

## REGULATION <sup>1</sup> 1

from January 16, 2004 for permissible norms of benzene and carbon oxide in the atmospheric air.

Issued by the Minister of Environment and Waters together with the Minister of Health, renewed in Official Journal, issue 14, February 20, 2004, effective since January 1, 2004.

### Chapter One

#### GENERAL PROVISIONS

Article 1. This Regulation settles:

1. the establishment of norms for the levels (concentrations) of benzene and carbon oxide in the atmospheric air;
2. the assessment of benzene and carbon oxide concentrations in the atmospheric air in accordance with the established referential methods and criteria, including the registration, the analysis and the safe-keeping of the results and data of the executed assessment, according to Regulation No.7 from 1999, regarding the assessment and quality management of the atmospheric air (Official Journal, issue 45 from 1999);
3. the improvement of the quality of the atmospheric air (QAA) in areas where the concentrations of benzene and carbon oxide exceed the corresponding norms and its maintainment on the rest of the country's territory;
4. the submission of up-to-date information regarding the concentrations of benzene and carbon oxide in the atmospheric air to the population, securing of public access to it.

Article 2. The norms described in Article 1, item 1 are fixed as a mass that is contained in one cubic meter of air in normal conditions, according to Article 4, Alinea 3 of the Clean Air Act (CAA).

### Chapter Two

#### NORMS FOR BENZENE AND CARBON OXIDE

Article 3. (1) The average annual norm for benzene content in the atmospheric air shall be fixed in accordance with Table 1 of Appendix <sup>1</sup> 1.

(2) the permissible deviations from the norm, according to Alinea 1 and the terms for their application shall be fixed according to column 4 of Table 1, Appendix <sup>1</sup> 1.

Article 4 (Effective since January 1, 2002) (1) The short-term norm for the concentration of carbon oxide in the atmosphere shall be fixed according to Table 2 of Appendix <sup>1</sup> 2.

(2) the permissible deviations from the norm, according to Alinea 1 and the terms for their application shall be fixed according to column 4 of Table 2, Appendix <sup>1</sup> 2.

### Chapter Three

#### PRELIMINARY ASSESSMENT OF THE LEVELS OF BENZENE AND CARBON OXIDE

Article 5. The upper and lower assessment thresholds of benzene and carbon oxide concentrations in the atmospheric air shall be fixed according to item 1 of Appendix <sup>1</sup> 3.

Article 6. (Effective since March 30, 2005) (1) The Ministry of Environment and Waters (MEW), through its National System for Ecological Monitoring (NSEM), shall make a preliminary assessment of the levels of benzene and carbon dioxide on the territory of the whole country, according to the requirements of item 2 of Appendix <sup>1</sup> 3.

(2) The results from the preliminary assessment described in Alinea 1 must be representative and reliable in respect of: sources of emissions (organized, not organized and linear), meteorological, topographic and other specific characteristics of the particular Areas of Assessment and Management (AAM) of QAA on the country's territory.

(3) The results from the preliminary assessment shall be validated by the Minister of Environment and Waters and shall be published in a special report, which shall be accessible to the population, also on the web pages of MEW and the Executive Agency for the Environment (EAE).

Article 7. (Effective since March 30, 2005) (1) On the grounds of the results from the preliminary assessment, the country's territory shall be divided into AAM of QAA in respect of the levels of benzene and carbon oxide.

(2) The borders of AAM of QAA according to Alinea 1 shall be determined and validated by the Minister of Environment and Waters according to the decrees of Article 3 and Article 30, Alinea 3 of Regulation <sup>1</sup> 7 from 1999 for assessment and management of QAA (Regulation <sup>1</sup> 7 from 1999).

Article 8. (Effective since March 30, 2005.) (1) The AAM of QAA according to Article 7 shall be divided (classified) according to Article 30, Alinea 1 of Regulation <sup>1</sup> 7 from 1999 and in accordance with the estimated as a preliminary assessment exceedings of the corresponding assessment thresholds, norms and/or permissible deviations.

(2) The division into AAM according to Alinea 1 shall determine the type of methods for further (current) assessment and management of QAA in respect of the levels of benzene and carbon oxide, including the number of permanent monitoring sites.

#### Chapter Four

#### ASSESSMENT OF THE LEVELS OF BENZENE AND CARBON OXIDE

Article 9. (1) The division (classification) according to Article 8 of AAM of QAA in respect of the levels of benzene and carbon oxide in them shall be reviewed no less than once every five years in accordance with the requirements of item 2 of Appendix <sup>1</sup> 3.

(2) The division of AAM shall be reviewed also before the end of the period indicated in Alinea 1 in cases there are considerable changes in the activities regarding the concentrations of benzene and carbon oxide in the atmospheric air and/or regarding the results from the current assessment of QAA.

Article 10. The spots for taking of samples for determining the levels of benzene and carbon oxide shall be disposed in accordance with the provisions of Appendix <sup>1</sup> 4.

Article 11. (1) The minimum number of locations for monitoring of the levels of benzene and carbon oxide executed through continuous measurements on the territory of a particular AAM shall be determined according to Appendix <sup>1</sup> 5.

(2) In cases when the continuous measurements are the only source of data for the levels of benzene and carbon oxide in the atmospheric air of a particular AAM, the necessary number of locations for sample-taking shall be determined separately for each area, in which the assessment of QAA is obligatory.

Article 12. In AAM of QAA, in which the data from the monitoring sites through continuous measurements are supported by information from other sources, such as inventory of the emissions, representative programs from the measurements and/or dispersive modeling of QAA, the number of monitoring sites, which are to be constructed and maintained for the measurement of the current assessment, as well as the information from the other assessment methods, should determine the levels of benzene and carbon oxide according to item I of Appendix <sup>1</sup> 4 and item 1 of Appendix <sup>1</sup> 6.

Article 13. (1) The referential methods, which are obligatory for sample-taking and analysis for determining the levels of benzene and carbon oxide in the atmospheric air, are indicated in items 1 and 2 of Appendix 1 7.

(2) The referential dispersive systems for modeling, which are obligatory for defining of QAA n respect of the levels of benzene and carbon oxide shall be validated by a decree from the Minister of Environment and Waters.

Article 14. In AAM of QAA where the measurements of the levels of benzene and carbon oxide are not obligatory, other methods for modeling can be used, as well as techniques for objective assessment, which are different than the indicated ones in Article 13, Alinea 2.

## Chapter Five

### ACHIEVEMENT AND MAINTAINMENT OF THE SETTLED NORMS

Article 15. The terms for achievement and maintainment of the levels of benzene and carbon oxide on the territory of the whole country according to Article 3 and/or Article 4 shall be determined in accordance with columns 5 of Tables 1 and 2 of Appendices 1 and 2, correspondingly.

Article 16. (1) The municipal authorities, together with the corresponding Regional Environmental Inspectorate (REI) shall undertake the necessary measures for maintainment of the levels of benzene and carbon oxide in the atmospheric air according to Article 34 of Regulation 1 7 from 1999 for assessment and management of QAA in the areas where (according to the classification of Article 8) exceedings of the settled norms are not measured.

(2) In areas where the levels of benzene and carbon oxide exceed the particular norm according to Article 3 or 4, the municipal authorities (together with the corresponding REI) shall work out programs for achievement of the norms according to Article 27 of CAA and Article 31 of Regulation 1 7 from 1999.

(3) In case there is a simultaneous exceeding of the norms for more than one parameter for QAA (pollutant) according to Article 4, Alinea 1 of CAA, the programs indicated in Alinea 2 shall be complex according to Article 31, Alinea 4 of Regulation 1 7 from 1999.

(4) The programs of Alinea 2 should secure the achievement of the norms for the levels of benzene and carbon oxide in the atmospheric air no later than the terms indicated in Article 15.

## Chapter Six

### INFORMING THE POPULATION

Article 17 (Effective since January 1, 2005) (1) The competent authorities according to Article 19 of CAA shall secure the public access to information about the levels of benzene and carbon dioxide in the atmospheric air through:

1. radio and television;
2. the press;
3. bulletins and information boards;
4. computer networks;
5. other appropriate ways.

(2) The information shall be published in the quarterly and annual bulletins of EAE and shall be submitted to the various ecologic organizations, consumers' organizations, organizations protecting the interests of the risk groups of the population, as well as health organizations, in accordance with a list, which shall be validated in advance by the Minister of Environment and Waters.

(3) This information must be clear, comprehensible and accessible for the consumer.

Article 18. (effective from January 1, 2005) (1) The information regarding the levels of benzene in the atmospheric air, expressed as an average value of concentration of this pollutant for the past 12 months, shall be actualized every three months and where possible – every month.

(2) The information regarding the levels of carbon oxide in the atmospheric air, including the current maximum average eight-hour values for a particular day, shall be actualized every day and where possible – every hour.

Article 19. (Effective since January 1, 2005) The information indicated in Article 17 should content:

1. the registered exceedings of the norms for the levels of benzene and carbon oxide according to Articles 3 and 4;

2. brief assessment of the permissible concentrations and the effect of the benzene and the carbon oxide on people's health.

Article 20. (1) The municipal authorities shall secure public access and access of the organizations indicated in Article 17, Alinea 2 to information regarding the programs according to Article 27 of CAA and in accordance with the Instruction for working-out of programs for reducing the emissions and achievement of the settled norms for harmful substances in AAM of QAA, in case there is an exceeding of this norms. This Instruction is validated by decree <sup>1</sup> DĂ-996 from December 20, 2001 by the Minister of Environment and Waters.

(2) The information indicated in Alinea 1 includes also the documentation according to item 2 of Appendix <sup>1</sup> 6.

#### TRANSITIONAL AND CONCLUDING PROVISIONS

§ 1. This Regulation is adopted on the grounds of Article 6, Alinea 1 in connection with § 5 of the Clean Air Act (Official Journal, issue 45 from 1996; amendment – issue 49 from 1996; corrections – issue 85 from 1997, issue 27 from 2000, issue 102 from 2001, issue 91 from 2002).

§ 2. Instructions for the application of the Regulation shall be given by the Minister of Environment and Waters together with the Minister of Health.

§ 3. The Regulation shall become effective since January 1, 2004.

§ 4. The Regulation cancels items 17 and 36 of Appendix <sup>1</sup> 1 of Article 21, Alinea 1 of Regulation <sup>1</sup> 14 from 1997 regarding the level of permissible concentrations of harmful substances in the atmospheric air above the populated places (Official Journal, issue 88 from 1997; corrections – issue 46 from 1999, issue 8 from 2002).

§ 5. The provisions of Article 4 shall become effective since January 1, 2002.

§ 6. The provisions of Article 6 - 8 shall become effective since March 30, 2005.

§ 7. The provisions of Article 17 - 19 shall become effective since January 1, 2005.

§ 8. The settled norms in this Regulation for the levels of harmful substances in the atmospheric air shall be reviewed no later than June 30, 2005, on the grounds of the results from the preliminary assessment according to Article 6, with regard to the recommendations of the World Health Organization and the practice for their application in the member states of the European Union.

Appendix 1 1

of Article 3  
Norms for concentrations of benzene in the atmospheric air

Table 1

|   | Period of averaging | Value                      | Permissible deviation  | Deadline for the norm to be observed |
|---|---------------------|----------------------------|--|--------------------------------------|
| Norm for preservation of the human health | One calendar year   | 5 $\mu\text{g}/\text{m}^3$ | 5 $\mu\text{g}/\text{m}^3$ (100 %) up to January 1, 2005 decreasing every 12 months and then by 1 $\mu\text{g}/\text{m}^3$ , in order to reach 0% in January 1, 2010 | January 1, 2010                      |

Appendix 1 2  
of Article 4

Norms for concentrations of carbon oxide in the atmospheric air

Table 2

|   | Period for averaging                          | Value                     | Permissible deviation   | Deadline for the norm to be observed |
|---|---|---------------------------|---|--------------------------------------|
| Norm for preservation of the human health | Maximum eight-hour average value for one day* | 10 $\text{mg}/\text{m}^3$ | 6 $\text{mg}/\text{m}^3$ (60 %), considered from January 1, 2002, decreasing every 12 months thereafter by 2 $\text{mg}/\text{m}^3$ , in order to reach 0% in January 1, 2005 | January 1, 2005                      |

\* The maximum eight-hour average value of concentration for one day shall be chosen after a verification of the current eight-hour average values, determined on the grounds of the

corresponding average values for an hour, which are measured every hour. Thus, the measured eight-hour average values refer for the day, in which the particular period of time ends, i.e. the first measuring period for a particular day begins in 17 o'clock the previous day and ends in 1 o'clock the same day; the last measuring period for a particular day begins in 16 o'clock and ends at midnight, i.e. 00:00 o'clock.

Appendix 13  
of Article 5

Requirements for assesment of the levels of benzene and carbon oxide in the atmospheric air of a certain area

1. Upper and lower assessment thresholds

1.1. Benzen

Table 3

|                            | Average annual value                       |
|----------------------------|--|
| Upper assessment threshold | 70 % of the norm (3,5 †g/ m <sup>3</sup> ) |
| Lower assessment threshold | 40 % of the norm (2 †g/ m <sup>3</sup> )   |

1.2 Carbon oxide

Table 4

|                            | Eight-hour average value                 |
|----------------------------|--|
| Upper assessment threshold | 70 % of the norm (7 †g/ m <sup>3</sup> ) |
| Lower assessment threshold | 50 % of the norm (5 †g/ m <sup>3</sup> ) |

2. Determining the cases of exceeding of the upper and lower assessment thresholds.

2.1. In case there are enough representative and reliable data for this purpose, the exceeding of the upper and lower assessment thresholds shall be determined on the grounds of the concentrations of pollutants during the past five calendar years, considered from the date when this Regulation shall become effective. In this case, there is a case of exceeding of a certain assessment threshold, if the corresponding values according to item 1 have been exceeded during no less than three of the above mentioned five calendar years.

2.2. In cases when there are data for less than five calendar years, the exceeding of the upper and lower assessment thresholds shall be determined through short-term measurements during a certain period of the year. These measurements shall be done in areas, for which the results from the preliminary inventory of emissions and a subsequent modeling give reasons to be considered as areas with highest levels of pollution.

Appendix 1 4  
of Article 10

Provisions for location of monitoring sites for measuring the levels of benzene and carbon oxide in the atmospheric air.

I. Provisions for disposal of the monitoring sites (the sites for taking of samples) in macro scale.

1. Available data for the areas within the frame of a certain agglomeration with highest levels of pollution where the population can be exposed directly or indirectly to the pollution for a period, which is bigger than the period for averaging of the norms.

2. Available data for other areas within the frame of a certain agglomeration, which are representative for the exposition of their population.

3. They must not be representative for restricted areas in close proximity to them – the sites for taking of samples shall be disposed in such way, in order to be representative for the quality of the atmospheric air upon an area, which is bigger than 200 m<sup>2</sup> for the transport-oriented sites and bigger than a few km<sup>2</sup> for the city ground sites.

4. Where possible, the sites for taking of samples must be representative for areas, which are bigger than those indicated in item 3.

5. Where necessary, with regard to the protection of human health, the sites for taking of samples can be located also in isolated places.

II. Provisions for disposal of monitoring sites (sites for taking of samples) in misco scale.

1. As far as it is practically possible, while disposing the monitoring sites:

1.1. the flux around the inlet of the sample-taking probe must not be restricted and there must be no barriers at all to prevent the air flow close to the sample-taking device and for the sample-taking spots, which are representative for the quality of the atmospheric air along the line of disposal of the buildings, the inlet must be located several meters from the buildings, balconies, trees or other barriers and no less than 0,5 m away from the nearest building;

1.2. the inlet of the sample-taking probe shall be located on a height between 1,5 m and 4 m above the ground (the breathing zone); on specific circumstances, for the purpose of securing the representativeness of the particular monitoring site for a bigger area, the inlet can be located up to 8 m above the ground;

1.3. the inlet of the sample-taking probe must not be located in close proximity to sources of emissions, in order to avoid the direct fall of pollutants into it before their dispersion in the atmospheric air;

1.4. the outlet of the sample-taking device must be located in such way, as to avoid the second flow of the outgoing air through the inlet;

1.5. the sample-taking devices at the transport-oriented monitoring sites must be located in accordance with the following additional requirements:

1.5.1. the sample-taking spots must be located no closer than 25 m from the cross-roads and no closer than 4 m from the center of the nearest roadway;

1.5.2. for monitoring sites determining the levels of carbon oxide, the inlets must be located no further than 5 m from the curb;

1.5.3. for monitoring sites determining the levels of benzene, the inlets must be located in such way, as to be representative for the quality of atmospheric air close to the line of disposal of the buildings.

2. While disposing the monitoring sites according to item 1, the influence of the following factors must be taken into consideration:

- depositing (interfering) sources;
- safety;
- access;
- available power supply and telephone communications;

- visibility of the site in relation to its surroundings;
- safety of the population and the servicing staff;
- joint disposal of the sample-taking spots for determining of the levels of various pollutants;
- requirements, associated with the territorial planning.

### III. Documentation and review of the site selection

The procedures for site selection shall be documented completely during the phase of their classification through photographs of its surroundings (with compass arrow) and a detailed map. The disposal of the sites shall be reviewed in equal intervals and the documentation shall be repeated in order to secure their continuous accordance with the provisions of this Appendix.

#### Appendix 1 5 of Article 11, Alinea 1

Criteria for determining the number of monitoring sites for continuous measurement of the levels of benzene and carbon oxide in the atmospheric air

The minimum number of monitoring sites (MS) for continuous measurement and assessment of the correspondence of the levels of benzene and carbon oxide with the norms for protection of human health in AAM and in the agglomerations, where the measurements are the only source of information, shall be determined as follows:

à) when area sources are available

Table 5

| Population in AAM<br>or in the agglomeration<br>(number in thousands) | If the levels exceed the<br>upper assessment threshold*1 | If the maximum levels are<br>between the upper and<br>the lower assessment<br>thresholds |
|---|--|--|
| 0 - 249   | 1  | 1  |
| 250 - 499   | 2  | 1  |
| 500 - 749   | 2  | 1  |
| 750 - 999   | 3  | 1  |
| 1000 - 1499   | 4  | 2  |
| 1500 - 1999   | 5  | 2  |
| 2000 - 2749   | 6  | 3  |
| 2750 - 3749   | 7  | 3  |
| 3750 - 4749   | 8  | 4  |
| 4750 - 5999   | 9  | 4  |
| ' 6000  | 10   | 5  |

\*1 In this case, at least one city ground and one transport-oriented MS shall be included, provided that this will not multiply the number of sample-taking spots.

á) When spot sources are available





of Article 13, Alinea 1

Referential (comparative) methods for assessment of the levels of benzene and carbon oxide

1. Referential method for benzen analysis

The referential method for benzene measurement is a pump method for sample-taking through a sorbent cartridge, followed by determination through gas chromatography.

2. Referential method for carbon oxide analysis

The referential method for carbon oxide analysis is a non-dispersal infra-red spectrometrical method (NDIR).

3. Establishment of the referential methods

The referential methods described in items 1 and 2 are established by the Bulgarian National Standards, which are are identical with the corresponding European (EN) or international (ISO) standards, the former having priority.