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ENVIRONMENT (AIR QUALITY STANDARDS)  
REGULATIONS 2010

This version is out of date

Subsidiary  
2010/126

Subsidiary Legislation made under s. 18(c).

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(LN. 2010/126)

*Commencement*      15.7.2010

**EU Legislation/International Agreements involved:**

Directive 2004/107/EC

Directive 2008/50/EC

Directive 2008/99/EC

Directive 2015/2193/EU

Council Regulation (EC) No 219/2009

Commission Directive (EU) 2015/1480

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*In exercise of the powers conferred upon it by section 18(c) of the Environment Act 2005, and of all other enabling powers, and for the purpose of transposing into the law of Gibraltar Directive 2004/107/EC of the European Parliament and of the Council relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic carbons in ambient air as amended by Council Regulation (EC) No 219/2009 of the European Parliament and of the Council of 11 March 2009, and Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe, the Government has made the following Regulations—*

**PART 1  
GENERAL****Title and commencement.**

1. These Regulations may be cited as the Environment (Air Quality Standards) Regulations 2010 and come into operation on the day of publication.

**Definitions.**

2.(1) In these Regulations—

“AEI” means average exposure indicator as further specified in regulation 23;

“alert threshold” means a level beyond which there is a risk to human health from brief exposure for the population as a whole and at which immediate steps are to be taken by the Minister;

“ambient air” means outdoor air in the troposphere, excluding workplaces (as defined by Directive 89/654/EEC as amended from time to time concerning the minimum safety and health requirements for the workplace) where provisions concerning health and safety at work apply and to which members of the public do not have regular access;

“arsenic”, “cadmium”, “nickel” and “benzo(a)pyrene” mean the total content of those elements and compounds within the PM<sub>10</sub> fraction present in ambient air;

“contributions from natural sources” means emissions of pollutants not caused directly or indirectly by human activities, including natural

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events such as volcanic eruptions, seismic activities, geothermal activities, wild-land fires, highwind events, sea sprays or the atmospheric re-suspension or transport of natural particles from dry regions;

“critical level” means a level fixed on the basis of scientific knowledge, above which direct adverse effects may occur on some receptors, such as trees, other plants or natural ecosystems but not on humans;

“Directive 2008/50/EC” means Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe, as the same may be from time to time amended, and which is reproduced for information purposes in Schedule 1;

“Directive 2004/107/EC” means Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air, as the same may be from time to time amended, and which is reproduced for information purposes in Schedule 2;

“fixed measurements” means measurements taken at fixed locations, either continuously or by sampling from time to time, to determine levels of pollutants in accordance with the relevant data quality objectives;

“indicative measurements” means measurements which meet data quality objectives that are less strict than those required for fixed measurements;

“information threshold” means a level beyond which there is a risk to human health from brief exposure for particularly sensitive sections of the population and for which immediate and appropriate information is necessary;

“level” means the concentration of a pollutant in ambient air or the deposition thereof on surfaces in a given time;

“limit value” means a level fixed on the basis of scientific knowledge, with the aim of avoiding, preventing or reducing harmful effects on human health and/or the environment as a whole, to be attained within a given period and not to be exceeded once attained;

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“long-term objective” means a level to be attained in the long term, save where not achievable through proportionate measures, with the aim of providing effective protection of human health and the environment;

“lower assessment threshold” means a level below which modelling or objective-estimation techniques alone may be used to assess ambient air quality;

“margin of tolerance” means the percentage of the limit value by which that value may be exceeded in a given year subject to the conditions laid down in these Regulations;

“Minister” means the Minister with responsibility for the environment;

“oxides of nitrogen” means the sum of the volume mixing ratio (ppbv) of nitrogen monoxide (nitric oxide) and nitrogen dioxide expressed in units of mass concentration of nitrogen dioxide ( $\mu\text{g}/\text{m}^3$ );

“ozone precursor substances” means substances which contribute to the formation of ground level ozone, some of which are listed in Annex X to Directive 2008/50/EC;

“PM<sub>10</sub>” means particulate matter which passes through a size-selective inlet as defined in the reference method for the sampling and measurement of PM<sub>10</sub>, EN 12341, with a 50 % efficiency cut-off at 10  $\mu\text{m}$  aerodynamic diameter;

“PM<sub>2.5</sub>” means particulate matter which passes through a size-selective inlet as defined in the reference method for the sampling and measurement of PM<sub>2.5</sub>, EN 14907, with a 50 % efficiency cut-off at 2.5  $\mu\text{m}$  aerodynamic diameter;

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

“pollutant” means any of the following present in ambient air and likely to have harmful effects on human health and/or the environment as a whole—

- (a) sulphur dioxide;
- (b) nitrogen dioxide;
- (c) oxides of nitrogen;

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- (d) particulate matter;
- (e) lead;
- (f) benzene;
- (g) carbon monoxide;
- (h) arsenic;
- (i) cadmium;
- (j) mercury;
- (k) nickel;
- (l) benzo(a)pyrene or other polycyclic aromatic hydrocarbons;
- (m) ozone;

“polycyclic aromatic hydrocarbons” means those organic compounds composed of at least two fused aromatic rings made entirely from carbon and hydrogen;

“target value” means a level or concentration fixed with the aim of avoiding, preventing or reducing harmful effects on human health and/or the environment as a whole, to be attained where possible over a given period;

“total gaseous mercury” means elemental mercury vapour ( $\text{Hg}^0$ ) and reactive gaseous mercury, that is, water-soluble mercury species with sufficiently high vapour pressure to exist in the gas phase;

“total or bulk deposition” means the total mass of pollutants which is transferred from the atmosphere to surfaces (e.g. soil, vegetation, water, buildings, etc.) in a given area within a given time;

“upper assessment threshold” means a level below which a combination of fixed measurements and modelling techniques and/or indicative measurements may be used to assess ambient air quality;

“volatile organic compound” and “VOC” means an organic compound from anthropogenic and biogenic sources, other than methane, that

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is capable of producing photochemical oxidants by reactions with nitrogen oxides in the presence of sunlight;

“zone” has the meaning given to it in regulation 4.

(2) Words and expressions used but not defined in these Regulations which are used or defined in Directive 2004/107/EC or Directive 2008/50/EC, shall have the same meaning in these Regulations as they have in those Directives.

**Designation of competent authority.**

3.(1) The Minister with responsibility for the environment is designated as the competent authority for the purposes of—

- (a) Directive 2004/107/EC; and
- (b) Directive 2008/50/EC.

(2) The Minister shall, in relation to Directive 2008/50/EC, comply with Section C of Annex I of that Directive, where relevant.

**Gibraltar to be a zone.**

4. For the purposes of air quality assessment and management under these Regulations the entire territory of Gibraltar shall constitute a single zone and in these Regulations the term “zone” shall be construed accordingly.

**PART 2  
ASSESSMENT OF AMBIENT AIR QUALITY**

*Sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide*

**Assessment thresholds.**

5.(1) The Minister shall classify the zone according to whether or not the upper or lower assessment thresholds specified in Section A of Annex II to Directive 2008/50/EC are exceeded in relation to sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide.

(2) The Minister shall review the classification of the zone in subregulation (1) at least every five years, and must do so more frequently



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than every five years if there are significant changes in the activities which may affect levels of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide in ambient air.

(3) When reviewing the classification of the zone in accordance with assessment thresholds, the Minister shall comply with Section B of Annex II to Directive 2008/50/EC.

**Assessment criteria.**

6.(1) The Minister shall assess the level of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide in ambient air in the zone in accordance with the criteria laid down in subregulations (2) to (4) and in Annex III to Directive 2008/50/EC.

(2) Where the level of the pollutants referred to in subregulation (1) exceeds the upper assessment threshold referred to in regulation 5, fixed measurements must be used to assess the ambient air quality, but the fixed measurements 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) Where the level of the pollutants referred to in subregulation (1) is below the upper assessment threshold referred to in regulation 5, a combination of fixed measurements together with modelling or indicative measurements or both may be used to assess the ambient air quality.

(4) Where the level of the pollutants referred to in subregulation (1) is below the lower assessment threshold referred to in regulation 5, modelling or estimation techniques or both shall be sufficient for the measurement of the ambient air quality.

(5) In addition to the measurements referred to in subregulations (2) to (4) and to the extent required for compliance with Directive 2008/50/EC, the Minister shall measure PM<sub>2.5</sub> at rural background locations 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.

(6) For the purposes of subregulation (5), measurements must be carried out in accordance with the criteria set out in Sections A and C of Annex I, and Annex IV to Directive 2008/50/EC.

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(7) Save as provided for in subregulation (8), measurements must be taken in accordance with the reference measurement methods specified in Sections A and C of Annex VI to Directive 2008/50/EC.

(8) Alternative methods to those referred to in subregulation (7) may be used provided the condition set out in Section B of Annex VI to Directive 2008/50/EC are complied with.

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

(10) In this Regulation, “chemical speciation concentrations” means the concentrations of different chemical components or species of particulate matter.

**Location and number of sampling points.**

7.(1) The Minister shall install sampling points in accordance with Annex III to Directive 2008/50/EC for the assessment of sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter, lead, benzene and carbon monoxide.

(2) Where fixed measurement is the sole source of information for the assessment of air quality, the number of sampling points for each relevant pollutant must be more than or equal to the minimum number specified in Section A of Annex V to Directive 2008/50/EC for the purpose of assessing compliance with limit values and alert thresholds.

(3) For the purpose of assessing compliance with critical levels specified in Annex XIII to Directive 2008/50/EC (for the protection of vegetation) the Minister shall act in accordance with Section A of Annex III to Directive 2008/50/EC and where fixed measurement is the sole source of information for the assessment of air quality, the minimum number of sampling points specified in Section C of Annex V to Directive 2008/50/EC must be installed.

(4) Where the information from fixed measurement is supplemented by information from modelling or indicative measurement or both, the number of sampling points in Section A of Annex V to Directive 2008/50/EC may be reduced by up to 50 % provided that the following conditions are met—

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- (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 Annex I to Directive 2008/50/EC and enable assessment results to meet the criteria in Section B of the same annex.

(5) In the case of PM<sub>2.5</sub> the minimum number of sampling points for fixed measurements shall be in accordance with Section B of Annex V to Directive 2008/50/EC.

*Ozone*

**Assessment criteria.**

8.(1) The Minister shall assess the levels of ozone in ambient air.

(2) The Minister shall ensure that fixed measurements are taken where the concentration of ozone has exceeded the long-term objectives specified in Section C of Annex VII to Directive 2008/50/EC during any of the previous five years of measurement.

(3) Save as provided in subregulation (4), for the purposes of subregulation (2), measurements must be taken in accordance with the reference measurement methods specified in point 8 of Section A of Annex VI to Directive 2008/50/EC.

(4) Alternative methods to those referred to in subregulation (3) may be used provided the conditions set out in Section B of Annex VI to Directive 2008/50/EC are complied with.

**Location and number of sampling points.**

9.(1) The Minister shall install sampling points in accordance with the criteria set out in Annex VIII to Directive 2008/50/EC for the assessment of ozone.

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(2) 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 Annex IX to Directive 2008/50/EC.

(3) Where the concentration of ozone has been below the long-term objectives for each of the previous five years of measurement, the number of sampling points for fixed measurements must be determined in accordance with the criteria set out in Section B of Annex IX to Directive 2008/50/EC.

(4) Where the information from fixed measurement is supplemented by information from modelling or indicative measurement or both, the number of sampling points referred to in subregulation (2) 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 Annex I to Directive 2008/50/EC and to enable assessment results to meet the criteria specified in Section B of the same Annex;
- (c) there is at least one sampling point;
- (d) nitrogen dioxide is measured at all remaining sampling points except at rural background stations referred to in Section A of Annex VIII to Directive 2008/50/EC.

(5) The Minister shall ensure that nitrogen dioxide is measured at no less than 50 % of the sampling points required under Section A of Annex IX to Directive 2008/50/EC.

(6) The measurement referred to in subregulation (5) must be continuous except at rural background locations.

(7) The Minister shall ensure that concentrations of the ozone precursor substances listed in Annex X to Directive 2008/50/EC are measured at least at one sampling point.

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(8) The Minister may choose the location and number of sampling points for measurements of ozone precursor substances and must take into account the objectives and methods set out in Annex X to Directive 2008/50/EC.

*Arsenic, cadmium, nickel, mercury, benzo(a)pyrene and other polycyclic aromatic hydrocarbons*

**Assessment thresholds.**

10.(1) The Minister shall classify the zone according to whether or not the upper and lower assessment thresholds specified in Section I of Annex II to Directive 2004/107/EC are exceeded in relation to arsenic, cadmium, nickel and benzo(a)pyrene.

(2) The Minister shall review the classification in subregulation (1) 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 the pollutants referred to in subregulation (1) in ambient air.

(3) When classifying the zone in accordance with assessment thresholds, the Minister shall act in accordance with the procedure laid down in Section II of Annex II to Directive 2004/107/EC.

**Assessment criteria.**

11.(1) The Minister shall assess concentrations of arsenic, cadmium, nickel and benzo(a)pyrene in ambient air.

(2) Where the levels of arsenic, cadmium, nickel and benzo(a)pyrene are above the upper assessment threshold referred to in regulation 10, measurement is mandatory but may be supplemented by modelling techniques to provide an adequate level of information on ambient air quality.

(3) Where the levels of those pollutants are between the upper and lower assessment thresholds referred to in regulation 10, measurement is mandatory but may be supplemented by indicative measurements as referred to in Section I of Annex IV to Directive 2004/107/EC or modelling, or both.

(4) Where the levels of those pollutants are below the lower assessment thresholds, modelling or objective estimation techniques may be used instead of measurement.

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(5) The Minister shall carry out the measurements required by this regulation at fixed sites and either continuously or by random sampling. The number of measurements shall be sufficient to enable the levels to be determined.

**Data quality objectives.**

12. When assessing levels of arsenic, cadmium, nickel, benzo(a)pyrene and other polycyclic aromatic hydrocarbons and gaseous mercury, the Minister shall apply the data quality objectives and other standards contained in Annex IV to Directive 2004/107/EC.

**Location and number of sampling points.**

13.(1) The location and number of sampling points for the assessment of arsenic, cadmium, nickel and benzo(a)pyrene must be determined in accordance with Annex III to Directive 2004/107/EC.

(2) Where information from fixed measurement stations is supplemented by information from other sources, such as emission inventories, indicative measurement methods and air quality modelling, the number of fixed measuring stations to be installed and the spatial resolution of other techniques shall be sufficient for the concentrations of air pollutants to be established in accordance with Sections I and II of Annex III and Section I of Annex IV to Directive 2004/107/EC.

**Monitoring of polycyclic aromatic hydrocarbons.**

14.(1) The Minister shall monitor concentrations of other relevant polycyclic aromatic hydrocarbons in addition to benzo(a)pyrene as he thinks fit, including at least the following—

- (a) benzo(a)anthracene;
- (b) benzo(b)fluoranthene;
- (c) benzo(j)fluoranthene;
- (d) benzo(k)fluoranthene;
- (e) indeno(1,2,3-cd)pyrene;
- (f) dibenz(a,h)anthracene.

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(2) Monitoring sites must be located together with sampling points for benzo(a)pyrene.

(3) Monitoring sites must be selected so that geographical variations and long term trends in the concentrations of polycyclic aromatic hydrocarbons can be identified.

(4) Monitoring sites must be selected in accordance with the criteria in sections I to III of Annex III to Directive 2004/107/EC.

**Background monitoring.**

15.(1) The Minister shall operate background sampling points to provide the indicative measurements of—

- (a) concentrations of—
  - (i) arsenic, cadmium, nickel and benzo(a)pyrene;
  - (ii) the polycyclic aromatic hydrocarbons in regulation 14(1);
  - (iii) total gaseous mercury;
- (b) total depositions of—
  - (i) arsenic, cadmium, nickel and benzo(a)pyrene within the PM<sub>10</sub> fraction;
  - (ii) the polycyclic aromatic hydrocarbons in regulation 14(1);
  - (iii) mercury.

(2) For the purposes of subregulation (1) the Minister shall ensure that—

- (a) at least one sampling point is installed; and
- (b) each sampling point is located in accordance with Annex III to Directive 2004/107.

**Reference methods for sampling and analysis.**

16. Measurements of arsenic, cadmium, mercury, nickel, benzo(a)pyrene and other polycyclic aromatic hydrocarbons in ambient air and deposition of

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those pollutants must be made in accordance with the reference measurement methods set out in Annex V to Directive 2004/107/EC.

**PART 3***Duties of Minister in relation to limit values etc.***Duty in relation to limit values.**

17.(1) The Minister shall ensure that levels of sulphur dioxide, nitrogen dioxide, benzene, carbon monoxide, lead and particulate matter, as from such dates as are specified in Annexes XI and XIV to Directive 2008/50/EC, do not exceed the limit values set out in those annexes, subject to the margins of tolerance specified therein.

(2) Compliance with subregulation (1) shall be assessed in accordance with Annex III to Directive 2008/50/EC.

(3) Where levels of the pollutants mentioned in subregulation (1) are below the respective limit values set out in Annexes XI and XIV to Directive 2008/50/EC, the Minister shall ensure that levels are maintained below those limit values and he shall endeavour to maintain the best ambient air quality compatible with sustainable development.

(4) The alert thresholds for concentrations of sulphur dioxide and nitrogen dioxide in ambient air shall be those laid down in Section A of Annex XII to Directive 2008/50/EC.

**Duty in relation to target values.**

18.(1) The Minister shall ensure that all necessary measures not entailing disproportionate costs are taken to ensure that concentrations of arsenic, cadmium, nickel and benzo(a)pyrene, ozone, and PM<sub>2.5</sub> in ambient air do not exceed the target values set out in—

- (a) Annex I to Directive 2004/107;
- (b) Section B of Annex VII to Directive 2008/50/EC; and
- (c) Section D of Annex XIV to Directive 2008/50/EC,

from the dates specified therein.



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(2) Where the target values for arsenic, cadmium, nickel or benzo(a)pyrene are met, the Minister shall maintain the levels of those pollutants below those target values and must endeavour to achieve the best ambient air quality compatible with sustainable development.

(3) Where the target value for arsenic, cadmium, nickel or benzo(a)pyrene is exceeded the Minister shall identify the areas where those values are exceeded and the relevant sources of pollutants.

(4) Where subregulation (3) applies, the measures in subregulation (1) shall be directed at the predominant sources of emission which have been identified and, where applicable, will entail the application of best available techniques in accordance with Directive 2008/1/EC of the European Parliament and of the Council concerning integrated pollution prevention and control.

**Postponement or exemption from compliance with limit values.**

19.(1) Where the Minister has reason to believe that the limit values for nitrogen dioxide, benzene or PM<sub>10</sub> will not be met by the dates specified in Annex XI to Directive 2008/50/EC—

- (a) in relation to nitrogen dioxide and benzene, he may postpone the deadline for compliance for a period not exceeding 5 years from the date specified in that Annex; and
- (b) in relation to PM<sub>10</sub>, he may substitute the date specified in that Annex with 11 June 2011,

if subregulations (2) or (3) apply.

(2) This subregulation applies if the European Commission has been sent an air quality plan pursuant to, and in accordance with the requirements set out in, Article 22 of Directive 2008/50/EC and, within the time limits specified in Article 22, the Minister has not been notified of any objections raised by the European Commission.

(3) This subregulation applies if the European Commission raised objections in relation to an air quality plan submitted to it pursuant to subregulation (2) and the Minister has not been notified of any further objections from the European Commission in relation to the amended or new air quality plan, as the case may be.

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(4) Nothing in this regulation shall be deemed to permit the limit value for each of the pollutants referred to in this regulation to be exceeded by more than the maximum margin of tolerance specified in Annex XI to Directive 2008/50/EC.

**Duty in relation to long-term objectives for ozone.**

20.(1) Where the level of ozone in ambient air exceeds the long term objectives but is at a level that is lower than or equal to the target value, the Minister shall ensure that all necessary measures not entailing disproportionate cost are taken to attain the long-term objectives for ozone set out in Section C of Annex VII to Directive 2008/50/EC.

(2) Where the long-term objectives for ozone have been attained, the Minister shall, insofar as factors including meteorological conditions and the transboundary nature of ozone pollution permit—

- (a) ensure that those objectives continue to be met; and
- (b) maintain the best ambient air quality compatible with sustainable development and a high level of protection for the environment and human health.

**Duty in relation to information and alert thresholds.**

21. Where any of the information or alert thresholds in Annex XII to Directive 2008/50/EC are exceeded in relation to the relevant averaging periods set out in that Annex, the Minister shall inform the public by means of radio, television, newspapers or the internet.

**Duty in relation to critical levels for the protection of vegetation.**

22. The Minister shall ensure that the critical levels set out in Annex XIII to Directive 2008/50/EC are not exceeded in relation to the relevant averaging periods and margins of tolerance set out in that Annex.

**PART 4***National Exposure Reduction for PM<sub>2.5</sub>***Average exposure indicator.**

23.(1) The Minister shall calculate the average exposure indicator for PM<sub>2.5</sub> (“AEI”) for Gibraltar for 2010, 2015 and 2020.

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- (2) The AEI must be calculated as follows—
- (a) an average annual measurement must be derived from measurements at all the sampling points in urban background locations which have been installed in accordance with Section B of Annex V to Directive 2008/50/EC;
  - (b) the average annual measurement in paragraph (a) must be averaged over three calendar years.
- (3) The AEI for 2010 must be based on measurements for the years 2009, 2010 and 2011.
- (4) The AEI for 2015 must be based on measurements for the years 2013, 2014 and 2015.
- (5) The AEI for 2020 must be based on measurements for the years 2018, 2019 and 2020.
- (6) The Minister shall, in accordance with Annex III to Directive 2008/50/EC, ensure that the distribution and number of sampling points used for calculating the AEI adequately reflects the exposure of the general population. The number of sampling points shall be no less than that determined by application of Section B of Annex V to Directive 2008/50/EC.

**National exposure reduction target.**

24. Based on the AEI for 2010, the Minister shall establish the national exposure reduction target for Gibraltar in accordance with the table in Section B of Annex XIV to Directive 2008/50/EC.

**Duty of the Minister to limit exposure to PM<sub>2.5</sub>.**

25.(1) The Minister shall ensure that all necessary measures not entailing disproportionate costs are taken to reduce exposure to PM<sub>2.5</sub> with a view to attaining the national exposure reduction target by 2020.

(2) The Minister shall base assessment of compliance with subregulation (1) on a comparison of the AEI for 2020 with the AEI for 2010.

(3) The Minister shall ensure that all appropriate measures are taken with a view to ensuring that the AEI for 2015 does not exceed 20µg/m<sup>3</sup>.

## PART 5

*Plans***Air quality plans.**

26.(1) Where the levels of sulphur dioxide, nitrogen dioxide, benzene, carbon monoxide, lead and PM<sub>10</sub> in ambient air exceed any of the limit values in Section B of Annex XI to Directive 2008/50/EC or the level of PM<sub>2.5</sub> exceeds the target value in Section D of Annex XIV to Directive 2008/50/EC, plus any relevant margin of tolerance in each case, the Minister shall draw up and implement an air quality plan so as to achieve that limit value or target value.

(2) The air quality plan must include measures intended to ensure compliance with any relevant limit value within the shortest possible time and may additionally include specific measures aimed at the protection of sensitive population groups, including children.

(3) Between the date when these Regulations come into force and 31st December 2014, the Minister must draw up and implement an air quality plan if levels of PM<sub>2.5</sub> in ambient air exceed a level calculated by applying the margin of tolerance set out in Section E of Annex XIV to Directive 2008/50/EC to the limit value.

(4) Air quality plans must include the information listed in Section A of Annex XV to Directive 2008/50/EC.

(5) Wherever possible, and in order to achieve the relevant environmental objectives, 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, Council Directive 2001/81/EC on national emission ceilings for certain atmospheric pollutants, and Council Directive 2002/49/EC on assessment and management of environmental noise.

(6) Where an air quality plan is required in relation to more than one pollutant, the Minister shall, where appropriate, draw up and implement an integrated plan in relation to all pollutants concerned.

(7) Where the level of ozone in a zone exceeds the target value in Section B of Annex VII to Directive 2008/50/EC, the Minister shall draw up and

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implement an air quality plan unless the measures necessary to achieve the target value would entail disproportionate cost.

**Short term action plans.**

27.(1) Where there is a risk that levels of sulphur dioxide or nitrogen dioxide will exceed the alert thresholds set out in Annex XII to Directive 2008/50/EC, the Minister shall draw up a short term action plan.

(2) A short term action plan must set out the measures intended to reduce the risk of alert thresholds being exceeded, or in the event of the levels being exceeded, to reduce the duration of such an incident.

(3) Where there is a risk that levels of ozone will exceed the alert threshold set out in Section B of Annex XII to Directive 2008/50/EC, the Minister shall draw up a short term action plan taking into account Decision 2004/279/EC, only if he is of the opinion that it is reasonably likely that the risk, severity or duration of the excess level of ozone can be reduced taking into account national geographical, meteorological and economic conditions.

(4) For the purposes of subregulation (3), the threshold must be exceeded or be predicted to exceed the alert threshold for at least three consecutive hours.

(5) Short term action plans may also be drawn up where there is a risk that any of the limit values or target values set out in Annexes VII, XI and XIV to Directive 2008/50/EC will be exceeded.

**Public participation in drawing up air quality and short term action plans.**

28.(1) The Minister shall consult the public whenever he proposes to prepare, modify or review an air quality plan or a short term action plan.

(2) Where subregulation (1) applies, the Minister shall—

- (a) inform the public as to the proposal, any relevant background information and the right of the public to participate in the drawing up of the plan;
- (b) specify the means by which the public can participate in the consultation, including an address for responses, and a reasonable timescale for the consultation; and

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- (c) take account of the results of the consultation in drawing up the plan.

(3) When the plan is published, the Minister shall also provide information to the public as to the reasons for the contents of the plan together with information about the public participation process that has been carried out.

**PART 6***Public information***Public information.**

29.(1) The Minister shall make available to the public and appropriate interested organisations in an adequate and timely manner—

- (a) ambient air quality in accordance with Annex XVI to Directive 2008/50/EC and Article 7 of Directive 2004/107/EC, including—
- (i) up-to-date information given on at least a daily basis, and if possible on an hourly basis on concentrations of sulphur dioxide, nitrogen dioxide, PM<sub>10</sub> and if possible, PM<sub>2.5</sub>, ozone and carbon monoxide;
  - (ii) up-to-date information on concentrations of benzene and lead, presented as an average over the last twelve months, and updated every three months or if possible every month;
  - (iii) up-to-date information as to any amendment to the attainment dates for limit values for nitrogen dioxide or PM<sub>10</sub>;
  - (iv) up-to-date information on concentrations and deposition rates of arsenic, cadmium, nickel, mercury, benzo(a)pyrene and other polycyclic aromatic hydrocarbons;
  - (v) information about cases where target values for arsenic, cadmium, nickel and benzo(a)pyrene are exceeded, together with reasons for such cases, the area concerned,

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and appropriate information regarding effects on health and the environment;

- (vi) information on measures taken to achieve target values for arsenic, cadmium, nickel and benzo(a)pyrene;
  - (vii) information about actual or predicted instances where pollutants exceed alert or information thresholds;
- (b) any postponement decisions or exemptions made pursuant to regulation 19;
  - (c) air quality plans;
  - (d) short term action plans;
  - (e) any programme prepared pursuant to Article 6 of Directive 2001/81/EC on national emission ceilings for certain atmospheric pollutants;
  - (f) details of the competent authority designated under regulation 3.

(2) Where the Minister has drawn up a short term action plan pursuant to regulation 27, he shall make available to the public and appropriate interested organisations the results of his investigations on the feasibility and the content of specific short-term action plans as well as information on the implementation of such plans.

(3) Information must be distributed free of charge via any easily accessible media including the internet or other appropriate means of telecommunication taking into account the requirements of Council Directive 2007/2/EC on establishing an infrastructure for spatial information in the European Community.

(4) For the purposes of this Part, “interested organisations” includes environmental organisations, consumer organisations, organisations representing sensitive populations, relevant healthcare bodies and industrial federations.

#### **Annual reports.**

30.(1) The Minister shall publish annual reports for all the pollutants to which these Regulations apply.

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- (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 for the relevant averaging periods; and
  - (b) a summary assessment of the effects of the exceedances referred to in paragraph (a).
- (3) Annual reports may contain further information where appropriate, including assessments on forest protection, information on other pollutants for which monitoring provisions are specified in these Regulations and information as to ozone precursor substances listed in section B of Annex X to Directive 2008/50/EC, as the Minister thinks appropriate.
- (4) Regulation 29(3) applies to reports made under this regulation.

*Transboundary air pollution*

**Transboundary air pollution.**

31.(1) Where—

- (a) a limit value or target value together with any relevant margin of tolerance;
- (b) an alert threshold;
- (c) a long-term objective,

is exceeded in Gibraltar as a result of the significant transport of air pollutants or their precursor substances from a Member State, or where Gibraltar is the source of those pollutants and these have given rise to exceedances outside Gibraltar, the Minister shall consult the relevant Member State as to any remedial action that might be appropriate and proportionate to remove such exceedances.

(2) The Minister shall, if appropriate pursuant to regulation 27, prepare and implement joint short-term action plans covering neighbouring zones.



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(3) The Minister shall ensure that competent authorities in neighbouring zones which have developed short-term action plans receive all appropriate information.

(4) Where information or alert thresholds are exceeded in Gibraltar the Minister shall as soon as possible—

- (a) make such information available to the public; and
- (b) notify the competent authorities in the neighbouring Member States.

(5) In this regulation the term “neighbouring zones” means zones which have been established by a Member State pursuant to Article 4 of Directive 2008/50/EC and which are located next to the territory of Gibraltar.

## **PART 7**

### **Offences.**

32.(1) A person who—

- (a) intending to deceive another; or
- (b) without lawful authority or excuse,

interferes with or damages any equipment used for the measuring of any pollutant or alters the results of any data collected under these Regulations is guilty of an offence.

(2) A person who is guilty of an offence under this regulation is liable—

- (a) on summary conviction to a fine not exceeding level 4 on the standard scale; or
- (b) on conviction on indictment to a fine.

### **Revocations.**

33. The following are revoked—

- (a) the Public Health (Air Quality Limit Values) Rules 2002;
- (b) the Public Health (Air Quality) (Ozone) Rules 2004.

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**SCHEDULE 1**

Regulation 2

**THIS SCHEDULE REPRODUCES DIRECTIVE 2008/50/EC**

**DIRECTIVE 2008/50/EC OF THE EUROPEAN PARLIAMENT AND  
OF THE COUNCIL**

**of 21 May 2008**

**on ambient air quality and cleaner air for Europe**

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE  
EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in  
particular Article 175 thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Economic and Social  
Committee,

Having regard to the opinion of the Committee of the Regions,

Acting in accordance with the procedure laid down in Article 251 of the  
Treaty,

Whereas:

- (1) The Sixth Community Environment Action Programme adopted by  
Decision No 1600/2002/EC of the European Parliament and of the  
Council of 22 July 2002 establishes the need to reduce pollution to  
levels which minimise harmful effects on human health, paying  
particular attention to sensitive populations, and the environment as a  
whole, to improve the monitoring and assessment of air quality  
including the deposition of pollutants and to provide information to  
the public.
- (2) In order to protect human health and the environment as a whole, it is  
particularly important to combat emissions of pollutants at source and  
to identify and implement the most effective emission reduction  
measures at local, national and Community level. Therefore,

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emissions of harmful air pollutants should be avoided, prevented or reduced and appropriate objectives set for ambient air quality taking into account relevant World Health Organisation standards, guidelines and programmes.

- (3) Council Directive 96/62/EC of 27 September 1996 on ambient air quality assessment and management, Council Directive 1999/30/EC of 22 April 1999 relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air, Directive 2000/69/EC of the European Parliament and of the Council of 16 November 2000 relating to limit values for benzene and carbon monoxide in ambient air, Directive 2002/3/EC of the European Parliament and of the Council of 12 February 2002 relating to ozone in ambient air and Council Decision 97/101/EC of 27 January 1997 establishing a reciprocal exchange of information and data from networks and individual stations measuring ambient air pollution within the Member States need to be substantially revised in order to incorporate the latest health and scientific developments and the experience of the Member States. In the interests of clarity, simplification and administrative efficiency it is therefore appropriate that those five acts be replaced by a single Directive and, where appropriate, by implementing measures.
- (4) Once sufficient experience has been gained in relation to the implementation of Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air consideration may be given to the possibility of merging its provisions with those of this Directive.
- (5) A common approach to the assessment of ambient air quality should be followed according to common assessment criteria. When assessing ambient air quality, account should be taken of the size of populations and ecosystems exposed to air pollution. It is therefore appropriate to classify the territory of each Member State into zones or agglomerations reflecting the population density.
- (6) Where possible modelling techniques should be applied to enable point data to be interpreted in terms of geographical distribution of concentration. This could serve as a basis for calculating the collective exposure of the population living in the area.
- (7) In order to ensure that the information collected on air pollution is sufficiently representative and comparable across the Community, it

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is important that standardised measurement techniques and common criteria for the number and location of measuring stations are used for the assessment of ambient air quality. Techniques other than measurements can be used to assess ambient air quality and it is therefore necessary to define criteria for the use and required accuracy of such techniques.

- (8) Detailed measurements of fine particulate matter at rural background locations should be made in order to understand better the impacts of this pollutant and to develop appropriate policies. Such measurements should be made in a manner consistent with those of the cooperative programme for monitoring and evaluation of the long range transmission of air pollutants in Europe (EMEP) set up under the 1979 Convention on Long-range Transboundary Air Pollution approved by Council Decision 81/462/EEC of 11 June 1981.
- (9) Air quality status should be maintained where it is already good, or improved. Where the objectives for ambient air quality laid down in this Directive are not met, Member States should take action in order to comply with the limit values and critical levels, and where possible, to attain the target values and long-term objectives.
- (10) The risk posed by air pollution to vegetation and natural ecosystems is most important in places away from urban areas. The assessment of such risks and the compliance with critical levels for the protection of vegetation should therefore focus on places away from built-up areas.
- (11) Fine particulate matter (PM<sub>2.5</sub>) is responsible for significant negative impacts on human health. Further, there is as yet no identifiable threshold below which PM<sub>2.5</sub> would not pose a risk. As such, this pollutant should not be regulated in the same way as other air pollutants. The approach should aim at a general reduction of concentrations in the urban background to ensure that large sections of the population benefit from improved air quality. However, to ensure a minimum degree of health protection everywhere, that approach should be combined with a limit value, which is to be preceded in a first stage by a target value.
- (12) The existing target values and long-term objectives of ensuring effective protection against harmful effects on human health and vegetation and ecosystems from exposure to ozone should remain unchanged. An alert threshold and an information threshold for ozone should be set for the protection of the general population and

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sensitive sections, respectively, from brief exposures to elevated ozone concentrations. Those thresholds should trigger the dissemination of information to the public on the risks of exposure and the implementation, if appropriate, of short-term measures to reduce ozone levels where the alert threshold is exceeded.

- (13) Ozone is a transboundary pollutant formed in the atmosphere from the emission of primary pollutants addressed by Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants. Progress towards the air quality targets and long term objectives for ozone set in this Directive should be determined by the targets and emission ceilings provided for in Directive 2001/81/EC and, if appropriate, by implementing air quality plans as provided for in this Directive.
- (14) Fixed measurements should be mandatory in zones and agglomerations where the long-term objectives for ozone or the assessment thresholds for other pollutants are exceeded. Information from fixed measurements may be supplemented by modelling techniques and/or indicative measurements to enable point data to be interpreted in terms of geographical distribution of concentrations. The use of supplementary techniques of assessment should also allow for reduction of the required minimum number of fixed sampling points.
- (15) Contributions from natural sources can be assessed but cannot be controlled. Therefore, where natural contributions to pollutants in ambient air can be determined with sufficient certainty, and where exceedances are due in whole or in part to these natural contributions, these may, under the conditions laid down in this Directive, be subtracted when assessing compliance with air quality limit values. Contributions to exceedances of particulate matter PM<sub>10</sub> limit values attributable to winter-sanding or -salting of roads may also be subtracted when assessing compliance with air quality limit values provided that reasonable measures have been taken to lower concentrations.
- (16) For zones and agglomerations where conditions are particularly difficult, it should be possible to postpone the deadline for compliance with the air quality limit values in cases where, notwithstanding the implementation of appropriate pollution abatement measures, acute compliance problems exist in specific zones and agglomerations. Any postponement for a given zone or

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agglomeration should be accompanied by a comprehensive plan to be assessed by the Commission to ensure compliance by the revised deadline. The availability of necessary Community measures reflecting the chosen ambition level in the Thematic Strategy on air pollution to reduce emissions at source will be important for an effective emission reduction by the timeframe established in this Directive for compliance with the limit values and should be taken into account when assessing requests to postpone deadlines for compliance.

- (17) The necessary Community measures to reduce emissions at source, in particular measures to improve the effectiveness of Community legislation on industrial emissions, to limit the exhaust emissions of engines installed in heavy duty vehicles, to further reduce the Member States' permitted national emissions of key pollutants and the emissions associated with refuelling of petrol cars at service stations, and to address the sulphur content of fuels including marine fuels should be duly examined as a priority by all institutions involved.
- (18) Air quality plans should be developed for zones and agglomerations within which concentrations of pollutants in ambient air exceed the relevant air quality target values or limit values, plus any temporary margins of tolerance, where applicable. Air pollutants are emitted from many different sources and activities. To ensure coherence between different policies, such air quality plans should where feasible be consistent, and integrated with plans and programmes prepared pursuant to 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, Directive 2001/81/EC, and Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise. Full account will also be taken of the ambient air quality objectives provided for in this Directive, where permits are granted for industrial activities pursuant to Directive 2008/1/EC of the European Parliament and of the Council of 15 January 2008 concerning integrated pollution prevention and control.
- (19) Action plans should be drawn up indicating the measures to be taken in the short term where there is a risk of an exceedance of one or more alert thresholds in order to reduce that risk and to limit its duration. When the risk applies to one or more limit values or target values, Member States may, where appropriate, draw up such short-

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term action plans. In respect of ozone, such short-term action plans should take into account the provisions of Commission Decision 2004/279/EC of 19 March 2004 concerning guidance for implementation of Directive 2002/3/EC of the European Parliament and of the Council relating to ozone in ambient air.

- (20) Member States should consult with one another if, following significant pollution originating in another Member State, the level of a pollutant exceeds, or is likely to exceed, the relevant air quality objectives plus the margin of tolerance where applicable or, as the case may be, the alert threshold. The transboundary nature of specific pollutants, such as ozone and particulate matter, may require coordination between neighbouring Member States in drawing up and implementing air quality plans and short-term action plans and in informing the public. Where appropriate, Member States should pursue cooperation with third countries, with particular emphasis on the early involvement of candidate countries.
- (21) It is necessary for the Member States and the Commission to collect, exchange and disseminate air quality information in order to understand better the impacts of air pollution and develop appropriate policies. Up-to-date information on concentrations of all regulated pollutants in ambient air should also be readily available to the public.
- (22) In order to facilitate the handling and comparison of air quality information, data should be made available to the Commission in a standardised form.
- (23) It is necessary to adapt procedures for data provision, assessment and reporting of air quality to enable electronic means and the Internet to be used as the main tools to make information available, and so that such procedures are compatible with Directive 2007/2/EC of the European Parliament and the Council of 14 March 2007 establishing an infrastructure for spatial information in the European Community (INSPIRE).
- (24) It is appropriate to provide for the possibility of adapting the criteria and techniques used for the assessment of the ambient air quality to scientific and technical progress and adapting thereto the information to be provided.
- (25) Since the objectives of this Directive cannot be sufficiently achieved by the Member States by reason of the transboundary nature of air



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pollutants and can therefore be better achieved at Community level, the Community may adopt measures, in accordance with the principle of subsidiarity as set out in Article 5 of the Treaty. In accordance with the principle of proportionality, as set out in that Article, this Directive does not go beyond what is necessary in order to achieve those objectives.

- (26) Member States should lay down rules on penalties applicable to infringements of the provisions of this Directive and ensure that they are implemented. The penalties should be effective, proportionate and dissuasive.
- (27) Certain provisions of the acts repealed by this Directive should remain in force in order to ensure the continuance of existing air quality limits for nitrogen dioxide until they are replaced from 1 January 2010, the continuance of air quality reporting provisions until new implementing measures are adopted, and the continuance of obligations relating to the preliminary assessments of air quality required under Directive 2004/107/EC.
- (28) The obligation to transpose this Directive into national law should be confined to those provisions which represent a substantive change as compared with the earlier Directives.
- (29) In accordance with point 34 of the Interinstitutional Agreement on better lawmaking, Member States are encouraged to draw up, for themselves and in the interest of the Community, their own tables illustrating, as far as possible, the correlation between the Directive and the transposition measures, and to make them public.
- (30) This Directive respects the fundamental rights and observes the principles recognised in particular by the Charter of Fundamental Rights of the European Union. In particular, this Directive seeks to promote the integration into the policies of the Union of a high level of environmental protection and the improvement of the quality of the environment in accordance with the principle of sustainable development as laid down in Article 37 of the Charter of Fundamental Rights of the European Union.
- (31) The measures necessary for the implementation of this Directive should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission.



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- (32) The Commission should be empowered to amend Annexes I to VI, Annexes VIII to X and Annex XV. Since those measures are of general scope and are designed to amend non-essential elements of this Directive, they must be adopted in accordance with the regulatory procedure with scrutiny provided for in Article 5a of Decision 1999/468/EC.
- (33) The transposition clause requires Member States to ensure that the necessary urban background measurements are in place well in time to define the Average Exposure Indicator, in order to guarantee that the requirements related to the assessment of the National Exposure Reduction Target and to the calculation of the Average Exposure Indicator are met,

HAVE ADOPTED THIS DIRECTIVE:

CHAPTER I

**GENERAL PROVISIONS**

*Article 1*

**Subject matter**

This Directive lays down measures aimed at the following:

1. defining and establishing objectives for ambient air quality designed to avoid, prevent or reduce harmful effects on human health and the environment as a whole;
2. assessing the ambient air quality in Member States on the basis of common methods and criteria;
3. obtaining information on ambient air quality in order to help combat air pollution and nuisance and to monitor long-term trends and improvements resulting from national and Community measures;
4. ensuring that such information on ambient air quality is made available to the public;
5. maintaining air quality where it is good and improving it in other cases;

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6. promoting increased cooperation between the Member States in reducing air pollution.

*Article 2*

Definitions

For the purposes of this Directive:

1. “ambient air” shall mean outdoor air in the troposphere, excluding workplaces as defined by Directive 89/654/EEC where provisions concerning health and safety at work apply and to which members of the public do not have regular access;
2. “pollutant” shall mean any substance present in ambient air and likely to have harmful effects on human health and/or the environment as a whole;
3. “level” shall mean the concentration of a pollutant in ambient air or the deposition thereof on surfaces in a given time;
4. “assessment” shall mean any method used to measure, calculate, predict or estimate levels;
5. “limit value” shall mean a level fixed on the basis of scientific knowledge, with the aim of avoiding, preventing or reducing harmful effects on human health and/or the environment as a whole, to be attained within a given period and not to be exceeded once attained;
6. “critical level” shall mean a level fixed on the basis of scientific knowledge, above which direct adverse effects may occur on some receptors, such as trees, other plants or natural ecosystems but not on humans;
7. “margin of tolerance” shall mean the percentage of the limit value by which that value may be exceeded subject to the conditions laid down in this Directive;
8. “air quality plans” shall mean plans that set out measures in order to attain the limit values or target values;
9. “target value” shall mean a level fixed with the aim of avoiding, preventing or reducing harmful effects on human health and/or the

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environment as a whole, to be attained where possible over a given period;

10. “alert threshold” shall mean a level beyond which there is a risk to human health from brief exposure for the population as a whole and at which immediate steps are to be taken by the Member States;
11. “information threshold” shall mean a level beyond which there is a risk to human health from brief exposure for particularly sensitive sections of the population and for which immediate and appropriate information is necessary;
12. “upper assessment threshold” shall mean a level below which a combination of fixed measurements and modelling techniques and/or indicative measurements may be used to assess ambient air quality;
13. “lower assessment threshold” shall mean a level below which modelling or objective-estimation techniques alone may be used to assess ambient air quality;
14. “long-term objective” shall mean a level to be attained in the long term, save where not achievable through proportionate measures, with the aim of providing effective protection of human health and the environment;
15. “contributions from natural sources” shall mean emissions of pollutants not caused directly or indirectly by human activities, including natural events such as volcanic eruptions, seismic activities, geothermal activities, wild-land fires, high-wind events, sea sprays or the atmospheric re-suspension or transport of natural particles from dry regions;
16. “zone” shall mean part of the territory of a Member State, as delimited by that Member State for the purposes of air quality assessment and management;
17. “agglomeration” shall mean a zone that is a conurbation with a population in excess of 250 000 inhabitants or, where the population is 250 000 inhabitants or less, with a given population density per km<sup>2</sup> to be established by the Member States;

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18. “PM<sub>10</sub>” shall mean particulate matter which passes through a size-selective inlet as defined in the reference method for the sampling and measurement of PM<sub>10</sub>, EN 12341, with a 50 % efficiency cut-off at 10 µm aerodynamic diameter;
19. “PM<sub>2,5</sub>” shall mean particulate matter which passes through a size-selective inlet as defined in the reference method for the sampling and measurement of PM<sub>2,5</sub>, EN 14907, with a 50 % efficiency cut-off at 2,5 µm aerodynamic diameter;
20. “average exposure indicator” shall mean an average level determined on the basis of measurements at urban background locations throughout the territory of a Member State and which reflects population exposure. It is used to calculate the national exposure reduction target and the exposure concentration obligation;
21. “exposure concentration obligation” shall mean a level fixed on the basis of the average exposure indicator with the aim of reducing harmful effects on human health, to be attained over a given period;
22. “national exposure reduction target” shall mean a percentage reduction of the average exposure of the population of a Member State set for the reference year with the aim of reducing harmful effects on human health, to be attained where possible over a given period;
23. “urban background locations” shall mean places in urban areas where levels are representative of the exposure of the general urban population;
24. “oxides of nitrogen” shall mean the sum of the volume mixing ratio (ppbv) of nitrogen monoxide (nitric oxide) and nitrogen dioxide expressed in units of mass concentration of nitrogen dioxide (µg/m<sup>3</sup>);
25. “fixed measurements” shall mean measurements taken at fixed sites, either continuously or by random sampling, to determine the levels in accordance with the relevant data quality objectives;
26. “indicative measurements” shall mean measurements which meet data quality objectives that are less strict than those required for fixed measurements;

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27. “volatile organic compounds” (VOC) shall mean organic compounds from anthropogenic and biogenic sources, other than methane, that are capable of producing photochemical oxidants by reactions with nitrogen oxides in the presence of sunlight;
28. “ozone precursor substances” means substances which contribute to the formation of ground-level ozone, some of which are listed in Annex X.

*Article 3*

**Responsibilities**

Member States shall designate at the appropriate levels the competent authorities and bodies responsible for the following:

- (a) assessment of ambient air quality;
- (b) approval of measurement systems (methods, equipment, networks and laboratories);
- (c) ensuring the accuracy of measurements;
- (d) analysis of assessment methods;
- (e) coordination on their territory if Community-wide quality assurance programmes are being organised by the Commission;
- (f) cooperation with the other Member States and the Commission.

Where relevant, the competent authorities and bodies shall comply with Section C of Annex I.

*Article 4*

**Establishment of zones and agglomerations**

Member States shall establish zones and agglomerations throughout their territory. Air quality assessment and air quality management shall be carried out in all zones and agglomerations.

CHAPTER II

**ASSESSMENT OF AMBIENT AIR QUALITY**

*SECTION 1*

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

*Article 5*

**Assessment regime**

1. The upper and lower assessment thresholds specified in Section A of Annex II shall apply to 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.

Each zone and agglomeration shall be classified in relation to those assessment thresholds.

2. The classification referred to in paragraph 1 shall be reviewed at least every five years in accordance with the procedure laid down in Section B of Annex II.

However, classifications shall be reviewed more frequently in the event of significant changes in activities relevant to the ambient concentrations of sulphur dioxide, nitrogen dioxide or, where relevant, oxides of nitrogen, particulate matter (PM<sub>10</sub>, PM<sub>2,5</sub>), lead, benzene or carbon monoxide.

*Article 6*

**Assessment criteria**

1. Member States shall assess ambient air quality with respect to the pollutants referred to in Article 5 in all their zones and agglomerations, in accordance with the criteria laid down in paragraphs 2, 3 and 4 of this Article and in accordance with the criteria laid down in Annex III.

2. In all zones and agglomerations where the level of pollutants referred to in paragraph 1 exceeds the upper assessment threshold established for those pollutants, fixed measurements shall be used to assess the ambient air quality. Those fixed measurements may be supplemented by modelling techniques and/or indicative measurements to provide adequate information on the spatial distribution of the ambient air quality.

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3. In all zones and agglomerations where the level of pollutants referred to in paragraph 1 is below the upper assessment threshold established for those pollutants, a combination of fixed measurements and modelling techniques and/or indicative measurements may be used to assess the ambient air quality.

4. In all zones and agglomerations where the level of pollutants referred to in paragraph 1 is below the lower assessment threshold established for those pollutants, modelling techniques or objective-estimation techniques or both shall be sufficient for the assessment of the ambient air quality.

5. In addition to the assessments referred to in paragraphs 2, 3 and 4, measurements shall be made, at rural background locations away from significant sources of air pollution, for the purposes of providing, as a minimum, information on the total mass concentration and the chemical speciation concentrations of fine particulate matter (PM<sub>2,5</sub>) on an annual average basis and shall be conducted using the following criteria:

- (a) one sampling point shall be installed every 100 000 km<sup>2</sup>;
- (b) each Member State shall set up at least one measuring station or may, by agreement with adjoining Member States, set up one or several common measuring stations, covering the relevant neighbouring zones, to achieve the necessary spatial resolution;
- (c) where appropriate, 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);
- (d) Sections A and C of Annex I shall apply in relation to the data quality objectives for mass concentration measurements of particulate matter and Annex IV shall apply in its entirety.

Member States shall inform the Commission of the measurement methods used in the measurement of the chemical composition of fine particulate matter (PM<sub>2,5</sub>).

*Article 7*

**Sampling points**

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1. The location of sampling points for the measurement 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 shall be determined using the criteria listed in Annex III.
2. In each zone or agglomeration where fixed measurements are the sole source of information for assessing air quality, the number of sampling points for each relevant pollutant shall not be less than the minimum number of sampling points specified in Section A of Annex V.
3. For zones and agglomerations within which information from fixed measurement sampling points is supplemented by information from modelling and/or indicative measurement, the total number of sampling points specified in Section A of Annex V 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 with regard to limit values or alert thresholds, as well as adequate information for the public;
  - (b) 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 Annex I and enable assessment results to meet the criteria specified in Section B of Annex I.

The results of modelling and/or indicative measurement shall be taken into account for the assessment of air quality with respect to the limit values.

4. The application in Member States of the criteria for selecting sampling points shall be monitored by the Commission so as to facilitate the harmonised application of those criteria throughout the European Union.

*Article 8*

**Reference measurement methods**

1. Member States shall apply the reference measurement methods and criteria specified in Section A and Section C of Annex VI.
2. Other measurement methods may be used subject to the conditions set out in Section B of Annex VI.



*SECTION 2***Assessment of ambient air quality in relation to ozone***Article 9***Assessment criteria**

1. Where, in a zone or agglomeration, concentrations of ozone have exceeded the long-term objectives specified in Section C of Annex VII during any of the previous five years of measurement, fixed measurements shall be taken.
2. Where fewer than five years' data are available, Member States may, for the purposes of determining whether the long-term objectives referred to in paragraph 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.

*Article 10***Sampling points**

1. The siting of sampling points for the measurement of ozone shall be determined using the criteria set out in Annex VIII.
2. The sampling points for fixed measurements of ozone in each zone or agglomeration within which measurement is the sole source of information for assessing air quality shall not be less than the minimum number of sampling points specified in Section A of Annex IX.
3. For zones and agglomerations within which information from sampling points for fixed measurements is supplemented by information from modelling and/or indicative measurements, the number of sampling points specified in Section A of Annex IX may be reduced provided that the following conditions are met:
  - (a) the supplementary methods provide sufficient information for the assessment of air quality with regard to target values, long-term objectives, information and alert thresholds;
  - (b) the number of sampling points to be installed and the spatial resolution of other techniques are sufficient for the

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concentration of ozone to be established in accordance with the data quality objectives specified in Section A of Annex I and enable assessment results to meet the criteria specified in Section B of Annex I;

- (c) the number of sampling points in each zone or agglomeration amounts to at least one sampling point per two million inhabitants or one sampling point per 50 000 km<sup>2</sup>, whichever produces the greater number of sampling points, but must not be less than one sampling point in each zone or agglomeration;
- (d) nitrogen dioxide is measured at all remaining sampling points except at rural background stations as referred to in Section A of Annex VIII.

The results of modelling and/or indicative measurement shall be taken into account for the assessment of air quality with respect to the target values.

4. Nitrogen dioxide shall be measured at a minimum of 50 % of the ozone sampling points required under Section A of Annex IX. That measurement shall be continuous except at rural background stations, as referred to in Section A of Annex VIII, where other measurement methods may be used.

5. In zones and agglomerations where, during each of the previous five years of measurement, concentrations are below the long-term objectives, the number of sampling points for fixed measurements shall be determined in accordance with Section B of Annex IX.

6. Each Member State shall ensure that at least one sampling point is installed and operated in its territory to supply data on concentrations of the ozone precursor substances listed in Annex X. Each Member State shall choose the number and siting of the stations at which ozone precursor substances are to be measured, taking into account the objectives and methods laid down in Annex X.

*Article 11*

**Reference measurement methods**

1. Member States shall apply the reference method for measurement of ozone, set out in point 8 of Section A of Annex VI. Other measuring methods may be used subject to the conditions set out in Section B of Annex VI.

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2. Each Member State shall inform the Commission of the methods it uses to sample and measure VOC, as listed in Annex X.

**CHAPTER III****AMBIENT AIR QUALITY MANAGEMENT***Article 12***Requirements where levels are lower than the limit values**

In zones and agglomerations where the levels of sulphur dioxide, nitrogen dioxide, PM<sub>10</sub>, PM<sub>2,5</sub>, lead, benzene and carbon monoxide in ambient air are below the respective limit values specified in Annexes XI and XIV, Member States shall maintain the levels of those pollutants below the limit values and shall endeavour to preserve the best ambient air quality, compatible with sustainable development.

*Article 13***Limit values and alert thresholds for the protection of human health**

1. Member States shall ensure that, throughout their zones and agglomerations, levels of sulphur dioxide, PM<sub>10</sub>, lead, and carbon monoxide in ambient air do not exceed the limit values laid down in Annex XI.

In respect of nitrogen dioxide and benzene, the limit values specified in Annex XI may not be exceeded from the dates specified therein.

Compliance with these requirements shall be assessed in accordance with Annex III.

The margins of tolerance laid down in Annex XI shall apply in accordance with Article 22(3) and Article 23(1).

2. The alert thresholds for concentrations of sulphur dioxide and nitrogen dioxide in ambient air shall be those laid down in Section A of Annex XII.

*Article 14***Critical levels**

1. Member States shall ensure compliance with the critical levels specified in Annex XIII as assessed in accordance with Section A of Annex III.

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2. Where fixed measurements are the sole source of information for assessing air quality, the number of sampling points shall not be less than the minimum number specified in Section C of Annex V. Where that information is supplemented by indicative measurements or modelling, the minimum number of sampling points may be reduced by up to 50 % so long as the assessed concentrations of the relevant pollutant can be established in accordance with the data quality objectives specified in Section A of Annex I.

*Article 15*

National PM<sub>2,5</sub> exposure reduction target for the protection of human health

1. Member States shall take all necessary measures not entailing disproportionate costs to reduce exposure to PM<sub>2,5</sub> with a view to attaining the national exposure reduction target laid down in Section B of Annex XIV by the year specified therein.

2. Member States shall ensure that the average exposure indicator for the year 2015 established in accordance with Section A of Annex XIV does not exceed the exposure concentration obligation laid down in Section C of that Annex.

3. The average exposure indicator for PM<sub>2,5</sub> shall be assessed in accordance with Section A of Annex XIV.

4. Each Member State shall, in accordance with Annex III, ensure that the distribution and the number of sampling points on which the average exposure indicator for PM<sub>2,5</sub> is based reflect the general population exposure adequately. The number of sampling points shall be no less than that determined by application of Section B of Annex V.

*Article 16*

**PM<sub>2,5</sub> target value and limit value for the protection of human health**

1. Member States shall take all necessary measures not entailing disproportionate costs to ensure that concentrations of PM<sub>2,5</sub> in ambient air do not exceed the target value laid down in Section D of Annex XIV as from the date specified therein.

2. Member States shall ensure that concentrations of PM<sub>2,5</sub> in ambient air do not exceed the limit value laid down in Section E of Annex XIV

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throughout their zones and agglomerations as from the date specified therein. Compliance with this requirement shall be assessed in accordance with Annex III.

3. The margin of tolerance laid down in Section E of Annex XIV shall apply in accordance with Article 23(1).

*Article 17*

**Requirements in zones and agglomerations where ozone concentrations exceed the target values and long-term objectives**

1. Member States shall take all necessary measures not entailing disproportionate costs to ensure that the target values and long-term objectives are attained.
2. For zones and agglomerations in which a target value is exceeded, Member States shall ensure that the programme prepared pursuant to Article 6 of Directive 2001/81/EC and, if appropriate, an air quality plan is implemented in order to attain the target values, save where not achievable through measures not entailing disproportionate costs, as from the date specified in Section B of Annex VII to this Directive.
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, Member States 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 paragraph 2.

*Article 18*

**Requirements in zones and agglomerations where ozone concentrations meet the long-term objectives**

In zones and agglomerations in which ozone levels meet the long-term objectives, Member States shall, in so far as factors including the transboundary nature of ozone pollution and meteorological conditions permit, maintain those levels below the long-term objectives and shall preserve through proportionate measures the best ambient air quality compatible with sustainable development and a high level of environmental and human health protection.

*Article 19*

**Measures required in the event of information or alert thresholds being exceeded**

Where the information threshold specified in Annex XII or any of the alert thresholds laid down therein is exceeded, Member States shall take the necessary steps to inform the public by means of radio, television, newspapers or the Internet.

Member States shall also forward to 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.

*Article 20***Contributions from natural sources**

1. Member States 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. Member States shall provide information on concentrations and sources and the evidence demonstrating that the exceedances are attributable to natural sources.
2. Where the Commission has been informed of an exceedance attributable to natural sources in accordance with paragraph 1, that exceedance shall not be considered as an exceedance for the purposes of this Directive.
3. The Commission shall by 11 June 2010 publish guidelines for demonstration and subtraction of exceedances attributable to natural sources.

*Article 21***Exceedances attributable to winter-sanding or -salting of roads**

1. Member States may designate zones or agglomerations within which limit values for PM<sub>10</sub> are exceeded in ambient air due to the re-suspension of particulates following winter-sanding or -salting of roads.
2. Member States shall send the Commission lists of any such zones or agglomerations together with information on concentrations and sources of PM<sub>10</sub> therein.

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3. When informing the Commission in accordance with Article 27, Member States 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. Without prejudice to Article 20, in the case of zones and agglomerations referred to in paragraph 1 of this Article, Member States need to establish the air quality plan provided for in Article 23 only in so far as exceedances are attributable to PM<sub>10</sub> sources other than winter-sanding or -salting of roads.

5. The Commission shall by 11 June 2010 publish guidelines for determination of contributions from the re-suspension of particulates following winter-sanding or -salting of roads.

*Article 22*

**Postponement of attainment deadlines and exemption from the obligation to apply certain limit values**

1. Where, in a given zone or agglomeration, conformity with the limit values for nitrogen dioxide or benzene cannot be achieved by the deadlines specified in Annex XI, a Member State may postpone those deadlines by a maximum of five years for that particular zone or agglomeration, on condition that an air quality plan is established in accordance with Article 23 for the zone or agglomeration to which the postponement would apply; such air quality plan shall be supplemented by the information listed in Section B of Annex XV related to the pollutants concerned and shall demonstrate how conformity will be achieved with the limit values before the new deadline.

2. Where, in a given zone or agglomeration, conformity with the limit values for PM<sub>10</sub> as specified in Annex XI cannot be achieved because of site-specific dispersion characteristics, adverse climatic conditions or transboundary contributions, a Member State shall be exempt from the obligation to apply those limit values until 11 June 2011 provided that the conditions laid down in paragraph 1 are fulfilled and that the Member State shows that all appropriate measures have been taken at national, regional and local level to meet the deadlines.

3. Where a Member State applies paragraphs 1 or 2, it shall ensure that the limit value for each pollutant is not exceeded by more than the maximum margin of tolerance specified in Annex XI for each of the pollutants concerned.

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4. Member States shall notify the Commission where, in their view, paragraphs 1 or 2 are applicable, and shall communicate the air quality plan referred to in paragraph 1 including all relevant information necessary for the Commission to assess whether or not the relevant conditions are satisfied. In its assessment, the Commission shall take into account estimated effects on ambient air quality in the Member States, at present and in the future, of measures that have been taken by the Member States as well as estimated effects on ambient air quality of current Community measures and planned Community measures to be proposed by the Commission.

Where the Commission has raised no objections within nine months of receipt of that notification, the relevant conditions for the application of paragraphs 1 or 2 shall be deemed to be satisfied.

If objections are raised, the Commission may require Member States to adjust or provide new air quality plans.

**CHAPTER IV****PLANS***Article 23***Air quality plans**

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, Member States shall ensure that air quality plans are established for those zones and agglomerations in order to achieve the related limit value or target value specified in Annexes XI and XIV.

In the event of exceedances of those limit values for which the attainment deadline is already expired, the air quality plans shall set out appropriate measures, so that the exceedance period can be kept as short as possible. The air quality plans may additionally include specific measures aiming at the protection of sensitive population groups, including children.

Those air quality plans shall incorporate at least the information listed in Section A of Annex XV and may include measures pursuant to Article 24. Those plans shall be communicated to the Commission without delay, but no later than two years after the end of the year the first exceedance was observed.



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Where air quality plans must be prepared or implemented in respect of several pollutants, Member States shall, where appropriate, prepare and implement integrated air quality plans covering all pollutants concerned.

2. Member States shall, to the extent feasible, ensure consistency with other plans required under Directive 2001/80/EC, Directive 2001/81/EC or Directive 2002/49/EC in order to achieve the relevant environmental objectives.

*Article 24*

**Short-term action plans**

1. Where, in a given zone or agglomeration, there is a risk that the levels of pollutants will exceed one or more of the alert thresholds specified in Annex XII, Member States shall draw up action plans indicating the measures to be taken in the short term in order to reduce the risk or duration of such an exceedance. Where this risk applies to one or more limit values or target values specified in Annexes VII, XI and XIV, Member States may, where appropriate, draw up such short-term action plans.

However, where there is a risk that the alert threshold for ozone specified in Section B of Annex XII will be exceeded, Member States shall only draw up such short-term action plans when in their opinion there is a significant potential, taking into account national geographical, meteorological and economic conditions, to reduce the risk, duration or severity of such an exceedance. When drawing up such a short-term action plan Member States shall take account of Decision 2004/279/EC.

2. The short-term action plans referred to in paragraph 1 may, depending on the individual case, provide for effective measures to control and, where necessary, suspend activities which contribute to the risk of the respective limit values or target values or alert threshold being exceeded. Those action plans may include measures in relation to motor-vehicle traffic, construction works, ships at berth, and the use of industrial plants or products and domestic heating. Specific actions aiming at the protection of sensitive population groups, including children, may also be considered in the framework of those plans.

3. When Member States have drawn up a short-term action plan, they shall make available to the public and to appropriate organisations such as environmental organisations, consumer organisations, organisations representing the interests of sensitive population groups, other relevant health-care bodies and the relevant industrial federations both the results of

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their investigations on the feasibility and the content of specific short-term action plans as well as information on the implementation of these plans.

4. For the first time before 11 June 2010 and at regular intervals thereafter, the Commission shall publish examples of best practices for the drawing-up of short-term action plans, including examples of best practices for the protection of sensitive population groups, including children.

*Article 25***Transboundary air pollution**

1. Where any alert threshold, limit value or target value plus any relevant margin of tolerance or long-term objective is exceeded due to significant transboundary transport of air pollutants or their precursors, the Member States concerned shall cooperate and, where appropriate, draw up joint activities, such as the preparation of joint or coordinated air quality plans pursuant to Article 23 in order to remove such exceedances through the application of appropriate but proportionate measures.

2. The Commission shall be invited to be present and to assist in any cooperation referred to in paragraph 1. Where appropriate, the Commission shall, taking into account the reports established pursuant to Article 9 of Directive 2001/81/EC, consider whether further action should be taken at Community level in order to reduce precursor emissions responsible for transboundary pollution.

3. Member States shall, if appropriate pursuant to Article 24, prepare and implement joint short-term action plans covering neighbouring zones in other Member States. Member States shall ensure that neighbouring zones in other Member States which have developed short-term action plans receive all appropriate information.

4. Where the information threshold or alert thresholds are exceeded in zones or agglomerations close to national borders, information shall be provided as soon as possible to the competent authorities in the neighbouring Member States concerned. That information shall also be made available to the public.

5. In drawing up plans as provided for in paragraphs 1 and 3 and in informing the public as referred to in paragraph 4, Member States shall, where appropriate, endeavour to pursue cooperation with third countries, and in particular with candidate countries.

## CHAPTER V

## INFORMATION AND REPORTING

*Article 26***Public information**

1. Member States shall ensure that the public as well as appropriate organisations such as environmental organisations, consumer organisations, organisations representing the interests of sensitive populations, other relevant health-care bodies and the relevant industrial federations are informed, adequately and in good time, of the following:

- (a) ambient air quality in accordance with Annex XVI;
- (b) any postponement decisions pursuant to Article 22(1);
- (c) any exemptions pursuant to Article 22(2);
- (d) air quality plans as provided for in Article 22(1) and Article 23 and programmes referred to in Article 17(2).

The information shall be made available free of charge by means of any easily accessible media including the Internet or any other appropriate means of telecommunication, and shall take into account the provisions laid down in Directive 2007/2/EC.

2. Member States shall make available to the public annual reports for all pollutants covered by this Directive.

Those reports shall summarise the levels exceeding limit values, target values, long-term objectives, information thresholds and alert thresholds, for the relevant averaging periods. That information shall be combined with a summary assessment of the effects of those exceedances. The reports may include, where appropriate, further information and assessments on forest protection as well as information on other pollutants for which monitoring provisions are specified in this Directive, such as, inter alia, selected non-regulated ozone precursor substances as listed in Section B of Annex X.

3. Member States shall inform the public of the competent authority or body designated in relation to the tasks referred to in Article 3.

*Article 27*

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1. Member States shall ensure that information on ambient air quality is made available to the Commission within the required timescale as determined by the implementing measures referred to in Article 28(2).
  
2. In any event, for the specific purpose of assessing compliance with the limit values and critical levels and the attainment of target values, such information shall be made available to the Commission no later than nine months after the end of each year and shall include:
  - (a) the changes made in that year to the list and delimitation of zones and agglomerations established under Article 4;
  
  - (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 Articles 20 and 21.
  
3. Paragraphs 1 and 2 shall apply to information collected as from the beginning of the second calendar year after the entry into force of the implementing measures referred to in Article 28(2).

*Article 28***Implementing measures**

1. Measures designed to amend the non-essential elements of this Directive, namely Annexes I to VI, Annexes VIII to X and Annex XV, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 29(3).

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However, the amendments may not have the effect of directly or indirectly modifying either of the following:

- (a) the limit values, exposure reduction targets, critical levels, target values, information or alert thresholds or long-term objectives specified in Annex VII and Annexes XI to XIV;
- (b) the dates for compliance with any of the parameters referred to in point (a).

2. The Commission shall, in accordance with the regulatory procedure referred to in Article 29(2), determine the additional information to be made available by Member States pursuant to Article 27 as well as the timescales in which such information is to be communicated.

The Commission shall also identify ways of streamlining the way data are reported and the reciprocal exchange of information and data from networks and individual stations measuring ambient air pollution within the Member States, in accordance with the regulatory procedure referred to in Article 29(2).

3. The Commission shall draw up guidelines for the agreements on setting up common measuring stations as referred to in Article 6(5).

4. The Commission shall publish guidance on the demonstration of equivalence referred to in Section B of Annex VI.

**CHAPTER VI**

**COMMITTEE, TRANSITIONAL AND FINAL PROVISIONS**

*Article 29*

**Committee**

1. The Commission shall be assisted by a committee, “the Ambient Air Quality Committee”.

2. Where reference is made to this paragraph, Articles 5 and 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

The period laid down in Article 5(6) of Decision 1999/468/EC shall be set at three months.

3. Where reference is made to this paragraph, Article 5a(1) to (4) and Article 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

*Article 30*

**Penalties**

Member States shall lay down the rules on penalties applicable to infringements of the national provisions adopted pursuant to this Directive and shall take all measures necessary to ensure that they are implemented. The penalties provided for must be effective, proportionate and dissuasive.

*Article 31*

**Repeal and transitional provisions**

1. Directives 96/62/EC, 1999/30/EC, 2000/69/EC and 2002/3/EC shall be repealed as from 11 June 2010, without prejudice to the obligations on the Member States relating to time-limits for transposition or application of those Directives.

However, from 11 June 2008, the following shall apply:

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- (a) in Directive 96/62/EC, paragraph 1 of Article 12 shall be replaced by the following:

“1. The detailed arrangements for forwarding the information to be provided under Article 11 shall be adopted in accordance with the procedure referred to in paragraph 3.”;

- (b) in Directive 1999/30/EC, Article 7(7), footnote 1 in point I of Annex VIII and point VI of Annex IX shall be deleted;
- (c) in Directive 2000/69/EC, Article 5(7) and point III in Annex VII shall be deleted;
- (d) in Directive 2002/3/EC, Article 9(5) and point II of Annex VIII shall be deleted.

2. Notwithstanding the first subparagraph of paragraph 1, the following Articles shall remain in force:

- (a) Article 5 of Directive 96/62/EC until 31 December 2010;
- (b) Article 11(1) of Directive 96/62/EC and Article 10(1), (2) and (3) of Directive 2002/3/EC until the end of the second calendar year following the entry into force of the implementing measures referred to in Article 28(2) of this Directive;
- (c) Article 9(3) and (4) of Directive 1999/30/EC until 31 December 2009.

3. References made to the repealed Directives shall be construed as being made to this Directive and should be read in accordance with the correlation table in Annex XVII.

4. Decision 97/101/EC shall be repealed with effect from the end of the second calendar year following the entry into force of the implementing measures referred to in Article 28(2) of this Directive.

However, the third, fourth and fifth indents of Article 7 of Decision 97/101/EC shall be deleted with effect from 11 June 2008.

*Article 32*

Review

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1. In 2013 the Commission shall review the provisions related to PM<sub>2,5</sub> and, as appropriate, other pollutants, and shall present a proposal to the European Parliament and the Council.

As regards PM<sub>2,5</sub>, the review shall be undertaken with a view to establishing a legally binding national exposure reduction obligation in order to replace the national exposure reduction target and to review the exposure concentration obligation laid down in Article 15, taking into account, inter alia, the following elements:

- latest scientific information from WHO and other relevant organisations,
- air quality situations and reduction potentials in the Member States,
- the revision of Directive 2001/81/EC,
- progress made in implementing Community reduction measures for air pollutants,

2. The Commission shall take into account the feasibility of adopting a more ambitious limit value for PM<sub>2,5</sub>, shall review the indicative limit value of the second stage for PM<sub>2,5</sub> and consider confirming or altering that value.

3. As part of the review, the Commission shall also prepare a report on the experience and on the necessity of monitoring of PM<sub>10</sub> and PM<sub>2,5</sub>, taking into account technical progress in automatic measuring techniques. If appropriate, new reference methods for the measurement of PM<sub>10</sub> and PM<sub>2,5</sub> shall be proposed.

*Article 33*

**Transposition**

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive before 11 June 2010. They shall forthwith communicate to the Commission the text of those measures.

When Member States adopt these measures, they shall contain a reference to this Directive or shall be accompanied by such reference on the occasion of their official publication. The methods of making such reference shall be laid down by Member States.



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2. However, Member States shall ensure that a sufficient number of urban background measurement stations of PM<sub>2,5</sub> necessary for the calculation of the Average Exposure Indicator, in accordance with Section B of Annex V, is established at the latest by 1 January 2009, in order to comply with the timeframe and the conditions indicated in Section A of Annex XIV.

3. Member States shall communicate to the Commission the text of the main provisions of national law which they adopt in the field covered by this Directive.

*Article 34*

**Entry into force**

This Directive shall enter into force on the day of its publication in the Official Journal of the European Union.

*Article 35*

**Addressees**

This Directive is addressed to the Member States.

Done at Strasbourg, 21 May 2008.

*For the European Parliament*  
*The President*  
H.-G. Pöttering

*For the Council*  
*The President*  
J. Lenarčič

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*ANNEX I*

**DATA QUALITY OBJECTIVES**

**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>
<b>Fixed measurements <sup>(1)</sup></b>				
Uncertainty	15 %	25 %	25 %	15 %   90 % during summer 75 % during winter
Minimum data capture	90 %	90 %	90 %	
Minimum time coverage:				
- urban background and traffic	-	35 % <sup>(2)</sup>	-	-
- industrial sites	-	90 %	-	-
<b>Indicative measurements</b>				
Uncertainty	25 %	30 %	50 %	30 %
Minimum data capture	90 %	90 %	90 %	90 %
Minimum time coverage	14 % <sup>(4)</sup>	14 % <sup>(3)</sup>	14 % <sup>(4)</sup>	>10 % during summer
<b>Modelling uncertainty:</b>				
Hourly	50 %	-	-	50 %
Eight-hour averages	50 %	-	-	50 %
Daily averages	50 %	-	Not yet defined	-
Annual averages	30 %	50 %	50 %	-
Objective estimation				
Uncertainty	75 %	100 %	100 %	75 %

<sup>(1)</sup> 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 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 50µg/m<sup>3</sup>) should be evaluated instead of the number of exceedances, which is highly influenced by data coverage.

<sup>(2)</sup> Distributed over the year to be representative of various conditions for climate and traffic.

<sup>(3)</sup> One day's measurement a week at random, evenly distributed over the year, or eight weeks evenly distributed over the year.

<sup>(4)</sup> 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).

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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 long-term 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**

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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 Annex VI. 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 non-reference methods.

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

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ANNEX II

**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 and 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>/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>(1)</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>(1)</sup> The upper assessment threshold and the lower assessment threshold for PM<sub>2,5</sub> do not apply to the measurements to assess compliance with the PM<sub>2,5</sub> exposure reduction target for the protection of human health.

4. *Lead*

	Annual average
Upper assessment threshold	70 % of limit value (0,35 µg/m <sup>3</sup> )
Lower assessment threshold	50 % of limit value (0,25 µg/m <sup>3</sup> )

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 5. *Benzene*

	Annual average
Upper assessment threshold	70 % of limit value (3,5 µg/m <sup>3</sup> )
Lower assessment threshold	40 % of limit value (2 µg/m <sup>3</sup> )

 6. *Carbon monoxide*

	Eight-hour average
Upper assessment threshold	70 % of limit value (7 mg/m <sup>3</sup> )
Lower assessment threshold	50 % of limit value (5 mg/m <sup>3</sup> )

**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.

*ANNEX III*

**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

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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



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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 1000 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 sitting 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.

*ANNEX IV***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>	elemental 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 Annex III.

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*ANNEX V*

**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 <sup>(1)</sup>		If maximum concentrations are between the upper and lower assessment thresholds	
	Pollutants except PM	PM <sup>(2)</sup> (sum of PM <sub>10</sub> and PM <sub>2,5</sub> )	Pollutants except PM	PM <sup>(2)</sup> (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
1000-1499	4	6	2	3
1500-1999	5	7	2	3
2000-2749	6	8	3	4
2750-3749	7	10	3	4
3750-4749	8	11	3	6
4750-5999	9	13	4	6
≥ 6000	10	15	4	7

<sup>(1)</sup> 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 orientated 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.

<sup>(2)</sup> 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 Annex V.

*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**

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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 20000 km <sup>2</sup>	1 station every 40000 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.

*ANNEX VI***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 Annex. 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”.

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*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**

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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 Article 3 shall accept test reports issued in other Member States by laboratories accredited to EN ISO 17025 for carrying out such testing.



ANNEX VII

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 <sup>(1)</sup>
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)

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

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

<sup>(\*)</sup> 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).

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**B. Target values**

Objective	Averaging period	Target value	Date by which target value should be met <sup>(1)</sup>
Protection of human health	Maximum daily eight-hour mean <sup>(2)</sup>	120 µg/m <sup>3</sup> not to be exceeded on more than 25 days per calendar year averaged over three years <sup>(3)</sup>	1.1.2010
Protection of vegetation	May to July	AOT40 (calculated from 1 h values) 18000 µg/m <sup>3</sup> · h averaged over five years <sup>(3)</sup>	1.1.2010

<sup>(1)</sup> 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.

<sup>(2)</sup> 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.

<sup>(3)</sup> 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 µg/m <sup>3</sup>	not defined
Protection of vegetation	May to July	AOT40 (calculated from 1 h values) 6000 µg/m <sup>3</sup> · h	not defined

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ANNEX VIII

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

The following apply to fixed measurements:

A. Macroscale siting

Type of station	Objectives of measurement	Representativeness <sup>(1)</sup>	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.

<sup>(1)</sup> 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

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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 <sup>(1)</sup>.

<sup>(1)</sup> OJ L 334, 30.11.2006, p. 1.

**B. Microscale siting**

In so far as is practicable the procedure on microscale siting in Section C of Annex III 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 Annex III 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.

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ANNEX IX

**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 ( $\times 1000$ )	Agglomerations (urban and suburban) <sup>(1)</sup>	Other zones (suburban and rural) <sup>(1)</sup>	Rural background
< 250		1	1 station/50 000 km <sup>2</sup> as an average density over all zones per country <sup>(2)</sup>
< 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	

<sup>(1)</sup> 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.

<sup>(2)</sup> 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 long-term 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>.

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*ANNEX X*
**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<sub>2</sub>), 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-Pentane	i-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.

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ANNEX XI

LIMIT VALUES FOR THE PROTECTION OF HUMAN HEALTH

A. Criteria

Without prejudice to Annex I, 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 the hourly averages (i.e. at least 18 hour values)
Annual mean	90 % <sup>(1)</sup> of the one hour values or (if not available) 24-hour values over the year

<sup>(1)</sup> 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.

B. Limit values

Averaging Period	Limit value	Margin of tolerance	Date by which limit value is to be met
<b>Sulphur dioxide</b>			
One hour	350 µg/m <sup>3</sup> , not to be exceeded more than 24 times a calendar year	150 µg/m <sup>3</sup> (43 %)	— <sup>(1)</sup>
One day	125 µg/m <sup>3</sup> , not to be exceeded more than 3 times a calendar year	None	— <sup>(1)</sup>
<b>Nitrogen dioxide</b>			
One hour	200 µg/m <sup>3</sup> , 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 µg/m <sup>3</sup>	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
<b>Benzene</b>			
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
<b>Carbon monoxide</b>			
maximum daily eight hour mean <sup>(2)</sup>	10 mg/m <sup>3</sup>	60 %	— <sup>(1)</sup>
<b>Lead</b>			
Calendar year	0,5 µg/m <sup>3</sup> <sup>(3)</sup>	100 %	— <sup>(3)</sup>
<b>PM<sub>10</sub></b>			
One day	50 µg/m <sup>3</sup> , not to be exceeded more than 35 times a calendar year	50 %	— <sup>(1)</sup>
Calendar year	40 µg/m <sup>3</sup>	20 %	— <sup>(1)</sup>

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- (<sup>1</sup>) Already in force since 1 January 2005
  - (<sup>2</sup>) 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.
  - (<sup>3</sup>) 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 1000 m from such specific sources.
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*ANNEX XII*

**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 <sup>(1)</sup>	240 µg/m <sup>3</sup>

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

*ANNEX XIII*

**CRITICAL LEVELS FOR THE PROTECTION OF VEGETATION**

Averaging period	Critical level	Margin of tolerance
Sulphur dioxide		
Calendar year and winter (1 October to 31 March)	20 µg/m <sup>3</sup>	None
Oxides of nitrogen		
Calendar year	30 µg/m <sup>3</sup> NO <sub>x</sub>	None

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*ANNEX XIV*

**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 Annex V. 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

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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 <sup>(1)</sup>			
Calendar year	20 µg/m <sup>3</sup>		1 January 2020

<sup>(1)</sup> 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.

*ANNEX XV*

**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.

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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 Annex.*

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

- 1. All information as laid down in Section A.

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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;
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;
3. Directive 2008/1/EC of the European Parliament and of the Council of 15 January 2008 concerning integrated pollution prevention and control;
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;
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;
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;
7. Council Directive 1999/32/EC of 26 April 1999 relating to a reduction in the sulphur content of certain liquid fuels;
8. Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the incineration of waste;
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;

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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;
  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;
  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;
  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.
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:

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- 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.



*ANNEX XVI*

**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 Annex VII and Annexes XI to XIV. 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):

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- 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.

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ANNEX XVII

CORRELATION TABLE

<i>This Directive</i>	<i>Directive 96/62/EC</i>	<i>Directive 1999/30/EC</i>	<i>Directive 2000/69/EC</i>	<i>Directive 2002/3/EC</i>
Article 1	Article 1	Article 1	Article 1	Article 1
Article 2(1) to (5)	Article 2(1) to (5)	—	—	—
Article 2(6) and (7)	—	—	—	—
Article 2(8)	Article 2(8)	Article 2(7)	—	—
Article 2(9)	Article 2(6)	—	—	Article 2(9)
Article 2(10)	Article 2(7)	Article 2(6)	—	Article 2(11)
Article 2(11)	—	—	—	Article 2(12)
Article 2(12) and (13)	—	Article 2(13) and (14)	Article 2(a) and (b)	—
Article 2(14)	—	—	—	Article 2(10)
Article 2(15) and (16)	Article 2(9) and (10)	Article 2(8) and (9)	—	Article 2(7) and (8)
Article 2(17) and (18)	—	Article 2(11) and (12)	—	—
Article 2(19), (20), (21), (22) and (23)	—	—	—	—
Article 2(24)	—	Article 2(10)	—	—
Article 2(25) and (26)	Article 6(5)	—	—	—
Article 2(27)	—	—	—	Article 2(13)
Article 2(28)	—	—	—	Article 2(3)
Article 3, with the exception of paragraph (1)(f)	Article 3	—	—	—
Article 3(1)(f)	—	—	—	—
Article 4	Article 2(9) and (10), Article 6(1)	—	—	—
Article 5	—	Article 7(1)	Article 5(1)	—
Article 6(1) to (4)	Article 6(1) to (4)	—	—	—
Article 6(5)	—	—	—	—
Article 7	—	Article 7(2) and (3) with amendments	Article 5(2) and (3) with amendments	—
Article 8	—	Article 7(5)	Article 5(5)	—
Article 9	—	—	—	Article 9(1) first and second subparagraphs
Article 10	—	—	—	Article 9(1) to (3) with amendments
Article 11(1)	—	—	—	Article 9(4)
Article 11(2)	—	—	—	—
Article 12	Article 9	—	—	—
Article 13(1)	—	Articles 3(1), 4(1), 5(1) and 6	Articles 3(1) and 4	—
Article 13(2)	—	Articles 3(2) and 4(2)	—	—
Article 13(3)	—	Article 5(5)	—	—
Article 14	—	Articles 3(1) and 4(1) with amendments	—	—
Article 15	—	—	—	—
Article 16	—	—	—	—
Article 17(1)	—	—	—	Articles 3(1) and 4(1)
Article 17(2)	—	—	—	Article 3(2) and (3)
Article 17(3)	—	—	—	Article 4(2)
Article 18	—	—	—	Article 5
Article 19	Article 10 with amendments	Article 8(3)	—	Article 6 with amendments
Article 20	—	Articles 3(4) and 5(4) with amendments	—	—
Article 21	—	—	—	—
Article 22	—	—	—	—
Article 23	Article 8(1) to (4) with amendments	—	—	—
Article 24	Article 7(3) with	—	—	Article 7 with

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	amendments			amendments
Article 25	Article 8(5) with amendments	—	—	Article 8 with amendments
Article 26	—	Article 8 with amendments	Article 7 with amendments	Article 6 with amendments
Article 27	Article 11 with amendments	Article 5(2) second subparagraph	—	Article 10 with amendments
Article 28(1)	Article 12(1) with amendments	—	—	—
Article 28(2)	Article 11 with amendments	—	—	—
Article 28(3)	—	—	—	—
Article 28(4)	—	Annex IX with amendments	—	—
Article 29	Article 12(2)	—	—	—
Article 30	—	Article 11	Article 9	Article 14
Article 31	—	—	—	—
Article 32	—	—	—	—
Article 33	Article 13	Article 12	Article 10	Article 15
Article 34	Article 14	Article 13	Article 11	Article 17
Article 35	Article 15	Article 14	Article 12	Article 18
Annex I	—	Annex VIII with amendments	Annex VI	Annex VII
Annex II	—	Annex V with amendments	Annex III	—
Annex III	—	Annex VI	Annex IV	—
Annex IV	—	—	—	—
Annex V	—	Annex VII with amendments	Annex V	—
Annex VI	—	Annex IX with amendments	Annex VII	Annex VIII
Annex VII	—	—	—	Annex I, Annex III section II
Annex VIII	—	—	—	Annex IV
Annex IX	—	—	—	Annex V
Annex X	—	—	—	Annex VI
Annex XI	—	Annex I, section I, Annex II, section I and Annex III (with amendments); Annex IV (unchanged)	Annex I, Annex II	—
Annex XII	—	Annex I, section II, Annex II, section II,	—	Annex II, section I
Annex XIII	—	Annex I, section I, Annex II, section I	—	—
Annex XIV	—	—	—	—
Annex XV Section A	Annex IV	—	—	—
Annex XV Section B	—	—	—	—
Annex XVI	—	Article 8	Article 7	Article 6 with amendments

**STATEMENT BY THE COMMISSION**

The Commission takes note of the text adopted by the Council and the European Parliament for the Directive on ambient air quality and cleaner air for Europe. In particular, the Commission notes the importance attributed by the European Parliament and the Member States in Article 22(4) and recital 16 to Community measures for the abatement of air pollutant emissions at source.

The Commission recognises the need to reduce the emissions of harmful air pollutants if significant progress is to be delivered towards the objectives established in the Sixth Environmental Action Programme. The

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Commission's communication on a thematic strategy on air pollution sets out a significant number of possible Community measures. Significant progress on these and other measures has been made since the adoption of the strategy:

- the Council and Parliament have already adopted new legislation limiting the exhaust emissions of light duty vehicles,
- the Commission has adopted a proposal for new legislation to improve the effectiveness of Community industrial emissions legislation including intensive agricultural installations and measures to tackle smaller scale industrial combustion sources,
- the Commission has adopted a proposal for new legislation limiting the exhaust emissions of engines installed in heavy duty vehicles,
- in 2008 the Commission foresees new legislative proposals that would:
  - further reduce the Member States' permitted national emissions of key pollutants,
  - reduce emissions associated with refuelling of petrol cars at service stations,
  - address the sulphur content of fuels including marine fuels,
- preparatory work is also underway to investigate the feasibility of:
  - improving the eco-design and reducing the emissions of domestic boilers and water heaters,
  - reducing the solvent content of paints, varnishes and vehicle refinishing products,
  - reducing the exhaust emissions of non-road mobile machinery and thereby maximise the benefit of lower sulphur non-road fuels already proposed by the Commission,

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- The Commission also continues to push for substantial emissions reductions from ships at the International Maritime Organisation and it is committed to bringing forward proposals for Community measures should the IMO fail to deliver sufficiently ambitious proposals as foreseen in 2008.

The Commission is, however, committed to the aims of its Better Regulation initiative and the need for proposals to be underpinned by a comprehensive assessment of the impacts and benefits. In this regard and in accordance with the Treaty establishing the European Community, the Commission will continue to evaluate the need to bring forward new legislative proposals but reserves its right to decide if and when it would be appropriate to present any such proposal.

**STATEMENT BY THE NETHERLANDS**

The Netherlands has always supported the development of ambitious and effective European policy on air quality and will continue to do so in the future. It is, therefore, happy with the compromise agreed by the Council and the European Parliament and compliments the Parliament, the Commission and the Presidency on the results achieved. The new Directive on ambient air quality marks significant progress for both the environment and public health.

As the Netherlands pointed out when the Common Position was drawn up, the air quality in our country is strongly influenced by transboundary developments and will therefore benefit enormously from an effective European approach. The Netherlands' main concern has been that the Directive should contain a balanced package of European and national measures, as well as realistic time limits to achieve the air quality targets. Only then will Member States be able to achieve the ambitious targets that have been set.

The Netherlands is pleased with the Commission's statement that it will present Community measures in good time. Timely, EU-wide compliance with the air quality standards will depend on sound European policy tackling pollution at the source. The Netherlands would especially point to the lack of data and prevailing uncertainties about emissions and concentrations of fine particulates (PM<sub>2,5</sub>). It will of course make every effort to meet the objectives of the Directive by the target date. On the basis of the knowledge currently at our command, this will largely be feasible. The Dutch government is developing a National Air Quality Cooperation Programme to tackle locations where emission ceilings are persistently exceeded, so that, there too, air quality standards may be met by the target date.

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The Netherlands is pleased that the Council and the European Parliament concluded their second reading in time for the Directive to take effect as of early 2008. This is essential for our own national programme, as well as actions in the countries around us. The Netherlands will work hard to ensure that the national cooperation programme and all local and regional measures are sufficient.

**SCHEDULE 2**

Regulation 2

**THIS SCHEDULE REPRODUCES DIRECTIVE 2004/107/EC AS  
AMENDED BY REGULATION (EC) No 219/2009**

**DIRECTIVE 2004/107/EC OF THE EUROPEAN PARLIAMENT  
AND OF THE COUNCIL**

**of 15 December 2004**

**relating to arsenic, cadmium, mercury, nickel and polycyclic  
aromatic hydrocarbons in ambient air**

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE  
EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in  
particular Article 175(1) thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Economic and Social  
Committee,

After consulting the Committee of the Regions,

Acting in accordance with the procedure laid down in Article 251 of the  
Treaty,

Whereas:

- (1) On the basis of principles enshrined in Article 175(3) of the Treaty, the Sixth Community Environment Action Programme, adopted by Decision No 1600/2002/EC of the European Parliament and of the Council, establishes the need to reduce pollution to levels which minimise harmful effects on human health, paying particular attention to sensitive populations, and the environment as a whole, to improve the monitoring and assessment of air quality including the deposition of pollutants and to provide information to the public.



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- (2) Article 4(1) of Council Directive 96/62/EC of 27 September 1996 on ambient air quality assessment and management requires the Commission to submit proposals for regulating the pollutants listed in Annex I to that Directive taking into account the provisions laid down in paragraphs 3 and 4 of that Article.
- (3) Scientific evidence shows that arsenic, cadmium, nickel and some polycyclic aromatic hydrocarbons are human genotoxic carcinogens and that there is no identifiable threshold below which these substances do not pose a risk to human health. Impact on human health and the environment occurs via concentrations in ambient air and via deposition. With a view to cost-effectiveness, ambient air concentrations of arsenic, cadmium, nickel and polycyclic aromatic hydrocarbons, which would not pose a significant risk to human health, cannot be achieved in specific areas.
- (4) With the aim of minimising harmful effects on human health, paying particular attention to sensitive populations, and the environment as a whole, of airborne arsenic, cadmium and nickel and polycyclic aromatic hydrocarbons, target values should be set, to be attained as far as possible. Benzo(a)pyrene should be used as a marker for the carcinogenic risk of polycyclic aromatic hydrocarbons in ambient air.
- (5) The target values would not require any measures entailing disproportionate costs. Regarding industrial installations, they would not involve measures beyond the application of best available techniques (BAT) as required by Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control and in particular would not lead to the closure of installations. However, they would require Member States to take all cost-effective abatement measures in the relevant sectors.
- (6) In particular, the target values of this Directive are not to be considered as environmental quality standards as defined in Article 2(7) of Directive 96/61/EC and which, according to Article 10 of that Directive, require stricter conditions than those achievable by the use of BAT.
- (7) In accordance with Article 176 of the Treaty, Member States may maintain or introduce more stringent protective measures

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relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons provided that they are compatible with the Treaty and that they are notified to the Commission.

- (8) Where concentrations exceed certain assessment thresholds, monitoring of arsenic, cadmium, nickel and benzo(a)pyrene should be mandatory. Supplementary means of assessment may reduce the required number of sampling points for fixed measurements. Further monitoring of background ambient air concentrations and deposition is foreseen.
- (9) Mercury is a very hazardous substance for human health and the environment. It is present throughout the environment and, in the form of methylmercury, has the capacity to accumulate in organisms, and in particular to concentrate in organisms higher up the food chain. Mercury released into the atmosphere is capable of being transported over long distances.
- (10) The Commission intends to come forward in 2005 with a coherent strategy containing measures to protect human health and the environment from the release of mercury, based on a life-cycle approach, and taking into account production, use, waste treatment and emissions. In this context, the Commission should consider all appropriate measures with a view to reducing the quantity of mercury in terrestrial and aquatic ecosystems, and thereby the ingestion of mercury via food, and avoiding mercury in certain products.
- (11) The effects of arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons on human health, including via the food chain, and the environment as a whole, occur through concentrations in ambient air and via deposition; the accumulation of these substances in soils and the protection of ground water should be taken into account. In order to facilitate review of this Directive in 2010, the Commission and the Member States should consider promoting research into the effects of arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons on human health and the environment, particularly via deposition.
- (12) Standardised accurate measurement techniques and common criteria for the location of measuring stations are important elements in assessing ambient air quality so that the information obtained is comparable throughout the

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Community. Providing reference measurement methods is acknowledged to be an important issue. The Commission has already mandated work on the preparation of CEN standards for the measurement of those constituents in ambient air where target values are defined (arsenic, cadmium, nickel and benzo(a)pyrene) as well as for the deposition of heavy metals with a view to their early development and adoption. In the absence of CEN standard methods, the use of international or national standard reference measurement methods should be permitted.

- (13) Information on the concentrations and the deposition of the regulated pollutants should be forwarded to the Commission as a basis for regular reports.
- (14) Up-to-date information on ambient air concentrations and deposition of regulated pollutants should be readily available to the public.
- (15) The Member States should lay down rules on penalties applicable to infringements of the provisions of this Directive and ensure that they are implemented. Those penalties should be effective, proportionate and dissuasive.
- (16) The measures necessary for the implementation of this Directive should be adopted in accordance with Council Decision 1999/468/EC of 28 June 1999 laying down the procedures for the exercise of implementing powers conferred on the Commission.
- (17) The amendments necessary for adaptation of this Directive to scientific and technical progress should relate solely to criteria and techniques for the assessment of concentrations and deposition of regulated pollutants or detailed arrangements for forwarding information to the Commission. They should not have the effect of modifying the target values either directly or indirectly,

HAVE ADOPTED THIS DIRECTIVE:

*Article 1*

**Objectives**

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The objectives of this Directive shall be to:

- (a) establish a target value for the concentration of arsenic, cadmium, nickel and benzo(a)pyrene in ambient air so as to avoid, prevent or reduce harmful effects of arsenic, cadmium, nickel and polycyclic aromatic hydrocarbons on human health and the environment as a whole;
- (b) ensure, with respect to arsenic, cadmium, nickel and polycyclic aromatic hydrocarbons, that ambient air quality is maintained where it is good and that it is improved in other cases;
- (c) determine common methods and criteria for the assessment of concentrations of arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air as well as of the deposition of arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons;
- (d) ensure that adequate information on concentrations of arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air as well as on the deposition of arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons is obtained and ensure that it is made available to the public.

*Article 2*

**Definitions**

For the purposes of this Directive the definitions in Article 2 of Directive 96/62/EC, with the exception of the definition of ‘target value’, shall apply.

The objectives of this Directive shall be to:

- (a) ‘target value’ means a concentration in the ambient air fixed with the aim of avoiding, preventing or reducing harmful effects on human health and the environment as a whole, to be attained where possible over a given period;
- (b) ‘total or bulk deposition’ means the total mass of pollutants which is transferred from the atmosphere to surfaces (e.g. soil, vegetation, water, buildings, etc.) in a given area within a given time;

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- (c) 'upper assessment threshold' means a level specified in Annex II below which a combination of measurements and modelling techniques may be used to assess ambient air quality, in accordance with Article 6(3) of Directive 96/62/EC;
- (d) 'lower assessment threshold' means a level specified in Annex II below which the sole use of modelling or objective estimation techniques shall be possible to assess ambient air quality, in accordance with Article 6(4) of Directive 96/62/EC;
- (e) 'fixed measurements' means measurements taken at fixed sites either continuously or by random sampling, in accordance with Article 6(5) of Directive 96/62/EC;
- (f) 'arsenic', 'cadmium', 'nickel' and 'benzo(a)pyrene' mean the total content of these elements and compounds in the PM10 fraction;
- (g) 'PM10' means particulate matter, which passes through a size-selective inlet as defined in EN 12341 with a 50 % efficiency cut-off at 10 µm aerodynamic diameter;
- (h) 'polycyclic aromatic hydrocarbons' means those organic compounds, composed of at least two fused aromatic rings made entirely from carbon and hydrogen;
- (i) 'total gaseous mercury' means elemental mercury vapour (Hg<sup>0</sup>) and reactive gaseous mercury, i.e. water-soluble mercury species with sufficiently high vapour pressure to exist in the gas phase.

*Article 3***Target values**

1. Member States shall take all necessary measures not entailing disproportionate costs to ensure that, as from 31 December 2012, concentrations of arsenic, cadmium, nickel and benzo(a)pyrene, used as a marker for the carcinogenic risk of polycyclic aromatic hydrocarbons, in ambient air, as assessed in accordance with Article 4, do not exceed the target values laid down in Annex I.
2. Member States shall draw up a list of zones and agglomerations in which the levels of arsenic, cadmium, nickel, and benzo(a)pyrene are below the

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respective target values. Member States shall maintain the levels of these pollutants in these zones and agglomerations below the respective target values and shall endeavour to preserve the best ambient air quality, compatible with sustainable development.

3. Member States shall draw up a list of the zones and agglomerations where the target values laid down in Annex I are exceeded.

For such zones and agglomerations, Member States shall specify the areas of exceedance and the sources contributing thereto. In the areas concerned, Member States shall demonstrate the application of all necessary measures not entailing disproportionate costs, directed in particular at the predominant emission sources, in order to attain the target values. In the case of industrial installations covered by Directive 96/61/EC this means the application of BAT as defined by Article 2(11) of that Directive.

*Article 4*

**Assessment of ambient air concentrations and deposition rates**

1. Ambient air quality with respect to arsenic, cadmium, nickel and benzo(a)pyrene shall be assessed throughout the territory of the Member States.

2. In accordance with the criteria referred to in paragraph 7, measurement is mandatory in the following zones:

- (a) zones and agglomerations in which levels are between the upper and the lower assessment threshold, and
- (b) other zones and agglomerations where levels exceed the upper assessment threshold.

The measurements provided for may be supplemented by modelling techniques to provide an adequate level of information on ambient air quality.

3. A combination of measurements, including indicative measurements as referred to in Annex IV, Section I, and modelling techniques may be used to assess ambient air quality in zones and agglomerations where the levels over a representative period are between the upper and lower assessment thresholds, to be determined pursuant to Annex II, Section II.

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4. In zones and agglomerations where the levels are below the lower assessment threshold, to be determined pursuant to Annex II, Section II, the sole use of modelling or objective estimation techniques for assessing levels shall be possible.
5. Where pollutants have to be measured, the measurements shall be taken at fixed sites either continuously or by random sampling. The number of measurements shall be sufficient to enable the levels to be determined.
6. The upper and lower assessment thresholds for arsenic, cadmium, nickel and benzo(a)pyrene in ambient air shall be those laid down in Section I of Annex II. The classification of each zone or agglomeration for the purposes of this Article shall be reviewed at least every five years in accordance with the procedure laid down in Section II of Annex II. Classification shall be reviewed earlier in the event of significant change in activities relevant to concentrations of arsenic, cadmium, nickel and benzo(a)pyrene, in ambient air.
7. The criteria for determining the location of sampling points for the measurement of arsenic, cadmium, nickel and benzo(a)pyrene in ambient air in order to assess compliance with the target values shall be those listed in Sections I and II of Annex III. The minimum number of sampling points for fixed measurements of concentrations of each pollutant shall be as laid down in Section IV of Annex III, and they shall be installed in each zone or agglomeration within which measurement is required if fixed measurement is the sole source of data on concentrations within it.
8. To assess the contribution of benzo(a)pyrene in ambient air, each Member State shall monitor other relevant polycyclic aromatic hydrocarbons at a limited number of measurement sites. These compounds shall include at least: benzo(a)anthracene, benzo(b)fluoranthene, benzo(j)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-cd)pyrene, and dibenz(a,h)anthracene. Monitoring sites for these polycyclic aromatic hydrocarbons shall be co-located with sampling sites for benzo(a) pyrene and shall be selected in such a way that geographical variation and long-term trends can be identified. Sections I, II and III of Annex III shall apply.
9. Irrespective of concentration levels, one background sampling point shall be installed every 100 000 km<sup>2</sup> for the indicative measurement, in ambient air, of arsenic, cadmium, nickel, total gaseous mercury, benzo(a)pyrene and the other polycyclic aromatic hydrocarbons referred to in paragraph 8, and of the total deposition of arsenic, cadmium, mercury, nickel, benzo(a)pyrene and the other polycyclic aromatic hydrocarbons referred to in paragraph 8. Each Member State shall set up at least one measuring station. However,



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Member States may, by agreement, and in accordance with guidelines to be drawn up under the regulatory procedure referred to in Article 6(2), set up one or several common measuring stations, covering neighbouring zones in adjoining Member States, to achieve the necessary spatial resolution. Measurement of particulate and gaseous divalent mercury is also recommended. Where appropriate, monitoring shall be coordinated with the European Monitoring and Evaluation of Pollutants (EMEP) monitoring strategy and measurement programme. The sampling sites for these pollutants shall be selected in such a way that geographical variation and long-term trends can be identified. Sections I, II and III of Annex III shall apply.

10. The use of bio indicators may be considered where regional patterns of the impact on ecosystems are to be assessed.

11. For zones and agglomerations within which information from fixed measurement stations is supplemented by information from other sources, such as emission inventories, indicative measurement methods and air quality modelling, the number of fixed measuring stations to be installed and the spatial resolution of other techniques shall be sufficient for the concentrations of air pollutants to be established in accordance with Section I of Annex III and Section I of Annex IV.

12. Data quality objectives are laid down in Section I of Annex IV. Where air quality models are used for assessment, Section II of Annex IV shall apply.

13. The reference methods for the sampling and analysis of arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air shall be as laid down in Sections I, II and III of Annex V. Section IV of Annex V sets out reference techniques for measuring the total deposition of arsenic, cadmium, mercury, nickel and the polycyclic aromatic hydrocarbons and Section V of Annex V refers to reference air quality modelling techniques when such techniques are available.

14. The date by which Member States shall inform the Commission of the methods used for the preliminary assessment of air quality under Article 11(1)(d) of Directive 96/62/EC shall be the date referred to in Article 10 of this Directive.

15. Any amendments necessary to adapt the provisions of this Article and of Section II of Annex II and of Annexes III, IV and V to scientific and technical progress shall be adopted by the Commission. Those measures, designed to amend non-essential elements of this Directive, shall be adopted



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in accordance with the regulatory procedure with scrutiny referred to in Article 6(3). They may not result in any direct or indirect changes to target values.

*Article 5*

**Transmission of information and reporting**

1. With regard to the zones and agglomerations where any of the target values laid down in Annex I is exceeded, Member States shall forward the following information to the Commission:

- (a) the lists of the zones and agglomerations concerned,
- (b) the areas of exceedance,
- (c) the concentration values assessed,
- (d) the reasons for exceedance, and in particular any sources contributing to it,
- (e) the population exposed to such exceedance.

Member States shall also report all data assessed in accordance with Article 4, unless already reported under Council Decision 97/101/EC of 27 January 1997 establishing a reciprocal exchange of information and data from networks and individual stations measuring ambient air pollution within the Member States.

The information shall be transmitted for each calendar year, by no later than 30 September of the following year, and for the first time for the calendar year following 15 February 2007.

2. In addition to the requirements laid down in paragraph 1, Member States shall also report any measures taken pursuant to Article 3.

3. The Commission shall ensure that all information submitted pursuant to paragraph 1 is promptly made available to the public by appropriate means, such as Internet, press and other easily accessible media.

4. The Commission shall adopt, in accordance with the regulatory procedure referred to in Article 6(2), any detailed arrangements for forwarding the information to be provided under paragraph 1 of this Article.

*Article 6*

**Committee**

1. The Commission shall be assisted by the committee established by Article 12(2) of Directive 96/62/EC.

2. Where reference is made to this Article, Articles 5 and 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

The period laid down in Article 5(6) of Decision 1999/468/EC shall be set at three months.

3. Where reference is made to this paragraph, Article 5a(1) to (4) and Article 7 of Decision 1999/468/EC shall apply, having regard to the provisions of Article 8 thereof.

*Article 7*

**Public information**

1. Member States shall ensure that clear and comprehensible information is accessible and is routinely made available to the public as well as to appropriate organisations, such as environmental organisations, consumer organisations, organisations representing the interests of sensitive populations and other relevant healthcare bodies, on ambient air concentrations of arsenic, cadmium, mercury, nickel and benzo(a)pyrene and the other polycyclic aromatic hydrocarbons referred to in Article 4(8) as well as on deposition rates of arsenic, cadmium, mercury, nickel and benzo(a)pyrene and the other polycyclic aromatic hydrocarbons referred to in Article 4(8).

2. The information shall also indicate any annual exceedance of the target values for arsenic, cadmium, nickel and benzo(a)pyrene laid down in Annex I. The information shall give the reasons for the exceedance and the area to which it applies. It shall also provide a short assessment in relation to the target value and appropriate information regarding effects on health and impact on the environment.

Information on any measures taken pursuant to Article 3 shall be made available to the organisations referred to in paragraph 1 of this Article.

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3. The information shall be made available by means of, for example, Internet, press and other easily accessible media.

*Article 8*

**Report and review**

1. The Commission shall, by 31 December 2010 at the latest, submit to the European Parliament and the Council a report based on:

- (a) the experience acquired in the application of this Directive,
- (b) in particular, the results of the most recent scientific research concerning the effects on human health, paying particular attention to sensitive populations, and on the environment as a whole, of exposure to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons, and
- (c) technological developments including the progress achieved in methods of measuring and otherwise assessing concentrations of these pollutants in ambient air as well as their deposition.

2. The report referred to in paragraph 1 shall take into account:

- (a) current air quality, trends and projections up to and beyond 2015;
- (b) the scope for making further reductions in polluting emissions from all relevant sources, and the possible merit in introducing limit values aimed at reducing the risk to human health, for the pollutants listed in Annex I, taking account of technical feasibility and cost effectiveness and any significant additional health and environmental protection that this would provide;
- (c) the relationships between pollutants and opportunities for combined strategies for improving Community air quality and related objectives;
- (d) current and future requirements for informing the public and for the exchange of information between Member States and Commission;

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- (e) the experience acquired in the application of this Directive in Member States, and in particular the conditions under which measurement has been carried out as laid down in Annex III;
- (f) secondary economic benefits for the environment and health in reducing the emissions of arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons to the extent that these can be assessed;
- (g) the adequacy of the particle size fraction used for sampling in view of general particulate matter measurement requirements;
- (h) the suitability of benzo(a)pyrene as a marker for the total carcinogenic activity of polycyclic aromatic hydrocarbons, having regard to predominantly gaseous forms of polycyclic aromatic hydrocarbons such as fluoranthene.

In the light of the latest scientific and technological developments the Commission shall also examine the effect of arsenic, cadmium and nickel on human health with a view to quantifying their genotoxic carcinogenicity. Taking account of measures adopted pursuant to the mercury strategy the Commission shall also consider whether there would be merit in taking further action in relation to mercury, taking account of technical feasibility and cost-effectiveness and any significant additional health and environmental protection that this would provide.

3. With a view to achieving levels of ambient air concentrations that would further reduce harmful effects on human health and would lead to a high level of protection of the environment as a whole, taking into account the technical feasibility and cost-effectiveness of further action, the report referred to in paragraph 1 may be accompanied, if appropriate, by proposals for amendments to this Directive, particularly taking into account the results obtained in accordance with paragraph 2. In addition the Commission shall consider regulating the deposition of arsenic, cadmium, mercury, nickel and specific polycyclic aromatic hydrocarbons.

*Article 9***Penalties**

Member States shall determine the penalties applicable to infringements of the national provisions adopted pursuant to this Directive and shall take all the measures necessary to ensure that they are implemented. The penalties provided for must be effective, proportionate and dissuasive.

*Article 10*

**Implementation**

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 15 February 2007 at the latest. They shall forthwith inform the Commission thereof.

When Member States adopt these measures, they shall contain a reference to this Directive or be accompanied by such a reference on the occasion of their official publication. Member States shall determine how such reference is to be made.

2. Member States shall communicate to the Commission the texts of the main provisions of national law, which they adopt in the field covered by this Directive.

*Article 11*

**Entry into force**

This Directive shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

*Article 12*

**Addressees**

This Directive is addressed to the Member States.

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*ANNEX I*

**Target values for arsenic, cadmium, nickel and benzo(a)pyrene**

Pollutant	Target value <sup>(1)</sup>
Arsenic	6 ng/m <sup>3</sup>
Cadmium	5 ng/m <sup>3</sup>
Nickel	20 ng/m <sup>3</sup>
Benzo(a)pyrene	1 ng/m <sup>3</sup>

<sup>(1)</sup> For the total content in the PM<sub>10</sub> fraction averaged over a calendar year.

*ANNEX II*

**Determination of requirements for assessment of concentrations of arsenic, cadmium, nickel and benzo(a)pyrene in ambient air within a zone or agglomeration**

**I. Upper and lower assessment thresholds**

The following upper and lower assessment thresholds will apply:

	Arsenic	Cadmium	Nickel	B(a)P
Upper assessment threshold in percent of the target value	60 % (3,6 ng/m <sup>3</sup> )	60 % (3 ng/m <sup>3</sup> )	70 % (14 ng/m <sup>3</sup> )	60 % (0,6 ng/m <sup>3</sup> )
Lower assessment threshold in percent of the target value	40 % (2,4 ng/m <sup>3</sup> )	40 % (2 ng/m <sup>3</sup> )	50 % (10 ng/m <sup>3</sup> )	40 % (0,4 ng/m <sup>3</sup> )

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

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

*ANNEX III***Location and minimum number of sampling points for the measurement of concentrations in ambient air and deposition rates****I. Macroscale siting**

The sites of sampling points should be selected in such a way as to:

- provide data on the areas within zones and agglomerations where the population is likely to be directly or indirectly exposed to the highest concentrations averaged over a calendar year;
- provide data on levels in other areas within zones and agglomerations which are representative of the exposure of the general population;
- provide data on deposition rates representing the indirect exposure of the population through the food chain.

Sampling points should in general be sited so as to avoid measuring very small micro-environments in their immediate vicinity. As a guideline, a sampling point should be representative of air quality in surrounding areas of no less than 200 m<sup>2</sup> at traffic-orientated sites, at least 250 m × 250 m at industrial sites, where feasible, and several square kilometres at urban-background sites.

Where the objective is to assess background levels the sampling site should not be influenced by agglomerations or industrial sites in its vicinity, i.e. sites closer than a few kilometres.

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. In particular where Article 3(3) applies, the sampling points should be sited such that the application of BAT can be monitored.

Sampling points should also, where possible, be representative of similar locations not in their immediate vicinity. Where appropriate they should be co-located with sampling points for PM<sub>10</sub>.

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The following guidelines should be met as far as practicable:

- the flow around the inlet sampling probe should be unrestricted, 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 should 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 should not be positioned in the immediate vicinity of sources in order to avoid direct intake of emissions unmixed with ambient air;
- the sampler's exhaust outlet should be positioned so that recirculation of exhaust air to the sample inlet is avoided;
- traffic-orientated sampling points should be at least 25 metres from the edge of major junctions and at least 4 m from the centre of the nearest traffic lane; inlets should be sited so as to be representative of air quality near the building line;
- for the deposition measurements in rural background areas, the EMEP guidelines and criteria should be applied as far as practicable and where not provided for in the Annexes.

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



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- safety of the public and operators
- the desirability of co-locating sampling points for different pollutants
- planning requirements.

**III. Documentation and review of site selection**

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

**IV. Criteria for determining numbers of sampling points for fixed measurement of concentrations of arsenic, cadmium, nickel and benzo(a)pyrene in ambient air**

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

(a) *Diffuse sources*

Population of agglomeration or zone (thousands)	If maximum concentrations exceed the upper assessment threshold <sup>(1)</sup>		If maximum concentrations are between the upper and lower assessment thresholds	
	As, Cd, Ni	B(a)P	As, Cd, Ni	B(a)P
0-749	1	1	1	1
750-1 999	2	2	1	1
2 000-3 749	2	3	1	1
3 750-4 749	3	4	2	2
4 750-5 999	4	5	2	2
≥ 6 000	5	5	2	2

<sup>(1)</sup> To include at least one urban-background station and for benzo(a)pyrene also one traffic-oriented station provided this does not increase the number of sampling points.

(b) *Point sources*

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

The sampling points should be sited such that the application of BAT as defined by Article 2(11) of Directive 96/61/EC can be monitored.

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ANNEX IV

Data quality objectives and requirements for air quality models

I. Data quality objectives

The following data quality objectives are provided as a guide to quality assurance.

	Benzo(a)pyrene	Arsenic, cadmium and nickel	Polycyclic aromatic hydrocarbons other than benzo(a)pyrene, total gaseous mercury	Total deposition
Uncertainty	50 %	40	50 %	70 %
Fixed and indicative measurements	60 % 90 %	60 % 90 %	60 % 90 %	60 % 90 %
Modelling	33 %	5 %		
Minimum data capture	14%	14 %	14 %	33 %
Minimum time coverage:				
Fixed measurements				
Indicative measurements (*)				

(\*) Indicative measurement being measurements which are performed at reduced regularity but fulfil the other data quality objectives.

The uncertainty (expressed at a 95 % confidence level) of the methods used for the assessment of ambient air concentrations 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 are given for individual measurements, which are averaged over typical sampling times, for a 95 % confidence interval. The uncertainty of the measurements should be interpreted as being applicable in the region of the appropriate target value. Fixed and indicative measurements must be evenly distributed over the year in order to avoid skewing of results.

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The requirements for minimum data capture and time coverage do not include losses of data due to regular calibration or normal maintenance of the instrumentation. Twenty-four-hour sampling is required for the measurement of benzo(a)pyrene and other polycyclic aromatic hydrocarbons. With care, individual samples taken over a period of up to one month can be combined and analysed as a composite sample, provided the method ensures that the samples are stable for that period. The three congeners benzo(b) fluoranthene, benzo(j)fluoranthene, benzo(k)fluoranthene can be difficult to resolve analytically. In such cases they can be reported as sum. Twentyfour hour sampling is also advisable for the measurement of arsenic, cadmium and nickel concentrations. Sampling must be spread evenly over the weekdays and the year. For the measurement of deposition rates monthly, or weekly, samples throughout the year are recommended.

Member States may use wet only instead of bulk sampling if they can demonstrate that the difference between them is within 10 %. Deposition rates should generally be given as  $\mu\text{g}/\text{m}^2$  per day. Member States may apply a minimum time coverage lower than indicated in the table, but not lower than 14 % for fixed measurements and 6 % for indicative measurements provided that they can demonstrate that the 95 % expanded uncertainty for the annual mean, calculated from the data quality objectives in the table according to ISO 11222:2002 — ‘Determination of the uncertainty of the time average of air quality measurements’ will be met.

## **II. Requirements for air quality models**

Where an air quality model is used for assessment, references to descriptions of the model and information on the uncertainty shall be compiled. The uncertainty for modelling is defined as the maximum deviation of the measured and calculated concentration levels, over a full year, without taking into account the timing of the events.

## **III. Requirements for objective estimation techniques**

Where objective estimation techniques are used, the uncertainty shall not exceed 100 %.

## **IV. Standardisation**

For substances to be analysed in the  $\text{PM}_{10}$  fraction, the sampling volume refers to ambient conditions.

*ANNEX V***Reference methods for assessment of concentrations in ambient air and deposition rates****I. Reference method for the sampling and analysis of arsenic, cadmium and nickel in ambient air**

The reference method for the measurement of arsenic, cadmium and nickel concentrations in ambient air is currently being standardised by CEN and shall be based on manual PM<sub>10</sub> sampling equivalent to EN 12341, followed by digestion of the samples and analysis by Atomic Absorption Spectrometry or ICP Mass Spectrometry. In the absence of a CEN standard method, Member States are allowed to use national standard methods or ISO standard methods.

A Member State may also use any other methods which it can demonstrate give results equivalent to the above method.

**II. Reference method for the sampling and analysis of polycyclic aromatic hydrocarbons in ambient air**

The reference method for the measurement of benzo(a)pyrene concentrations in ambient air is currently being standardised by CEN and shall be based on manual PM<sub>10</sub> sampling equivalent to EN 12341. In the absence of a CEN standard method, for benzo(a)pyrene or the other polycyclic aromatic hydrocarbons referred to in Article 4(8), Member States are allowed to use national standard methods or ISO methods such as ISO standard 12884.

A Member State may also use any other methods which it can demonstrate give results equivalent to the above method.

**III. Reference method for the sampling and analysis of mercury in ambient air**

The reference method for the measurement of total gaseous mercury concentrations in ambient air shall be an automated method based on Atomic Absorption Spectrometry or Atomic Fluorescence Spectrometry. In the absence of a CEN standardised method, Member States are allowed to use national standard methods or ISO standard methods.

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A Member State may also use any other methods which it can demonstrate give results equivalent to the above method.

**IV. Reference method for the sampling and analysis of the deposition of arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons**

The reference method for the sampling of deposited arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons shall be based on the exposition of cylindrical deposit gauges with standardised dimensions. In the absence of a CEN standardised method, Member States are allowed to use national standard methods.

**V. Reference air quality modelling techniques**

Reference air quality modelling techniques cannot be specified at present. The Commission may make amendments to adapt this point to scientific and technical progress. Those measures, designed to amend non-essential elements of this Directive, shall be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 6(3).