (No. 27 of 1972) and for the purpose of giving effect to Council Directive 2008/50/EC<sup>1</sup> of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe, hereby make the following Regulations:

*Citation*

1. These Regulations may be cited as the Air Quality Standards Regulations 2011.

*Entry into Force*

2. These Regulations shall come into effect on 12 April 2011.

*Definitions*

3. (1) In these Regulations—

“Agency” means the Environmental Protection Agency established under section 19 of the Environmental Protection Agency Act 1992 (No. 7 of 1992);

“Commission” means the Commission of the European Communities;

“Department” means the Department of the Environment, Heritage and Local Government;

“Directive” means Directive 2008/50/EC of the European Parliament and of the Council on ambient air quality and cleaner air for Europe;

“Local authority” means—

(a) a county council, and

(b) a city council,

within the meaning of the Local Government Act 2001;

“Minister” means the Minister for the Environment, Heritage and Local Government;

“particulate matter” means PM<sub>2.5</sub> and PM<sub>10</sub>;

<sup>1</sup>O.J. No. L 152 of 11 June 2008

*Notice of the making of this Statutory Instrument was published in “Iris Oifigiúil” of 19th April, 2011.*

(2) A word or expression which is used in these Regulations and which is also used in the Directive has, unless the context otherwise requires, the same meaning in these Regulations as it has in the Directive.

#### *Scope*

4. These Regulations:

- (a) make provisions necessary for the implementation of Directive 2008/50/EC on ambient air quality and cleaner air for Europe;
- (b) establish limit values and, as appropriate, alert thresholds for concentrations of certain pollutants in ambient air intended to avoid, prevent or reduce harmful effects on human health and the environment as a whole;
- (c) provide for the assessment of concentrations of certain pollutants in ambient air on the basis of methods and criteria common to the Member States of the European Communities;
- (d) provide for the obtaining of adequate information on concentrations of certain pollutants in ambient air and ensure that it is made available to the public, inter alia by means of alert thresholds; and
- (e) provide for the maintenance of ambient air quality where it is good and the improvement of ambient air quality in other cases with respect to certain pollutants.

#### *Competent Authority*

5. (1) For the purposes of these Regulations and the Directive the Environmental Protection Agency is the competent authority responsible for—

- (a) assessing ambient air quality in the territory of the State;
- (b) approving, or causing to be approved, such ambient air quality measuring devices (including but not limited to methods, equipment, networks and laboratories) as are deemed necessary by the Agency for the implementation of the Directive;
- (c) ensuring, or causing to be ensured, the accuracy of the measurement by measuring devices and checking, or causing to be checked, the maintenance of such accuracy by those devices, in particular by internal quality controls carried out in accordance, inter alia, with the requirements of European quality assurance standards;
- (d) the analysis of assessment methods;
- (e) co-ordination within the State of Community-wide quality assurance programmes organised by the Commission of the European Communities; and
- (f) co-operation with the other Member States and the Commission.

(2) Where relevant the Agency shall comply with the quality assurance for ambient air quality assessment requirements set out in Schedule 1.

(3) Where a local authority is monitoring, or proposes to monitor, any pollutant within the scope of these Regulations, it shall consult with the Agency as regards the arrangements to satisfy the monitoring requirements under these Regulations.

(4) For the purpose of ensuring compliance with these Regulations the Agency may give instruction to a local authority in relation to monitoring, reporting and the implementation of measures necessary for effective pollution control and preservation of best ambient air quality.

#### *Zones*

6. (1) The Agency shall establish zones and agglomerations throughout the territory of the State for the purpose of air quality assessment and air quality management.

(2) The Agency must review the classification of zones at least every five years, and must do so more frequently than every five years if there are significant changes in the activities which may affect levels of pollutants in ambient air.

(3) Exceedances of upper and lower assessment thresholds shall be determined on the basis of concentrations during the previous five years where sufficient data are available. An assessment threshold shall be deemed to have been exceeded if it has been exceeded during at least three separate years out of those previous five years.

(4) Where fewer than five years' data are available, the Agency may combine measurement campaigns of short duration during the period of the year and at locations likely to be typical of the highest pollution levels with results obtained from information from emission inventories and modelling to determine exceedances of the upper and lower assessment thresholds.

(5) Where measurements are supplemented by modelling or indicative measurement then the Agency must take account of the results of those supplementary methods in assessing ambient air quality for the purposes of these Regulations.

#### **Assessment of ambient air quality in relation to sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide**

##### *Assessment thresholds*

7. (1) The upper and lower assessment thresholds specified in Schedule 2, shall apply to sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide.

(2) The Agency shall classify each zone according to whether or not the upper or lower assessment thresholds have been exceeded.

(3) The alert threshold for concentrations of sulphur dioxide and nitrogen dioxide in ambient air shall be that specified in Schedule 12.

*Assessment criteria*

8. (1) The Agency must assess the level of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide in ambient air in all zones.

(2) In all zones where the level of those pollutants exceeds the upper assessment threshold referred to in Regulation 7(1), fixed measurements must be used, but may be supplemented by modelling or indicative measurements or both in order to provide adequate information on the spatial distribution of the ambient air quality.

(3) In all zones where the level of those pollutants is below the lower assessment threshold referred to in Regulation 7(1), modelling or estimation techniques or both may be used instead of measurement.

(4) In all other zones a combination of fixed measurements together with modelling or indicative measurements or both may be used.

(5) The Agency must measure  $PM_{2.5}$  at a rural background location away from significant sources of air pollution, in order to provide information on an annual average basis on the total mass concentration and chemical speciation concentrations of that pollutant in line, where appropriate, with the following criteria:

(a) monitoring shall be coordinated with the monitoring strategy and measurement programme of the Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP); and

(b) measurements for determining the total mass concentration must be carried out in accordance with the criteria set out in sections A and C of Schedule 1 and 4.

(6) The Agency shall inform the Commission of the measurement methods used in the measurement of the chemical composition of  $PM_{2.5}$ .

(7) Measurements must be taken in accordance with the reference measurement methods specified in Section A and Section C of Schedule 6.

(8) Alternative methods to those referred to in Regulation 8.7 may be used provided the conditions set out in Section B of Schedule 6 are complied with.

*Location and number of sampling points*

9. (1) The Agency shall determine the location of sampling points for the measurement of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide in ambient air in accordance with the criteria specified in Schedule 3.

(2) In zones where fixed measurement is the sole source of information for the assessment of air quality, the number of sampling points must be more than or equal to the minimum number specified in Section A of Schedule 5 for the purpose of assessing compliance with limit values and alert thresholds.

(3) In zones other than agglomerations where fixed measurement is the sole source of information for the assessment of air quality, the number of sampling points must be more than or equal to the minimum number specified in Section C of Schedule 5 for the purpose of assessing compliance with critical levels for the protection of vegetation.

(4) In zones where the information from fixed measurement is supplemented by information from modelling or indicative measurement or both, the number of sampling points in either Section A or C of Schedule 5 may be reduced by up to 50% provided that the following conditions are met:

- (a) the supplementary methods provide sufficient information for the assessment of air quality in relation to limit values or alert thresholds;
- (b) the supplementary methods provide sufficient information to inform the public as to the state of ambient air quality, and
- (c) the number of sampling points to be installed and the spatial resolution of other techniques are sufficient for the concentration of the relevant pollutant to be established in accordance with the data quality objectives specified in Section A of Schedule 5 and enable assessment results to meet the criteria in Section B of the same Schedule.

*Measures to ensure compliance and to maintain good air quality*

10. (1) The Agency shall identify those areas, consisting of zones or agglomerations in whole or in part, where the levels of pollutants in ambient air are below the limit values for the protection of human health specified in Schedule 11.

(2) The Agency shall identify those areas, consisting of zones or agglomerations in whole or in part, where the levels of pollutants in ambient air are below the critical levels for the protection of vegetation specified in Schedule 13

(3) The local authority shall, as necessary, in consultation with the Agency:

- (a) identify sources of pollutants in ambient air;
- (b) notify the levels and the sources of the emissions contributing to the levels to any statutory body or agency, the discharge of whose functions will be or may be affected by the measures specified under paragraph (c); and
- (c) specify, in consultation with the statutory body or agency concerned:

- (i) the measures necessary to ensure that levels of pollutants are maintained below the respective limit values specified in Schedule 11 and respective critical levels specified in Schedule 13; and
- (ii) the dates by which such measures shall be taken.

(4) The Minister, the Agency and the local authority shall take the necessary action to maintain the levels of those pollutants below the limit values and critical levels and shall endeavor to preserve the best ambient air quality, compatible with sustainable development.

11. (1) For the purpose of ensuring compliance with limit values in zones or agglomerations where levels of pollutants in ambient air exceed the respective values specified in Schedules 11 the Agency shall:

- (a) identify those areas, consisting of zones or agglomerations in whole or in part, where the levels exceed the limit values specified in Schedule 11;
- (b) identify the sources of pollutants contributing to the exceedance;
- (c) notify the exceedances and the sources contributing to the exceedances to the relevant local authority in whose functional area each zone or agglomeration or part of a zone or agglomeration or specified source of the emissions exists or any other statutory body or agency, the discharge of whose functions will be or may be affected by the measures specified under paragraph (d);
- (d) specify, in consultation with the local authority, statutory body or agency concerned:
  - (i) all the measures directed in particular at the dominant sources of emissions to ensure that levels do not exceed the limit values specified in Schedule 11; and
  - (ii) the dates by which such measures shall be taken.

(2) The Minister, the Agency and the local authority shall take the necessary action to ensure that pollutant levels are reduced below the limit values specified in Schedule 11.

12. (1) The agency shall ensure that measures pursuant to Regulations 10 and 11:

- (a) shall not, when taken in respect of PM<sub>2.5</sub> or ozone, entail disproportionate costs; and
- (b) shall in the case of industrial installations covered by Directive 2010/75/EU<sup>2</sup>, mean the application of BAT as defined by Article 2(11) of that Directive.

<sup>2</sup>O.J. No. L334/17 of 24 November 2010.

(2) The functions, duties and responsibilities of the Agency and local authorities and other statutory body or agency concerned, shall be coordinated and integrated as appropriate and in so far as possible with plans, programmes and other actions in respect of pollutants which are assessed and managed under other relevant legislation.

### **Assessment of ambient air quality in relation to ozone**

#### *Assessment criteria*

13. (1) The Agency shall ensure that fixed measurements are taken in any zone where the concentrations of ozone have exceeded the long-term objectives specified in Schedule 7 during any of the previous five years of measurement.

(2) Where fewer than five years' data are available, the Agency may, for the purposes of determining whether the longterm objectives referred to in Regulation 13.1 have been exceeded during those five years, combine the results from measurement campaigns of short duration carried out when and where levels are likely to be at their highest, with the results obtained from emission inventories and modelling.

(3) For the purposes of Regulation 13.1 measurements must be taken in accordance with the reference measurement methods specified in point 8 of Section A of Schedule 6.

(4) Alternative methods to those referred to in Regulation 13.2 may be used provided the conditions set out in Section B of Schedule 6 are complied with.

(5) The Agency shall inform the Minister and the Commission of the methods used to sample and measure volatile organic compounds (VOC).

#### *Location and number of sampling points*

14. (1) The Agency shall determine the location of sampling points for the measurement of ozone in accordance with the criteria set out in Schedule 8.

(2) In zones where fixed measurement is the sole source of information for the assessment of air quality, the number of sampling points must be more than or equal to the minimum number specified in Section A of Schedule 9.

(3) In zones where the concentrations of ozone have been below the long-term objectives for each of the previous five years of measurement, the number of sampling points must be determined in accordance with the criteria set out in Section B of Schedule 9.

(4) In zones where the information from fixed measurement is supplemented by information from modelling or indicative measurement or both, the number of ozone sampling points may be reduced provided that the following conditions are met—

- (a) the supplementary methods provide sufficient information for the assessment of air quality in relation to target values, long-term objectives, information and alert thresholds;



- (b) the number of sampling points to be installed and the spatial resolution of supplementary methods are sufficient for the concentration of ozone to be established in accordance with the data quality objectives set out in Section A of Schedule 1 and to enable assessment results to meet the criteria specified in Section B of the same Schedule; and
- (c) there is at least one ozone sampling point in each zone.
- (d) nitrogen dioxide is measured at all remaining ozone sampling points except at rural background stations.

(5) The Agency must ensure that nitrogen dioxide is continuously measured at no less than 50% of ozone sampling points except at rural background stations as set out in Schedule 9, where other measurement methods may be used.

(6) The Agency shall ensure that concentrations of the ozone precursor substances listed in Schedule 10 are measured at one or more ozone sampling points.

(7) The Agency may choose the location and number of sampling points for measurements of ozone precursor substances taking into account the objectives and methods set out in Schedule 10.

*Measures to ensure compliance with ozone target values and to maintain good air quality*

15. (1) The Minister, the Agency and the local authority shall take all necessary measures not entailing disproportionate costs to ensure that ozone target values and long-term objectives, as specified in Schedule 7, are attained.

(2) In zones and agglomerations in which a target value for ozone is exceeded the Agency and the local authority, or local authorities as appropriate, shall ensure that the programme prepared pursuant to Article 6 of Council Directive 2001/81/EC on national emission ceilings for certain atmospheric pollutants is implemented in order to attain target values save where not achievable through measures not entailing disproportionate costs.

(3) For zones and agglomerations in which the levels of ozone in ambient air are higher than the long-term objectives but below, or equal to, the target values, the Minister, the Agency and the local authority shall prepare and implement cost-effective measures with the aim of achieving the long-term objectives. Those measures shall, at least, be consistent with all the air quality plans and the programme referred to in Regulation 15(2).

(4) For the purpose of ensuring continued compliance with ozone target values and long-term objectives in zones or agglomerations the Agency shall identify the measures by which such values can be attained and the means by which the best ambient air quality standards may be preserved, insofar as factors including the transboundary nature of ozone pollution and meteorological conditions permit,

(5) The Agency shall advise the relevant local authority, or local authorities as appropriate and any statutory agency or body with relevant functional responsibility of any such measures identified under Regulation 15(4).

(6) The Agency and the local authority, or local authorities as appropriate, shall through proportionate measures promote the preservation of best ambient air quality compatible with sustainable development and a high level of environmental and human health protection

### **Ambient air quality management**

#### *Fine Particulate Matter PM<sub>2.5</sub>*

16. (1) The Agency shall calculate the average exposure indicator (AEI) for PM<sub>2.5</sub> for the State for 2011, 2015 and 2020 based on an average annual measurement derived from measurements at all the sampling points in urban background locations averaged over 3 calendar years in accordance with Section A of Schedule 14.

(2) The Agency shall ensure that the distribution of sampling points used for calculating the AEI adequately reflects the exposure of the general population.

(3) The number of sampling points used for calculating the AEI shall be more than or equal to the minimum number specified in Section B of Schedule 5.

(4) For the purpose of ensuring that current concentrations of PM<sub>2.5</sub> in ambient air do not exceed 25µg/m<sup>3</sup> and that the AEI for 2015 does not exceed the exposure concentration obligation of 20µg/m<sup>3</sup> the Agency shall:

- (a) identify those areas, consisting of zones or agglomerations in whole or in part, where the levels risk exceedance;
- (b) identify the main contributing sources;
- (c) notify this information to the relevant local authority in whose functional area each zone or agglomeration or part of a zone or agglomeration or specified source of the emissions exists or any other statutory body or agency, the discharge of whose functions will be or may be affected by the measures specified under paragraph (d);
- (d) specify, in consultation with the local authority, statutory body or agency concerned:
  - (i) all the measures directed in particular at the dominant sources of emissions to ensure that levels do not exceed the specified values; and
  - (ii) the dates by which such measures shall be taken.

(5) The Minister, the Agency and the local authority shall ensure that the values specified for PM<sub>2.5</sub> in regulation 16.4 are not exceeded..

17. (1) The Agency shall establish the national exposure reduction target for  $PM_{2.5}$  in accordance with Section B of Schedule 14.

(2) The Minister, the Agency and the local authority shall take all necessary measures not entailing disproportionate costs to reduce exposure to  $PM_{2.5}$  with a view to attaining the national exposure reduction target established by the Agency.

*Alert Thresholds*

18. (1) Where any of the information or alert thresholds for pollutants in Schedules 12 are exceeded in relation to the relevant averaging periods set out in that Schedule, the Agency will make such information available to prescribed bodies and ensure that the public are informed by means of radio, television, newspapers or the internet.

(2) The Agency shall communicate to the Minister and the Commission, on a provisional basis, information concerning the levels recorded and the duration of the periods during which the alert threshold or information threshold was exceeded.

*Contributions from natural sources*

19. (1) The Agency shall transmit to the Commission, for a given year, lists of zones and agglomerations where exceedances of limit values for a given pollutant are attributable to natural sources

(2) The Agency shall provide information on concentrations and sources and the evidence demonstrating that the exceedances are attributable to natural sources.

*Exceedances attributable to winter-sanding or —salting of roads*

20. (1) The Agency may designate zones or agglomerations within which limit values for  $PM_{10}$  are exceeded in ambient air due to the re-suspension of particulates following winter-sanding or —salting of roads.

(2) The Agency shall send the Commission lists of any such zones or agglomerations together with information on concentrations and sources of  $PM_{10}$  therein.

(3) When informing the Commission the Agency shall provide the necessary evidence to demonstrate that any exceedances are due to re-suspended particulates and that reasonable measures have been taken to lower the concentrations.

(4) In the case of zones and agglomerations referred to in Regulation 20(1), the Agency needs to establish the air quality plan provided for in Regulation 22 only in so far as exceedances are attributable to  $PM_{10}$  sources other than winter-sanding or salting of roads.

**Plans, information and reporting***Short-term action plans*

21. (1) The Agency shall identify and notify to the relevant local authority or authorities, including, if appropriate, competent authorities in neighbouring zones in the State, those areas, consisting of zones and agglomerations in whole or in part, where the Agency considers measures are likely to be necessary to be taken in the short-term where there is a risk that the levels of pollutants will exceed one or more of the alert thresholds specified in Schedule 12.

(2) Where there is a risk that the alert threshold for ozone specified in Schedule 2 will be exceeded, such identification and notification shall take into account particular local circumstances and be occasioned where the Agency is of the view that there is a significant potential, taking into account national geographical, meteorological and economic conditions, for reducing the risk, or for reducing the duration or severity, of any such exceedance.

(3) Where there is a risk that the alert threshold for ozone will be exceeded, the short-term action plan shall take account of Commission Decision 2004/279/EC<sup>3</sup>.

(4) When notified by the Agency or where a local authority or local authorities consider such measures are likely to be necessary, the local authority, or local authorities as appropriate, shall prepare an air pollution short-term action plan indicating the measures to be taken in the short-term to reduce the risk of the alert threshold being exceeded, or the duration or severity of any such exceedance and providing, as appropriate, for measures to control, and, where necessary, reduce or suspend activities, including motor vehicle traffic, which contribute or may contribute to the alert threshold being exceeded.

(5) The Agency may set trigger levels of concentrations of ozone in ambient air, exceedance of which require the preparation of air pollution short-term action plans.

(6) A local authority, or local authorities as appropriate, shall make available free of charge to the public and to any environmental organisation, consumer organisation, organisation representing the interests of sensitive populations and health care body considered relevant by the local authority or local authorities, or which so requests, the results of any investigations and the content of specific air pollution action plans as well as information on the implementation of such plans.

*Air quality plans*

22. (1) Where, in given zones or agglomerations, the levels of pollutants in ambient air exceed any limit value or target value, plus any relevant margin of tolerance in each case, the Agency shall ensure that air quality plans are established for those zones and agglomerations in order to achieve the related limit value or target value.

<sup>3</sup>O.J. No. L 87 of 25 March 2004

(2) For the purpose of Regulation 22(1) the Agency shall:

- (a) identify and notify to the relevant local authority or authorities those areas, consisting of zones and agglomerations in whole or in part, where the Agency considers measures are likely to be necessary to ensure compliance with the limit value or values for the relevant pollutant within the time limit specified in the relevant Schedule for that pollutant; and
- (b) provide to the local authority or authorities concerned all data relevant to the air quality assessment for the area concerned.

(3) The local authority or authorities so notified shall prepare a clear, comprehensible and accessible air quality plan, or review and revise an existing plan, to ensure compliance with the limit value or values within the time limit specified for the relevant pollutant or pollutants.

(4) Where the attainment date for a limit value has passed, the air quality plan must set out the measures intended to ensure compliance with limit value as soon as possible.

(5) Air quality plans must include the information listed in Schedule 15.

(6) Air quality plans must be communicated to the Minister and the Commission no later than two years after the end of the year the first exceedance was observed.

(7) Where an air quality plan is required in relation to more than one pollutant, the Agency must ensure the plans are integrated in relation to all pollutants concerned.

(8) Wherever possible, air quality plans must be consistent with other plans drawn up in accordance with obligations imposed under Council Directive 2001/80/EC on the limitation of emissions of certain pollutants into the air from large combustion plants<sup>4</sup>, Council Directive 2001/81/EC on national emission ceilings for certain atmospheric pollutants<sup>5</sup>, and Council Directive 2002/49/EC on assessment and management of environmental noise<sup>6</sup>.

#### *Public information*

23. (1) The Agency shall take appropriate steps, including the use of the internet, press and other easily accessible media, to ensure that clear and comprehensible information on the ambient air concentrations of pollutants within the scope of these regulations is accessible and is routinely made available to the public and to any appropriate organisations, including environmental organisations, consumer organisations, organisations representing the interests of sensitive populations and other health care organisations considered relevant by the Agency or to any organisation which so requests.

<sup>4</sup>O.J. No. L 309 of 27 November 2001

<sup>5</sup>O.J. No. L 309 of 27 November 2001

<sup>6</sup>O.J. No. L 189 of 18 July 2002

- (2) The information referred to in Regulation 23(1) shall be updated and made available as follows:-
- (a) for sulphur dioxide, nitrogen dioxide and oxides of nitrogen and particulate matter, on at least a daily basis, and in the case of hourly values for sulphur dioxide and nitrogen dioxide, wherever practicable on an hourly basis;
  - (b) for carbon monoxide, as a maximum running average over eight hours at least on a daily basis, and where practicable on an hourly basis;
  - (c) for lead, on a three monthly basis;
  - (d) for benzene, as an average value over the preceding 12 months, on at least a three-monthly basis; and
  - (e) for ozone, on at least a daily basis, and wherever appropriate and practicable, on an hourly basis.
- (3) The information referred to in Regulation 23(1) shall indicate at least:—
- (a) any exceedance of the concentrations in the limit values and alert thresholds, if relevant, over the appropriate averaging period specified in Schedules 11 and 12;
  - (b) short assessment in relation to the limit values and alert thresholds;
  - (c) appropriate information regarding effects on health;
  - (d) forecasting of ambient air quality where practicable; and
  - (e) details of air quality plans where available.
- (4) In cases where either the information threshold or the alert threshold specified in Schedule 12 for nitrogen dioxide, sulphur dioxide or ozone is exceeded the Agency shall inform the bodies prescribed in Schedule 17 and make available the following information to the public as soon as possible:
- (a) the location or area where thresholds are exceeded;
  - (b) the type of threshold exceeded (information or alert threshold);
  - (c) the time at which the threshold was exceeded and the duration of the incident;
  - (d) in the case of ozone, the highest 1-hour and 8-hour mean concentration;
  - (e) information on preventive action to reduce pollution or public exposure to it, including an indication of the main source sectors and recommendations for action to reduce emissions.

(5) The Agency shall consult with the Health Service Executive, Met Éireann and other relevant organisations as appropriate to ensure that information on possible health effects and forecasting further expected exceedances, as specified in Schedule 16, is made available to the public.

(6) Information must be distributed free of charge in a clear and comprehensible manner taking into account the requirements of Council Directive 2007/2/EC on establishing an infrastructure for spatial information in the European Community<sup>7</sup>.

*Annual reports*

24. (1) The Agency shall publish an annual report for all the pollutants for each calendar year no later than 30 September of the following year.

(2) Annual reports must contain the following information—

- (a) details of all cases where levels of pollutants have exceeded limit values, target values, long term objectives, information and alert thresholds set out in Schedules 7, 11 and 12 for the relevant averaging periods.
- (b) a summary assessment of the effects of the cases referred to in paragraph (a),
- (c) lists of any zones and agglomeration where exceedances of limit values for a given pollutant are attributable to natural sources.

*Transboundary air pollution*

25. (1) The Agency must notify the Minister and the relevant local authority, or local authorities as appropriate, in the event of an alert threshold, limit value or target value plus any relevant margin of tolerance or long-term objective being exceeded due to significant transboundary transport of air pollution or their precursors either:

- (a) within the State; or
- (b) in another Member State owing to transboundary transport of air pollution originating from within the State

(2) The Agency shall consult with the local authority or local authorities as appropriate as well as the relevant competent authorities in other Member States or third countries as appropriate, as to any remedial action that might be appropriate where it considers that a transboundary air pollution issue under Regulation 25.1 has arisen.

(3) Where a local authority, or local authorities as appropriate, prepare an air pollution short-term action plan under Regulation 21, with proposed measures that will or may impact upon a neighbouring zone or zones in other Member States, or where pollutant concentrations at risk of exceeding the alert threshold are due largely to precursor emissions in other Member States, the

<sup>7</sup>O.J. No. L 108 of 25 April 2007

local authority, or local authorities as appropriate, shall consult with, and shall send all appropriate information pertaining to the plan to the competent authorities in those Member States with a view to co-operating, where appropriate, in the drawing up of joint short-term action plans.

(4) Where information or alert thresholds are exceeded in locations close to the borders of the State—

- (a) the relevant local authority affected must inform the Agency,
- (b) the Agency must provide prompt information to the competent authorities in other Member States as appropriate.

#### *Reporting*

26. (1) The Agency shall make available to the Minister and the Commission information on ambient air quality for each calendar year by no later than 30 September.

(2) The information referred to in in Regulation 26.1 shall include the following:

- (a) the changes made in that year to zones and agglomerations established under Regulation 6;
- (b) the list of zones and agglomerations in which the levels of one or more pollutants are higher than the limit values plus the margin of tolerance where applicable or higher than target values or critical levels; and for these zones and agglomerations:
  - (i) levels assessed and, if relevant, the dates and periods when such levels were observed;
  - (ii) if appropriate, an assessment on contributions from natural sources and from re-suspension of particulates following winter-sanding or —salting of roads to the levels assessed, as declared to the Commission under Regulations 19 and 20.

#### *Revocations*

27. The following are revoked:

- (1) The Environmental Protection Agency Act, 1992 (Ambient Air Quality Assessment and Management) Regulations 1999 (S.I. No. 33 of 1999),
- (2) The Air Quality Standards Regulations 2002 (S.I. No. 271 of 2002), and
- (3) Ozone in Ambient Air Regulations 2004 (S.I. No. 53 of 2004).





GIVEN under the Official Seal of the Minister for the Environment,  
Heritage and Local Government,  
12 April 2011.

PHIL HOGAN,  
Minister for the Environment, Heritage and Local  
Government.

## EXPLANATORY NOTE

*(This note is not part of the Regulations and does not purport to be a legal interpretation.)*

These Regulations implement Directive 2008/50/EC on ambient air quality and cleaner air for Europe (this Directive replaces Council Directive 96/62/EC on ambient air quality assessment and management, Council Directive 1999/30/EC relating to limits for sulphur dioxide, nitrogen dioxide, oxides of nitrogen, particulate matter and lead in ambient air, Council Directive 2000/69/EC relating to limit values for benzene and carbon monoxide in ambient air and Council Directive 2002/3/EC relating to ozone in ambient air.)

The Environmental Protection Agency is the competent authority for the purpose of Directive 2008/50/EC and these Regulations. The Agency is required to send an annual report to the Minister for the Environment, Heritage and Local Government and to the European Commission.

These Regulations also provide for the dissemination of public information, including information on any exceedances of the target values, the reasons for the exceedances, the area(s) in which they occurred and appropriate information regarding effects on health and impact on the environment.

These Regulations replace S.I. No. 33 of 1999, S.I. No. 271 of 2002 and S.I. No. 53 of 2004 which are revoked.

## SCHEDULE 1

### A.Data quality objectives for ambient air quality assessment

	Sulphur dioxide, nitrogen dioxide and oxides of nitrogen and carbon monoxide	Benzene	Particulate matter (PM <sub>10</sub> / PM <sub>2.5</sub> ) and lead	Ozone and related NO and NO <sub>2</sub>
Fixed measurements (1)	15% 90%	25% 90%	25% 90%	15% 90% during summer
Uncertainty				75% during winter
Minimum data capture	— —	35 % (2) 90%	— —	— —
Minimum time coverage: — urban background and traffic — industrial sites				
Indicative measurements	25% 90%	30% 90%	50% 90%	30% 90%
Uncertainty				>10% during summer
Minimum data capture	14% (4)	14% (3)	14% (4)	
Minimum time coverage				
Modelling uncertainty:	50%	—	—	50%
Hourly	50%	—	—	50%
Eight-hour averages	50%	—	Not yet defined	—
Daily averages	30%	50%	50%	—
Annual averages				
Objective estimation	75%	100%	100%	75%
Uncertainty				

- (1) Member States may apply random measurements instead of continuous measurements for benzene, lead and particulate matter if they can demonstrate to the Commission that the uncertainty, including the uncertainty due to random sampling, meets the quality objective of 25% and the time coverage is still larger than the minimum time coverage for indicative measurements. Random sampling must be evenly distributed over the year in order to avoid skewing of results. The uncertainty due to random sampling may be determined by the procedure laid down in ISO 11222 (2002) 'Air Quality — Determination of the Uncertainty of the Time Average of Air Quality Measurements'. If random measurements are used to assess the requirements of the PM<sub>10</sub> limit value, the 90,4 percentile (to be lower than or equal to 50 µg/m<sup>3</sup>) should be evaluated instead of the number of exceedances, which is highly influenced by data coverage.
- (2) Distributed over the year to be representative of various conditions for climate and traffic.

- (3) One day's measurement a week at random, evenly distributed over the year, or eight weeks evenly distributed over the year.
- (4) One measurement a week at random, evenly distributed over the year, or eight weeks evenly distributed over the year.

The uncertainty (expressed at a 95% confidence level) of the assessment methods will be evaluated in accordance with the principles of the CEN Guide to the Expression of Uncertainty in Measurement (ENV 13005-1999), the methodology of ISO 5725:1994 and the guidance provided in the CEN report 'Air Quality — Approach to Uncertainty Estimation for Ambient Air Reference Measurement Methods' (CR 14377:2002E). The percentages for uncertainty in the above table are given for individual measurements averaged over the period considered by the limit value (or target value in the case of ozone), for a 95% confidence interval. The uncertainty for the fixed measurements shall be interpreted as being applicable in the region of the appropriate limit value (or target value in the case of ozone).

The uncertainty for modelling is defined as the maximum deviation of the measured and calculated concentration levels for 90 % of individual monitoring points, over the period considered, by the limit value (or target value in the case of ozone), without taking into account the timing of the events. The uncertainty for modelling shall be interpreted as being applicable in the region of the appropriate limit value (or target value in the case of ozone). The fixed measurements that have to be selected for comparison with modelling results shall be representative of the scale covered by the model.

The uncertainty for objective estimation is defined as the maximum deviation of the measured and calculated concentration levels, over the period considered, by the limit value (or target value in the case of ozone), without taking into account the timing of the events.

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

## **B. Results of air quality assessment**

The following information shall be compiled for zones or agglomerations within which sources other than measurement are employed to supplement information from measurement or as the sole means of air quality assessment:

- a description of assessment activities carried out,
- the specific methods used, with references to descriptions of the method,
- the sources of data and information,
- a description of results, including uncertainties and, in particular, the extent of any area or, if relevant, the length of road within the zone

or agglomeration over which concentrations exceed any limit value, target value or longterm objective plus margin of tolerance, if applicable, and of any area within which concentrations exceed the upper assessment threshold or the lower assessment threshold,

- the population potentially exposed to levels in excess of any limit value for protection of human health.

### **C. Quality assurance for ambient air quality assessment: data validation**

1. To ensure accuracy of measurements and compliance with the data quality objectives laid down in Section A, the appropriate competent authorities and bodies designated pursuant to Article 3 shall ensure the following:

- that all measurements undertaken in relation to the assessment of ambient air quality pursuant to Articles 6 and 9 are traceable in accordance with the requirements set out in Section 5.6.2.2 of the ISO/IEC 17025:2005,
- that institutions operating networks and individual stations have an established quality assurance and quality control system which provides for regular maintenance to assure the accuracy of measuring devices,
- that a quality assurance/quality control process is established for the process of data collection and reporting and that institutions appointed for this task actively participate in the related Community-wide quality assurance programmes,
- that the national laboratories, when appointed by the appropriate competent authority or body designated pursuant to Article 3, that are taking part in Community-wide intercomparisons covering pollutants regulated in this Directive, are accredited according to EN/ISO 17025 by 2010 for the reference methods referred to in Schedule 6. These laboratories shall be involved in the coordination on Member States territory of the Community wide quality assurance programmes to be organised by the Commission and shall also coordinate, on the national level, the appropriate realisation of reference methods and the demonstration of equivalence of nonreference methods.

2. All reported data under Article 27 shall be deemed to be valid except data flagged as provisional.

## SCHEDULE 2

### Determination of requirements for assessment of concentrations of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), lead, benzene and carbon monoxide in ambient air within a zone or agglomeration

#### A. Upper and lower assessment thresholds

The following upper and lower assessment thresholds will apply:

##### 1. Sulphur dioxide

	Health protection	Vegetation protection
Upper assessment threshold	60% of 24-hour limit value (75 µg/m <sup>3</sup> , not to be exceeded more than 3 times in any calendar year)	60% of winter critical level (12 µg/m <sup>3</sup> )
Lower assessment threshold	40% of 24-hour limit value (50 µg/m <sup>3</sup> , not to be exceeded more than three times in any calendar year)	40% of winter critical level (8 µg/m <sup>3</sup> )

##### 2. Nitrogen dioxide and oxides of nitrogen

	Hourly limit value for the protection of human health (NO <sub>2</sub> )	Annual limit value for the protection of human health (NO <sub>2</sub> )	Annual critical level for the protection of vegetation & natural ecosystems (NO <sub>x</sub> )
Upper assessment threshold	70% of limit value (140 µg/m <sup>3</sup> , not to be exceeded more than 18 times in any calendar year)	80% of limit value (32 µg/m <sup>3</sup> )	80% of critical level (24 µg/m <sup>3</sup> )
Lower assessment threshold	50% of limit value (100 µg/m <sup>3</sup> , not to be exceeded more than 18 times in any calendar year)	65% of limit value (26 µg/m <sup>3</sup> )	65% of critical level (19,5 µg/m <sup>3</sup> )

##### 3. Particulate matter — PM<sub>10</sub> and PM<sub>2.5</sub>

	24-hour average PM <sub>10</sub>	Annual average PM <sub>10</sub>	Annual average PM <sub>2.5</sub> <sup>8</sup>
Upper assessment threshold	70% of limit value (35 µg/m <sup>3</sup> , not to be exceeded more than 35 times in any calendar year)	70% of limit value (28 µg/m <sup>3</sup> )	70% of limit value (17 µg/m <sup>3</sup> )
Lower assessment threshold	50% of limit value (25 µg/m <sup>3</sup> , not to be exceeded more than 35 times in any calendar year)	50% of limit value (20 µg/m <sup>3</sup> )	50% of limit value (12 µg/m <sup>3</sup> )

<sup>8</sup>The upper assessment threshold & the lower assessment threshold for PM<sub>2.5</sub> do not apply to the urban environment to assess compliance with the PM<sub>2.5</sub> exposure reduction target for the

**4. Lead**

	Annual average
Upper assessment threshold	70% of limit value (0,35 $\mu\text{g}/\text{m}^3$ )
Lower assessment threshold	50% of limit value (0,25 $\mu\text{g}/\text{m}^3$ )

**5. Benzene**

	Annual average
Upper assessment threshold	70% of limit value (3,5 $\mu\text{g}/\text{m}^3$ )
Lower assessment threshold	40% of limit value (2 $\mu\text{g}/\text{m}^3$ )

**6. Carbon monoxide**

	Eight-hour average
Upper assessment threshold	70% of limit value (7 $\text{mg}/\text{m}^3$ )
Lower assessment threshold	50% of limit value (5 $\text{mg}/\text{m}^3$ )

**B. Determination of exceedances of upper and lower assessment thresholds**

Exceedances of upper and lower assessment thresholds shall be determined on the basis of concentrations during the previous five years where sufficient data are available. An assessment threshold shall be deemed to have been exceeded if it has been exceeded during at least three separate years out of those previous five years.

Where fewer than five years' data are available, Member States may combine measurement campaigns of short duration during the period of the year and at locations likely to be typical of the highest pollution levels with results obtained from information from emission inventories and modelling to determine exceedances of the upper and lower assessment thresholds.

### SCHEDULE 3

**Assessment of ambient air quality and location of sampling points for the measurement of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), lead, benzene and carbon monoxide in ambient air**

#### **A. General**

Ambient air quality shall be assessed in all zones and agglomerations in accordance with the following criteria:

1. Ambient air quality shall be assessed at all locations except those listed in paragraph 2, in accordance with the criteria established by Sections B and C for the location of sampling points for fixed measurement. The principles established by Sections B and C shall also apply in so far as they are relevant in identifying the specific locations in which concentration of the relevant pollutants are established where ambient air quality is assessed by indicative measurement or modelling.

2. Compliance with the limit values directed at the protection of human health shall not be assessed at the following locations:

(a) any locations situated within areas where members of the public do not have access and there is no fixed habitation;

(b) in accordance with Article 2(1), on factory premises or at industrial installations to which all relevant provisions concerning health and safety at work apply;

(c) on the carriageway of roads; and on the central reservations of roads except where there is normally pedestrian access to the central reservation.

#### **B. Macroscale siting of sampling points**

1. Protection of human health

(a) Sampling points directed at the protection of human health shall be sited in such a way as to provide data on the following:

- the areas within zones and agglomerations where the highest concentrations occur to which the population is likely to be directly or indirectly exposed for a period which is significant in relation to the averaging period of the limit value(s),
- levels in other areas within the zones and agglomerations which are representative of the exposure of the general population,

(b) Sampling points shall in general be sited in such a way as to avoid measuring very small micro-environments in their immediate vicinity, which means that a sampling point must be sited in such a way that the air sampled is representative



of air quality for a street segment no less than 100 m length at traffic-orientated sites and at least 250 m × 250 m at industrial sites, where feasible;

(c) Urban background locations shall be located so that their pollution level is influenced by the integrated contribution from all sources upwind of the station. The pollution level should not be dominated by a single source unless such a situation is typical for a larger urban area. Those sampling points shall, as a general rule, be representative for several square kilometres;

(d) Where the objective is to assess rural background levels, the sampling point shall not be influenced by agglomerations or industrial sites in its vicinity, i.e. sites closer than five kilometres;

(e) Where contributions from industrial sources are to be assessed, at least one sampling point shall be installed downwind of the source in the nearest residential area. Where the background concentration is not known, an additional sampling point shall be situated within the main wind direction;

(f) Sampling points shall, where possible, also be representative of similar locations not in their immediate vicinity;

(g) Account shall be taken of the need to locate sampling points on islands where that is necessary for the protection of human health.

## 2. Protection of vegetation and natural ecosystems

Sampling points targeted at the protection of vegetation and natural ecosystems shall be sited more than 20 km away from agglomerations or more than 5 km away from other built-up areas, industrial installations or motorways or major roads with traffic counts of more than 50,000 vehicles per day, which means that a sampling point must be sited in

such a way that the air sampled is representative of air quality in a surrounding area of at least 1,000 km<sup>2</sup>. A Member State may provide for a sampling point to be sited at a lesser distance or to be representative of air quality in a less extended area, taking account of geographical conditions or of the opportunities to protect particularly vulnerable areas.

Account shall be taken of the need to assess air quality on islands.

### **C. Microscale siting of sampling points**

In so far as is practicable, the following shall apply:

- the flow around the inlet sampling probe shall be unrestricted (free in an arc of at least 270°) without any obstructions affecting the airflow in the vicinity of the sampler (normally some metres away from buildings, balconies, trees and other obstacles and at least 0,5 m from the nearest building in the case of sampling points representing air quality at the building line),

- in general, the inlet sampling point shall be between 1,5 m (the breathing zone) and 4 m above the ground. Higher positions (up to 8 m) may be necessary in some circumstances. Higher siting may also be appropriate if the station is representative of a large area,
- the inlet probe shall not be positioned in the immediate vicinity of sources in order to avoid the direct intake of emissions unmixed with ambient air,
- the sampler's exhaust outlet shall be positioned so that recirculation of exhaust air to the sampler inlet is avoided,
- for all pollutants, traffic-orientated sampling probes shall be at least 25 m from the edge of major junctions and no more than 10 m from the kerbside.,

The following factors may also be taken into account:

- interfering sources,
- security,
- access,
- availability of electrical power and telephone communications,
- visibility of the site in relation to its surroundings,
- safety of the public and operators,
- the desirability of co-locating sampling points for different pollutants,
- planning requirements.,

#### **D. Documentation and review of site selection**

The site-selection procedures shall be fully documented at the classification stage by such means as compass-point photographs of the surrounding area and a detailed map. Sites shall be reviewed at regular intervals with repeated documentation to ensure that selection criteria remain valid over time.

## SCHEDULE 4

### MEASUREMENTS AT RURAL BACKGROUND LOCATIONS IRRESPECTIVE OF CONCENTRATION

#### A. Objectives

The main objectives of such measurements are to ensure that adequate information is made available on levels in the background. This information is essential to judge the enhanced levels in more polluted areas (such as urban background, industry related locations, traffic related locations), assess the possible contribution from long-range transport of air pollutants, support source apportionment analysis and for the understanding of specific pollutants such as particulate matter. It is also essential for the increased use of modelling also in urban areas.

#### B. Substances

Measurement of PM<sub>2.5</sub> must include at least the total mass concentration and concentrations of appropriate compounds to characterise its chemical composition. At least the list of chemical species given below shall be included.

SO <sub>4</sub> <sup>2-</sup>	Na <sup>+</sup>	NH <sub>4</sub> <sup>+</sup>	Ca <sup>2+</sup>	Element carbon (EC)
NO <sub>3</sub> <sup>-</sup>	K <sup>+</sup>	Cl <sup>-</sup>	Mg <sup>2+</sup>	Organic carbon (OC)

#### C. Siting

Measurements should be taken in particular in rural background areas in accordance with parts A, B and C of Schedule 3.

## SCHEDULE 5

### Criteria for determining minimum numbers of sampling points for fixed measurement of concentrations of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter (PM<sub>10</sub>, PM<sub>2.5</sub>), lead, benzene and carbon monoxide in ambient air

A. Minimum number of sampling points for fixed measurement to assess compliance with limit values for the protection of human health and alert thresholds in zones and agglomerations where fixed measurement is the sole source of information

#### 1. Diffuse sources

Population of agglomeration or zone (thousands)	If maximum concentrations exceed the upper assessment threshold (1)		If maximum concentrations are between the upper and lower assessment thresholds	
	Pollutants except PM	PM (2) (sum of PM <sub>10</sub> and PM <sub>2.5</sub> )	Pollutants except PM	PM (2) (sum of PM <sub>10</sub> and PM <sub>2.5</sub> )
0-249	1	2	1	1
250-499	2	3	1	2
500-749	2	3	1	2
750-999	3	4	1	2
1,000-1,499	4	6	2	3
1,500-1,999	5	7	2	3
2,000-2,749	6	8	3	4
2,750-3,749	7	10	3	4
3,750-4,749	8	11	3	6
4,750-5,999	9	13	4	6
≥ 6,000	10	15	4	7

- (1) For nitrogen dioxide, particulate matter, benzene and carbon monoxide: to include at least one urban background monitoring station and one traffic-orientated station provided this does not increase the number of sampling points. For these pollutants, the total number of urban-background stations and the total number of traffic oriented stations in a Member State required under Section A(1) shall not differ by more than a factor of 2. Sampling points with exceedances of the limit value for PM<sub>10</sub> within the last three years shall be maintained, unless a relocation is necessary owing to special circumstances, in particular spatial development.
- (2) Where PM<sub>2.5</sub> and PM<sub>10</sub> are measured in accordance with Article 8 at the same monitoring station, these shall count as two separate sampling points. The total number of PM<sub>2.5</sub> and PM<sub>10</sub> sampling points in a Member State required under Section A(1) shall not differ by more than a factor of 2, and the number of PM<sub>2.5</sub> sampling points in the urban background of agglomerations and urban areas shall meet the requirements under Section B of Schedule 5.

## 2. Point sources

For the assessment of pollution in the vicinity of point sources, the number of sampling points for fixed measurement shall be calculated taking into account emission densities, the likely distribution patterns of ambient-air pollution and the potential exposure of the population.

B. Minimum number of sampling points for fixed measurement to assess compliance

with the PM<sub>2.5</sub> exposure reduction target for the protection of human health

One sampling point per million inhabitants summed over agglomerations and additional urban areas in excess of 100,000 inhabitants shall be operated for this purpose. Those sampling points may coincide with sampling points under Section A.

C. Minimum number of sampling points for fixed measurements to assess compliance with critical levels for the protection of vegetation in zones other than agglomerations

If maximum concentrations exceed the upper assessment threshold	If maximum concentrations are between upper and lower assessment threshold
1 station every 20,000 km <sup>2</sup>	1 station every 40,000 km <sup>2</sup>

In island zones the number of sampling points for fixed measurement should be calculated taking into account the likely distribution patterns of ambient-air pollution and the potential exposure of vegetation.

## SCHEDULE 6

### Reference methods for assessment of concentrations of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), lead, benzene, carbon monoxide, and ozone

#### A. Reference measurement methods

##### 1. Reference method for the measurement of sulphur dioxide

The reference method for the measurement of sulphur dioxide is that described in EN 14212:2005 'Ambient air quality

- Standard method for the measurement of the concentration of sulphur dioxide by ultraviolet fluorescence'.

##### 2. Reference method for the measurement of nitrogen dioxide and oxides of nitrogen

The reference method for the measurement of nitrogen dioxide and oxides of nitrogen is that described in EN 14211:2005 'Ambient air quality — Standard method for the measurement of the concentration of nitrogen dioxide and nitrogen monoxide by chemiluminescence'.

##### 3. Reference method for the sampling and measurement of lead

The reference method for the sampling of lead is that described in Section A(4) of this Schedule. The reference method for the measurement of lead is that described in EN 14902:2005 'Standard method for measurement of Pb/Cd/As/Ni in the PM<sub>10</sub> fraction of suspended particulate matter'.

##### 4. Reference method for the sampling and measurement of PM<sub>10</sub>

The reference method for the sampling and measurement of PM<sub>10</sub> is that described in EN 12341:1999 'Air Quality — Determination of the PM<sub>10</sub> fraction of suspended particulate matter — Reference method and field test procedure to demonstrate reference equivalence of measurement methods'.

##### 5. Reference method for the sampling and measurement of PM<sub>2.5</sub>

The reference method for the sampling and measurement of PM<sub>2.5</sub> is that described in EN 14907:2005 'Standard gravimetric measurement method for the determination of the PM<sub>2.5</sub> mass fraction of suspended particulate matter'.

##### 6. Reference method for the sampling and measurement of benzene

The reference method for the measurement of benzene is that described in EN 14662:2005, parts 1, 2 and 3 'Ambient air quality — Standard method for measurement of benzene concentrations'.

### *7. Reference method for the measurement of carbon monoxide*

The reference method for the measurement of carbon monoxide is that described in EN 14626:2005 ‘Ambient air quality — Standard method for the measurement of the concentration of carbon monoxide by non-dispersive infrared spectroscopy’.

### *8. Reference method for measurement of ozone*

The reference method for the measurement of ozone is that described in EN 14625:2005 ‘Ambient air quality — Standard method for the measurement of the concentration of ozone by ultraviolet photometry’.

## **B. Demonstration of equivalence**

1. A Member State may use any other method which it can demonstrate gives results equivalent to any of the methods referred to in Section A or, in the case of particulate matter, any other method which the Member State concerned can demonstrate displays a consistent relationship to the reference method. In that event the results achieved by that method must be corrected to produce results equivalent to those that would have been achieved by using the reference method.

2. The Commission may require the Member States to prepare and submit a report on the demonstration of equivalence in accordance with paragraph 1.

3. When assessing the acceptability of the report mentioned in paragraph 2, the Commission will make reference to its guidance on the demonstration of equivalence (to be published). Where Member States have been using interim factors to approximate equivalence, the latter shall be confirmed and/or amended with reference to the Commission’s guidance.

4. Member States should ensure that whenever appropriate, the correction is also applied retroactively to past measurement data in order to achieve better data comparability.

## **C. Standardisation**

For gaseous pollutants the volume must be standardised at a temperature of 293 K and an atmospheric pressure of 101,3 kPa. For particulate matter and substances to be analysed in particulate matter (e.g. lead) the sampling volume refers to ambient conditions in terms of temperature and atmospheric pressure at the date of measurements.

## **D. Introduction of new equipment**

All new equipment purchased for implementation of this Directive must comply with the reference method or equivalent by 11 June 2010.

All equipment used in fixed measurements must comply with the reference method or equivalent by 11 June 2013.

**E. Mutual recognition of data**

In carrying out the type approval to demonstrate that equipment meets the performance requirements of the reference methods listed in Section A, competent authorities and bodies designated pursuant to Schedule 3 shall accept test reports issued in other Member States by laboratories accredited to EN ISO 17025 for carrying out such testing.



## SCHEDULE 7

### OZONE TARGET VALUES AND LONG-TERM OBJECTIVES

#### A. Definitions and criteria

##### 1. Definitions

AOT40 (expressed in  $(\mu\text{g}/\text{m}^3) \cdot \text{hours}$ ) means the sum of the difference between hourly concentrations greater than  $80 \mu\text{g}/\text{m}^3$  (= 40 parts per billion) and  $80 \mu\text{g}/\text{m}^3$  over a given period using only the one-hour values measured between 8.00 and 20.00 Central European Time (CET) each day.

##### 2. Criteria

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

Parameter	Required proportion of valid data
One hour values	75% (i.e. 45 minutes)
Eight hours values	75% of values (i.e. six hours)
Maximum daily 8 hours mean from hourly running 8 hours	75% of the hourly running eight hours averages (i.e. 18 eight-hourly averages per day)
AOT40	90% of the one hour values over the time period defined for calculating the AOT40 value (1)
Annual mean	75% of the one hour values over summer (April to September) and 75 % over winter (January to March, October to December) seasons separately
Number of exceedances and maximum values per month	90% of the daily maximum eight hours mean values (27 available daily values per month) 90 % of the one hour values between 8.00 and 20.00 CET
Number of exceedances and maximum values per year	five out of six months over the summer season (April to September)

- (1) In cases where all possible measured data are not available, the following factor shall be used to calculate AOT40 values:

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

(\*) being the number of hours within the time period of AOT40 definition, (i.e. 08:00 to 20:00 CET from 1 May to 31 July each year, for vegetation protection and from 1 April to 30 September each year for forest protection).

## B. Target Values

Objective	Averaging period	Target value	Date by which target value should be met (1)
Protection of human health	Maximum daily eight-hour mean (2)	120 $\mu\text{g}/\text{m}^3$ not to be exceeded on more than 25 days per calendar year averaged over three years (3)	1.1.2010
Protection of vegetation	May to July	AOT40 (calculated from 1 h values) 18 000 $\mu\text{g}/\text{m}^3 \cdot \text{h}$ averaged over five years (3)	1.1.2010

- (1) Compliance with target values will be assessed as of this date. That is, 2010 will be the first year the data for which is used in calculating compliance over the following three or five years, as appropriate.
- (2) The maximum daily eight-hour mean concentration shall be selected by examining eight-hour running averages, calculated from hourly data and updated each hour. Each eight —hour average so calculated shall be assigned to the day on which it ends. i.e. the first calculation period for any one day will 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 the day.
- (3) 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 will be as follows:
  - for the target value for the protection of human health: valid data for one year,
  - for the target value for the protection of vegetation: valid data for three years.

## C. Long-term objectives

Objective	Averaging period	Longterm objective	Date by which the longterm objective should be met
Protection of human health	Maximum daily eight-hour mean within a calendar year	120 $\mu\text{g}/\text{m}^3$	not defined
Protection of vegetation	May to July	AOT40 (calculated from 1 h values) 6 000 $\mu\text{g}/\text{m}^3 \cdot \text{h}$	not defined

## SCHEDULE 8

### Criteria for classifying and locating sampling points for assessments of ozone concentrations

The following apply to fixed measurements:

#### Macroscale siting

Type of station	Objectives of measurement	Representativeness (1)	Macroscale siting criteria
Urban	Protection of human health: to assess the exposure of the urban population to ozone, i.e. where population density and ozone concentration are relatively high and representative of the exposure of the general population	A few km <sup>2</sup>	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 educational, 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 are likely to be directly or indirectly exposed occur	Some tens of km <sup>2</sup>	At a certain distance from the area of maximum emissions, downwind following the main wind direction/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 (some hundreds of km <sup>2</sup> )	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 summits of higher mountains
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 population	Regional/national/continental levels (1 000 to 10 000 km <sup>2</sup> )	Station located in areas with lower population density, e.g. with natural ecosystems, forests, at a distance of at least 20 km from urban and industrial areas and away from local emissions; avoid locations which are subject to locally enhanced formation of ground-near inversion conditions, also summits of higher mountains; coastal sites with pronounced diurnal wind cycles of local character are not recommended.

- (1) Sampling points should, where possible, be representative of similar locations not in their immediate vicinity.

For rural and rural background stations the location shall, where appropriate, be coordinated with the monitoring requirements of Commission Regulation (EC) No 1737/2006 of 7 November 2006 laying down detailed rules for the implementation of Regulation (EC) No 2152/2003 of the European Parliament and of the Council concerning monitoring of forests and environmental interactions in the Community (1).

#### **B. Microscale siting**

In so far as is practicable the procedure on microscale siting in Section C of Schedule 3 shall be followed, ensuring also that the inlet probe is positioned well away from such sources as furnaces and incineration flues and more than 10 m from the nearest road, with distance increasing as a function of traffic intensity.

#### **C. Documentation and review of site selection**

The procedures in Section D of Schedule 3 shall be followed, applying 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 sites.

## SCHEDULE 9

### Criteria for determining the minimum number of sampling points for fixed measurement of concentrations of ozone

#### A. Minimum number of sampling points for fixed continuous measurements to assess compliance with target values, long-term objectives and information and alert thresholds where such measurements are the sole source of information

Population ( $\times 1\,000$ )	Agglomerations (urban and suburban) (1)	Other zones (suburban and rural) (1)	Rural background
<250		1	1 station/50,000 km <sup>2</sup> as an average density over all zones per country (2)
<500	1	2	
<1000	2	2	
<1500	3	3	
<2000	3	4	
<2750	4	5	
<3750	5	6	
<3750	One additional station per 2 million inhabitants	One additional station per 2 million inhabitants	

(1) 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 shall be located in suburban areas.

(2) 1 station per 25,000 km<sup>2</sup> for complex terrain is recommended.

#### B. Minimum number of sampling points for fixed measurements for zones and agglomerations attaining the longterm objectives

The number of sampling points for ozone shall, in combination with other means of supplementary assessment such as air quality modelling and collocated 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 Section A. Where information from fixed measurement stations is the sole source of information, at least one monitoring station shall be kept. If, in zones where there is supplementary assessment, the result of this is that a zone has no remaining station, coordination with the number of stations in neighbouring zones shall ensure adequate assessment of ozone concentrations against long-term objectives. The number of rural background stations shall be one per 100,000 km<sup>2</sup>.

**SCHEDULE 10****MEASUREMENTS OF OZONE PRECURSOR SUBSTANCES****A. Objectives**

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

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

**B. Substances**

Measurement of ozone precursor substances shall include at least nitrogen oxides (NO and NO<sup>2</sup>), and appropriate volatile organic compounds (VOC). A list of volatile organic compounds recommended for measurement is given below:

	1-Butene	Isoprene	Ethyl benzene
Ethane	Trans-2-Butene	n-Hexane	m + p-Xylene
Ethylene	cis-2-Butene	i-Hexane	o-Xylene
Acetylene	1,3-Butadiene	n-Heptane	1,2,4-Trimethylebenzene
Propane	n-Pentane	n-Octane	1,2,3-Trimethylebenzene
Propene	i-Pentene	1-Octane	1,3,5-Trimethylebenzene
n-Butane	1-Pentene	Benzene	Formaldehyde
i-Butane	2-Pentene	Toluene	Total non-methane hydrocarbons

**C. Siting**

Measurements shall be taken in particular in urban or suburban areas at any monitoring site set up in accordance with the requirements of this Directive and considered appropriate with regard to the monitoring objectives referred to in Section A.

## SCHEDULE 11

### LIMIT VALUES FOR THE PROTECTION OF HUMAN HEALTH

#### A. Criteria

Without prejudice to Schedule 1, the following criteria shall be used for checking validity when aggregating data and calculating statistical parameters:

Parameter	Required proportion of valid data
One hour values	75% (i.e. 45 minutes)
Eight hours values	75% of values (i.e. 6 hours)
Maximum daily 8 hours mean	75% of the hourly running eight hours averages (i.e. 18 eight-hourly averages per day)
24-hour values	75% of hourly averages (i.e. at least 18 hour values)
Annual mean	90% (1) of the one hour values or (if not available) 24-hour values over the year

- (1) The requirements for the calculation of annual mean do not include losses of data due to the regular calibration or the normal maintenance of the instrumentation.

Averaging Period	Limit value	Margin of tolerance	Date by which limit value is to be met
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#### Sulphur dioxide

One hour	350 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 24 times a calendar year	150 $\mu\text{g}/\text{m}^3$ (43 %)	— (1)
One day	125 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 3 times a calendar year	None	— (1)

#### Nitrogen Dioxide

One hour	200 $\mu\text{g}/\text{m}^3$ , not to be exceeded more than 18 times a calendar year	50% on 19 July 1999, decreasing on 1 January 2001 and every 12 months thereafter by equal annual percentages to reach 0 % by 1 January 2010	1 January 2010
Calendar year	40 $\mu\text{g}/\text{m}^3$	50% on 19 July 1999, decreasing on 1 January 2001 and every 12 months thereafter by equal annual percentages to reach 0 % by 1 January 2010	1 January 2010
Averaging Period	Limit value	Margin of tolerance	Date by which limit value is to be met

## Benzene

Calendar year	5 µg/m <sup>3</sup>	5 µg/m <sup>3</sup> (100 %) on 13 December 2000, decreasing on 1 January 2006 and every 12 months thereafter by 1 µg/m <sup>3</sup> to reach 0 % by 1 January 2010	1 January 2010
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## Carbon monoxide

maximum daily eight hour mean (2)	10 mg/m <sup>3</sup>	60 %	— (1)
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## Lead

Calendar year	0,5 µg/m <sup>3</sup> (3)	100 %	— (3)
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PM<sub>10</sub>

One day	50 µg/m <sup>3</sup> , not to be exceeded more than 35 times a calendar year	50%	— (1)
Calendar year	40 µg/m <sup>3</sup>	20%	— (1)

- (1) Already in force since 1 January 2005
- (2) The maximum daily eight hour mean concentration will be selected by examining eight hour running averages, calculated from hourly data and updated each hour. Each eight hour average so calculated will be assigned to the day on which it ends i.e. the first calculation period for any one day will 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.
- (3) Already in force since 1 January 2005. Limit value to be met only by 1 January 2010 in the immediate vicinity of the specific industrial sources situated on sites contaminated by decades of industrial activities. In such cases, the limit value until 1 January 2010 will be 1,0 µg/m<sup>3</sup>. The area in which higher limit values apply must not extend further than 1,000 m from such specific sources.



**SCHEDULE 12****INFORMATION AND ALERT THRESHOLDS****A. Alert thresholds for pollutants other than ozone**

To be measured over three consecutive hours at locations representative of air quality over at least 100 km<sup>2</sup> or an entire zone or agglomeration, whichever is the smaller.

Pollutant	Alert threshold
Sulphur dioxide	500 µg/m <sup>3</sup>
Nitrogen dioxide	400 µg/m <sup>3</sup>

**B. Information and alert thresholds for ozone**

Purpose	Averaging period	Threshold
Information	1 hour	180 µg/m <sup>3</sup>
Alert	1 hour (1)	240 µg/m <sup>3</sup>

- (1) For the implementation of Article 24, the exceedance of the threshold is to be measured or predicted for three consecutive hours.

**SCHEDULE 13****CRITICAL LEVELS FOR THE PROTECTION OF VEGETATION**

Averaging period	Critical level	Margin of tolerance
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## Sulphur dioxide

Calendar year and winter (1 October to 31 March)	20 $\mu\text{g}/\text{m}^3$	None
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## Oxides of nitrogen

Calendar year	30 $\mu\text{g}/\text{m}^3$ NO <sub>x</sub>	None
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## SCHEDULE 14

NATIONAL EXPOSURE REDUCTION TARGET, TARGET VALUE AND LIMIT VALUE FOR PM<sub>2.5</sub>

### A. Average exposure indicator

The Average Exposure Indicator expressed in  $\mu\text{g}/\text{m}^3$  (AEI) shall be based upon measurements in urban background locations in zones and agglomerations throughout the territory of a Member State. It should be assessed as a three-calendar year running annual mean concentration averaged over all sampling points established pursuant to Section B of Schedule 5. The AEI for the reference year 2010 shall be the mean concentration of the years 2008, 2009 and 2010.

However, where data are not available for 2008, Member States may use the mean concentration of the years 2009 and 2010 or the mean concentration of the years 2009, 2010 and 2011. Member States making use of these possibilities shall communicate their decisions to the Commission by 11 September 2008.

The AEI for the year 2020 shall be the three-year running mean concentration averaged over all those sampling points for the years 2018, 2019 and 2020. The AEI is used for the examination whether the national exposure reduction target is met.

The AEI for the year 2015 shall be the three-year running mean concentration averaged over all those sampling points for the years 2013, 2014 and 2015. The AEI is used for the examination whether the exposure concentration obligation is met.

### B. National exposure reduction target

Exposure reduction target relative to the AEI in 2010		Year by which the exposure reduction target should be met
Initial concentration in $\mu\text{g}/\text{m}^3$	Reduction target in percent	2020
$<8,5 = 8,5$	0%	
$>8,5 - <13$	10%	
$= 13 - <18$	15%	
$= 18 - <22$	20%	
$\geq 22$	All appropriate measures to achieve $18 \mu\text{g}/\text{m}^3$	

Where the AEI in the reference year is  $8,5 \mu\text{g}/\text{m}^3$  or less the exposure reduction target shall be zero. The reduction target shall be zero also in cases where the AEI reaches the level of  $8,5 \mu\text{g}/\text{m}^3$  at any point of time during the period from 2010 to 2020 and is maintained at or below that level.

## C. Exposure concentration obligation

Exposure concentration obligation	Year by which the obligation value is to be met
20 µg/m <sup>3</sup>	2015

## D. Target value

Averaging period	Target value	Date by which target value should be met
Calendar year	25 µg/m <sup>3</sup>	1 January 2010

## E. Limit value

Averaging period	Limit value	Margin of tolerance	Date by which limit value is to be met
STAGE 1			
Calendar year	25 µg/m <sup>3</sup>	20% on 11 June 2008, decreasing on the next 1 January and every 12 months thereafter by equal annual percentages to reach 0% by 1 January 2015	1 January 2015
STAGE 2 (1)			
Calendar year	20 µg/m <sup>3</sup>		1 January 2020

- (1) Stage 2 — indicative limit value to be reviewed by the Commission in 2013 in the light of further information on health and environmental effects, technical feasibility and experience of the target value in Member States.

**SCHEDULE 15****Information to be included in the local, regional or national air quality plans  
for improvement in ambient air quality****A. Information to be provided under article 23 (air quality plans)***1. Localisation of excess pollution*

- (a) region;
- (b) city (map);
- (c) measuring station (map, geographical coordinates).

*2. General information*

- (a) type of zone (city, industrial or rural area);
- (b) estimate of the polluted area (km<sup>2</sup>) and of the population exposed to the pollution;
- (c) useful climatic data;
- (d) relevant data on topography;
- (e) sufficient information on the type of targets requiring protection in the zone.

*3. Responsible authorities*

Names and addresses of persons responsible for the development and implementation of improvement plans.

*4. Nature and assessment of pollution*

- (a) concentrations observed over previous years (before the implementation of the improvement measures);
- (b) concentrations measured since the beginning of the project;
- (c) techniques used for the assessment.

*5. Origin of pollution*

- (a) list of the main emission sources responsible for pollution (map);
- (b) total quantity of emissions from these sources (tonnes/year);
- (c) information on pollution imported from other regions.

*6. Analysis of the situation*

(a) details of those factors responsible for the exceedance (e.g. transport, including cross-border transport, formation of secondary pollutants in the atmosphere);

(b) details of possible measures for the improvement of air quality.

7. *Details of those measures or projects for improvement which existed prior to 11 June 2008, i.e.:*

(a) local, regional, national, international measures;

(b) observed effects of these measures.

8. *Details of those measures or projects adopted with a view to reducing pollution following the entry into force of this Directive:*

(a) listing and description of all the measures set out in the project;

(b) timetable for implementation;

(c) estimate of the improvement of air quality planned and of the expected time required to attain these objectives.

9. *Details of the measures or projects planned or being researched for the long term.*

10. *List of the publications, documents, work, etc., used to supplement information required under this Schedule.*

#### **B. Information to be provided under article 22(1)**

1. All information as laid down in Section A.

2. Information concerning the status of implementation of the following Directives:

1. Council Directive 70/220/EEC of 20 March 1970 on the approximation of the laws of the Member States on measures to be taken against air pollution by emissions from motor vehicles (1);
2. Directive 94/63/EC of the European Parliament and of the Council of 20 December 1994 on the control of volatile organic compound (VOC) emissions resulting from the storage of petrol and its distribution from terminals to service stations (2);
3. Directive 2008/1/EC of the European Parliament and of the Council of 15 January 2008 concerning integrated pollution prevention and control (3);
4. Directive 97/68/EC of the European Parliament and of the Council of 16 December 1997 on the approximation of the laws of the Member

States relating to measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery (4);

5. Directive 98/70/EC of the European Parliament and of the Council of 13 October 1998 relating to the quality of petrol and diesel fuels (5);
6. Council Directive 1999/13/EC of 11 March 1999 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities and installations (6);
7. Council Directive 1999/32/EC of 26 April 1999 relating to a reduction in the sulphur content of certain liquid fuels (7);
8. Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste (8);
9. Directive 2001/80/EC of the European Parliament and of the Council of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants;
10. Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants;
11. Directive 2004/42/EC of the European Parliament and of the Council of 21 April 2004 on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain paints and varnishes and vehicle refinishing products (9);
12. Directive 2005/33/EC of the European Parliament and of the Council of 6 July 2005 amending Directive 1999/32/EC as regards the sulphur content of marine fuels (10);
13. Directive 2005/55/EC of the European Parliament and of the Council of 28 September 2005 on the approximation of the laws of the Member States relating to the measures to be taken against the emission of gaseous and particulate pollutants from compression-ignition engines for use in vehicles, and the emission of gaseous pollutants from positive-ignition engines fuelled with natural gas or liquefied petroleum gas for use in vehicles (11);
14. Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services (12).

(1) OJ L 76, 6.4.1970, p. 1. Directive as last amended by Directive 2006/96/EC (OJ L 363, 20.12.2006, p. 81).

(2) OJ L 365, 31.12.1994, p. 24. Directive as amended by Regulation (EC) No 1882/2003 (OJ L 284, 31.10.2003, p. 1).

(3) OJ L 24, 29.1.2008, p. 8.

(4) OJ L 59, 27.2.1998, p. 1. Directive as last amended by Directive 2006/105/EC.

(5) OJ L 350, 28.12.1998, p. 58. Directive as amended by Regulation (EC) No 1882/2003.

(6) OJ L 85, 29.3.1999, p. 1. Directive as last amended by Directive 2004/42/EC of the European Parliament and of the Council (OJ L 143, 30.4.2004, p. 87).

(7) OJ L 121, 11.5.1999, p. 13. Directive as last amended by Directive 2005/33/EC of the European Parliament and of the Council (OJ L 191, 22.7.2005, p. 59).

(8) OJ L 332, 28.12.2000, p. 91.

(9) OJ L 143, 30.4.2004, p. 87.

(10) OJ L 191, 22.7.2005, p. 59.

(11) OJ L 275, 20.10.2005, p. 1. Directive as last amended by Regulation (EC) No 715/2007 (OJ L 171, 29.6.2007, p. 1).

(12) OJ L 114, 27.4.2006, p. 64.

3. Information on all air pollution abatement measures that have been considered at appropriate local, regional or national level for implementation in connection with the attainment of air quality objectives, including:

(a) reduction of emissions from stationary sources by ensuring that polluting small and medium sized stationary combustion sources (including for biomass) are fitted with emission control equipment or replaced;

(b) reduction of emissions from vehicles through retrofitting with emission control equipment. The use of economic

incentives to accelerate take-up should be considered;

(c) procurement by public authorities, in line with the handbook on environmental public procurement, of road

vehicles, fuels and combustion equipment to reduce emissions, including the purchase of:

- new vehicles, including low emission vehicles,
- cleaner vehicle transport services,
- low emission stationary combustion sources,
- low emission fuels for stationary and mobile sources,

(d) measures to limit transport emissions through traffic planning and management (including congestion pricing, differentiated parking fees or other economic incentives; establishing low emission zones);

(e) measures to encourage a shift of transport towards less polluting modes;

(f) ensuring that low emission fuels are used in small, medium and large scale stationary sources and in mobile sources;

(g) measures to reduce air pollution through the permit system under Directive 2008/1/EC, the national plans under Directive 2001/80/EC, and through the use of economic instruments such as taxes, charges or emission trading.

(h) where appropriate, measures to protect the health of children or other sensitive groups.



## SCHEDULE 16

### PUBLIC INFORMATION

1. Member States shall ensure that up-to-date information on ambient concentrations of the pollutants covered by this Directive is routinely made available to the public.

2. Ambient concentrations provided shall be presented as average values according to the appropriate averaging period as laid down in Schedule 7 and Schedule 11 to 14. The information shall at least indicate any levels exceeding air quality objectives including limit values, target values, alert thresholds, information thresholds or long term objectives of the regulated pollutant. It shall also provide a short assessment in relation to the air quality objectives and appropriate information regarding effects on health, or, where appropriate, vegetation.

3. Information on ambient concentrations of sulphur dioxide, nitrogen dioxide, particulate matter (at least PM<sub>10</sub>), ozone and carbon monoxide shall be updated on at least a daily basis, and, wherever practicable, information shall be updated on an hourly basis. Information on ambient concentrations of lead and benzene, presented as an average value for the last 12 months, shall be updated on a three-monthly basis, and on a monthly basis, wherever practicable.

4. Member States shall ensure that timely information about actual or predicted exceedances of alert thresholds, and any information threshold is provided to the public. Details supplied shall include at least the following information:

(a) information on observed exceedance(s):

- location or area of the exceedance,
- type of threshold exceeded (information or alert),
- start time and duration of the exceedance,
- highest one hour concentration and in addition highest eight hour mean concentration in the case of ozone;

(b) forecast for the following afternoon/day(s):

- geographical area of expected exceedances of information and/or alert threshold,
- expected changes in pollution (improvement, stabilisation or deterioration), together with the reasons for those changes;

(c) information on the type of population concerned, possible health effects and recommended behaviour:

- information on population groups at risk,

- description of likely symptoms,
- recommended precautions to be taken by the population concerned,
- where to find further information;

(*d*) information on preventive action to reduce pollution and/or exposure to it: indication of main source sectors; recommendations for action to reduce emissions;

(*e*) in the case of predicted exceedances, Member State shall take steps to ensure that such details are supplied to the extent practicable.

**SCHEDULE 17**

**PRESCRIBED BODIES**

- (1) The Minister for Health
- (2) The Health Service Executive
- (3) Local Authorities
- (4) An Bord Pleanála
- (5) Cystic Fibrosis Association of Ireland
- (6) The Asthma Society of Ireland
- (7) Met Éireann
- (8) Teagasc

**SCHEDULE 18****Zones and Agglomerations**

Zones and Agglomerations as set by the Agency at the time these regulations were signed into law. These zones and agglomerations are subject to ongoing review by the Agency in fulfilling its function under Regulation 6.

**Agglomeration A — Dublin Conurbation**

The Restricted Area of Dublin, as specified in the First Schedule to the Air Pollution Act 1987 (Marketing, Sale and Distribution of Fuels) Regulations 1998 to 2003.

**Zone B — Cork Conurbation**

The Restricted Area of Cork, as specified in the First Schedule to the Air Pollution Act 1987 (Marketing, Sale and Distribution of Fuels) Regulations 1998 to 2003.

**Zone C — Other Cities and Large Towns****Limerick City comprising the following Electoral Divisions**

Abbey A, B, C and D	Ballinacurra A and B	Ballynanty	Castle A, B, C and D
Coolraine	Custom House	Dock A, B, C and D	Farranshone
Galvone A and B	Glentworth A, B and C	John's A, B and C	Killeely A and B
Market	Prospect A and B	Rathbane	St. Laurence
Shannon A and B	Singland A and B	Ballycummin	Ballysimon
Ballyvarra	Limerick North Rural	Limerick South Rural	Roxborough

**Galway City comprising the following Electoral Divisions**

Ballybaan	Baile an Bhriotaigh	Bearna	An Caisleán Gearr
Claddagh	Dangan	Eyre Square	An Cnocán Carrach
Lough Atalia	Mionlach	Mervue	Murroogh
Newcastle	Nuns Island	Rahoon	Renmore
Rockbarton	Paróiste San Nicoláis	Salthill	Shantalla
Taylor's Hill	Wellpark		

**Waterford City comprising the following Electoral Divisions:**

Ballybeg North and South	Ballybricken West	Ballymaclode	Ballynakill
Ballynaneashagh	Ballytruckle	Bilberry	Centre A and B
Cleaboy	Custom House A and B	Farranshoneen	Ferrybank
Gracedieu	Grange North and South	Grange Upper	Kilbarry
Kingsmeadow	Larchville	Lisduggan	Military Road
Morrisson's Avenue East	Morrison's Avenue West	Morrison's Road	Mount Sion
Newport's Square	Newtown	Park	Poleberry
Roanmore	Shortcourse	Slievekeale	The Glen
Ticor North and South	Kilculliheen	Aglish	

**Drogheda and environs comprising the following Electoral Divisions:**

Fair Gate; St. Laurence Gate; West Gate; St. Peter's; and St. Mary's.

**Dundalk and environs comprising the following Electoral Divisions:**

Dundalk Urban Nos. 1, 2, 3 and 4; Castletown; Dundalk Rural; and Haggardstown.

**Bray and environs comprising the following Electoral Divisions:**

Bray Nos. 1, 2, 3 and 4; Rathmichael (Bray); and Kilmacanoge.

**Navan and environs comprising the following Electoral Divisions:**

Navan Urban and Navan Rural.

**Ennis and environs comprising the following Electoral Divisions:**

Ennis Nos. 1, 2, 3 and 4 Urban; Clareabbey; Doorra; Ennis Rural; and Spancelhill

**Tralee and environs comprising the following Electoral Divisions:**

Tralee Urban; Blennerville; and Tralee Rural

**Kilkenny and environs comprising the following Electoral Divisions:**

Kilkenny Nos. 1 and 2 Urban; and Kilkenny Rural.

**Carlow and environs comprising the following Electoral Divisions:**

Carlow Urban; Graigue Urban; Ballinacarrig; Carlow Rural; and Graigue Rural.

**Naas comprising the following Electoral Divisions:**

Naas Urban.

**Sligo and environs comprising the following Electoral Divisions:**

Sligo East, North and West; and Knockaree.

**Newbridge and environs comprising the following Electoral Divisions:**

Droichead Nua, Droichead Nua (Newbridge) Urban; Droichead Nua, Droichead Nua (Newbridge) Rural; and Morristownbiller.

**Mullingar and environs comprising the following Electoral Divisions:**

Mullingar North and South Urban; Mullingar Rural; and Castle.

**Wexford and environs comprising the following Electoral Divisions:**

Wexford Nos. 1, 2 and 3 Urban; and Wexford Rural.

**Letterkenny and environs comprising the following Electoral Divisions:**

Letterkenny Urban; Ballymacool; Castlewray; Corravaddy; Edenacarnan; Letterkenny Rural; and Magheraboy.

**Athlone and environs comprising the following Electoral Divisions:**

Athlone East and West Urban; Athlone East Rural; and Moydrum.

**Celbridge and environs comprising the following Electoral Divisions:**

Celbridge; and Donaghcumper.

**Clonmel and environs comprising the following Electoral Divisions:**

Clonmel East and West Urban; Clonmel Rural; and Inishlounaght.

**Balbriggan and environs comprising the following Electoral Divisions:**

Balbriggan Rural; and Balbriggan Urban

**Zone D — Rural Ireland**

**Remainder of the State** excluding Agglomeration A, and Zones B and C.

BAILE ÁTHA CLIATH  
ARNA FHOILSIÚ AG OIFIG AN tSOLÁTHAIR  
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