Translation from Finnish
Legally binding only in Finnish and Swedish
Ministry of the Environment, Finland

Government Decree on Waste Incineration

(151/2013; amendments up to 1303/2015 included)

Enacted under: sections 11, 12 and 16 of the Environmental Protection Act (86/2000); Waste Act (646/2011); as section 12 of the Environmental Protection Act stands in Acts 253/2010 and 647/2011, and section 16 in Act 252/2005

Section 1
Scope of application

(1) This Decree applies to waste incineration plants and waste co-incineration plants referred to in section 107(1) of the Environmental Protection Act (527/2014), with the exceptions laid down in subsection 2 of that section. (101/2015)

(2) A condition for the exceptions referred to in subsection 1 above is that the purified gas referred to in section 107(2)(1) of the Environmental Protection Act that is no longer waste does not contain particulate matter, mercury or other heavy metals, or sulphur, fluorine or chlorine compounds at levels higher than natural gas or other commonly used gaseous fuels when calculated according to the energy content. A further condition is that no additional measures are needed to purify the gases generated by the combustion of the purified gas to protect human health and the environment when compared to the purification of gases resulting from the combustion of natural gas at the point where purified gas is used. (1303/2015)

Section 2
Definitions

(1) For the purposes of this Decree:

1) *waste* means waste referred to in the Waste Act (646/2011);
2) *hazardous waste* means hazardous waste referred to in the Waste Act;
3) *oil waste* means waste fully or partly composed of mineral oil or synthetic oil which cannot be used for its original intended use and which includes lubricants, industrial oil or other oil;
4) *waste incineration plant* means a plant referred to in section 108(1)(1) of the Environmental Protection Act; (101/2015)

5) *waste co-incineration plant* means a plant referred to in section 108(1)(2) of the Environmental Protection Act; (101/2015)
6) *existing waste incineration plant* means a waste incineration plant that meets the following conditions:
   a) the environmental permit for the operations was granted before 28 December 2002 and the operations were started by 28 December 2003;
   b) public notice of the environmental permit for the operations was given before 28 December 2002 and the operations were started by 28 December 2004;
7) *new waste incineration plant* means a waste incineration plant other than those referred to in paragraph 6;
8) *existing waste co-incineration plant* means a waste co-incineration plant that meets the following conditions:
   a) the environmental permit for the operations was granted before 28 December 2002 and the operations were started by 28 December 2003;
   b) public notice of the environmental permit for the operations was given before 28 December 2002 and the operations were started by 28 December 2004;
   c) the environmental permit for the operations was granted and the operations were started before 28 December 2002 and the incineration of waste was started by 28 December 2004;
9) *nominal capacity* means the sum of the incineration capacities of the furnaces of which a waste incineration plant or a waste co-incineration plant is composed, as specified by the constructor and confirmed by the operator, taking into account especially the calorific value of the waste, expressed as the quantity of waste incinerated per hour;
10) *emission* means the direct or indirect release of substances, vibration, heat or noise from individual or diffuse sources in the installation into air, water or soil;
11) *emission limit value* means the mass, expressed in terms of certain specific parameters, concentration or level of emissions, which may not be exceeded during one or more periods of time;
12) *dioxins and furans* mean the polychlorinated dibenzo-p-dioxins and dibenzofurans listed in Annex 1 of this Decree;
13) *residue* means solid or liquid waste generated by processes in the waste incineration plant or waste co-incineration plant;
14) *biomass* means a substance fully or partially consisting of vegetable matter from agriculture or forestry that can be used for the purpose of recovering its energy content, and the waste types referred to in section 107(2)(2)(a) to (e) of the Environmental Protection Act. (101/2015)

(2) Waste incineration plants and waste co-incineration plants include incineration lines, waste reception, storage, on-site pretreatment facilities, waste-, fuel- and air-supply systems, boilers, facilities for the treatment of waste gases, on-site

facilities for treatment or storage of residues and waste water, stacks, and devices and systems for controlling incineration or co-incineration operations, and for recording and monitoring incineration or co-incineration conditions. (101/2015)

Section 3
Limitation concerning the incineration of oil waste

Oil waste may not be incinerated in a waste incineration plant or waste co-incineration plant with a maximum thermal input of five megawatts (5 MW).

Section 4
General requirements for the organisation of operations

(1) The provisions laid down in the Environmental Protection Act, the Waste Act and this Decree, and in the regulations of the environmental permit shall be complied with in waste incineration. (101/2015)

(2) The operator of the waste incineration plant or waste co-incineration plant shall take all necessary precautions concerning the delivery and reception of waste so as to prevent or to limit as far as practicable the pollution of air, soil, surface water and groundwater, as well as other negative effects on the environment such as odours and noise, and direct risks to human health. Infectious clinical waste shall not be mixed with other categories of waste before incineration, and it shall not be treated at the plant in other ways before being placed in the furnace.

(3) A waste incineration plant and a waste co-incineration plant, including associated waste storage facilities, shall be designed and operated in such a way so as to prevent unauthorised and accidental releases into soil, surface water and groundwater. The plant site shall have a pond or a container with sufficient storage capacity to contain contaminated rainwater run-off or contaminated water arising from spillage or fire-fighting operations. Contaminated water shall be stored in such a way to enable, where necessary, the testing and treatment of the water.

Section 4a (101/2015)
Substantial change to the operations of a waste incineration plant or a waste co-incineration plant

If the operations of a waste incineration plant or a waste co-incineration plant change so that hazardous waste is incinerated in the plant in addition to or instead of other waste, the change is always considered a substantial change to the operations that require an environmental permit.

Section 5
Person in charge of the plant

Provisions on the person in charge of a waste incineration plant and waste co-incineration plant are laid down in section 141 of the Waste Act. The supervisory authority shall be informed of who the person in charge is.

Section 6
Information on waste

(1) The operator of a waste incineration plant and a waste co-incineration plant shall ensure that the information concerning the waste received at the plant is recorded in accordance with section 22 of the Government Decree on Waste (179/2012) and that the waste is weighed by waste consignment. Where possible, the weight of the waste shall be specified using the waste classification in accordance with the list of waste referred to in section 4 of the Decree.

(2) The following information shall also be provided on hazardous waste:

1) information on the physical properties and, where possible, chemical composition of the waste, as well as other information on the suitability of the waste for the intended incineration process;
2) information on the hazardous properties of the waste, incompatible materials and other precautions to be taken during waste treatment.

(3) The provisions laid down in subsections 1 and 2 need not be complied with if the waste is generated by the operator's own activities and if the waste is incinerated in a waste incineration plant or a waste co-incineration plant located at the place of origin of the waste, and if there is an environmental permit for the operations that ensures compliance with this Decree in other respects.

Section 7
Reception requirements for hazardous waste

(1) The reception of hazardous waste at a waste incineration plant or waste co-incineration plant requires that:

1) the shipping document referred to in section 121 of the Waste Act and, where necessary, the documents specified in the provisions laid down in Regulation (EC) No 1013/2006 of the European Parliament and of the Council on shipments of waste are inspected;
2) where possible, the representative samples necessary for the verification of the information and quality assurance of the waste to be incinerated, referred to in section 6, are taken before unloading, and that these samples are stored

for a minimum period of one month after the incineration of the waste consignment.

(2) The provisions laid down in subsection 1 need not be complied with if the waste is generated by the operator's own activities and if the waste is incinerated in a waste incineration plant or a waste co-incineration plant located at the place of origin of the waste, and if there is an environmental permit for the operations that ensures compliance with this Decree in other respects.

Section 8
Recovery of energy

The heat generated by the incineration process in a waste incineration plant or a waste co-incineration plant shall be recovered as efficiently as practicable.

Section 9
Conditions for incineration

(1) Incineration of waste in a waste incineration plant shall be as complete as possible, so that the total organic carbon content of slag and bottom ashes is less than three per cent or their loss on ignition is less than five per cent of the dry weight of the material. Where necessary, waste shall be pretreated before incineration to ensure this.

(2) A waste incineration plant and a waste co-incineration plant shall be designed, built, equipped and operated so that the temperature of combustion gases is raised in a controlled and homogeneous fashion, even under the most unfavourable conditions, to a temperature of at least 850 °C for at least two seconds, measured near the inner wall of the combustion chamber or at another representative point of the combustion chamber, as specified in the environmental permit. The temperature referred to above shall be achieved at the waste incineration plant after the last injection of combustion air.

(3) If hazardous waste with a content of more than one per cent of halogenated organic substances, expressed as chlorine, is incinerated at a waste incineration plant or a waste co-incineration plant, the temperature shall be raised to at least 1,100 °C for at least two seconds.

Section 10
Burners and their use

(1) Each combustion chamber of a waste incineration plant shall be equipped with at least one auxiliary burner. The auxiliary burner shall be automatically activated when the temperature of the combustion gas after the last injection of combustion air falls below 850 °C or, when burning hazardous waste with a

content of more than one per cent of halogenated organic substances, expressed as chlorine, falls under 1,100 °C, or when the temperature falls below the temperature specified under section 12. The auxiliary burner shall also be used during the start-up and shut-down operations in order to ensure that these temperatures are maintained and for as long as unburned waste is in the combustion chamber.

(2) The auxiliary burner shall not be fed with fuels which can cause higher emissions than those resulting from the burning of fuels referred to in the Government Decree on the Sulphur Content of Heavy Fuel Oil, Light Fuel Oil and Marine Gas Oil (689/2006), or of liquefied or natural gas.

Decree 689/2006 has been repealed by Decree 413/2014, which entered into force on 18 June 2014.

Section 11
Feeding waste into the combustion chamber

A waste incineration plant or a waste co-incineration plant shall have in operation an automatic system to prevent the feeding of waste:

1) at start-up, until the temperature of the combustion gas has reached 850 °C, or 1,100 °C when burning hazardous waste with a content of more than one per cent of halogenated organic substances, expressed as chlorine, or until the temperature specified under section 12 has been achieved;
2) during incineration, when the temperature falls below 850 °C, or below 1,100 °C when burning hazardous waste with a content of more than one per cent of halogenated organic substances, expressed as chlorine, or when the temperature falls below the temperature specified under section 12;
3) during incineration, whenever continuous measurements show that any emission limit value is exceeded due to disturbances or failures of the purification devices for waste gas.

Section 12
Determining the conditions for incineration in the environmental permit

(1) If a waste incineration plant only burns waste belonging to certain waste categories or uses certain thermal treatment processes and if compliance with the provisions laid down in this Decree can be verified by other means, the requirements for temperature or residence time laid down in sections 9 to 11 can be deviated from in the environmental permit, provided that the resulting quantity of residue or organic pollutants contained within the residue does not exceed the quantity produced when the requirements of sections 9 and 10 are complied with.

(2) If a waste co-incineration plant only burns waste belonging to certain waste categories or uses certain thermal treatment processes and if compliance with the provisions laid down in this Decree can be verified by other means, the requirements for temperature or residence time laid down in sections 9 and 11 can be deviated from in the environmental permit, provided that the limit values for total organic carbon content and carbon monoxide set out in Annex 2 of this Decree are not exceeded. However, if the waste co-incineration plant is a bark boiler within the pulp and paper industry, burning waste at its place of origin, and if the plant has been in operation and its environmental permit has been granted before 28 December 2002, the requirements for temperature or residence time referred to above can be deviated from in the environmental permit, provided that the emission limit values for total organic carbon content set out in Annex 2 of this Decree are not exceeded.

Section 13
Discharge of emissions to air

A waste incineration plant and a waste co-incineration plant shall be designed, built, equipped and operated so as to prevent the discharge of emissions to air that would cause notable air pollution at ground level. Waste gases shall be discharged in a controlled way by means of a stack. The height of the stack shall be determined with regard to the provisions laid down in the Government Decree on Air Quality (38/2011) and in such a way as to prevent the operations from causing a health hazard or other considerable environmental damage or risk thereof.

Section 14
Limit values on air emissions

(1) A waste incineration plant and a waste co-incineration plant burning untreated mixed municipal waste, referred to in section 6(1)(3) of the Waste Act, or hazardous waste shall be designed, built, equipped and operated so that the pollutant concentrations of waste gases do not exceed the emission limit values specified in Annex 2 of this Decree.

(2) A waste co-incineration plant other than those referred to in subsection 1 shall be designed, built, equipped and operated so that the pollutant concentrations of waste gases do not exceed the emission limit values specified in Annex 3 of this Decree.

(3) The results from the measurements taken to monitor compliance with the emission limit values shall be converted in accordance with section 20.

Section 15
Limit values on discharges to water

(1) Discharges to the aquatic environment of waste water resulting from the cleaning of waste gases shall be prevented as far as possible, as laid down in the environmental permit.

(2) The pollution concentration of waste water resulting from the cleaning of waste gases shall not exceed the emission limit values specified in Annex 4 of this Decree. Waste water may not be diluted for the purpose of meeting the emission limit values.

(3) Emission limit values shall be measured at the point where the waste water resulting from the cleaning of waste gases is discharged from the waste incineration plant or the waste co-incineration plant. Where the waste water is treated off site of the plant, at a treatment plant intended only for the treatment of this sort of waste water, the emission limit values shall in any case be measured where the waste water is discharged from the treatment plant.

(4) Where the waste water resulting from the cleaning of waste gases is treated collectively with other sources of waste water, either on site or off site, the operator shall make the appropriate mass balance calculations to determine the emission limit values in the final waste water discharge that can be attributed to the waste water arising from the cleaning of waste gases. In order to perform the calculations, the measurements shall be taken from:

1) the waste water stream resulting from the cleaning of the waste gas prior to its input into the collective waste water treatment plant;
2) a waste water stream other than that referred to in paragraph 1 prior to its input into the collective waste water treatment plant;
3) the point of final waste water discharge after the treatment.

Section 16
Treatment of residues

(1) The quantity of residues shall be minimised and they shall be rendered as harmless as possible. Where possible, residues shall be recycled immediately on site or by other means, as laid down in the environmental permit.

(2) Dry residues in the form of dust, such as boiler ash and dry residues from the treatment of waste gases, shall be transported and placed in intermediate storage in such a way as to prevent dispersal of those residues in the environment.

(3) The physical and chemical properties and detrimental environmental effects of the waste shall be analysed before determining the method for treating residues. The analysis shall concern the total soluble fraction and the soluble fraction of heavy metals in the residue.

Section 17
Requirements for the measurement system

(1) Before granting the environmental permit, it shall be ensured that the methods for measuring emissions to air and water proposed in the permit application comply with Annex 5 of this Decree.

(2) The measurement equipment and methods used at a waste incineration plant and a waste co-incineration plant shall be such so as to enable monitoring of the parameters, conditions and emissions that are relevant to the incineration process.

(3) The supervisory authority shall ensure that the automated equipment used for the monitoring of emissions to air and water has been installed appropriately. Furthermore, the supervisory authority shall ensure that the equipment is functional and that annual surveillance tests are conducted. The equipment shall be calibrated by means of parallel measurements with the reference methods at least once every three years.

Section 18
Measurements of emissions to air

(1) Emissions to air from a waste incineration plant and a waste co-incineration plant shall be measured as follows, in accordance with Annex 5 of this Decree:

1) continuous measurements of the following pollutants:
   a) nitrogen oxides (NO_x), where subject to emission limit values in the environmental permit;
   b) carbon monoxide (CO);
   c) total dust;
   d) total organic carbon (TOC);
   e) hydrochloric acid (HCl);
   f) hydrogen fluoride (HF);
   g) sulphur dioxide (SO_2);

2) continuous measurements of the following process operational parameters:
   a) temperature near the inner wall or at another representative point of the combustion chamber, as specified in the environmental permit or in the decision concerning a monitoring plan provided in the permit;

b) oxygen content, pressure, temperature and water vapour content of the waste gas;

3) at least two measurements per year of heavy metals, dioxins and furans; one measurement at least every three months shall, however, be carried out for the first 12 months of operation.

(2) The residence time, as well as the minimum temperature and the oxygen content of the waste gases, shall be subject to appropriate verification, at least once when the plant is brought into service and under the most unfavourable operating conditions anticipated.

Section 19
Special provisions for the measurement of emissions into the air

(1) The following measurements referred to in section 18 are not required at a waste incineration plant and a waste co-incineration plant:

1) the continuous measurement of hydrogen fluoride (HF), if treatment stages for hydrochloric acid (HCl) are used which ensure that the emission limit value for hydrochloric acid is not exceeded and that periodic measurements are taken of emissions of hydrogen fluoride, as laid down in section 18(1)(3);
2) the continuous measurement of the water vapour content, if the sampled waste gas is dried before the emissions are analysed;
3) continuous measurements of hydrochloric acid (HCl), hydrogen fluoride (HF) and sulphur dioxide (SO_2), if the operator can prove that the emissions of these pollutants can under no circumstances exceed the prescribed emission limit values and if periodic measurements are taken of the emissions of these pollutants, as necessary, and as laid down in section 18(1)(3);
4) continuous measurements of nitrogen oxides (NO_X) at an existing waste incineration plant or an existing waste co-incineration plant with a nominal capacity of less than six tonnes per hour, if the operator can prove, on the basis of information on the quality of the waste concerned, the technologies used and the results of the monitoring of emissions, that the emissions of nitrogen oxides can under no circumstances be higher than the prescribed emission limit values and that the emissions of nitrogen oxides are subject to periodic measurements, as laid down in section 18(1)(3).

(2) The frequency of the periodic measurements for heavy metals laid down in section 18(1)(3) above can be extended to be once every two years and the frequency of the periodic measurements for dioxins and furans to once per year if:

1) emissions from the incineration of waste are under all circumstances less than 50 per cent of the emission limit values for heavy metals, dioxins and furans set out in Annexes 2 and 3 of this Decree; or
2) the waste to be incinerated consists only of certain sorted combustible fractions of non-hazardous waste not suitable for recycling and the operator can reliably prove, on the basis of the quality of the waste and measurements of emissions taken during the incineration of similar kinds of waste, that the emissions are under all circumstances clearly below the emission limit values for heavy metals, dioxins and furans set out in Annexes 2 and 3 of this Decree.

(3) In the cases referred to in subsection 1(3) and (4) above, the environmental permit shall contain separate regulations on measurements. In the cases referred to in subsection 2 above, the environmental permit shall contain separate regulations on the quality and properties of the waste and the frequency of measurements.

Section 20
Conversion of measurement results to verify the air emission limit values

(1) The measurement results for air emissions shall be converted by using the standard oxygen contents referred to in Annex 2, or by applying the procedure set out in Annex 3 or the formula in Annex 6.

(2) When waste is incinerated in an oxygen-enriched atmosphere, the results of the measurements can be determined with the oxygen content laid down in the environmental permit, reflecting the special circumstances of the incineration process.

(3) The standardisation of oxygen content with respect to the conversion of the measurement results for pollutants in emissions, referred to in subsection 1, shall be done at a waste incineration plant and a waste co-incineration plant burning hazardous waste only if the oxygen content measured over the same period as for the polluting substance concerned exceeds the standard oxygen content.

Section 21
Measurements of discharges to water

(1) The measurements of discharges to water from a waste incineration plant and a waste co-incineration plant, along with other waste water monitoring, shall be carried out in accordance with the Environmental Protection Act and the provisions laid down under it.

(2) The following measurements shall be taken at the point of waste water discharge, in accordance with Annex 5 of this Decree:

1) continuous measurements of the acidity, temperature and flow of waste water;
2) spot sample daily measurements of total solids or measurements of a flow proportional representative sample over a period of 24 hours, as provided in the environmental permit;
3) at least monthly measurements of a flow proportional representative sample of the discharge over a period of 24 hours of the pollutants 2 to 10 specified in Annex 4 of this Decree; and
4) at least one measurement of dioxins and furans every six months; however, one measurement at least every three months shall be taken for the first 12 months of operation.

Section 22
Recording the results of measurements

The measurement results shall be recorded, processed and presented so that the supervisory authority can verify, where necessary, that the operational requirements and emission limit values provided in the environmental permit are complied with.

Section 23
Comparison of the measurement results of air emissions with the limit values

(1) The air emission limit values are not exceeded if:

1) none of the daily average values exceeds the emission limit values referred to in Annex 2, point 1, of this Decree, or the emission limit values determined with the procedures set out in Annex 3;
2) 97 per cent of the daily average value measured over the year does not exceed the emission limit value specified in Annex 2, point 5, first paragraph, first indent, of this Decree;
3) none of the half-hourly average values exceeds the emission limit values specified in Annex 2, point 2, column A, or 97 per cent of the half-hourly average values measured over the year do not exceed the emission limit values specified in Annex 2, point 2, column B, of this Decree;
4) none of the measurement results for heavy metals, dioxins and furans exceeds the emission limit values specified in Annex 2, points 3 and 4, or the emission limit values determined with the procedures set out in Annex 3 of this Decree; and
5) the emission limit values specified in Annex 2, point 5, first paragraph, second and third indents, or the emission limit values determined with the procedures set out in Annex 3 of this Decree are complied with in other respects.

(2) The half-hourly and ten-minute average values shall be determined within the effective operating time from the measured values after having subtracted the value of the confidence interval values specified in Annex 5 of this Decree. The daily average values shall be calculated based on the average of these. The effective operating time does not include start-up and shut-down phases, unless they involve waste incineration.

(3) To obtain a representative daily average value, referred to in subsection 2, no more than five half-hourly average values in any day shall be discarded due to malfunction or maintenance of the continuous measurement system. For the same reason, no more than ten daily average values per year shall be discarded in continuous measurements.

(4) The average values of measurements taken during sampling, as well as the average values of periodic measurements of hydrogen fluoride (HF), hydrochloric acid (HCl) and sulphur dioxide (SO_2), shall be determined in accordance with the requirements laid down in section 18(1)(3) and Annex 5 of this Decree.

Section 24

Comparison of the measurement results for water discharges with the limit values

The limit values for water discharges are not exceeded if:

1) the measurement results for total solids do not exceed the relevant emission limit values specified in Annex 4 of this Decree;
2) no more than one measurement result per year with respect to heavy metals exceeds the emission limit values specified in Annex 4 of this Decree, or if it is provided in the environmental permit that more than 20 samples per year are to be taken, no more than five per cent of these samples exceed the emission limit values specified in Annex 4 of this Decree; and
3) the measurement results for dioxins and furans do not exceed the emission limit values specified in Annex 4 of this Decree.

Section 25

Notification of the exceedance of limit values

If the measurements taken show that the emission limit values laid down in this Decree have been exceeded, the operator shall notify the supervisory authority without delay.

Section 26
Provision of information

(1) The supervisory authority shall have an up-to-date list of the waste incineration plants and waste co-incineration plants in its area of operation, and shall publish it online.

(2) The operator of a waste incineration plant and a waste co-incineration plant shall draw up a report on the operations at the plant and submit it to the supervisory authority annually. The report shall describe at least the operating process and the emissions to air and water, with reference to the emission limit values specified in this Decree and the environmental permit. The reports shall be made available to the public. The supervisory authority shall publish the reports online.

Section 27
Exceptional conditions of use

(1) Provisions shall be given in the environmental permit on the maximum permissible period of any technically unavoidable stoppages, disturbances, or failures of the purification devices, during which emissions to air and discharges to water may exceed the prescribed emission limit values and during which these devices may be out of service.

(2) In the case of a breakdown of the purification devices, the operator shall restrict or suspend operations as soon as practicable until normal operations can be restored.

(3) A waste incineration plant or a waste co-incineration plant, or an individual incinerator that is part of such plants, shall under no circumstances continue to incinerate waste for a period of more than four hours uninterrupted, when emission limit values are exceeded. The cumulative duration of operation in such conditions in incinerators that are linked to one single waste gas purification device for the entire plant shall not exceed 60 hours per year. In cases referred to in this subsection, it shall be ensured that the requirements laid down in section 11(3) are complied with in other respects.

(4) The total dust content of air emissions a waste incineration plant shall under no circumstances exceed 150 $mg/m^3(n)$, expressed as a half-hourly average value. Similarly, the limit values for total emissions of carbon monoxide and organic carbon to air shall not be exceeded. All the other requirements referred to in section 5 and sections 9 to 13 shall be met.

Section 28
Compliance with the best available techniques

A permit granted for a waste incineration plant or a waste co-incineration plant may contain requirements that are stricter than the minimum requirements laid down in this Decree, where this is necessary for compliance with the best available techniques. Plants processing the following types of waste may be subject to such permit requirements:

1) hazardous waste, if the nominal capacity of the plant exceeds ten tonnes per day;
2) other waste, if the nominal capacity of the plant exceeds three tonnes per hour.

Section 29
Entry into force

(1) This Decree enters into force on 20 February 2013.

(2) This Decree repeals:

1) the Government Decree on Incineration of Waste (362/2003);
2) section 6 of the Government Decision on Oil Waste Management (101/1997).

Helsinki, 14 February 2013

Ville Niinistö, Minister of the Environment

Klaus Pfister, Senior Environmental Adviser

Decree 1303/2015 amending this Decree entered into force on 1 December 2015.

Decree 101/2015 amending this Decree entered into force on 20 February 2015.

Annex 1

Equivalence factors for dibenzo-p-dioxins and dibenzofurans

For the determination of the total concentration of dioxins and furans, the mass concentrations of the following dibenzo-p-dioxins and dibenzofurans shall be multiplied by the following equivalence factors before summing:

		Toxic equivalence factor
2,3,7,8	Tetrachlorodibenzodioxin (TCDD)	1
1,2,3,7,8	Pentachlorodibenzodioxin (PeCDD)	0.5
1,2,3,4,7,8	Hexachlorodibenzodioxin (HxCDD)	0.1
1,2,3,6,7,8	Hexachlorodibenzodioxin (HxCDD)	0.1
1,2,3,7,8,9	Hexachlorodibenzodioxin (HxCDD)	0.1
1,2,3,4,6,7,8	Heptachlorodibenzodioxin (HpCDD)	0.01
	Octachlorodibenzodioxin (OCDD)	0.001
2,3,7,8	Tetrachlorodibenzofuran (TCDF)	0.1
2,3,4,7,8	Pentachlorodibenzofuran (PeCDF)	0.5
1,2,3,7,8	Pentachlorodibenzofuran (PeCDF)	0.05
1,2,3,4,7,8	Hexachlorodibenzofuran (HxCDF)	0.1
1,2,3,6,7,8	Hexachlorodibenzofuran (HxCDF)	0.1
1,2,3,7,8,9	Hexachlorodibenzofuran (HxCDF)	0.1
2,3,4,6,7,8	Hexachlorodibenzofuran (HxCDF)	0.1
1,2,3,4,6,7,8	Heptachlorodibenzofuran (HpCDF)	0.01
1,2,3,4,7,8,9	Heptachlorodibenzofuran (HpCDF)	0.01
	Octachlorodibenzofuran (OCDF)	0.001

Annex 2

Air emission limit values for waste incineration plants

The calculation of emission limit values shall be done at a temperature of 273.15 K and a pressure of 101.3 kPa, after correcting for the water vapour content of the waste gases.

The waste gas limit values shall be standardised at an oxygen content of 11 per cent, unless the waste being incinerated is oil waste, in which case the limit values shall be standardised at an oxygen content of 3 per cent, or in a case referred to in section 20(2) or (3).

1. Daily average values

Pollutant	Limit value, $mg/m^3(n)$
Total dust	10
Gaseous and vaporous organic substances, expressed as total organic carbon (TOC)	10
Hydrochloric acid (HCl)	10
Hydrogen fluoride (HF)	1
Sulphur dioxide (SO_2)	50
Nitrogen monoxide (NO) and nitrogen dioxide (NO_2), expressed as nitrogen dioxide; for existing waste incineration plants with a nominal capacity exceeding 6 tonnes per hour, or new waste incineration plants	200
Nitrogen monoxide (NO) and nitrogen dioxide (NO_2), expressed as nitrogen dioxide; for existing waste incineration plants with a nominal capacity not exceeding 6 tonnes per hour	400

2. Half-hourly average values

Pollutant	Limit value, $mg/m^3(n)$	
	(100%) A	(97%) B
Total dust	30	10
Gaseous and vaporous organic substances, expressed as total organic carbon (TOC)	20	10
Hydrochloric acid (HCl)	60	10
Hydrogen fluoride (HF)	4	2
Sulphur dioxide (SO_2)	200	50
Nitrogen monoxide (NO) and nitrogen dioxide (NO_2), expressed as nitrogen dioxide; for existing waste incineration plants with a nominal capacity exceeding 6 tonnes per hour, or new waste incineration plants	400	200

3. All average values measured over the sampling period of a minimum of 30 minutes and a maximum of eight hours

Pollutant	Limit value, $mg/m^3(n)$
Cadmium and its compounds, expressed as cadmium (Cd)	total
Thallium and its compounds, expressed as thallium (Tl)	0.05
Mercury and its compounds, expressed as mercury (Hg)	0.05
Antimony and its compounds, expressed as antimony (Sb)	total 0.5
Arsenic and its compounds, expressed as arsenic (As)	
Lead and its compounds, expressed as lead (Pb)	
Chromium and its compounds, expressed as chromium (Cr)	
Cobalt and its compounds, expressed as cobalt (Co)	
Copper and its compounds, expressed as copper (Cu)	
Manganese and its compounds, expressed as manganese (Mn)	
Nickel and its compounds, expressed as nickel (Ni)	
Vanadium and its compounds, expressed as vanadium (V)	

The limit values in the table cover also the gaseous and vapour forms of the relevant heavy metal emissions, as well as their compounds.

4. Dioxins and furans

The average values shall be determined over the sampling period of a minimum of six hours and a maximum of eight hours. The limit value applies to the total dioxin and furan content, determined as toxic equivalents in accordance with Annex 1.

Pollutant	Limit value, $ng/m^3(n)$
Dioxins and furans	0.1

5. Carbon monoxide

The following carbon monoxide (CO) limit values shall not be exceeded in the waste gas:
– 50 mg/m^3(n) of waste gas, as a daily average value,
– 100 mg/m^3(n) of waste gas, in all measurements determined as half-hourly average values,
– 150 mg/m^3(n) of waste gas, in at least 95 per cent of all measurements determined as ten-minute average values.

The limit value shall not be exceeded in any 24-hour period in the cases specified above in the second and third indents of paragraph 1. A seven-day assessment period for the ten-minute average values may be applied to waste incineration plants in which the waste gas resulting from the incineration process is raised to a temperature of at least 1,100 °C for at least two seconds.

The environmental permit may exempt a waste incineration plant that uses fluidised bed technology from the requirements laid down in this point above, provided that the permit for the plant sets out the maximum emission limit value for carbon monoxide from the plant as 100 mg/m^3(n), as an hourly average value.

Annex 3

Determination of air emission limit values for waste co-incineration plants

The limit values for waste co-incineration plants shall be determined using the calculation formula specified in point 1 of this Annex (mixing rule) whenever a specific total emission limit value 'C' has not been set out in points 2 to 4 of this Annex.

1. Calculation of emission limit values

The limit value for each pollutant and for carbon monoxide in the waste gas is determined as follows:

$$\frac{V_{waste} \times C_{waste} + V_{process} \times C_{process}}{V_{waste} + V_{process}} = C$$

V_{waste}: waste gas volume resulting from the incineration of waste only determined from the waste with the lowest calorific value specified in the permit and converted as per the conditions given by this Decree.

C_{waste}: emission limit values for waste incineration plants for the relevant pollutants and carbon monoxide set out in Annex 2.

$V_{process}$: waste gas volume resulting from the plant process including the combustion of the authorised fuels normally used in the plant (wastes excluded) determined on the basis of oxygen contents laid down in this Decree. In the absence of provisions for this kind of plant, the real oxygen content in the waste gas without being thinned by the addition of air unnecessary for the process must be used. Provisions on conversions under other circumstances are laid down in this Decree.

$C_{process}$: emission limit values for certain industrial sectors set out in points 2 to 4 of this Annex, or in the absence of such limit values, emission limit values for the relevant pollutants and carbon monoxide in the waste gases, which are laid down in other legal provisions, from such plants while burning the normally authorised fuels (wastes excluded. In the absence of such provisions the real permit values are used. In the absence of such permit values the real mass concentrations are used.

C: total emission limit values set out in points 2 to 4 of this Annex for certain industrial sectors and certain pollutants, or in the absence of such limit values, total emission limit values for carbon monoxide and the relevant pollutants replacing the emission limit values, which are set out in the annexes of this Decree. The total oxygen content to replace the oxygen content for the conversion is calculated on the basis of the content above, respecting the partial volumes.

The calculation of emission limit values shall be done at a temperature of 273.15 K and a pressure of 101.3 kPa, after correcting for the water vapour content of the waste gases.

2. Special provisions for cement kilns

The emission limit values set out in 2.1 and 2.2 below apply as daily average values for total dust, hydrochloric acid (HCl), hydrogen fluoride (HF), nitrogen oxides (NO_x), sulphur dioxide (SO_2) and total organic carbon (TOC) (for continuous measurements), as average values over a sampling period of a minimum of 30 minutes and a maximum of eight hours for heavy metals, and as average values over a sampling period of a minimum of six hours and a maximum of eight hours for dioxins and furans. Half-hourly average values shall only be needed in view of calculating the daily average values.

In order to verify compliance with the emission limit values, the measurement results shall be converted to an oxygen content of 10 per cent.

2.1 Total emission limit values (C)

Pollutant	C, $mg/m^3(n)$ except for dioxins and furans
Total dust	30
HCl	10
HF	1
NO_x	500
Cd + Tl	0.05
Hg	0.05
Sb + As + Pb + Cr + Co + Cu + Mn + Ni + V	0.5
Dioxins and furans	0.1 $ng/m^3(n)$

Until 1 January 2016, exemptions from the limit value for NO_x for Lepol kilns and long rotary kilns may be authorised in the environmental permit provided that the permit sets a total emission limit value for NO_x that does not exceed 800 $mg/m^3(n)$.

2.2 Total emission limit values (C) for sulphur dioxide (SO_2) and total organic carbon (TOC)

Pollutant	C, $mg/m^3(n)$
SO_2	50
TOC	10

Other limit values may be provided in the environmental permit where the TOC and SO_2 originate from operations other than waste incineration.

2.3 Total emission limit values (C) for carbon monoxide (CO)

Emission limit values for CO can be provided in the environmental permit.

3. Special provisions for combustion plants

In order to determine the limit values referred to under this point, combustion plants are divided into two categories as follows:

a) a combustion plant in operation for which an environmental permit has been granted before 20 February 2013, or a plant for which the application for an environmental permit has been publicly announced before 20 February 2013 and which has been taken into operation at the latest by 20 February 2013, from here on *a-type combustion plant;*

b) a combustion plant other than the ones referred to above, from here on *b-type combustion plant.*

Provisions on the determination of the thermal input of a waste co-incineration plant are laid down in section 109 of the Environmental Protection Act. Half-hourly average values shall only be needed for calculating the daily average values. (101/2015)

3.1 $C_{process}$ limit values for a-type combustion plants, expressed as daily average values, by 31 December 2015

$C_{process}$ for solid fuels, biomass excluded, expressed in $mg/m^3(n)$ (oxygen content 6%):

Pollutant	Thermal input (P), MWth			
	P < 50	50 ≤ P ≤ 100	100 < P ≤ 300	P > 300
SO_2				
Total solid fuels		850	200	200
Peat		400	400–200 (linear decrease from 100 to 300 MWth)	200
NO_x		400	200	150
Dust	50	50	30	30

$C_{process}$ for biomass, expressed in $mg/m^3(n)$ (oxygen content 6%):

Pollutant	Thermal input (P), MWth			
	P < 50	50 ≤ P ≤ 100	100 < P ≤ 300	P > 300
SO_2		200	200	200
NO_x		350	300	150
Dust	50	50	30	30

$C_{process}$ for liquid fuel, expressed in mg/m^3(n) (oxygen content 3%):

Pollutant	Thermal input (P), MWth			
	P < 50	50 ≤ P ≤ 100	100 < P ≤ 300	P > 300
SO_2		850	400–200 (linear decrease from 100 to 300 MWth)	200
NO_x		400	200	175
Dust	50	50	30	30

3.2 $C_{process}$ limit values, expressed as daily average values, for a-type combustion plants from 1 January 2016 and for b-type combustion plants from 20 February 2013

3.2.1 $C_{process}$ for a-type combustion plants, excluding gas turbines and gas engines

$C_{process}$ for solid fuels, biomass excluded, expressed in mg/m^3(n) (oxygen content 6%):

Pollutant	Thermal input (P), MWth			
	P < 50	50 ≤ P ≤ 100	100 < P ≤ 300	P > 300
SO_2		400 peat: 300	200 peat: 200	200
NO_x		300	200	150
Dust	50	30	25 peat: 20	20

$C_{process}$ for biomass, expressed in mg/m^3(n) (oxygen content 6%):

Pollutant	Thermal input (P), MWth			
	P < 50	50 ≤ P ≤ 100	100 < P ≤ 300	P > 300
SO_2		200	200	200
NO_x		300	250	150
Dust	50	30	20	20

$C_{process}$ for liquid fuels, expressed in mg/m^3(n) (oxygen content 3%):

Pollutant	Thermal input (P), MWth			
	P < 50	50 ≤ P ≤ 100	100 < P ≤ 300	P > 300
SO_2		350	250	200
NO_x		400	200	150
Dust	50	30	25	20

3.2.2 $C_{process}$ for b-type combustion plants, excluding gas turbines and gas engines

$C_{process}$ for solid fuels, biomass excluded, expressed in mg/m^3(n) (oxygen content 6%):

Pollutant	Thermal input (P), MWth			
	P < 50	50 ≤ P ≤ 100	100 < P ≤ 300	P > 300
SO_2		400 peat: 300	200 peat: 300 except in the case of fluidised bed combustion: 250	150 For circulating or pressurised fluidised bed combustion or, in the case of peat firing, for all fluidised bed combustion: 200
NO_x		300 peat: 250	200	150
Dust	50	20	20	10 peat: 20

$C_{process}$ for biomass, expressed in mg/m^3(n) (oxygen content 6%):

Pollutant	Thermal input (P), MWth			
	P < 50	50 ≤ P ≤ 100	100 < P ≤ 300	P > 300
SO_2		200	200	150
NO_x		250	200	150
Dust	50	20	20	20

$C_{process}$ for liquid fuels, expressed in mg/m^3(n) (oxygen content 3%):

Pollutant	Thermal input (P), MWth			
	P < 50	50 ≤ P ≤ 100	100 < P ≤ 300	P > 300
SO_2		350	200	150
NO_x		300	150	100
Dust	50	20	20	10

3.3 Total emission limit values (C) (oxygen content 6%, for solid and liquid fuels)

All average values measured over the sample period of a minimum of 30 minutes and a maximum of eight hours are as follows:

Pollutant	C, $mg/m^3(n)$
Cd +Tl	0.05
Hg	0.05
Sb +As +Pb +Cr +Co +Cu +Mn +Ni +V	0.5

All average values measured over the sample period of a minimum of six hours and a maximum of eight hours are as follows:

Pollutant	C, $ng/m^3(n)$
Dioxins and furans	0.1

4. Special provisions for plants in industrial sectors other than those referred to in points 2 and 3

4.1 Total emission limit values (C)

All average values measured over the sample period of a minimum of six hours and a maximum of eight hours are as follows:

Pollutant	C, $ng/m^3(n)$
Dioxins and furans	0.1

All average values measured over the sample period of a minimum of 30 minutes and a maximum of eight hours are as follows:

Pollutant	C, $mg/m^3(n)$
Cd +Tl	0.05
Hg	0.05

Annex 4

Emission limit values for discharges of waste water from the cleaning of waste gases

Pollutant	Emission limit values expressed in mass concentrations (mg/l) for unfiltered samples, excluding dioxins and furans	
1. Total solids	(95%) 30	(100%) 45
2. Mercury and its compounds, expressed as mercury (Hg)	0.03	
3. Cadmium and its compounds, expressed as cadmium (Cd)	0.05	
4. Thallium and its compounds, expressed as thallium (Tl)	0.05	
5. Arsenic and its compounds, expressed as arsenic (As)	0.15	
6. Lead and its compounds, expressed as lead (Pb)	0.2	
7. Chromium and its compounds, expressed as chromium (Cr)	0.5	
8. Copper and its compounds, expressed as copper (Cu)	0.5	
9. Nickel and its compounds, expressed as nickel (Ni)	0.5	
10. Zinc and its compounds, expressed as zinc (Zn)	1.5	
11. Dioxins and furans	0.3 ng/l	

Solids refer to solids within the meaning of the Government Decree on Urban Waste Water Treatment (888/2006).

Annex 5

Measurement methods

Measurements taken for the determination of concentrations of pollutants in emissions to air and water shall be done representatively.

Sampling and analysis of all pollutants, including dioxins and furans, as well as the quality assurance of automated measurement systems and the reference measurement methods used to calibrate them, shall be carried out in accordance with CEN standards. If CEN standards are not available, ISO standards, national standards or international standards which ensure the provision of data of an equivalent scientific quality shall be used.

For daily average emission values, the values of the 95% confidence intervals of a single measured result shall not exceed the following percentages:

Carbon monoxide (CO)	10%
Sulphur dioxide (SO_2)	20%
Nitrogen dioxide (NO_2)	20%
Total dust	30%
Total organic carbon	30%
Hydrochloric acid (HCl)	40%
Hydrogen fluoride (HF)	40%

Annex 6

Formula to calculate the emission concentration at the standard percentage oxygen concentration

$$E_S = \frac{21 - O_S}{21 - O_M} \times E_M$$

E_S = calculated emission concentration at the standard percentage oxygen concentration
E_M = measured emission concentration
O_S = standard oxygen concentration
O_M = measured oxygen concentration