REPUBLIKA SRPSKA
MINISTRY OF SPATIAL PLANNING,
CIVIL ENGINEERING AND ECOLOGY

RULEBOOK
ON MEASURES TO PREVENT AND REDUCE AIR POLLUTION AND IMPROVE AIR QUALITY

Banja Luka, December 2014

Pursuant to Article 41, paragraph 1 and Article 42 of the Law on Air Protection (Official Gazette of the Republika Srpska, no. 124/11) and Article 82, Paragraph 2 of the Law on Republic Administration (Official Gazette of the Republika Srpska, no. 118/08, 11/09, 74/10, 86/10, 24/12 and 121/12), the Minister of Spatial Planning, Civil Engineering and Ecology hereby issues

RULEBOOK
ON MEASURES TO PREVENT AND REDUCE AIR POLLUTION AND IMPROVE AIR QUALITY

CHAPTER I
GENERAL PROVISIONS

Scope of application
Article 1

This Rulebook regulates the manner, procedure, frequency and methodology for measuring emissions of air pollutants and emission limit values of air pollutants from stationary sources of pollution, the criteria for establishing measuring points for the measurement of emissions, the process of evaluating the results of emission measurements and compliance with the prescribed standards, contents of the Report on the performed emmission measurements and the emission balance, manner of submitting the data on emissions for the needs of the information system and data submission deadlines.

Exceptions
Article 2

The provisions of this Rulebook shall not apply to the emissions resulting from the process of thermal treatment of waste.

Definition of terms
Article 3

The terms used herein shall have the following meaning:

1) automatic method of measuring emissions means measuring with continuous extractive or non-extractive sample analysis, reading of the measured values in short intervals (a few seconds) and storing the measured values. Thus, the measured values represent the current emission values,

2) biomass means products that are wholly or partly composed of vegetable matter from agriculture or forestry, which can be used as fuel to obtain energy and the following types of waste used as a fuel:

1. vegetable waste from agriculture and forestry,
2. vegetable waste from the food processing industry, if the produced heat is used,

3. fibrous vegetable waste from the pulp and paper from pulp, if co-incineration is done on the place of production and if the resulting heat is used,

4. cork waste,

5. wood waste, other than wood waste which may contain halogenated organic compounds or heavy metals resulting from the use of wood preservatives or coating, which includes in particular wood waste originating from construction waste or the waste generated by demolition,

3) gas turbine means a rotating machine which converts thermal energy into mechanical work, consisting mainly of a compressor, a thermal device in which fuel is oxidised in order to heat the working fluid, and a turbine.

4) fuel means solid, liquid or gaseous material that is used for combustion, excluding waste,

5) The emission limit value (ELV) is the maximum permissible quantity of a substance contained in waste gases that can be emitted into the air from a plant in a given period and it is expressed as the mass of pollutants (mass concentration) in 1 m^3 of waste gases, expressed in mg/Nm^3, under the defined oxygen content by volume in the waste gas,

6) smoke number means the degree of blackening on a filter paper surface caused by waste gases. The smoke number is expressed by means of a scale consisting of 10 fields (numbered 0 to 9) of various intensities of blackness (the Bacharach scale) used to determine the degree of blackness closest to the degree on scale. The smoke number is used to evaluate the blackness of waste gases from liquid and gas fuel combustion chambers

7) diffuse source (emitter) means a source from which pollutants are introduced into the air without a specific stack/chimney (equipment, surface and other locations);

8) daily average value represents the mean of the hourly averages during the twenty-four hours of normal operation of a plant,

9) extractive analysis of waste gases is sampling of waste gases from the waste gases and analysis outside the outlet,

10) volatile organic compounds for which maximum emissions are set (i.e. Non-Methane Volatile Organic Compounds – NMVOCs) mean all organic compounds, which originate from human activities, other than methane, which can produce photochemical oxidants, reacting with nitrogen oxides in the presence of sunlight,

11) drain (source) means the point of emission of air pollutants from a stationary source,

12) hazard class means a class of hazard dentified based on physical, chemical and toxicological characteristics of pollutants,

13) critical level means the fixed level on the basis of scientific knowledge, above which direct adverse effects may occur on some receptors, such as trees, other plants, ecosystems but not on humans,

14) critical load means a quantitative estimate of an exposure to one or more pollutants below which significant harmful effects on specified sensitive elements of the environment do not occur, according to present knowledge;

15) manual method of measuring emissions means taking samples of waste gases in a certain volume and at a certain time followed by extractive analysis of waste gases and thus obtained values are equal to the average values of emissions at the time of sampling,

16) method of measurement means a set of procedures described by the type used for carrying out individual measurements in accordance with a particular method,

17) measurement device means a device designed to measure either alone or in conjunction with other devices,

18) measuring point means the place at the discharge intended for the safe emission measurement, sampling and setting of the measuring equipment,

19) the competent authority means the Ministry of Spatial Planning, Civil Engineering and Ecology (hereinafter: the Ministry) or the authority in charge of environmental protection in the local government, in accordance with the Law on Air Protection (Official Gazette of the RS, no. 124/11), (hereinafter: the Law)

20) non-extractive waste gas analysis means analysis of gases that is performed directly in the stack,

21) olfactometric measurements mean the measurements of odours from technological processes,

22) waste gases mean the gases released into the air containing pollutants in solid, liquid or gaseous state, and a flow rate of waste gas is expressed in Nm^3/h at a temperature of (273.15 K) and the pressure (101.3 kPa) in dry gas (after correction for the water vapour content of 0%) (hereinafter: Nm^3/h)

23) parameters of the waste gas state include temperature, pressure, composition of waste gases, as well as other physical quantities relevant for emissions into the air,

24) plant means a stationary technical unit in which one or more activities are carried out, as set out in the Annexes to this Rulebook, that may influence the emissions and pollution, which was put into operation before the entry into force of the Law.

25) combustion plant means a technical system in which the fuel is oxidised in order to use the heat thus generated, where:

1. combustion plant, for the purpose of this Rulebook, shall include only plants for production of energy with the exception of those that directly use the products of combustion in manufacturing processes,

2. combustion plant, for the purpose of this Rulebook, does not refer to the following plants:

- plants in which the products of combustion are used for direct heating, drying, or any other treatment of objects or materials (for example reheating furnaces or furnaces for heat treatment)
- plants for subsequent combustion, or any technical device intended for purification of waste gas by combustion, which does not operate as a separate combustion plant,
- plants for the regeneration of the catalyst from the catalytic cracking process (or cracking)
- plants for the conversion of hydrogen sulphide to sulphur,
- reactors used in the chemical industry,
- coke oven batteries,
- cowpers,
- any technical device used in the propulsion of vehicles, ships or aircraft,
- gas turbines,
- plants powered by diesel, petrol or gas engines,
- roasting or sintering iron ores (agglomeration) and

3. if the two or more combustion plants, taking into account technical and economic factors, are constructed so that their waste gases are discharged through a common stack, they shall be considered one combustion plant.

26) the existing plant means a stationary technical unit in which one or more activities are carried out, as set out in the Annexes to this Rulebook, that may influence the emissions and pollution, which was put into operation before entry into force of the Law.

27) multi-fuel plant is a combustion plant that can simultaneously or alternately use two or more types of fuel,

28) grid cell means a square of 150 km x 150 km, which is the resolution used when mapping critical loads on a European scale, and also when monitoring emissions and depositions of air pollutants under the Cooperative Programme for Monitoring and Evaluation of the long-range Transmission of Air Pollutants in Europe (EMEP),

29) measurement result means a result of extractive or non-extractive analysis of a single sample of the waste gas through the prescribed automatic or manual methods of measurement,

30) degree of desulphurisation is the ratio of the quantity of sulphur, which is not emitted into the air from combustion plant within a certain period and the amount of sulphur contained in the fuel, which was entered in the combustion plant, during the same period,

31) point emission source means a source from which pollutants are discharged into the air from specifically determined stacks (chimney, pipe stack, etc.) or from several stacks connected to a common stack, and air emissions from the point source are indicated by the emission parameters: mass flow and/or mass concentration and emission factor,

32) heat input of a combustion chamber (MWth) means the maximum heat of a fuel spent per unit of time, determined in relation to the lower heat value of a fuel at a temperature of 0 °C (273 K) and pressure of 101.3 kPa

33) heat loss of waste gas means the percentage portion of the heat input of a combustion chamber which is lost as considerable heat through discharge of waste gases into the air, and is calculated according to one of the following formulas:

1. in relation to the percentage of oxygen content by volume (O_2) in a dry waste gas:

$$Q_{dp} = (t_{dp} - t_z)\left(\frac{A_2}{21 - O_2} + B\right),$$

2. in relation to the percentage of carbon dioxide content by volume (CO_2) in a dry waste gas

$$Q_{dp} = (t_{dp} - t_z)\left(\frac{A_1}{21 - CO_2} + B\right)$$

where:

Q_{dp} – id heat loss with waste gases in %,

t_{dp} – is waste gas temperature expressed in °C,

t_z – is air temperature around the combustion chamber expressed in °C,

O_2 – is measured oxygen content by volume in a dry waste gas expressed in % and

CO_2 – measured carbon dioxide content by volume in a dry waste gas expressed in %.

The values of the constants A1, A2 and B are given in Table 1

Table 1.

	Wood	Heating oil	Natural gas	Coke oven gas	Liquefied petroleum gas, mixture of gas and air
A_1	0,5	0,5	0,37	0,29	0,42
A_2	0,65	0,68	0,66	0,60	0,63
B	0,008	0,007	0,009	0,011	0,008

34) total nitrogen oxides expressed as NO_2 are the total nitrogen oxides, the calculation of which is made on the basis of measured concentrations of NO and NO_2 according to the following equation:

$$NO_2 \text{ total} = NO_2 + \left(NO \cdot \left(\frac{M_{NO_2}}{M_{NO}} \right) \right)$$

where:

NO_2 – is total nitrogen oxides expressed as NO_2

M_{NO_2} – is molar mass of NO_2

M_{NO} – is molar mass of NO

35) emission parameters mean mass concentration, mass flow, emission factor and the emission level:

1. mass concentration (mg/Nm^3) means the mass of pollutants per unit volume of the dry waste gas at a temperature of 0 °C (273,15 K) and pressure of 101.3 kPa under the defined oxygen content by volume in the waste gas);
2. mass flow (kg/h) means the mass of pollutants emitted per unit of time,
3. emission factor (kg/t) means emitted pollutant mass in relation to the mass of generated product, i.e. the emitted pollutant mass per unit of activity (expressed as product volume, volume of consumed energy source or raw material, or the volume of performed activity);
4. emission degree (%) means the ratio of emitted amounts and the amount of the same pollutant entering the process,

36) waste gas sample means the part of the flow of waste gases to be analyzed at a certain measurement point, at a certain time interval, in a certain way and it is regarded as relevant for the waste gases of stationary source,

37) start-up and shut-down operations mean operations whilst bringing an activity, equipment item or device into or out of operation or into or out of an idling state. Regular oscillating activity phases of a plant are not to be considered as start-ups or shut-downs;

38) normal operation of stationary source means all periods of operation or activity except start-up and shut-down operations and maintenance of equipment

39) operating conditions of the stationary source of significance for emissions into the air include the type, manner and mode of operations, load, force, or the capacity of the plant or equipment, the type, quantity and quality of input materials (raw materials, fuel and other supplements), as well as the mode of operations of the device for purification of waste gases and

40) hourly average value means the arithmetic mean of all measured values during the one-hour sampling at normal operation of the plant.

CHAPTER II

METHODOLOGY OF MEASURING EMISSIONS OF POLLUTANTS IN THE AIR

Method of determining emissions

Article 4

(1) Emission of air pollutants from stationary sources is determined on the basis of measurements or calculation of emission parameters based on the measurement results.

(2) Measurement of emissions of pollutants is carried out with measuring devices, at the measuring points, using the prescribed methods of measurement.

(3) The measurement results may be compared with emission limit values only when the measurements have been carried out and results expressed in compliance with this Rulebook.

(4) A report shall be prepared on the performed measurement.

(5) The limit values of pollutants per unit of the stack, to be applied to individual stationary sources are given in Annex 1, which defines the emission limit values for large combustion plants, Annex 2, which defines the emission limit values for medium-sized combustion plants, Annex 3, which defines the emission limit values for small combustion plants and Annex 5, which defines the emission limit values for certain categories of plants, which form an integral part of this Rulebook.

(6) If this Rulebook does not provide for special emission limit values for individual stationary source, the pollutants that are expected in the emission (based on the technological process) shall be measured on the relevant stack and the limit values shall be applied as set out in Annex 4, which defines the general emission limit values, which form an integral part of this Rulebook.

(7) Emission limit values for emissions of air pollutants from stationary sources of pollution in terms of this Rulebook are the limit values of:

1) total solid particles,
2) solid inorganic substances,
3) inorganic gaseous substances,
4) organic matters and
5) carcinogens.

Measuring emission

Article 5

(1) Measuring of emission of pollutants shall be carried out as:

1) individual measuring is one-time measuring of emission that entails successive analysis of a sufficient number of samples of waste gas in certain operating conditions of a stationary source and

2) continuous measuring is the uniterrupted measuring of emission during the operating period of a stationary source.

(2) individual emission measuring shall be performed as follows:

1) warranty measuring is a measuring after the construction or reconstruction of a facility, for the purpose of obtaining the operating permit,

2) periodic measuring is a measuringfor the purpose of periodic controls of emission values, or control of measuring devices for continuous measuring,

3) control measuring is a measuring that is performed if the results of warranty, periodic or special measurings exceed the emission limit values, and it is performed after undertaking the technical and technological measures to reduce air emissions

4) special measuring is a measuring for the purpose of verification of the data on the values of emissions carried out in accordance with Article 5 of this Rulebook.

(3) An operator who does not perform its own continuous emission measuring shall be required to carry out periodical measuring of the emissions twice a year.

(4) Individual emission measurings shall be performed by authorized legal entities for the measuring of emission through prescribed manual or automatic methods, and the continuous measuring shall be performed exclusively by the prescribed automated methods.

(5) Individual emissions measuring at a stationary source in which predominantly the same value of air emissions in the course of time is expected involves a successive analysis of three samples of waste gas at normal operation of the relevant stationary source.

(6) Predominantly the same value of air emissions in the course of time is expected at the stationary source with predominantly invariable operating conditions.

(7) Stationary source of emissions with predominantly invariable operating conditions implies a stationary source operating with predominantly the same capacity, which uses predominantly the same type and amount of raw materials, fuel and similar, during the period of its operating.

(8) Individual emission measuring at stationary source, in which the predominantly variable value of emission into the air is expected in the course of time, shall imply the successive analysis of six samples of waste gas in operating conditions that can cause maximum emission into the air.

(9) Predominantly variable value of air emissions in the course of time is expected at the stationary source with predominantly variable operating conditions.

(10) Stationary source emissions with predominantly variable operating conditions implies a stationary source working with predominantly variable capacity, using mainly a different type and amount of raw materials, fuel and similar, during the period of its operating.

(11) Measurings for the determination of emissions shall be carried out in such a way that the results of emissions from the plant are representative and comparable with similar plants and the operating conditions.

(12) In special cases (e.g. in the case of batch operation or low mass concentrations contained in waste gas) measuring periods shall be determined depending on the given conditions.

(13) In the case of substances that occur in different physical states, special measures are taken in the process of measuring in order to collect all the proportional relations.

(14) Individual and continuous emission measuring shall be provided for and financed by the natural or legal person, the owner or operator of a stationary source.

Special measures

Article 6

(1) In case of a reasonable doubt that an excessive discharge of pollutants into the air from an individual stationary source has occurred, or doubts about the validity of measuring devices, the conditions under which the measurings were made and the accuracy of the obtained

results, special emission measuring shall be performed and the control of measuring devices, as well as checking the accuracy of the obtained data.

(2) Reasonable doubt referred to in paragraph 1 of this Article exists when:

1) there is a high registered concentration of pollutants in the air,

2) there are noticeable irregularities in the operation of a plant,

3) an operator does not keep records on the operation, maintenance, safety and control of measuring devices,

4) report on conducted emission measuring is not harmonized with this Rulebook,

5) the results obtained from the measuring are extremely low.

(3) Special measurings referred to in paragraph 1 of this Article shall be ordered by inspectors in charge of environmental protection of the RS Administration for inspection affairs and of local governments (hereinafter: competent inspectors).

(4) The costs of special measurings of emissions of pollutants, control accuracy of measuring devices and accuracy of the data obtained, shall be borne by the operator.

Obligations of operators

Article 7

The operator, within the reporting deadlines, in accordance with the Law, shall inform the competent authority on:

1) continuous measurings of emissions, including through online communication,

2) verification of measuring devices, in accordance with Articles 40 and 41 of this Rulebook and Annex 6, which forms an integral part of this Rulebook,

3) periodic measurings and

4) other measurings for the purpose of application of this Rulebook.

Emission Measurement Plan

Article 8

(1) Emission Measurement Plan shall be made by an authorized legal entity for emission measurement in cooperation with the operator.

(2) The Emission Measurement Plan shall include the identification of:

1) all stationary sources of emissions into the air, owned by the operator,

2) all stacks (emitters) by stationary sources,

3) all pollutants and parameters of state of the waste gas, which is measured at each individual stack with an explanation of choice in relation to the technological process,

4) process parameters and operating conditions of the stationary sources relevant for emission into the air,

5) the number of successive analysis of samples of waste gas for each relevant stack, for each of the pollutants depending on the conditions of the operations of the stationary source,

6) criteria for establishing measuring points for emission measurement, if measuring points do not exist or the current ones are not representative,

7) method of measuring emissions,

8) emission limit values,

9) frequency of emissions measurements annually on each stack according to the provisions of this Rulebook and

10) obligation of the operator and authorized legal entity for emission measurement, as well as the tentative deadlines for the completion of preparatory works, the execution of measurement and preparation and submission of the report.

(3) The Plan referred to in paragraph 1 of this Article shall be submitted with the application for the environmental permit in accordance with regulations governing the environmental protection.

Reconciliation of the emission measurement results

Article 9

(1) For the purpose of comparison with the emission limit values, measurement results expressed as mass concentrations of pollutants in waste gas, shall be converted to a unit volume of dry or humid waste gas, normal conditions (273.15 K and 101.3 kPa) and the reference oxygen content in waste gas, unless the provisions of this Rulebook provide otherwise.

(2) Reconciliation of the measurement results expressed as mass concentration may be performed automatically by measurement device during the measurement (automatic method) or the reconiliation shall be performed after the emission measurement.

(3) The mass flow of pollutants shall be calculated based on the measurement results.

(4) Reconciliation of the measurement results and calculation of the mass flow rate shall be made based on the following equation:

1) conversion of the dry waste gas, where the conversion of mass concentrations of pollutants in wet to dry waste gases is done according to the following equation:

$$C_s = C_v \cdot \frac{100}{100 - \%H_2O}$$

where:

C_s –is mass concentration in dry waste gases in mg/Nm^3,
C_v –is mass concentration in humid waste gases in in mg/Nm^{3}and
% H_2O –is moisture content in the waste gases in %.

2) conversion to normal conditions, where the conversion of mass concentrations to normal conditions is performed based on the following equation:

$$C_n = C_{izm} \cdot \frac{101{,}3}{P} \cdot \frac{T}{273{,}15}$$

where:

C_n – is mass concentration in normal conditions in mg/Nm^3,
C_{izm} – is mass concentration in real conditions in the emmitter in mg/m^3,
P – is absolute pressure in emitter in kPa
T – is absolute temperature in emitter in K.

3) conversion to a reference oxygen content, where conversion of mass concentrations to reference oxygen content of the waste gases shall be done according to the following equation:

$$C_{ref} = \frac{21 - O_{2_{ref}}}{21 - O_{2_{izm}}} \cdot C_{izm}$$

where:

C_{ref} – is mass concentration reduced to the reference oxygen content in mg/Nm^3,

C_{izm} – is mass concentration measured in mg/Nm^3,

$O_{2_{izm}}$ – is measured oxygen content in % and

$O_{2_{ref}}$ – is reference oxygen content in the waste gas in %.

4) converting the concentration from (ppm) to (mg/m^3), where the conversion of the measured values from (ppm) to (mg/normal m^3) is done according to the following equation:

$$C_m = C_v \cdot \frac{M}{V_0}$$

where:

C_m –is mass concentration in mg/Nm^3,

C_v –is measured volume fraction in ppm,

M – is molar mass in g/mol and

V_0 = 22,4 dm^3/mol – is molar volume which is the volume occupied by 1 mole of an ideal gas under normal conditions (at the temperature of 273.15 K = 0 °C and a pressure of 101.3 kPa).

5) calculation of the mass flow, where the calculation of the mass flow of a pollutant, in order to make a comparison with the emission limit values defined in the form of mass flow, is made according to the following equation:

$$Q = C \cdot q$$

where:

Q – is mass flow of pollutants in kg/h,

C – is mass concentration of pollutant reduced to normal conditions, dry gas and reference oxygen in kg/Nm^3 and

q –is waste gas flow rate reduced to normal conditions, dry gas and reference oxygen in Nm^3/h

(5) For the emission abatement equipment, the reduction of measured concentrations to reference oxygen content referred to in paragraph 4, point 3) of this Article shall be only made for pollutants for which the emission abatement equipment is installed and only if the measured oxygen content in the waste gas exceeds the reference value.

(6) In the absence of the prescribed reference oxygen content referred to in paragraph 4, point 3) of this Article in waste gas to which the mass concentration of pollutants is reduced, for combustion processes and thermal technological processes the reference oxygen content is 5% when the flue gas is indirectly used in the production process, and 17% for plants in which the products of combustion are used directly in the production process, and for the other technological processes the reference oxygen content shall be the measured oxygen content.

(7) The results of emission measurements reduced to dry waste gas, normal conditions and reference oxygen content, shall be compared with the emission limit values in accordance with Articles 40 and 41 and Annex 6 of this Rulebook.

(8) In the case of single measurements, time of sampling the waste gas should correspond to the prescribed method.

(9) The results of measurements of emissions expressed as mass concentration shall be presented in the form of "measured value ± measuring uncertainty" stating the limits of quantitation, or detection.

(10) If, during a single emission measurement the loss of one sample of waste gas occurs due to unforeseen situations (malfunctioning of stationary source or measurement device), force majeure (weather) and similar, the assessment of compliance with the requirements of this Rulebook, with the consent of the competent authority, may be performed even without the analysis of the waste gas sample.

Warranty measuring

Article 10

(1) Warranty measuring of pollutants after the construction or substantial modification shall be done during smooth operation of the plant, in the period between the third and sixth month of its release into operation.

(2) Any kind of dilution in order to reduce the concentration of pollutants in the waste gas shall be forbidden.

Continuous measuring

Article 11

(1) Emissions from stationary sources shall be monitored continuously if the mass flows referred to in Article 14, paragraph 1 of this Rulebook and certain limit values are exceeded.

(2) If it can be expected that the plant will repeatedly exceed the mass concentration prescribed by this Rulebook, a continuous emission measurement may be required for lower mass flows in relation to the mass flows referred to in Article 14 of this Rulebook.

(3) For the plants where emission control device must repeatedly be turned off during the smooth operation due to safety reasons or if its efficiency is significantly reduced, mass flows resulting from the remaining capacity shall be used.

(4) Continuous emission measurement shall not be performed if the emission source works less than 500 hours in one year or if it emits less than 10% of the total annual emissions of the plant.

(5) Continuous measuring can be limited to the main matter if there is a continuous connection between the pollutants in the waste gas.

Olfactometric measurings

Article 12

If there is an expected emission of odors from the technological process, the emission value should be checked by performing olfactometric measurings through an authorized institution.

Equipping measuring points

Article 13

(1) For the plants and equipment with a mass flow of solid particles emissions of 1 kg/h to 3 kg/h, the measuring point at the source of emission shall be equipped with measuring devices that continuously monitor the operation of the device for purification of waste gases and the established emission limits (qualitative measuring devices).

(2) For plants and equipment with a mass flow of solid particles emissions above 3 kg/h, the measuring point at the source of emission shall be equipped with measuring devices that continuously determine the mass concentration of solid particles.

(3) Continuous emission measurement may be required for the lower mass flow rates compared to the mass flow referred to in paragraph 1 of this Article, if it can be expected that the plant will repeatedly exceed the mass concentrations prescribed by this Rulebook.

(4) For plants and equipment with emissions of solid particles, for the solid inorganic particles, organic substances with Hazard Class I and II or carcinogens contained in Annex 4 of this Rulebook, the measuring point at the source of emissions shall be equipped with the measuring devices that continuously measure the mass concentration of total solid particles, if the mass flow exceeds fivefold the mass flow limit value given in Annex 4 of this Rulebbok.

(5) For plants and devices where the mass concentration of emissions are continuously measured, the measuring point at the source of emission shall be equipped with measuring devices that continuously determine all necessary process parameters (such as waste gas temperature, waste gas volume flow, humidity, pressure, oxygen content), for evaluation and assessment of continuous measurements.

Additional measuring

Article 14

(1) The operator, within the period of 60 days, shall perform two additional measurings to verify the presence of exceedance of the mass flows under the same operating conditions and when using the same fuel in the plant and devices, whose emissions of gaseous compounds exceed the following mass flows during the periodic measurements:

1) sulphur dioxide..... 30 kg/h (30.000 g/h),

2) nitrogen oxides expressed as NO_2..... 30 kg/h (30.000 g/h),

3) carbon monoxide, in the process of combustion..... 5 kg/h (5.000 g/h),

4) carbon monoxide, in all other cases ..... 100 kg/h (100.000 g/h),

5) fluorine and gaseous inorganic fluorine compounds expressed as hydrogen fluoride – HF..... 0,3 kg/h (300 g/h),

6) gaseous inorganic compounds of chlorine expressed as hydrogen chloride – HCl..... 1,5 kg/h (1.500 g/h),

7) chlorine..... 0,3 kg/h (300 g/h) and

8) hydrogen sulphide..... 0,3 kg/h (300 g/h).

(2) If the emission measurements referred to in paragraph 1 of this Article confirm the excess mass flows, the operator shall be obliged to equip the measuring point at the source of

emission with the meqasuring devices that continuously measure the mass concentration of those compounds for which the excess of mass flow has been identified.

(3) If individual measurements show that the proportion of nitrogen dioxide in the nitrogen oxide emissions is less than 10%, continuous measurement should be disregarded and its share should be calculated.

(4) Measuring point on emission source shall be equipped with the measuring devices that continuously measure total carbon content, for the plants and devices whose emissions of organic compounds, expressed as total carbon, have higher mass flow rates of the mass flow of:

1) organic compounds of Hazard Class I..... 1.000 g/h and

2) organic compounds of Hazard Class I and II..... 2.500 g/h.

(5) Plants with mass flows of mercury and its compounds above 2.5 g/h, expressed as Hg, shall be equipped with measuring devices at relevant sources on which the mass concentrations of mercury are continuously determined, unless it has been reliably proven that the mass concentrations are less than 20% of the mass concentration for inorganic solid particles of hazard class I.

Selection of device for determination of emissions

Article 15

Continuous measurement shall be performed by using devices that comply with the requirements of the measuring methods in accordance with Annex 6 of this Rulebook.

Hourly average values

Article 16

(1) The measured values are used for forming the hourly average values.

(2) If necessary, hourly average values may be converted to the corresponding reference units.

(3) For each calendar day, the daily average value, in relation to the daily operating time, shall be formed from the hourly average value.

Daily average values

Article 17

(1) For the plants which emit solid inorganic particles, organic substances of Hazard Class I or carcinogenic substances, daily determination of the mass concentration of these substances in the waste gas shall be required, as the daily average value compared to daily operating time, if the mass flows given in Annex 4 of this Rulebook are exceeded more than ten times.

(2) In the case of the daily average values, determined on the basis of continuous measurements, for which there are small differences in the period of minimum three months, the determination of weekly, monthly or annual average value of mass concentration of substances referred to in paragraph 1 of this Article in waste gas may be performed.

Calibration and testing of measuring devices
Article 18

(1) Measuring devices that are used for emission measurement shall be calibrated and tested in relation to the hourly average value at least once a year, and their calibration and testing shall be performed by the laboratories accredited to perform calibration and testing activities by the accreditation body in accordance with the requirements of BAS ISO/IEC 17025 and which shall be required to have an accredited method for each tested parameter.

(2) Calibration and testing of measuring devices that are used for emission measurement shall be carried out every year and repeated after each significant modification (repair or modification, transfer).

(3) The operator and the authorized legal entity for emission measurement shall be required to ensure regular maintenance and validity of measuring devices for measuring emissions and keep the records of it.

(4) The certificate of calibration and report on the results of calibration and testing of the validity shall be submitted to the Ministry within 60 days.

(5) The validity of the devices for the continuous measurement of emissions shall be ensured by meeting the requirements of the standard BAS EN 14181 and by testing defined by this standard.

(6) The certificate on validity and report on the results of testing the validity shall be submitted to the competent authority within 60 days.

CHAPTER III
EMISSIONS LIMIT VALUES FROM COMBUSTION PLANTS

Types of combustion plants
Article 19

(1) Depending on the thermal power, combustion plants can be large, medium and small.

(2) Large combustion plants are combustion installations whose thermal power is equal to or greater than 50 MW_{th}, which are used to produce energy, regardless of the type of fuel used (solid, liquid or gaseous).

(3) combustion plants with thermal power below 50 MW_{th}, according to the type of fuel used and projected thermal power can be medium and small combustion plants.

(4) Medium combustion plants are combustion installations in which produced thermal energy is used to perform technological processes, indirect drying or other processes of processing objects or materials, the production of electricity or heating of households, business and other premises whose thermal power, depending on the used fuel is in the range of 1 MW_{th} to 50 MW_{th} as follows:

1) 1 MW_{th} to 50 MW_{th} when using solid fuel: biomass and residues from processing of biomass, coal and briquettes from coal and coke with a sulphur content of less than 1 g/MJ,

2) 5 MW_{th} to 50 MW_{th} when using liquid fuel: light and extra light heating oil in accordance with the regulation governing physical-chemical characteristics of liquid fuels and

3) 10 MW_{th} to 50 MW_{th}, when using natural gas or liquefied petroleum gas.

(5) In the medium-sized combustion plants, in addition to the fuel referred to in paragraph 4 of this Article, the following fuels are also used:

1) solid fuels: natural wood (which was not treated with chemical preparations) in all its forms and wood residues from the processing of natural wood; fuel from biomass, coal, briquettes from coal with a maximum sulphur content of 1 g/MJ and provided that the combustion plant is equipped with a waste gas emission abatement equipment,

2) liquid fuels: methanol, ethanol, crude vegetable oil, methyl ester from vegetable oils, and

3) gaseous fuels: coke oven gas, blast furnace gas, refinery gas, synthetic gas, biogas, landfill gas and gas from wastewater treatment.

(6) The medium-sized combustion plants include plants with the thermal power greater than 1 MW_{th}, which as liquid fuels use natural bitumen and heavy liquid fuels in accordance with the regulation governing physical-chemical characteristics of liquid fuels.

(7) Small combustion plants are combustion plants the thermal power of which does not exceed:

1) 1 MW_{th} when using solid fuels, namely: biomass and residues from processing biomass, coal and briquettes from coal and coke with a sulphur content of less than 2 g/MJ,

2) 5 MW_{th} when using liquid fuel: light and extra light heating oil in accordance with the regulation governing physical-chemical characteristics of liquid fuels and

3) 10 MW_{th} when using natural gas or liquefied petroleum gas.

(8) The small combustion plants include the plants used for cogeneration of electricity and heat, whereby the resulting heat is used for heating of households, provided that their thermal power does not exceed the value referred to in paragraph 7 of this Article.

Specific requirements and rules of aggregation

Article 20

(1) Two or more medium-sized combustion plants of total thermal capacity greater than 50 MW_{th} shall be classified into large combustion plants if the competent authority, in the process of environmental impact assessment and issuing environmental permit, establishes that it is technically justified to emit waste gases through a common stack, and that such emissions will not double the cost of emissions through individual stacks.

(2) If a large combustion plant is extended by at least 50 MW_{th} of thermal power, the emission limit values provided in Annex 1 of this Rulebook shall apply to the new part of the plant, and they shall be determined on the basis of the thermal power of the entire plant.

(3) The provision referred to in paragraph 2 of this Article shall not apply to large combustion plants referred to in Articles 27 and 28 of this Rulebook.

(4) When planning the construction of a large combustion plant and expansion of plants referred to in paragraph 2 of this Article, the technical and economic feasibility of cogeneration of electricity and heat should be considered.

(5) If two or more separate new small, medium and large combustion plants, considering technical and economic factors, are designed so that their waste gases are discharged through a common stack, such plants shall be considered one combustion plant with the heat power equal to the sum of the thermal power of the plants connected to the stack.

Emission of waste gases from combustion plants
Article 21

(1) Waste gases from the combustion plants shall be emitted in a controlled manner through a stack, which may comprise of one or more chimney channels.

(2) Conditions of emissions of pollutants shall be regulated by a Decision on the approval of Environmental Impact Study and the environmental permit.

(3) In determining the height and diameter of the chimney, the emissions of the plant for which the height of the chimney is being determined should be taken into account, as well as air pollution caused by operations of other sources of pollution in a given area, including the required (available) capacity of the atmosphere to receive additional quantities of pollutants due to the construction of other sources of air pollution in a given area.

Meeting the obligations to reduce emissions
Article 22

The operator of the existing large combustion plant and/or the gas turbine may fulfil its commitment to reduce emissions of SO_2, NO_x and solid particles by using emission limits prescribed by this Rulebook, developing Emission Reduction Programme referred to in Article 24 of this Rulebook or by combination of these two approaches.

Emission limit values
Article 23

(1) For the emissions of sulphur dioxide, nitrogen oxides and solid particles from the existing large combustion plants, the emission limit values referred to in Annex 1, Part I, Part II and Part III Section A) Emission limit values for sulphur dioxide (SO_2), nitrogen oxides (NO_x) and solid particles for the existing large combustion plants, shall be applied.

(2) If the specified emission limit values cannot be achieved due to the characteristics of the fuel, it shall be necessary to achieve a degree of desulphurization of 60% in the plants with a thermal power of up to 100 MW_{th}, 75% for the plants with a thermal power of 100 MW_{th} to 300 MW_{th}, 90% for the plants with thermal power greater than 300 MW_{th}, 90% for plants with thermal power greater than 500 MW_{th}.

(3) The emissions of pollutants referred to in paragraph 1 of this Article, and the carbon monoxide from new large combustion plants shall be subject to the emission limit values set out in Annex 1, Part I, Part II and Part III, section B) Emission limit values for sulphur dioxide (SO_2), nitrogen oxides (NO_x), solid particles, and Annex 1, Part IV for carbon monoxide (CO) for new large combustion plants.

(4) If combustion plants use indigenous solid fuels, a minimum degree of desulphurization may be applied, of at least 92% for the plants with the thermal power of 50 MW_{th} to 100 MW_{th}, 92% for the plants with the thermal power of 100 MW_{th} to 300 MW_{th} and for the plants with a thermal power greater than 300 MW_{th}, with the degree of desulphurization of at least 96%.

(5) Notwithstanding paragraphs 1 and 2 of this Article, in the process of issuing the Decision on the approval of Environmental Impact Study and in the process of issuing environmental permit, the competent authority may stipulate the following for the plant:

1) emission limit values for other pollutants and deadlines for their achieving,

2) emission limit values more stringent than the values given in Annexes 1 to 3 and

3) additional requirements or modifications on the large combustion plant in accordance with the development of best available techniques.

(6) emission limit values for medium combustion plants for different types of fuel are given in Annex 2 of this Rulebook.

(7) emission limit values for small combustion plants for different types of fuel are given in Annex 3 of this Rulebook.

Emission Reduction Programme

Article 24

(1) An operator of a large combustion plant and/or gas turbine shall deliver to the Ministry the Emission Reduction Programme within 12 (twelve) months after entry into force of this Rulebook.

(2) The Program referred to in paragraph 1 of this Article shall contain the following information for each large combustion plant and gas turbine:

1) technical data on the large combustion plant or gas turbine (year of commissioning, actual number of operating hours, planned service life, year of decommissioning, type of fuel used, thermal power of the plant, annual number of operating hours, etc.)

2) calculation of emissions by consumption of fuel, the calorific power of the fuel and the use of emission factors,

3) annual emissions of NOx before installing devices to reduce NOx emissions for the period of 5 years prior to the installation of the device,

4) annual emissions of solid particles before installing dust collectors for waste gases for the period of 5 years prior to the installation of the device,

5) annual emissions of SO_2, NOx and solid particles after the start of operation of the emission abatement equipment,

6) measures planned to achieve emission reductions (e.g. changing the type and/or quality of fuel, change in the combustion process, installation of emission abatement equipment, suspension of operations of the plant, etc.)

7) dynamics of implementation of measures under the Programme,

8) estimate of funds required for the implementation of measures from the Programme and

9) analysis of the costs and thus created benefits.

(3) Implementation of Emission Reduction Programme will result in the reduction of the total annual emissions of sulphur dioxide, nitrogen oxides and solid particles from the existing large combustion plants individually to the values that are expected to be achieved by applying the emission limit values laid down in this Rulebook.

(4) Reducing emissions from combustion plants shall be calculated based on the annual number of operating hours, fuel used and thermal power, averaged for the past five years of operation.

Emission Reduction Plan
Article 25

(1) The submitted Emission Reduction Programmes referred to in Article 24 of this Rulebook shall be used as an integral part of the Emission Reduction Plan for the existing large combustion plants in accordance with the assumed international obligations of Bosnia and Herzegovina.

(2) Decommissioning of a large combustion plant included in the Emission Reduction Plan for reducing emissions from the existing large combustion plants must not lead to an increase in total annual emissions from the remaining plants covered by the Plan.

Exemption based on the remaining number of operating hours
Article 26

The existing large combustion plants may be exempted from the obligation of meeting the emission limit values set out in Annex 1, Part I, Part II and Part III of this Rulebook and excluded from the Emission Reduction Plan for reducing emissions from the existing large combustion plants under the following conditions:

1) that the operator of the existing large plant submits to the Ministry a statement in writing until 31 December 2015 that the plant will not work more than 20,000 hours as of 1 January 2018 until 31 December 2023 and

2) every year, and no later than 31 January of the current year, the operator shall be obliged to deliver to the competent authority a report on the achieved number of operating hours in the previous year.

Emission limit values when using different types of fuel
Article 27

(1) In the procedure of issuing the Decision on the approval of the Environmental Impact Study and the environmental permit for the combustion plants involving the simultaneous use of two or more fuels, the competent authority shall prescribe emission limit values as follows:

1) taking into account the emission limit values for each fuel type and for each pollutant which corresponds to a specific thermal power of large combustion plant in accordance with Annex 1 of this Rulebook,

2) determining the emission limit values for each fuel used, which is calculated by multiplying the individual emission limit value referred to in point 1) of this Article with thermal power obtained by combustion of a certain fuel, so that the product thus obtained is divided by the total heat output, generated from the combustion of all the fuels used and

3) adding up all values obtained in the manner determined by point 2) of this Article.

(2) In large combustion plants, which simultaneously use several fuels, some of which are residues from the distillation process or refining process of crude oil for own consumption, alone or in a mixture with other fuels, the provisions laid down for the fuel with the highest emission limit values (determinative fuel) shall be applied, irrespective of the provisions of paragraph 1 of

this Article, in the event that during the operation of that plant, the share of thermal power of determinative fuel, in the sum of the thermal power obtained from all fuels is at least 50%.

Emission limit values when using different types of fuel in the event that the proportion of determinative fuel is less than 50%

Article 28

When the proportion of the determinative fuel is less than 50%, the emission limit value shall be calculated on the basis of contributions to the thermal power of all individual fuels in relation to the sum of the thermal powers generated from combustion of all individual fuels as follows:

1) by setting the emission limit values for each fuel type and for each pollutant which corresponds to a specific thermal power of a large combustion plant in accordance with Annex 1 of this Rulebook,

2) by calculating the emission limit values of the determinative fuel (fuel with the highest emission limit value according to Annex 1 of this Rulebook, and in the case of two fuels having the same emission limit values, one that has a higher thermal power), which is obtained by multiplying the emission limit values from Annex 1 of this Rulebook for that fuel by a factor of 2, and subtracting the emission limit value of the fuel with the lowest emission limit value from the resulting product of multiplication,

3) by determining the emission limit values for each fuel used, which is calculated by multiplying the emission limit value of the determinative fuel, calculated in accordance with point 2) of this Article and emission limit values for other fuels in the mixture, determined in accordance with point 1) of this Article, with the thermal power that is obtained by determinative fuel combustion, so that the product obtained in this way is divided by the total thermal power that is obtained by the sum of the values generated from combustion of all the fuels used and

4) by adding up all values obtained in accordance with paragraph 3) of this Article.

Average emission limit values

Article 29

(1) Instead of procedures for determining the emission limit values set out in Articles 27 and 28 of this Rulebook, the following average emission limit values for sulphur dioxide may be used (irrespective of the fuel combination used):

1) for the existing large combustion plants the emission limit value of 1000 mg/Nm^3, averaged for all such plants in the refinery and

2) for new large combustion plants the emission limit value of 600 mg/Nm^3, averaged for all such plants in the refinery, with the exception of gas turbines.

(2) Average limit values referred to in paragraph 1 of this Article may be applied only in the event that this does not increase emissions from the existing combustion plants.

(3) In large combustion plants, which alternatively use two or more types of fuel in the process of issuing the Decision on the approval of the Environmental Impact Study and environmental permits, the emission limit values set out in Annex 1 of this Rulebook shall apply for each individual fuel used.

Emission limit values for medium and small plants when using different types of fuel

Article 30

(1) For medium and small combustion plants that simultaneously burn two or more types of fuel, when calculating the emission limit values, the procedure prescribed in Articles 27 and 28 of this Rulebook shall be applied.

(2) For the small and medium combustion plants which are alternately using two or more types of fuel, the emission limit values in the Annexes 2 and 3 of this Rulebook shall be applied for each specific fuel used.

(3) In the case of transition from solid to liquid or gaseous fuel, emission limit values for solid fuel set out in the Annexes 2 and 3 of this Rulebook shall be applied for another four hours from the moment of replacement of the fuel used.

(4) For small and medium combustion plants using solid fuels in the fluidized-bed combustion, maximum prescribed limit values for solid fuels in the Annexes 2 and 3 of this Rulebook shall be applied in the case when two or more types of fuel are used alternately or simultaneously.

Termination of operation of emission abatement equipment for large plants

Article 31

(1) The requirements governing the procedure in the event of failure or interruption in operation of the emission abatement plant for waste gases in large combustion plant shall be defined in the environmental permit.

(2) The sum of all periods of operation of the combustion plant without emission abatement equipment for waste gases (i.e., the periods in which the waste gases are emitted into the air without purification) shall not exceed 120 operating hours (exclusive of test operating) in a calendar year.

(3) In case of interruption of the emission abatement equipment for waste gas, the competent authority shall order the operator to reduce the load or to stop the operation of the combustion plant if the normal mode of operation of the plant is not achieved within 24 hours, or to use fuel that causes less emissions of air pollutants.

(4) In the case referred to in paragraph 3 of this Article the operator shall notify the competent authority within 48 hours at the latest.

(5) The competent authority may allow exceptions to the limitations for the periods of operation without a functional emission abatement equipment for waste gases referred to in the aforementioned paragraphs 1 and 2 of this Article in cases when there is a need to maintain the supply of energy, or in the cases when the plant with dysfunctional emission abatement plant for waste gases would be replaced over time with another combustion plant whose operation would cause an increase in the total emissions into the air.

Allowed exceedance of emission limit values for large plants

Article 32

(1) Exceedance of the emission limit values shall be allowed for a large combustion plant, which normally uses fuel with low sulphur content in relation to the prescribed emission limit

values, which are determined by this Rulebook, in the case of interruption in the supply of that fuel, for a maximum of six months.

(2) Large combustion plant, which uses only gaseous fuel shall be allowed to use other fuel for maximum of ten days due to a sudden interruption in the supply of gas if there is a need to maintain energy supply.

(3) The Decision on extending the deadline referred to in Article 31, paragraphs 1 and 2 of this Rulebook and paragraph 2 of this Article and permitted emission limit values referred to in paragraph 1 of this Article for a device for production of energy, heat, and for the combined production of electricity and heat shall be issued by the Ministry.

Termination of operation of emission abatement equipment for medium and small plants

Article 33

(1) Medium and small combustion plants, which have built-in devices for the treatment of waste gases may work without these devices (i.e. they are allowed to emit untreated waste gases into the air) up to 240 operating hours per year, of which a maximum of 72 consecutive hours.

(2) In the case referred to in paragraph 1 of this Article, the operator shall be obliged to inform the competent authority that has issued the environmental permit or to which it reports on annual emissions no later than 24 hours.

Emissions monitoring

Article 34

(1) Monitoring of emissions and all other values from the combustion plant set out in the Decision on the approval of the Environment Impact Study and environmental permit shall be performed in accordance with Articles 40 and 41 of this Rulebook and Annex 6 of this Rulebok.

(2) Notwithstanding paragraph 1 of this Article, continuous measurement of emissions from large combustion plants shall be also performed in accordance with Article 14 of this Rulebook.

(3) In the case of the plants with the thermal power of up to 100 MWth and for the substances which are not listed in Annex 6 herein, a continuous emission measuring shall be performed in accordance with Article 14 of this Rulebook.

(4) The costs of the monitoring referred to in paragraph 1 of this Article shall be borne by the Operator.

Compliance with the limit values in continuous measuring

Article 35

(1) In the case of continuous measuring of emissions of the existing combustion plants, it shall be considered that compliance with the emission limit values determined in accordance with Annex 1 of this Rulebook is achieved if the results of the measurements for operating hourss in a calendar year indicate that:

1) none of the monthly average values exceed the emission limit values,

2) 97% of all the 24-hour average values does not exceed 110% of the limit value for the sulphur dioxide and solid particles, and

3) 95% of the 24-hour average values does not exceed 110% of the limit values for nitrogen dioxide.

(2) In the case of continuous measuring at the combustion plants, it shall be considered that the compliance with the emission limit values is achieved if the results of the measurements for operating hours in a calendar year indicate that:

1) none of the daily average values exceed the emission limit values defined for the plants in Annex 1 of this Rulebook, and

2) 95% of all the hourly average values during a year does not exceed twice the values given in Annex 1 of this Rulebook.

(3) Average values referred to in paragraph 2 of this Article shall be determined in accordance with Articles 40 and 41 of this Rulebook.

(4) In the cases referred to in paragraphs 1 and 2 of this Article, the periods of starting up and shutting down the system shall not be taken into account.

Compliance with the limit values in individual measurings

Article 36

In the case of individual measurings of emissions, it shall be considered that compliance with the emission limit values determined in accordance with Annex 1 of this Rulebook is achieved if the results of successive analysis of three samples of waste gas do not exceed the established limit values.

Measurings during the testing period and individual measurings

Article 37

(1) Measuringsin the course of the test operation and the individual measurings of emissions of pollutants shall be performed on small and medium combustion plants.

(2) Measurings in the course of the test operation and the individual measurings of emissions of pollutants shall not be performed on the small combustion plants with the thermal power less than and equal to 8 kW, using liquid and gaseous fuels, or less than or equal to 50 kW for the plants using solid fuels.

(3) Individual measurings shall not be carried out in the case where small or medium combustion plants are equipped with a device for continuous measurings of emission.

(4) Plants using all kinds of solid fuel with the thermal power exceeding 5 MWth and less than or equal to 25 MWth, shall be equipped with devices for continuous monitoring of emissions.

(5) For medium combustion plants, depending on the type of fuel and input thermal power, continuous measurings shall be required for the following pollutants:

1) solid particles for plants using solid fuel, with thermal power greater than 25 MWth,

2) solid particles for the plants using liquid fuel, with the thermal power exceeding 20 MWth, except those that use light and extra light heating oil, methanol, or unprocessed vegetable oil or methyl ester from vegetable oil,

3) smoke number of the plant using liquid fuel, with the thermal power exceeding 20 MWth, which use light and extra light heating oil, methanol, or unprocessed vegetable oil or methyl ester from vegetable oil,

4) carbon monoxide for the plants using solid fuel, such as:

1. with the thermal power greater than 2.5 MWth,

2. Using solid fuel from waste, with the thermal power greater than 1 MWth.

5) carbon monoxide for plants using liquid fuels, such as:

1. using light and extra light heating oil, methanol, or unprocessed vegetable oil, or methyl ester from vegetable oil, with the thermal power exceeding 20 MWth,

2. using liquid fuel from waste, with the thermal power greater than 1 MWth,

3. using other liquid fuels, with thermal power greater than 10 MWth.

6) sulphur oxide for plants using coal, briquettes of coal and coke with the total sulphur content greater than 0.5 g/MJ and

7) sulphur oxides for the plants using the emulsified natural bitumen and heavy fuel oil (heavy heating oil).

CHAPTER IV
EMISSION LIMITVALUES FOR CERTAIN TYPES OF PLANTS AND CRITERIA FOR THE ESTABLISHMENT OF MEASURING POINTS

Emission limit values for certain categories of plants
Article 38

(1) Annex 5 of this Rulebook sets out emission limit values for pollutants (in the waste gas) from the plants:

1) for coal processing,
2) for processing of mineral raw materials,
3) ferrous metallurgy,
4) non-ferrous metalallurgy,
5) for surface treatment of metals,
6) for production of titanium dioxide,
7) for production of lead-acid batteries,
8) chemical industry,
9) for treatment of waste and other materials, with the exception of the thermal treatment,
10) for waste water treatment and
11) other activities.

(2) Waste gases from the plants shall be discharged in a controlled manner through the source (stack).

Measuring points
Article 39

(1) Continuous and individual measuring of pollutant emissions shall be performed in the point source of the stationary source of pollution, at the representative measuring points.

(2) Determining the position and equipment of the representative measuring points for measuring emissions shall be done by an authorized legal entity for the measurement of

emissions, based on the requirements of the prescribed measurement methods, depending on the pollutants that are measured on the relevant stack.

(3) Measurement point shall be established so as to be appropriate, readily available and fitted so that it is possible to carry out measuring in a prescribed manner and without danger for the person performing measurements, and so that the performed measurings are representative of the emissions from the given plant, and in relation to the meteorological conditions.

(4) When measuring the emissions, it shall be necessary to ensure that at the measurement point the waste gases from a stationary source are not mixed with the waste gases from the other stationary sources, unles this Rulebook provides otherwise.

CHAPTER V
EVALUATION OF RESULTS OF MEASUREMENT OF EMISSIONS, CONTENT OF THE REPORT AND THE BALANCE OF EMISSIONS AND REPORTING ON PERFORMED MEASUREMENTS

Process of evaluation of the emission measurement results
Article 40

(1) Evaluation of the emission measurement results is the method of comparing the measurement results with the prescribed limit values in accordance with the provisions of the present Article.

(2) When comparing the measured values with the emission limit values it shall be considered that:

1) Stationary source of air pollution complies with the requirements of this Rulebook with regard to emission of certain pollutants:

1. If the maximum value of results of the emission measurement of the pollutant (E_m) is equal to or less than the prescribed limit value (ELV), regardless of the the expressed measurement uncertainty, i.e.

$$E_m \leq ELV$$

2. if the prescribed limit value (ELV) is in the range of the maximum value of the measurement results of pollutant emission (E_m), reduced by the measurement uncertainty and the maximum values of the emission measurement results increased for the measurement uncertainty, i.e.

$$E_m - \mu \leq ELV \leq E_м + \mu$$

where:

μ –is the absolute value of the measurement uncertainty of measured value of pollutant emission.

2) A stationary source of air pollution is not compliant with the requirements prescribed by this Rulebook with respect to emission of certain pollutant, if the maximum value of measurement results for the pollutant, increased by the measurement uncertainty, is greater than the prescribed limit value, i.e.

$$E_m + \mu > ELV$$

where:

μ – is the absolute value of the measurement uncertainty of measured value of a pollutant emission.

(3) The value of the measurement uncertainty depends on the appplied measurement methods and the characteristics of measuring instruments, and it is determined according to the applied method.

(4) The reference methods for measuring the emission of pollutants and the determination of conditions of the measurement are set forth in the standards provided in Annex 6 of this Rulebook.

Procedures for measuring and evaluating emission measurement results from combustion plants

Article 41

(1) Procedures for measuring and evaulating measurement results of pollutant emissions from combustion plants, in terms of Article 34 of this Rulebook, shall be determined as follows:

1) for plants with a thermal power greater than 300 MWth, the concentration of sulphur dioxide, nitrogen oxide and solid particles shall be measured continuously for each plant with a thermal power greater than 300 MWth and

2) for the plants with a thermal power of 100 MWth up to 300 MWth, the concentrations of sulphur dioxide, nitrogen oxides and solid particles shall be measured continuously, except in the following cases:

1. for combustion plants with a life span of less than 10,000 operating hours,

2. for sulphur-dioxide, and the solid particles from the boiler using natural gas or from gas turbines using natural gas,

3. for sulphur dioxide from the gas turbines or boilers that use liquid fuel with the known sulphur content, in the case when there is no device for desulphurization and

4. for the sulphur-dioxide from the boilers that use biomass if their operator proves, by measurement, that the emission of sulphur dioxide, under any circumstances, will not be greater than the established emission limit values.

(2) In the cases where the continious measurings are not required, periodic measurings shall be performed at least once every six months.

(3) The operator of the combustion plant shall be required to inform the competent authority of the substantial change in the type of fuel used and the mode of operation of the plant.

(4) Upon receipt of the notification referred to in paragraph 4 of this Article, the competent authority shall consider the notification and decide on the need to adapt monitoring to the new situation.

(5) The continuous measurings that are made in accordance with this Rulebook shall comprise the following process parameters:

1) oxygen content,

2) temperature,

3) pressure

4) water vapor content.

(6) Continuous measurement of the water vapor content in the waste gases shall not be required in the case when water vapor is removed from the waste gas sample, prior to the emission analysis.

(7) Representative measurings, i.e. the sampling and analysis of relevant pollutants and process parameters and the reference measurement methods for the purpose of calibration of automatic measuring systems should provide the data of the same quality, if the appropriate BAS standards have been applied, which establish reference methods, it shall be considered that the data of the same quality have been provided.

(8) Control of the measurement systems for the continuous measuring shall be performed by parallel measuring methods at least once a year.

(9) The value of 95% of confidence interval of individual measurement shall not exceed the following percentages of the emission limit values:

1) for sulphur-dioxide..... 20%,

2) for nitrogen oxides..... 20% and

3) for solid particles..... 30%.

(10) The confirmed hourly and daily average values shall be defined from the applicable measured hourly average values after deducting these for the value of the confidence interval specified in this Rulebook.

(11) Every day, for which more than three average hourly values apper to be invalid due to malfunctioning or maintenance of the system for continuous measuring, these shall not be taken into account, and if averaged data for more than ten days during the year have not been confirmed due to these reasons, the competent authority shall require from the operator to take appropriate measures in order to improve the reliability of the continuous monitoring system.

Content of report on performed measurements

Article 42

(1) The report on the measurement of emissions of air pollutants shall include the following elements:

1) information on the authorized professional organization that performs measurements and data on the measuring system if the operator independently performs continuous measuring of emissions,

2) information on the operator and the plant in which the measurement is performed,

3) description of macro and micro-location where the plant is located,

4) description of the plant where the measurement is performed,

5) information on the position of measuring points,

6) plan, place and time of measurement,

7) information on the applied standards, measuring methods and types of measuring devices,

8) description of the conditions during the measuring,

9) the results of measurements,

10) conclusion and

11) enclosures.

(2) The content of the elements referred to in paragraph 1 of this Article is provided in Annex 7 herein.

(3) Report on annual emission balance shall be delivered to the Ministry using the template provided in Annex 7, which forms an integral part of this Rulebook, in the following manner:

1) one electronically completed set of templates (Excel files) to the mail address of the Ministry or on CD ROM, without signature and stamp, and

2) printed electronically completed set of forms in hard copy bound into a single document, duly signed and stamped by the responsible person, at the mailing address of the Ministry.

CHAPTER VI
TRANSITIONAL AND FINAL PROVISIONS

Deadlines for harmonization
Article 43

(1) The existing medium combustion plants shall harmonize the emission values with the provisions of this Rulebook no later than 31 December 2017, unless the technical capacities prevent for their fulfilment, and in this case the value of emissions will be prescribed in the environmental permit.

(2) The existing medium combustion plants, which use as fuel coke oven gas, blast furnace gas, refinery gas, landfill gas, bio-gas from the plant for treatment of communal waste water shall harmonize the emission values with the emission limit values for the new medium combustion plants at least in three years from the date of entry into force of this Rulebook.

(3) The existing small combustion plants shall harmonize emission values with the provisions of this Rulebook for new plants, no later than five years from the date of entry into force of this Rulebook.

Repealing of the Rulebook
Article 44

On the date of entry into force this Rulebook, the Rulebook on emission limit values from combustion plants (Official Gazette of Republika Srspka, no. 39/05) and the Rulebook on monitoring emissions of pollutants into the air (Official Gazette of Republika Srpska, no. 39/05 and 90/06) shall cease to have effect.

Entry into force
Article 45

This Rulebook shall enter into force on the eighth day following that of its publication in the Official Gazette of the Republika Srpska.

No. 15.04-020-1795/12 MINISTER
Date: 9 December 2014
Banja Luka Srebrenka Golic

ANNEX 4

GENERAL EMISSION LIMIT VALUES

<table>
<tr><td colspan="2">Emission limit values for total solid particles in the waste gas amount to:</td></tr>
<tr><td>20 mg/Nm^3</td><td>for the mass flow rate greater than or equal to 200 g/h</td></tr>
<tr><td>150 mg/Nm^3</td><td>for the mass flow rate of less than 200 g/h</td></tr>
<tr><td colspan="2">Emission limit values for solid inorganic particles in waste gas, classified in hazard class I to III, amount to:</td></tr>
<tr><td colspan="2">For hazard class I:</td></tr>
<tr><td>– mercury and its compounds, expressed as Hg
–thallium and its compounds, expressed as Tl</td><td>0.05 mg/Nm^3 at a mass flow of 0.25 g/h and higher</td></tr>
<tr><td colspan="2">For hazard class II:</td></tr>
<tr><td>– lead and its compounds expressed as Pb</td><td rowspan="5">0,5 mg/Nm^3 at a mass flow of 2,5 g/h and higher</td></tr>
<tr><td>–cobalt and its compounds, expressed as Co</td></tr>
<tr><td>–nickel and its compounds, expressed as Ni</td></tr>
<tr><td>–selenium and its compounds, expressed as Se</td></tr>
<tr><td>– Tellurium and its compounds, expressed as Te</td></tr>
<tr><td colspan="2">For hazard class III:</td></tr>
<tr><td>–antimony and its compounds, expressed as Sb</td><td rowspan="8">1 mg/Nm^3 at a mass flow rate of 5 g/hr and higher.</td></tr>
<tr><td>–chromium and its compounds, expressed as Cr</td></tr>
<tr><td>– cyanides, easily soluble (e.g. NaCN), expressed as CN</td></tr>
<tr><td>– fluorides, easily soluble (e.g. NaF), expressed as F</td></tr>
<tr><td>–copper and its compounds, expressed as Cu</td></tr>
<tr><td>–manganese and its compounds, expressed as Mn</td></tr>
<tr><td>–vanadium and its compounds are expressed as V</td></tr>
<tr><td>– tin and compounds thereof are expressed as Sn</td></tr>
</table>

Note 1:
If in the waste gas there are several solid inorganic particles of different hazard classes, for each substance the emission limit value laid down in this Annex shall be applied and the total emission limit value amounts to as follows:

–0.5 mg/Nm^3 for substances of class I and II and at the mass flow rate of 2.5g/h, and higher,
– 1 mg/Nm^3 for substances of class I and III and at the mass flow rate of 5 g/h and higher
–1 mg/Nm^3 for substances of class II and III and at the mass flow rate of 5 g/h and higher

Note 2:

If the waste gas is under the physical conditions (pressure, temperature) under which the substances may be in liquid or gaseous state, the emission limit values or mass flow rates in this Annex shall be observed in relation to the total amount of solid, liquid and gaseous emissions.

Note 3:
Solid inorganic particles that are not listed under the names for which there is a sound reason to believe that they have a potential to be carcinogenic, mutagenic or toxic for reproduction will be added in the hazard class III.

Emission limit values for inorganic gas substance in the waste gas, classified in hazard classes from I to IV, amount as follows:	
For hazard class I:	
– arsenic (arsenic hydride - AsH3)	0,5 mg/Nm^3 at a mass flow rate of 2.5 g/h, and higher
– cyanogen chloride – CNCl	
–phosgene– COCl2	
–phosphine (phosphorous hydride–PH3)	
For hazard class II:	
–bromine and its compounds, expressed as hydrogen bromide – HBr	3 mg/Nm^3 at a mass flow rate of 15 g/h, and higher
–Chlorine – Cl2	
–hydrocyanic acid – HCN	
–Fluorine and its compounds are expressed as hydrogen fluoride – HF	
–Hydrogen sulphide – H_2S	
For hazard class III:	
–ammonia – NH3	30 mg/Nm^3 at a mass flow rate of 150g/h, and higher
–chlorine compounds, if they are not in the class I or II, expressed as hydrogen chloride – HCl	
For hazard class IV:	
–sulphur oxides (sulphur dioxide and sulphur trioxide), expressed as sulphur dioxide – SO2	350 mg/Nm^3 at a mass flow rate of 1800 g/h, and higher
– nitrogen oxides (nitrogen monoxide and nitrogen dioxide), expressed as nitrogen dioxide– NO2	

Note 1:
In the waste gases arising from the plant for thermal or catalytic afterburning, the emission limit values for nitric oxide and nitrogen dioxide, expressed as nitrogen dioxide, amount to 200 mg/Nm^3. The emission limit value for carbon monoxide amount to 100 mg/Nm^3.

Note 2:
If the gases in an afterburning chamber contain high concentration of nitrogen oxides or other compounds of nitrogen, the emission limit values for nitrogen monoxide and nitrogen dioxide, expressed as nitrogen dioxide, amount to 350 mg/Nm^3 at a mass flow rate of 1800 g/h.

Emission limit values for the gaseous organic substances in the waste gas	
Emission limit values for the organic components in the waste gas, with the exception of solid organic particles,	50 mg/Nm^3 at a mass flow of 500 g/h, and higher

expressed as total carbon	
Emission limit values of organic substances contained in waste gas, expressed as total carbon, in the existing combustion plants with an annual mass flow of organic substances less than 1.5 t/year	1500 g/h for the mass flow rate
The amount of operating hours during which the mass flows are expressed as total carbon, in the range from 500 g/h to 1500 g/h	≤ 8 operating hours a day
Emission limit values for organic substances in waste gas, classified in hazard class I	20 mg/Nm^3 at the mass flow rate of 100g/h, and higher

Organic substances in the waste gas - hazard class I

Organic substance	Formula	CAS number
1,1,2,2- tetrabromoethane	$C_2H_2Br_4$	79–27–6
1,2,3- propanetriol, trinitrate (nitroglycerin)	$C_3H_5N_3O_9$	55–63–0
1,2,4- benzenetricarboxylic acid	$C_9H_6O_6$	528–44–9
1,2- benzenediol (pyrocatechol)	$C_6H_6O_2$	120–80–9
1,2- ethanediamine, N- (2-aminoethyl) -	$C_4H_{13}N_3$	111–40–0
1,2- ethanediol, dinitrate (ethylene glycol)	$C_2H_6O_2$	628–96–6
1,2- propanediol dinitrate (propylene glycol)	$C_3H_8O_2$	6423–43–4
1,1,2,3,4,4- hexachloro-1,3-butadiene	C_4Cl_6	87–68–3
1,3- propanediamine	$C_7H_{19}N_3$	105–83–9
1,4- dioxane	$C_4H_8O_2$	123–91–1
1,5- naphthalenediamine	$C_{10}H_{10}N_2$	2243–62–1
1,6- hexamethylene diisocyanate	$C_8H_{12}N_2O_2$	822–06–0
1,6- hexanediamine	$C_6H_{16}N_2$	124–09–4
1- butanamine	$C_4H_{11}N$	109–73–9
1- butanetiol (butyl mercaptan)	$C_4H_{10}S$	109–79–5
1-naphthalenamine	$C_{10}H_9N$	134–32–7
3-chloro -2-methylpropene	C_4H_7Cl	563–47–3
2,4,7-trinitrofluorenon	$C_{13}H_5N_3O_7$	129–79–3
2,5-furandion	$C_4H_2O_3$	108–31–6
2- butenal (crotonaldehyde aldehyde)	C_4H_6O	123–73–9
2- butyne -1,4-diol	$C_4H_6O_2$	110–65–6
2-chloro -1,3-butadiene (chloroprene)	C_4H_5Cl	126–99–8
3,5,5-trimethyl–2-cyclohexan-1-one	$C_9H_{14}O$	78–59–1
2-ethoxyethyl acetate	$C_6H_{12}O_3$	111–15–9
2- furancarboxaldehyde (furfural)	$C_5H_4O_2$	98–01–1
2- furanmethanamin	C_5H_7NO	617–89–0
2- hexanone (methyl butyl ketone)	$C_6H_{12}O$	591–78–6
2- imidazolidinethione	$C_3H_6N_2S$	96–45–7
2- methyl-m-phenylenediamine	$C_7H_{10}N_2$	823–40–5
2- naphthyl phenyl amine	$C_{16}H_{13}N$	135–88–6
2- nitro-p-phenylenediamine, 2	$C_6H_7N_3O_2$	5307–14–2

2- methyl-2-propanamine (tert-butylamine)	$C_4H_{11}N$	75–64–9
2- propenal (acrolein, acrylaldehyde)	C_3H_4O	107–02–8
2-propanoic acid butyl ester (butyl ester acrylate, butyl acrylate)	$C_7H_{12}O_2$	141–32–2
2-propionic acid ethyl ester (ethyl ester of acrylic acid, ethyl acrylate)	$C_5H_8O_2$	140–88–5
2-propanoic acid methyl ester (methyl ester of acrylic acid, methyl acrylate)	$C_4H_6O_2$	96–33–3
2- propyn-1-ol	C_3H_4O	107–19–7
3,3- diaminobenzidine	$C_{12}H_{14}N_4$	91–95–2
4,4'- methylene-bis- (2-methylcyclohexyl)	$C_{15}H_{30}N_2$	6864–37–5
4-amino-2-nitrophenol	$C_6H_6N_2O_3$	119–34–6
4- methyl-3-oxa-1-pentanol (ethylene glycol isopropyl ether)	$C_5H_{12}O_2$	109–59–1
4- tert-butyltoluene	$C_{11}H_{16}$	98–51–1
acetaldehyde (ethanal)	C_2H_4O	75–07–0
acetamide (acetic acid amide)	C_2H_5NO	60–35–5
N-phenylacetamide	C_8H_9NO	103–84–4
acetic anhydride	$C_4H_6O_3$	108–24–7
etenilester acetic acid (vinyl acetate)	$C_4H_6O_2$	108–05–4
chloroacetic acid	$C_2H_3ClO_2$	79–11–8
chloroacetic acid methyl ester (methyl-chloroacetate)	$C_3H_5ClO_2$	96–34–4
methoxy acetic acid	$C_3H_6O_3$	625–45–6
trichloroacetic acid	$C_2HO_2Cl_3$	76–03–9
acrylic acid	$C_3H_4O_2$	79–10–7
alkyl lead compounds		
aniline	C_6H_7N	62–53–3
N-methylaniline	C_7H_9N	100–61–8
2,4-диметилбензенамин dimethylbenzenamine	$C_8H_{11}N$	95–68–1
2- methyl-5-nitrobenzenamine	$C_7H_8N_2O_2$	99–55–8
4- methoxy benzenamine	C_7H_9NO	104–94–9
5- chloro-2-methyl- benzenamine	C_7H8ClN	95–79–4
N,N- dimethyl benzenamine	$C_8H_{11}N$	121–69–7
(dichloromethyl) benzene	$C_7H_6CI_2$	98–87–3
1,1'- methylenebis [4-isocyanatobenzene	$C_{15}H_{10}N_2O_2$	101–68–8
1,2,4,5- tetrachlorobenzene	$C_6H_2Cl_4$	95–94–3
1- chloro-2-nitrobenzene	$C_6H_4ClNO_2$	88–73–3
1- chloro-4-nitrobenzene	$C_6H_4ClNO_2$	100–00–5
1- methyl-3-nitrobenzene (3-nitrotoluene)	$C_7H_7NO_2$	99–08–1
1- methyl-4-nitrobenzene (4-nitrotoluene)	$C_7H_7NO_2$	99–99–0
2,4- dichloro-1-methylbenzene (2,4-dichlorotoluene)	$C_7H_6Cl_2$	95–73–8
nitrobenzene	$C_6H_5NO_2$	98–95–3
benzenesulfonyl chloride	$C_6H_5SO_2Cl$	98–09–9
benzoyl chloride	C_7H_5ClO	98–88–4

benzoyl peroxide	$C_{14}H_{10}O_4$	94–36–0
biphenyl (diphenyl)	$C_{12}H_{10}$	92–52–4
bis (2-ethylhexyl) phthalate	$C_{24}H_{38}O_4$	117–81–7
isobutylamine	$C_4H_{11}N$	78–81–9
camphor	$C_{10}H_{16}O$	76–22–2
caprolactam	$C_6H_{11}NO$	105–60–2
diethylcarbamoyl chloride	$C_5H_{10}ClNO$	88–10–8
carbon tetrachloride	CCl_4	56–23–5
carbonyl sulphide	COS	463–58–1
chloroacetic acid isopropyl ester;	$C_5H_9ClO_2$	105–48–6
chloroform (trichloromethane)	$CHCl_3$	67–66–3
chloromethane (methyl chloride)	CH_3Cl	74–87–3
chloropicrin (trichloronitromethane)	Cl_3CNO_2	76–06–2
diaminoethane (ethylenediamine)	$C_2H_8N_2$	107–15–3
dichlorophenols (2,5-dichlorophenol)	$C_6H_6CI_2O$	
diglycidyl ether	$C_6H_{10}O_3$	2238–07–5
2,6–diisocyanatotoluene	$C_9H_6N_2O_2$	91–08–7
Di-n-butyltin dichloride	$C_8H_{18}Cl_2Sn$	683–18–1
dinitronaphtalene (all isomers)	$C_{10}H_6N_2O_4$	27478–34–8
Diphenyl ether	$C_{12}H_{10}O$	101–84–8
diphenylamine	$C_{12}H_{11}N$	122–39–4
diphenylmethane-2,4'-diisocyanate	$C_{15}H_{10}N_2O_2$	5873–54–1
N-ethyl-ethanamine	$C_4H_{11}N$	109–89–7
1,1,2,2-tetrachloroethane	$C_2H_2Cl_4$	79–34–5
1,1,2-trichloroethane	$C_2H_3Cl_3$	79–00–5
1,1- dichloro-1-nitroethane	$C_2H_3Cl_2NO_2$	594–72–9
hexachloroethane	C_2Cl_6	67–72–1
pentahloroetan	C_2HCl_5	76–01–7
ethandial (glyoxal)	$C_2H_2P_2$	107–22–2
ethanethiol (ethyl mercaptan)	C_2H_5SH	75–08–1
2- chloroethanol	C_2H_5ClO	107–07–3
ethanolamine	C_2H_7NO	141–43–5
1,1- dichloroethene	$C_2H_2Cl_2$	75–35–4
1,1- difluoroethyl (genetron 1132a)	$C_2H_2F_2$	75–38–7
ethyl chloride (chloroethane)	C_2H_5Cl	75–00–3
ethyl chloroacetate	$C_4H_7ClO_2$	105–39–5
ethylamine	C_2H_7N	75–04–7
ethylene (ethene)	C_2H_4	74–85–1
formaldehyde (methanal)	CH_2O	50–00–0
formamide (metanamid)	$CONH_3$	75–12–7
formic acid	CH_2O_2	64–18–6
glutaral	$C_5H_8O_2$	111–30–8
hexahydrophthalic acid anhydride	$C_8H_{10}O_3$	85–42–7
2- ethyl hexane acid	$C_8H_{16}O_2$	149–57–5

phenyl-hydrazine	$C_6H_5N_2H_3$	100–63–0
hydroquinone (1,4-benzenediol)	$C_6H_4(OH)_2$	123–31–9
isophorone diisocyanate	$C_{12}H_{18}N_2O_2$	4098–71–9
ketene	C_2H_2O	463–51–4
cresol	C_7H_8O	1319–77–3
Lead acetate (monobasic)	$Pb(C_2H_3O_2)_2$ x $2Pb(OH)_2$	1335–32–6
mecrilate	$C_5H_5NO_2$	137–05–3
N-methyl-methanamine	C_2H_7N	124–40–3
isocyanatomethane	C_2H_3NO	624–83–9
tribromomethane (bromoform)	$CHBr_3$	75–25–2
methanethiol (methyl mercaptan)	CH_4S	74–93–1
methyl bromide (bromomethane)	CH_3Br	74–83–9
methyl chloride	CH_3Cl	107–05–1
methyl iodide	CH_3I	74–88–4
methylamine	CH_5N	74–89–5
methylene chloride	CH_2Cl_2	75–09–2
m-nitroaniline	$C_6H_6N_2O_2$	99–09–2
montan acid wax, Zn-salts		73138–49–5
morpholine	C_4H_9NO	110–91–8
N,N,N,N",N"- pentamethyldiethylenetriamine	$C_9H_{23}N_3$	3030–47–5
1,5- diisocyanatenaphtalene	$C_{12}H_6N_2O_2$	3173–72–6
nitrocresols	$C_7H_7NO_3$	
nitrophenols	$C_6H_5NO_3$	
nitropyrens	$C_{16}H_9NO_2$	5522–43–0
nitrotoluene (all isomers)	$C_7H_7NO_2$	1321–12–6
methyl-N, 2,4,6-tetranitroanilin (tetryl)	$C_7H_5N_5O_8$	479–45–8
N- vinylpyrrolidone	C_6H_9NO	88–12–0
o- nitroaniline	$C_6H_6N_2O_2$	88–74–4
oxalic acid	$H_2C_2O_4$	144–62–7
p- benzoquinone	$C_6H_4O_2$	106–51–4
pentachlorornaphtalene	$C_{10}H_3Cl_5$	1321–64–8
phenol	C_6H_6O	108–95–2
2,4,5- trichlorophenol	$C_6H_3Cl_3O$	95–95–4
p-tert-butylphenol,	$C_{10}H_{14}O$	98–54–4
1-phenyl-1- (p-tolyl) -3-dimethylaminopropane		5632–44–0
phthalic anhydride	$C_8H_4O_3$	85–44–9
phthalonitrile	$C_8H_4N_2$	91–15–6
piperazine	$C_4H_{10}N_2$	110–85–0
p-nitroaniline	$C_6H_6N_2O_2$	100–01–6
1,2- dichloropropane	$C_3H_6Cl_2$	78–87–5
1- bromopropane	C_3H_7Br	106–94–5
2,2- dichloropropionic acid	$C_3H_3Cl_2NaO_2$	75–99–0
p-toluidine	C_7H_9N	106–49–0

pyridine	C_5H_5N	110–86–1
sodium chloroacetate, sodium salt	$ClCH_2COONa$	3926–62–3
sodium trichloroacetate	$C_2Cl_3NaO_2$	650–51–1
tetrachlorethylene	C_2Cl_4	127–18–4
thioalcohols		
thioethers		
thiourea (thiocarbamate)	CH_4N_2S	62–56–6
2,6- tolylenediisocyanate	$C_9H_6N_2O_2$	584–84–9
тrihloroaftalen		1321–65–9
trichlorobenzene (all isomers)	$C_6H_3Cl_3$	12002–48–1
trichlorethylene	C_2HCl_3	79–01–6
trichlorophenols	$C_6H_3Cl_3O$	
tricresyl phosphate (ooo,oom,oop,omm,omp,opp)	$C_{21}H_{21}O_4P$	78–30–8
triethylamine	$C_6H_{15}N$	121–44–8
trimellitic anhydride	$C_9H_4O_5$	552–30–7
tri-n-butyl phosphate	$C_{12}H_{27}O_4P$	126–73–8
trinitrotoluene (TNT)	$C_7H_5N_3O_6$	118–96–7
xylenols (other than 2,4-xylenol)	$C_8H_{10}O$	1300–71–6
toluene	C_7H_8	108-88-3
xylene	C_8H_{10}	
olefinic hydrocarbons (other than 1,3-butadiene)		
paraffinic hydrocarbons (with the exception of methane)		

Note:
Organic substances or their secondary products, which are not listed in the table above, as follows:

a) substances which are suspected of having carcinogenic or mutagenic effect,
b) substances which are suspected of causing toxic effects on reproduction, considering their effective strenght,
c) substances which are toxic or highly toxic,
d) substances which may cause irreparable damage or defects,
e) substances which can cause sensitivity by inhalation,
f) substances which have a very intensive odour,
g) substances which are slowly degradable and highly accumulative,
and which are regulated in accordance with the regulations on the chemicals shall be classified in the the hazard class I of organic substances.

Emission limit values of organic substances in the waste gas, classified in the hazard class II	100 mg/Nm^3 at the mass flow rate of 500 g/h, and higher

Organic substance in the waste gas, classified into the hazard class II include:

– 1- -bromo-3-chloropropane
– 1,1- dichloroethane

– 1,2- dichloroethylene, cis and trans
–ethanoic acid (acetic acid)
–methyl formate
–nitroethane
–nitromethane
–octamethylcyclotetrasiloxane
– 1,1,1- trichloroethane
– 1,3,5- trioxane

Emission limit values for the carcinogenic substances in the waste gas, classified in hazard classes I to III, amount to:

for hazard class I:	
–arsenic and its compounds, except arsine, expressed as As	0,05 mg/Nm^3 at the mass flow rate of 0.15 g/h, and higher
–polycyclic aromatic hydrocarbons expressed as benzo[a]pyrene	
–Cadmium and its compounds, expressed as Cd	
–cobalt compounds soluble in water, expressed as the Co	
– compounds of chromium (VI) (except barium chromate, and lead chromate), expressed as Cr	
for hazard class II:	
–acrylamide	0,5 mg/Nm^3 at the mass flow rate of 1.5 g/h and higher.
–acrylonitrile	
–dinitrotoluene	
–ethylene oxide	
–Nickel and its compounds (other than the metal nickel, nickel alloys, nickel carbonate, nickel hydroxide, nickel tetracarbonyl), expressed as Ni	
–4-Vinyl-1,2-cyclohexene diepoxide	
for hazard class III:	
–benzene	1 mg/Nm^3 at the mass flow rate of 2.5 g/h and higher.
–bromoethane	
– 1,3- butadiene	
– 1,2- dichloroethane	
– 1,2- propylene oxide (1,2-epoxypropane)	
–styrene oxide	
–o-toluidine	
–vinyl chloride,	

Note:

If the waste gas contains several carcinogenic substances belonging to the different hazard classes, the emission limit values for class II shall not be exceeded if the substances of classes I and II occur at the same time in the waste gas. The emission limit values for the class III shall not be exceeded if the substances of classes I and III, II and III or substances from class I to III occur simultaneously in the waste gas.

ANNEX 6

Reference methods for measuring emissions of pollutants and determining conditions of measurement are specified by the standards

Pollutants and the measurement requirements	Standard
Stationary source emissions - Measurement of velocity and volume flowrate of gas streams in ducts	BAS ISO 10780
Stationary source emissions - Determination of volume concentration of oxygen (O_2) - Reference method - Paramagnetism	BAS EN 14789
Stationary source emissions - Manual determination of mass concentration of particulate matter	BAS ISO 9096
Stationary source emissions - Determination of low range mass concentration of dust - Part 1: Manual gravimetric method	BAS EN 13284-1
Stationary source emissions - Automated monitoring of mass concentrations of particles - Performance characteristics, test methods and specifications	BAS ISO 10155
Stationary source emissions - Determination of low range mass concentration of dust - Part 2: Automated measuring systems	BAS EN 13284-2
Methods of testing petroleum products – Determination of smoke number in the combustion of heating oil	BAS B.H8.270
Stationary source emissions - Determination of the mass concentration of sulphur dioxide - Hydrogen peroxide/barium perchlorate/Thorin method;	BAS ISO 7934
Stationary source emissions - Determination of the mass concentration of sulphur dioxide - Hydrogen peroxide/barium perchlorate/Thorin method; Amendment 1	BAS ISO 7934/1
Stationary source emissions - Determination of mass concentration of sulphur dioxide - Reference method	BAS EN 14791
Stationary source emissions - Determination of the mass concentration of sulphur dioxide - Performance characteristics of automated measuring methods	BAS ISO 7935
Stationary source emissions - Sampling for the automated determination of gas emission concentrations for permanently-installed monitoring systems	BAS ISO 10396
Air quality - Definition and determination of performance characteristics of an automatic measuring system	BAS ISO 9169
Stationary source emissions - Determination of the total emission of As, Cd, Cr, Co, Cu, Mn, Ni, Pb, TI and V	BAS EN 14385
Stationary source emissions - Manual method of determination of HCl - Part 1: Sampling of gases	BAS EN 1911-1
Stationary source emissions - Manual method of determination of HCl - Part 2: Gaseous compounds absorption	BAS EN 1911-2
Stationary source emissions - Manual method of determination of HCl - Part 3: Absorption solutions analysis and calculation	BAS EN 1911-3

Stationary source emissions - Determination of the mass concentration of nitrogen oxides - Performance characteristics of automated measuring systems	BAS ISO 10849
Stationary source emissions - Determination of mass concentration of nitrogen oxides (NOx) - Reference method: Chemiluminescence	BAS EN 14792
Stationary source emissions - Determination of the mass concentration of total gaseous organic carbon at low concentrations in flue gases - Continuous flame ionisation detector method	BAS EN 12619
Stationary source emissions - Determination of the mass concentration of total gaseous organic carbon in flue gases from solvent using processes - Continuous flame ionisation detector method	BAS EN 13526
Stationary source emissions - Determination of the mass concentration of individual gaseous organic compounds - Sorptive sampling method followed by solvent extraction or thermal desorption	BAS EN 13649
Air quality - Stationary source emissions - Manual method of determination of the concentration of total mercury	BAS EN 13211
Stationary source emissions - Determination of the mass concentration of PCDDs/PCDFs - Part 1: Sampling	BAS EN 1948-1
Stationary source emissions - Determination of the mass concentration of PCDDs/PCDFs - Part 2: Extraction and clean-up	BAS EN 1948-2
Stationary source emissions - Determination of the mass concentration of PCDDs/PCDFs - Part 3: Identification and quantification	BAS EN 1948-3
Stationary source emissions - Quality assurance of automated measuring systems	BAS EN 14181
Stationary source emissions - Determination of the mass concentration of carbon monoxide (CO) - Reference method: Non-dispersive infrared spectrometry	BAS EN 15058
Stationary source emissions - Determination of gas and particle-phase polycyclic aromatic hydrocarbons - Part 1: Sampling Stationary source emissions - Determination of gas and particle-phase polycyclic aromatic hydrocarbons - Part 2: Sample preparation, clean-up and determination	BAS ISO 11338-1 BAS ISO 11338-2
Air quality - Determination of odour concentration by dynamic olfactometry	BAS EN 13725
Air quality - Measurement of stationary source emissions - Requirements for measurement sections and sites and for the measurement objective, plan and report	BAS EN 15259

ANNEX 7

CONTENT OF ELEMENTS OF REPORT ON EMISSION MEASUREMENTS

1) General information on the authorized professional organization performing measurements	
– name – seat – address – phone/fax – e-mail – contact person (names and signatures of the persons responsible for preparing the Report, in accordance with ISO 17025)	
2) General information on the operator and the plant in which measurements are made	
– name – seat – address – phone/fax – e-mail – registration number – registration date – contact person.	
3) Description of macro and micro-location of the plant	
–overview of macro-location of the plant – location of the facility – macro plan of the settlement in which or near which there is a facility, distance of the facility from settlements, border crossings and area of the facility, –overview of the micro-location of the plant –location of the plant in which the measurement is performed, –the layout of the facility with the position of the plant, –description of the position of the plant within the facility and similar.	
4) Description of the plant, in which the measurement is performed	
–description of the industrial facility (basic activity, the production program, capacities, manufacturing plants, storage houses and similar); –Technical data on the plant, in which a	

measurement is made (manufacturer, type, capacity, data on raw materials and supplementing materials, waste types, information on energy sources – the type and origin of the fuel, the proportion of impurities, if additives are used and similar, thermal power, dimensions, etc.); –Description of the technological process of the plant, in which the measurement is made; –Data on the plant or emission abatement equipment (description of the plant and/or emission abatament equipment, the manufacturer, technical data, etc.).	
5) Information on the position of measuring points	
–The exact position and description of the measuring points; basic data on the emitters (shape, dimension, altitude, latitude and longitude of the measuring point (or Gauss-Kruger coordinate system of measurement), etc.); photo or sketch of the position and photos of measuring points.	
6) Plan, place and time of measurement	
–Precise basic information on the performed measurements – the basis for the measurement of emissions; pollutants that are measured; date, time and place of measurement.	
7) Information about the standards applied to the measurement, measurement procedures and types of measuring devices	
–Applied standards and methods for sampling and analyzing pollutants, determined by the volume of the accreditation conditions and method of collection of the samples, description of the level of sampling and position of points of sampling; –Description of the method of determining the concentration of pollutants; –Name of the measuring device, serial number, technical specifications of the device, supporting equipment of the device; photos of the device for sampling and/or measuring or the analysis; –Data on the relevant pollutants for the plant in which the measurements are made (including those which are not measured), and the types and characteristics of the pollutants that are measured;	

–Indicate any deviations in the measurement. An explanation of why certain prescribed substance or substances are not measured; an explanation of why the measurement was not carried out in accordance with the method of measurement, as well as any other relevant deviations of the measurement results.	
8) Description of the conditions during the measurements	
–Description of the operating conditions of the plant during the measurements – capacity, textual description of the operating mode – continuous or discontinuous operation and similar; data on raw materials and fuel during the measurements and the condition of the plant and/or emission abatement equipment during the measurement.	
9) Measurement results	
–A table overview of the measured and calculated values of the process parameters and the concentration of pollutants and emission limit values (ELV) for the measured emissions of air pollutants in accordance with the Rulebook; –Overview of results as a "measured value ± measuring uncertainty", indicate the values of the quantisation limit, that is, the limit of detection; –Table comparison of the concentration of pollutants in relation to the emission limit value (in the case of fluctuations of the measurement results, an explanation of causes depending on the operating conditions of a plant, the type and characteristics of pollutants).	
10) Conclusion	
–The statement that the measured concentrations of pollutants fall within the allowed concentration limits; –. Recommendations for improving the condition if the measured values are higher than allowed.	
11) Enclosures	
–Laboratory Report on the performed measurements (if not part of the Report on the measurement of emissions); –Certificate of calibration of the device for	

sampling or the analysis, at the request by the competent authority or orderer of the measurements; –Decision of the Ministry authorizing a professional organization to perform the measurement of all measured emissions of pollutants; –Decision on accreditation of the laboratory for testing, with the list of methods for the measurement of the pollutant emissions, determined by the scope of accreditation, at the request of the competent authority or orderer of the measurements.	

REPORT ON ANNUAL EMISSION BALANCE

COMPANY INFORMATION		
Tax Identification Number (TIN)		
Company Registration Number		
Full name of the company		
Address	Place	
	Place code	
	Zip Code	
	Street and number	
	Phone	
	Fax	
	E-mail	
Municipality		
Municipality code		
Predominant activity code		

INFORMATION ON RESPONSIBLE PERSON	
Name and surname	
Function	
Phone	

INFORMATION ON THE PERSON IN THE COMPANY IN CHARGE OF EMISSION MEASUREMENT	
Name and surname	
Function	
Phone	
E-mail	

YEAR FOR WHICH DATA ARE DELIVERED	
Reporting year	

INFORMATION ON THE PLANT		
Name of the plant		
	Place	

Address[1]	Place Code	
	Zip Code	
	Street and number	
Municipality [1]		
Municipality code[1].		

[1]Data to be entered if different from company data

INFORMATION ON THE MEASURING SITE			
Number and name of the measuring site	Number		
	Name		
Source type		Energetic	☐
		Industrial	☐
Latitude and longitude [2]		N	☐☐ o ☐☐ ‘ ☐☐☐ "
		E	☐☐ o ☐☐ ‘ ☐☐☐ "
		N	☐☐ , ☐☐☐☐☐ o
		E	☐☐ , ☐☐☐☐☐ o
Altitude (mnv)			
Installed thermal power at the input (MWth)[1]			
Annual capacity utilization (%)			
Stack height (m)			
Inner diameter of the outlet at the top (m)			
Average annual temperature of the output gases (^oC)			
Average annual rate of output gasses (m/s)			
Average annual outflow (Nm^3/h)			
Operating mode of the stack		Continued	☐
		Discontinued	☐

[1] Only for energy sources

[2] One of the presented ways of marking the latitude and longitudeis to be filled in

INFORMATION ON THE OPERATIONS		
Number of operating days of the stack per year		
Number of operating hours of the stack per day		
Total number of operating hours per year		
Distribution of annual emissions per season (%)	Winter (December, January, February).	
	Spring (March, April, May)	
	Summer (June, July, August)	
	Autumn (September, October, November	

2. DATA ON THE FUEL USED[1]					
Fuel		Fuel 1	Fuel 2	Fuel 3	Fuel 4
Name of fuel					
Total annual consumption (t)					
Lower calorific value (kJ/kg)					
Fuel composition (mas. %)	combustible S				
	total S				
	N/ N+O				

[1.] Only for the energy sources

ANNUAL POLLUTANT EMISSIONS BALANCE

INFORMATION ON THE POLLUTANT EMISSIONS BALANCE				
Name of pollutant	Average annual measured value	Emitted quantity[1]		Method of determining
	mg/Nm^3	g/h	$kg/year^2$	

[1] Emitted quantities are obtained by multiplying the average annual measured values with average annual output flow and the total number of operating hours per year.

[2] Values are rounded to one decimal place. Decimal place is separated by point.

NOTES:

TEMPLATE FILLED IN BY:	
Date of filling in:	
Name and surname	
Signature	

Note 1:

When continuous measurings are performed, the operator of the combustion plant shall add data on daily quantity of all individual pollutants, based on the volume flow rate of waste gases.

Note 2:

When continuous measurings are not applied, the operator shall make an assessment of the total annual emissions in accordance with Annex 7 of this Rulebook and the requirements of the Ministry.