

## **DIRECTIVE 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control)<sup>1,2</sup>**

Incorporated and adapted by Ministerial Council Decision 2013/06/MC-EnC of 24 October 2013 on the implementation of Chapter III, Annex V, and Article 72(3)-(4) of Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control) and amending Article 16 and Annex II of the Energy Community Treaty and adapted by Ministerial Council Decision 2015/06/MC-EnC of 16 October 2015 on the implementation of Chapter III, Annex V, and Article 72(3)-(4) of Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control) for existing combustion plants and amending Annex II of the Energy Community Treaty.

*The adaptations made by Ministerial Council Decision 2013/06/MC-EnC are highlighted in **bold and blue**.*

### **CHAPTER III SPECIAL PROVISIONS FOR COMBUSTION PLANTS**

#### **Article 28**

##### **Scope**

This Chapter shall apply to combustion plants, the total rated thermal input of which is equal to or greater than 50 MW, irrespective of the type of fuel used.

This Chapter shall not apply to the following combustion plants:

- (a) plants in which the products of combustion are used for the direct heating, drying, or any other treatment of objects or materials;
- (b) post-combustion plants designed to purify the waste gases by combustion which are not operated as independent combustion plants;
- (c) facilities for the regeneration of catalytic cracking catalysts;
- (d) facilities for the conversion of hydrogen sulphide into sulphur;
- (e) reactors used in the chemical industry;
- (f) coke battery furnaces;
- (g) cowpers;
- (h) any technical apparatus used in the propulsion of a vehicle, ship or aircraft;
- (i) gas turbines and gas engines used on offshore platforms;
- (j) plants which use any solid or liquid waste as a fuel other than waste referred to in point (b) of point 31 of Article 3.

<sup>1</sup> Since Ministerial Council Decision 2013/06/MC-EnC incorporated only Chapter III, Annex V, and Article 72(3)-(4) of Directive 2010/75/EU into the Energy Community acquis communautaire, only the text of those provisions are displayed here.

<sup>2</sup> Recommendation 2018/03/MC-EnC to prepare the implementation of Chapter II, Chapter IV and Annex VI of Directive 2010/75/EU has incorporated other parts of this Directive into the Energy Community acquis communautaire, albeit in a non-legally binding manner.

### **Article 29**

#### **Aggregation rules**

1. Where the waste gases of two or more separate combustion plants are discharged through a common stack, the combination formed by such plants shall be considered as a single combustion plant and their capacities added for the purpose of calculating the total rated thermal input.
2. Where two or more separate combustion plants which have been granted a permit for the first time on or after 1 July 1987, or the operators of which have submitted a complete application for a permit on or after that date, are installed in such a way that, taking technical and economic factors into account, their waste gases could in the judgement of the competent authority, be discharged through a common stack, the combination formed by such plants shall be considered as a single combustion plant and their capacities added for the purpose of calculating the total rated thermal input.
3. For the purpose of calculating the total rated thermal input of a combination of combustion plants referred to in paragraphs 1 and 2, individual combustion plants with a rated thermal input below 15 MW shall not be considered.

### **Article 30**

#### **Emission limit values**

1. Waste gases from combustion plants shall be discharged in a controlled way by means of a stack, containing one or more flues, the height of which is calculated in such a way as to safeguard human health and the environment.
2. All permits for installations containing combustion plants which have been granted a permit before **1 January 2018**<sup>3</sup>, or the operators of which have submitted a complete application for a permit before that date, provided that such plants are put into operation no later than **1 January 2019**, shall include conditions ensuring that emissions into air from these plants do not exceed the emission limit values set out in Part 1 of Annex V.  
All permits for installations containing combustion plants which had been granted an exemption as referred to in Article 4(4) of Directive 2001/80/EC and which are in operation after **1 January 2024**<sup>4</sup>, shall include conditions ensuring that emissions into the air from these plants do not exceed the emission limit values set out in Part 2 of Annex V.
3. All permits for installations containing combustion plants not covered by paragraph 2 shall include conditions ensuring that emissions into the air from these plants do not exceed the emission limit values set out in Part 2 of Annex V.
4. The emission limit values set out in Parts 1 and 2 of Annex V as well as the minimum rates of desulphurisation set out in Part 5 of that Annex shall apply to the emissions of each common stack in relation to the total rated thermal input of the entire combustion plant. Where Annex V provides that emission limit values may be applied for a part of a combustion plant with a limited number of operating hours, those limit values shall apply to the emissions of that part of the plant, but shall be set in relation to the total

<sup>3</sup> The text displayed here corresponds to Point 5 of Annex II of the Treaty.

<sup>4</sup> Article 4(4) of Directive 2001/80/EC as amended by Article 4 of Decision 2013/05/MC-EnC.

rated thermal input of the entire combustion plant.

5. The competent authority may grant a derogation for a maximum of 6 months from the obligation to comply with the emission limit values provided for in paragraphs 2 and 3 for sulphur dioxide in respect of a combustion plant which to this end normally uses low-sulphur fuel, in cases where the operator is unable to comply with those limit values because of an interruption in the supply of low-sulphur fuel resulting from a serious shortage.

Member States<sup>5</sup> shall immediately inform the Commission of any derogation granted under the first subparagraph.

6. The competent authority may grant a derogation from the obligation to comply with the emission limit values provided for in paragraphs 2 and 3 in cases where a combustion plant using only gaseous fuel has to resort exceptionally to the use of other fuels because of a sudden interruption in the supply of gas and for this reason would need to be equipped with a waste gas purification facility. The period for which such a derogation is granted shall not exceed 10 days except where there is an overriding need to maintain energy supplies.

The operator shall immediately inform the competent authority of each specific case referred to in the first subparagraph.

Member States shall inform the Commission immediately of any derogation granted under the first subparagraph.

7. Where a combustion plant is extended, the emission limit values set out in Part 2 of Annex V shall apply to the extended part of the plant affected by the change and shall be set in relation to the total rated thermal input of the entire combustion plant. In the case of a change to a combustion plant, which may have consequences for the environment and which affects a part of the plant with a rated thermal input of 50 MW or more, the emission limit values as set out in Part 2 of Annex V shall apply to the part of the plant which has changed in relation to the total rated thermal input of the entire combustion plant.

8. The emission limit values set out in Parts 1 and 2 of Annex V shall not apply to the following combustion plants:

- (a) diesel engines;
- (b) recovery boilers within installations for the production of pulp.

9. For the following combustion plants, on the basis of the best available techniques, the Commission shall review the need to establish Union-wide emission limit values and to amend the emission limit values set out in Annex V:

- (a) the combustion plants referred to in paragraph 8;
- (b) combustion plants within refineries firing the distillation and conversion residues from the refining of crude-oil for own consumption, alone or with other fuels, taking into account the specificity of the energy systems of refineries;
- (c) combustion plants firing gases other than natural gas;
- (d) combustion plants in chemical installations using liquid production residues as non-commercial fuel for own consumption.

The Commission shall, by 31 December 2013, report the results of this review to the European Parliament and to the Council accompanied, if appropriate, by a legislative proposal.

<sup>5</sup> Decision 2013/06/MC-EnC incorporating this Directive is addressed to the Contracting Parties.

**Article 31****Desulphurisation rate**

1. For combustion plants firing indigenous solid fuel, which cannot comply with the emission limit values for sulphur dioxide referred to in Article 30(2) and (3) due to the characteristics of this fuel, Member States may apply instead the minimum rates of desulphurisation set out in Part 5 of Annex V, in accordance with the compliance rules set out in Part 6 of that Annex and with prior validation by the competent authority of the technical report referred to in Article 72(4)(a).

2. For combustion plants firing indigenous solid fuel, which co-incinerate waste, and which cannot comply with the  $C_{\text{proc}}$  values for sulphur dioxide set out in points 3.1 or 3.2 of Part 4 of Annex VI due to the characteristics of the indigenous solid fuel, Member States may apply instead the minimum rates of desulphurisation set out in Part 5 of Annex V, in accordance with the compliance rules set out in Part 6 of that Annex. If Member States choose to apply this paragraph,  $C_{\text{waste}}$  as referred to in point 1 of Part 4 of Annex VI shall be equal to 0 mg/Nm<sup>3</sup>.

3. The Commission shall, by 31 December 2019, review the possibility of applying minimum rates of desulphurisation set out in Part 5 of Annex V, taking into account, in particular, the best available techniques and benefits obtained from reduced sulphur dioxide emissions.

**Article 32****Transitional National Plan**<...><sup>6</sup>**Article 33****Limited life time derogation**<...><sup>7</sup>**Article 34****Small isolated systems**

1. Until 31 December 2019, combustion plants being, on 6 January 2011, part of a small isolated system may be exempted from compliance with the emission limit values referred to in Article 30(2) and the rates of desulphurisation referred to in Article 31, where applicable. Until 31 December 2019, the emission limit values set out in the permits of these combustion plants, pursuant in particular to the requirements of Directives 2001/80/EC and 2008/1/EC, shall at least be maintained.

<sup>6</sup> Article 4(6) of Directive 2001/80/EC as amended by Decision 2013/05/MC-EnC applies.

<sup>7</sup> Article 4(4) of Directive 2001/80/EC as amended by Decision 2013/05/MC-EnC applies.

2. Combustion plants with a total rated thermal input of more than 500 MW firing solid fuels, which were granted the first permit after 1 July 1987, shall comply with the emission limit values for nitrogen oxides set out in Part 1 of Annex V.

3. Where there are, on the territory of a Member State combustion plants covered by this Chapter that are part of a small isolated system, that Member State shall report to the Commission before 7 January 2013 a list of those combustion plants, the total annual energy consumption of the small isolated system and the amount of energy obtained through interconnection with other systems.

### **Article 35**

#### **District heating plants**

1. Until 31 December 2022, a combustion plant may be exempted from compliance with the emission limit values referred to in Article 30(2) and the rates of desulphurisation referred to in Article 31 provided that the following conditions are fulfilled:

(a) the total rated thermal input of the combustion plant does not exceed 200 MW;

(b) the plant was granted a first permit before 27 November 2002 or the operator of that plant had submitted a complete application for a permit before that date, provided that it was put into operation no later than 27 November 2003;

(c) at least 50% of the useful heat production of the plant, as a rolling average over a period of 5 years, is delivered in the form of steam or hot water to a public network for district heating; and

(d) the emission limit values for sulphur dioxide, nitrogen oxides and dust set out in its permit applicable on 31 December 2015, pursuant in particular to the requirements of Directives 2001/80/EC and 2008/1/EC, are at least maintained until 31 December 2022.

2. At the latest on 1 January 2016, each Member State shall communicate to the Commission a list of any combustion plants to which paragraph 1 applies, including their total rated thermal input, the fuel types used and the applicable emission limit values for sulphur dioxide, nitrogen oxides and dust. In addition, Member States shall, for any combustion plants to which paragraph 1 applies and during the period mentioned in that paragraph, inform the Commission annually of the proportion of useful heat production of each plant which was delivered in the form of steam or hot water to a public network for district heating, expressed as a rolling average over the preceding 5 years.

### **Article 36**

#### **Geological storage of carbon dioxide**

1. Member States shall ensure that operators of all combustion plants with a rated electrical output of 300 megawatts or more for which the original construction licence or, in the absence of such a procedure, the original operating licence is granted after the entry into force of Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide, have assessed whether the following conditions are met:

(a) suitable storage sites are available,

- (b) transport facilities are technically and economically feasible,
- (c) it is technically and economically feasible to retrofit for carbon dioxide capture.

2. If the conditions laid down in paragraph 1 are met, the competent authority shall ensure that suitable space on the installation site for the equipment necessary to capture and compress carbon dioxide is set aside. The competent authority shall determine whether the conditions are met on the basis of the assessment referred to in paragraph 1 and other available information, particularly concerning the protection of the environment and human health.

### **Article 37**

#### **Malfunction or breakdown of the abatement equipment**

1. Member States shall ensure that provision is made in the permits for procedures relating to malfunction or breakdown of the abatement equipment.

2. In the case of a breakdown, the competent authority shall require the operator to reduce or close down operations if a return to normal operation is not achieved within 24 hours, or to operate the plant using low polluting fuels.

The operator shall notify the competent authority within 48 hours after the malfunction or breakdown of the abatement equipment.

The cumulative duration of unabated operation shall not exceed 120 hours in any 12-month period.

The competent authority may grant a derogation from the time limits set out in the first and third subparagraphs in one of the following cases:

- (a) there is an overriding need to maintain energy supplies;
- (b) the combustion plant with the breakdown would be replaced for a limited period by another plant which would cause an overall increase in emissions.

### **Article 38**

#### **Monitoring of emissions into air**

1. Member States shall ensure that the monitoring of air polluting substances is carried out in accordance with Part 3 of Annex V.

2. The installation and functioning of the automated monitoring equipment shall be subject to control and to annual surveillance tests as set out in Part 3 of Annex V.

3. The competent authority shall determine the location of the sampling or measurement points to be used for the monitoring of emissions.

4. All monitoring results shall be recorded, processed and presented in such a way as to enable the competent authority to verify compliance with the operating conditions and emission limit values which are included in the permit.

**Article 39****Compliance with emission limit values**

The emission limit values for air shall be regarded as being complied with if the conditions set out in Part 4 of Annex V are fulfilled.

**Article 40****Multi-fuel firing combustion plants**

1. In the case of a multi-fuel firing combustion plant involving the simultaneous use of two or more fuels, the competent authority shall set the emission limit values in accordance with the following steps:

- (a) taking the emission limit value relevant for each individual fuel and pollutant corresponding to the total rated thermal input of the entire combustion plant as set out in Parts 1 and 2 of Annex V;
- (b) determining fuel-weighted emission limit values, which are obtained by multiplying the individual emission limit value referred to in point (a) by the thermal input delivered by each fuel, and dividing the product of multiplication by the sum of the thermal inputs delivered by all fuels,
- (c) aggregating the fuel-weighted emission limit values.

2. In the case of multi-fuel firing combustion plants covered by Article 30(2), which use the distillation and conversion residues from the refining of crude-oil for own consumption, alone or with other fuels, the following emission limit values may be applied instead of the emission limit values set according to paragraph 1:

- (a) where, during the operation of the combustion plant, the proportion contributed by the determinative fuel to the sum of the thermal inputs delivered by all fuels is 50% or more, the emission limit value set in Part 1 of Annex V for the determinative fuel;
- (b) where the proportion contributed by the determinative fuel to the sum of the thermal inputs delivered by all fuels is less than 50%, the emission limit value determined in accordance with the following steps:
  - (i) taking the emission limit values set out in Part 1 of Annex V for each of the fuels used, corresponding to the total rated thermal input of the combustion plant;
  - (ii) calculating the emission limit value of the determinative fuel by multiplying the emission limit value, determined for that fuel according to point (i), by a factor of two, and subtracting from this product the emission limit value of the fuel used with the lowest emission limit value as set out in Part 1 of Annex V, corresponding to the total rated thermal input of the combustion plant;
  - (iii) determining the fuel-weighted emission limit value for each fuel used by multiplying the emission limit value determined under points (i) and (ii) by the thermal input of the fuel concerned and by dividing the product of this multiplication by the sum of the thermal inputs delivered by all fuels;
  - (iv) aggregating the fuel-weighted emission limit values determined under point (iii).

3. In the case of multi-fuel firing combustion plants covered by Article 30(2), which use the distillation and conversion residues from the refining of crude-oil for own consumption, alone or with other fuels, the average emission limit values for sulphur dioxide set out in Part 7 of Annex V may be applied instead of

the emission limit values set according to paragraphs 1 or 2 of this Article.

### **Article 41**

#### **Implementing rules**

Implementing rules shall be established concerning:

- (a) the determination of the start-up and shut-down periods referred to in point 27 of Article 3 and in point 1 of Part 4 of Annex V; and
- (b) the transitional national plans referred to in Article 32 and, in particular, the setting of emission ceilings and related monitoring and reporting.

Those implementing rules shall be adopted in accordance with the regulatory procedure referred to in Article 75(2). The Commission shall make appropriate proposals not later than 7 July 2011.

### **Article 72**

#### **Reporting by Member States<sup>8</sup>**

<...>

3. For all combustion plants covered by Chapter III of this Directive, Member States shall, from **1 January 2018**<sup>9</sup> establish an annual inventory of the sulphur dioxide, nitrogen oxides and dust emissions and energy input.

Taking into account the aggregation rules set out in Article 29, the competent authority shall obtain the following data for each combustion plant:

- (a) the total rated thermal input (MW) of the combustion plant;
- (b) the type of combustion plant: boiler, gas turbine, gas engine, diesel engine, other (specifying the type);
- (c) the date of the start of operation of the combustion plant;
- (d) the total annual emissions (tonnes per year) of sulphur dioxide, nitrogen oxides and dust (as total suspended particles);
- (e) the number of operating hours of the combustion plant;
- (f) the total annual amount of energy input, related to the net calorific value (TJ per year), broken down in terms of the following categories of fuel: coal, lignite, biomass, peat, other solid fuels (specifying the type), liquid fuels, natural gas, other gases (specifying the type).

The annual plant-by-plant data contained in these inventories shall be made available to the Commission upon request.

A summary of the inventories shall be made available to the Commission every 3 years within 12 months from the end of the three-year period considered. This summary shall show separately the data for combustion plants within refineries.

The Commission shall make available to the Member States and to the public a summary of the comparison

<sup>8</sup> Decision 2013/06/MC-EnC incorporating this Directive is addressed to the Contracting Parties.

<sup>9</sup> The text displayed here corresponds to Article 2(1) of Decision 2013/06/MC-EnC.



and evaluation of those inventories in accordance with Directive 2003/4/EC within 24 months from the end of the three-year period considered.

4. Member States shall, from **1 January 2018**<sup>10</sup> report the following data annually to the Commission:

(a) for combustion plants to which Article 31 applies, the sulphur content of the indigenous solid fuel used and the rate of desulphurisation achieved, averaged over each month. For the first year where Article 31 is applied, the technical justification of the non-feasibility of complying with the emission limit values referred to in Article 30(2) and (3) shall also be reported; and

(b) for combustion plants which do not operate more than 1 500 operating hours per year as a rolling average over a period of 5 years, the number of operating hours per year.

<...>

### **Article 80**

#### **Transposition<sup>10</sup>**

**1. Each Contracting Party shall bring into force the laws, regulations and administrative provisions necessary to comply with Chapter III, Annex V and Article 72(3)-(4) of Directive 2010/75/EU by 1 January 2018.**<sup>11</sup> **They shall forthwith inform the Energy Community Secretariat thereof.**

**2. Contracting Parties shall communicate to the Energy Community Secretariat the text of the main provisions of national law which they adopt in the field covered by the present Decision.**

### **Article 83**

#### **Entry into force<sup>12</sup>**

**This Decision shall enter into force upon its adoption by the Ministerial Council.**

### **Article 84**

#### **Addressees<sup>13</sup>**

**This Decision is addressed to the Contracting Parties.**

<sup>10</sup> The text displayed here corresponds to Article 2(1) of Decision 2013/06/MC-EnC.

<sup>11</sup> The text displayed here corresponds to Article 2 of Decision 2013/06/MC-EnC.

<sup>12</sup> In accordance with the Accession Protocol, the corresponding date for Georgia is 1 September 2018.

<sup>13</sup> The text displayed here corresponds to Article 3 of Decision 2013/06/MC-EnC.

## ANNEX V

### TECHNICAL PROVISIONS RELATING TO COMBUSTION PLANTS

#### PART 1

##### Emission limit values for combustion plants referred to in Article 30(2)

1. All emission limit values shall be calculated at a temperature of 273,15 K, a pressure of 101,3 kPa and after correction for the water vapour content of the waste gases and at a standardised O<sub>2</sub> content of 6% for solid fuels, 3% for combustion plants, other than gas turbines and gas engines using liquid and gaseous fuels and 15% for gas turbines and gas engines.

2. Emission limit values (mg/Nm<sup>3</sup>) for SO<sub>2</sub> for combustion plants using solid or liquid fuels with the exception of gas turbines and gas engines

Total rated thermal input (MW)	Coal and lignite and other solid fuels	Biomass	Peat	Liquid fuels
50-100	400	200	300	350
100-300	250	200	300	250
> 300	200	200	200	200

Combustion plants, using solid fuels which were granted a permit before 27 November 2002 or the operators of which had submitted a complete application for a permit before that date, provided that the plant was put into operation no later than 27 November 2003, and which do not operate more than 1 500 operating hours per year as a rolling average over a period of 5 years, shall be subject to an emission limit value for SO<sub>2</sub> of 800 mg/Nm<sup>3</sup>.

Combustion plants using liquid fuels, which were granted a permit before 27 November 2002 or the operators of which had submitted a complete application for a permit before that date, provided that the plant was put into operation no later than 27 November 2003, and which do not operate more than 1 500 operating hours per year as a rolling average over a period of 5 years, shall be

subject to an emission limit value for SO<sub>2</sub> of 850 mg/Nm<sup>3</sup> in case of plants with a total rated thermal input not exceeding 300 MW and of 400 mg/Nm<sup>3</sup> in case of plants with a total rated thermal input greater than 300 MW.

A part of a combustion plant discharging its waste gases through one or more separate flues within a common stack, and which does not operate more than 1 500 operating hours per year as a rolling average over a period of 5 years, may be subject to the emission limit values set out in the preceding two paragraphs in relation to the total rated thermal input of the entire combustion plant. In such cases the emissions through each of those flues shall be monitored separately.

3. Emission limit values (mg/Nm<sup>3</sup>) for SO<sub>2</sub> for combustion plants using gaseous fuels with the exception of gas turbines and gas engines

In general	35
Liquefied gas	5
Low calorific gases from coke oven	400
Low calorific gases from blast furnace	200

Combustion plants, firing low calorific gases from gasification of refinery residues, which were granted a permit before 27 November 2002 or the operators of which had submitted a complete application for a permit before that date, provided that the plant was put into operation no later than 27 November 2003, shall be subject to an emission limit value for SO of 800 mg/Nm<sup>3</sup>.

4. Emission limit values (mg/Nm<sup>3</sup>) for NO for combustion plants using solid or liquid fuels with the exception of gas turbines and gas engines

Total rated thermal input (MW)	Coal and lignite and other solid fuels	Biomass and peat	Liquid fuels
50-100	300 450 in case of pulverised lignite combustion	300	450
100-300	200	250	200 <sup>(1)</sup>
> 300	200	200	150 <sup>(1)</sup>

<sup>(1)</sup> The emission limit value is 450 mg/Nm<sup>3</sup> for the firing of distillation and conversion residues from the refining of crude-oil for own consumption in combustion plants with a total rated thermal input not exceeding 500 MW which were granted a permit before 27 November 2002 or the operators of which had submitted a complete application for a permit before that date, provided that the plant was put into operation no later than 27 November 2003.

Combustion plants in chemical installations using liquid production residues as non-commercial fuel for own consumption with a total rated thermal input not exceeding 500 MW which were granted a permit before 27 November 2002 or the operators of which had submitted a complete application for a permit before that date, provided that the plant was put into operation no later than 27 November 2003, shall be subject to an emission limit value for NO<sub>x</sub> of 450 mg/Nm<sup>3</sup>.

Combustion plants using solid or liquid fuels with a total rated thermal input not exceeding 500 MW which were granted a permit before 27 November 2002 or the operators of which had submitted a complete application for a permit before that date, provided that the plant was put into operation no later than 27 November 2003, and which do not operate more than 1 500 operating hours per year as a rolling average over a period of 5 years, shall be subject to an emission limit value for NO<sub>x</sub> of 450 mg/Nm<sup>3</sup>.

Combustion plants using solid fuels with a total rated thermal input greater than 500 MW, which were granted a permit before 1 July 1987 and which do not operate more than 1 500 operating hours per year as a rolling average over a period of 5 years, shall be subject to an emission limit value for NO<sub>x</sub> of 450 mg/Nm<sup>3</sup>.

Combustion plants using liquid fuels, with a total rated thermal input greater than 500 MW which were granted a permit before 27 November 2002 or the operators of which had submitted a complete application for a permit before that date, provided that the plant was put into operation no later than 27 November 2003, and which do not operate more than 1 500 operating hours per year as a rolling average over a period of 5 years, shall be subject to an emission limit value for NO<sub>x</sub> of 400 mg/Nm<sup>3</sup>.

A part of a combustion plant discharging its waste gases through one or more separate flues within a common stack, and which does not operate more than 1 500 operating hours per year as a rolling average over a period of 5 years, may be subject to the emission limit values set out in the preceding three paragraphs in relation to the total rated thermal input of the entire combustion plant. In such cases the emissions through each of those flues shall be monitored separately.

5. Gas turbines (including combined cycle gas turbines (CCGT)) using light and middle distillates as liquid

fuels shall be subject to an emission limit value for NO of 90 mg/Nm<sup>3</sup> and for CO of 100 mg/Nm<sup>3</sup>.

Gas turbines for emergency use that operate less than 500 operating hours per year are not covered by the emission limit values set out in this point. The operator of such plants shall record the used operating hours.

#### 6. Emission limit values (mg/Nm<sup>3</sup>) for NO and CO for gas fired combustion plants

	<b>NO<sub>x</sub></b>	<b>CO</b>
Combustion plants firing natural gas with the exception of gas turbines and gas engines	100	100
Combustion plants firing blast furnace gas, coke oven gas or low calorific gases from gasification of refinery residues, with the exception of gas turbines and gas engines	200 <sup>(4)</sup>	–
Combustion plants firing other gases, with the exception of gas turbines and gas engines	200 <sup>(4)</sup>	–
Gas turbines (including CCGT), using natural gas <sup>(1)</sup> as fuel	50 <sup>(2) (3)</sup>	100
Gas turbines (including CCGT), using other gases as fuel	120	–
Gas engines	100	100

<sup>(1)</sup> Natural gas is naturally occurring methane with not more than 20% (by volume) of inerts and other constituents.

<sup>(2)</sup> 75 mg/Nm<sup>3</sup> in the following cases, where the efficiency of the gas turbine is determined at ISO base load conditions:

- (i) gas turbines, used in combined heat and power systems having an overall efficiency greater than 75%;
- (ii) gas turbines used in combined cycle plants having an annual average overall electrical efficiency greater than 55%;
- (iii) gas turbines for mechanical drives.

<sup>(3)</sup> For single cycle gas turbines not falling into any of the categories mentioned under note (2), but having an efficiency greater than 35% – determined at ISO base load conditions – the emission limit value for NO<sub>x</sub> shall be 50x /35 where x is the gas turbine efficiency at ISO base load conditions expressed as a percentage.

<sup>(4)</sup> 300 mg/Nm<sup>3</sup> for such combustion plants with a total rated thermal input not exceeding 500 MW which were granted a permit before 27 November 2002 or the operators of which had submitted a complete application for a permit before that date, provided that the plant was put into operation no later than 27 November 2003.

For gas turbines (including CCGT), the NO<sub>x</sub> and CO emission limit values set out in the table contained in this point apply only above 70% load.

For gas turbines (including CCGT) which were granted a permit before 27 November 2002 or the operators of which had submitted a complete application for a permit before that date, provided that the plant was put into operation no later than 27 November 2003, and which do not operate more than 1 500 operating hours per year as a rolling average over a period of 5 years, the emission limit value for NO<sub>x</sub> is 150 mg/Nm<sup>3</sup> when firing natural gas and 200 mg/Nm<sup>3</sup> when firing other gases or liquid fuels.

A part of a combustion plant discharging its waste gases through one or more separate flues within a common stack, and which does not operate more than 1 500 operating hours per year as a rolling average over a period of 5 years, may be subject to the emission limit values set out in the preceding paragraph in relation to the total rated thermal input of the entire combustion plant. In such cases the emissions through each of those flues shall be monitored separately.

Gas turbines and gas engines for emergency use that operate less than 500 operating hours per year are not covered by the emission limit values set out in this point. The operator of such plants shall record the used operating hours.

7. Emission limit values (mg/Nm<sup>3</sup>) for dust for combustion plants using solid or liquid fuels with the exception of gas turbines and gas engines

Total rated thermal input (MW)	Coal and lignite and other solid fuels	Biomass and peat	Liquid fuels (1)
50-100	30	30	30
100-300	25	20	25
> 300	20	20	20

<sup>(1)</sup> The emission limit value is 50 mg/Nm<sup>3</sup> for the firing of distillation and conversion residues from the refining of crude oil for own consumption in combustion plants which were granted a permit before 27 November 2002 or the operators of which had submitted a complete application for a permit before that date, provided that the plant was put into operation no later than 27 November 2003.

8. Emission limit values (mg/Nm<sup>3</sup>) for dust for combustion plants using gaseous fuels with the exception of gas turbines and gas engines

In general	5
Blast furnace gas	10
Gases produced by the steel industry which can be used elsewhere	30

## PART 2

### Emission limit values for combustion plants referred to in Article 30(3)

1. All emission limit values shall be calculated at a temperature of 273,15 K, a pressure of 101,3 kPa and after correction for the water vapour content of the waste gases and at a standardised O<sub>2</sub> content of 6% for solid fuels, 3% for combustion plants other than gas turbines and gas engines using liquid and gaseous fuels and 15% for gas turbines and gas engines.

In case of combined cycle gas turbines with supplementary firing, the standardised O<sub>2</sub> content may be defined by the competent authority, taking into account the specific characteristics of the installation concerned.

2. Emission limit values (mg/Nm<sup>3</sup>) for SO<sub>2</sub> for combustion plants using solid or liquid fuels with the exception of gas turbines and gas engines

Total rated thermal input (MW)	Coal and lignite and other solid fuels	Biomass	Peat	Liquid fuels
50-100	400	200	300	350
100-300	200	200	300 250 in case of fluidised bed combustion	200
> 300	150 200 in case of circulating or pressurised fluidised bed combustion	150	150 200 in case of fluidised bed combustion	150

3. Emission limit values (mg/Nm<sup>3</sup>) for SO<sub>2</sub> for combustion plants using gaseous fuels with the exception of gas turbines and gas engines

In general	35
Liquefied gas	5
Low calorific gases from coke oven	400
Low calorific gases from blast furnace	200

4. Emission limit values (mg/Nm<sup>3</sup>) for NO<sub>x</sub> for combustion plants using solid or liquid fuels with the exception of gas turbines and gas engines

Total rated thermal input (MW)	Coal and lignite and other solid fuels	Biomass and peat	Liquid fuels
50-100	300 400 in case of pulverised lignite combustion	250	300
100-300	200	200	150
> 300	150 200 in case of pulverised lignite combustion	150	100

5. Gas turbines (including CCGT) using light and middle distillates as liquid fuels shall be subject to an emission limit value for NO<sub>x</sub> of 50 mg/Nm<sup>3</sup> and for CO of 100 mg/Nm<sup>3</sup>

Gas turbines for emergency use that operate less than 500 operating hours per year are not covered by the emission limit values set out in this point. The operator of such plants shall record the used operating hours.

6. Emission limit values (mg/Nm<sup>3</sup>) for NO<sub>x</sub> and CO for gas fired combustion plants

	NO <sub>x</sub>	CO
Combustion plants other than gas turbines and gas engines	100	100
Gas turbines (including CCGT)	50 <sup>(1)</sup>	100
Gas engines	75	100

<sup>(1)</sup> For single cycle gas turbines having an efficiency greater than 35% – determined at ISO base load conditions – the emission limit value for NO<sub>x</sub> shall be 50x/35 where x is the gas turbine efficiency at ISO base load conditions expressed as a percentage.

For gas turbines (including CCGT), the NO<sub>x</sub> and CO emission limit values set out in this point apply only above 70% load.

Gas turbines and gas engines for emergency use that operate less than 500 operating hours per year are not covered by the emission limit values set out in this point. The operator of such plants shall record the used operating hours.

7. Emission limit values (mg/Nm<sup>3</sup>) for dust for combustion plants using solid or liquid fuels with the exception of gas turbines and gas engines

Total rated thermal input (MW)	
50-300	20
> 300	10 20 for biomass and peat

8. Emission limit values (mg/Nm<sup>3</sup>) for dust for combustion plants using gaseous fuels with the exception of gas turbines and gas engines

n general	5
Blast furnace gas	10
Gases produced by the steel industry which can be used elsewhere	30

### PART 3

#### Emission monitoring

1. The concentrations of SO<sub>2</sub>, NO<sub>x</sub> and dust in waste gases from each combustion plant with a total rated thermal input of 100 MW or more shall be measured continuously.

The concentration of CO in waste gases from each combustion plant firing gaseous fuels with a total rated thermal input of 100 MW or more shall be measured continuously.

2. The competent authority may decide not to require the continuous measurements referred to in point 1 in the following cases:

(a) for combustion plants with a life span of less than 10 000 operational hours;

(b) for SO<sub>2</sub> and dust from combustion plants firing natural gas;

(c) for SO<sub>2</sub> from combustion plants firing oil with known sulphur content in cases where there is no waste gas desulphurisation equipment;

(d) for SO<sub>2</sub> from combustion plants firing biomass if the operator can prove that the SO<sub>2</sub> emissions can under no circumstances be higher than the prescribed emission limit values.

3. Where continuous measurements are not required, measurements of SO<sub>2</sub>, NO<sub>x</sub>, dust and, for gas fired plants, also of CO shall be required at least once every 6 months.

4. For combustion plants firing coal or lignite, the emissions of total mercury shall be measured at least once per year.

5. As an alternative to the measurements of SO<sub>2</sub> and NO<sub>x</sub> referred to in point 3, other procedures, verified and approved by the competent authority, may be used to determine the SO<sub>2</sub> and NO<sub>x</sub> emissions. Such procedures shall use relevant CEN standards or, if CEN standards are not available, ISO, national or other international standards which ensure the provision of data of an equivalent scientific quality.

6. The competent authority shall be informed of significant changes in the type of fuel used or in the mode of operation of the plant. The competent authority shall decide whether the monitoring requirements laid down in points 1 to 4 are still adequate or require adaptation.

7. The continuous measurements carried out in accordance with point 1 shall include the measurement of the oxygen content, temperature, pressure and water vapour content of the waste gases. The continuous measurement of the water vapour content of the waste gases shall not be necessary, provided that the sampled waste gas is dried before the emissions are analysed.

8. Sampling and analysis of relevant polluting substances and measurements of process parameters as well as the quality assurance of automated measuring systems and the reference measurement methods to calibrate those systems shall be carried out in accordance with CEN standards. If CEN standards are not available, ISO, national or other international standards which ensure the provision of data of an equivalent

scientific quality shall apply.

The automated measuring systems shall be subject to control by means of parallel measurements with the reference methods at least once per year.

The operator shall inform the competent authority about the results of the checking of the automated measuring systems.

9. At the emission limit value level, the values of the 95% confidence intervals of a single measured result shall not exceed the following percentages of the emission limit values:

Carbon monoxide	10%
Sulphur dioxide	20%
Nitrogen oxides	20%
Dust	30%

10. The validated hourly and daily average values shall be determined from the measured valid hourly average values after having subtracted the value of the confidence interval specified in point 9.

Any day in which more than three hourly average values are invalid due to malfunction or maintenance of the automated measuring system shall be invalidated. If more than 10 days over a year are invalidated for such situations the competent authority shall require the operator to take adequate measures to improve the reliability of the automated measuring system.

11. In the case of plants which must comply with the rates of desulphurisation referred to in Article 31, the sulphur content of the fuel which is fired in the combustion plant shall also be regularly monitored. The competent authorities shall be informed of substantial changes in the type of fuel used.

## PART 4

### Assessment of compliance with emission limit values

1. In the case of continuous measurements, the emission limit values set out in Parts 1 and 2 shall be regarded as having been complied with if the evaluation of the measurement results indicates, for operating hours within a calendar year, that all of the following conditions have been met:

- (a) no validated monthly average value exceeds the relevant emission limit values set out in Parts 1 and 2;
- (b) no validated daily average value exceeds 110% of the relevant emission limit values set out in Parts 1 and 2;
- (c) in cases of combustion plants composed only of boilers using coal with a total rated thermal input below 50 MW, no validated daily average value exceeds 150% of the relevant emission limit values set out in Parts 1 and 2,
- (d) 95% of all the validated hourly average values over the year do not exceed 200% of the relevant emission limit values set out in Parts 1 and 2.

The validated average values are determined as set out in point 10 of Part 3.

For the purpose of the calculation of the average emission values, the values measured during the periods referred to in Article 30(5) and (6) and Article 37 as well as during the start-up and shutdown periods shall be disregarded.

2. Where continuous measurements are not required, the emission limit values set out in Parts 1 and 2 shall be regarded as having been complied with if the results of each of the series of measurements or of the



other procedures defined and determined according to the rules laid down by the competent authorities do not exceed the emission limit values.

## PART 5

### Minimum rate of desulphurisation

1. Minimum rate of desulphurisation for combustion plants referred to in Article 30(2)

Total rated thermal input (MW)	Minimum rate of desulphurisation	
	Plants which were granted a permit before 27 November 2002 or the operators of which had submitted a complete application for a permit before that date, provided that the plant was put into operation no later than 27 November 2003	Other plants
50-100	80%	92%
100-300	90%	92%
> 300	96% <sup>(1)</sup>	96%

<sup>(1)</sup> For combustion plants firing oil shale, the minimum rate of desulphurisation is 95%.

2. Minimum rate of desulphurisation for combustion plants referred to in Article 30(3)

Total rated thermal input (MW)	Minimum rate of desulphurisation
50-100	93%
100-300	93%
> 300	97%

## PART 6

### Compliance with rate of desulphurisation

The minimum rates of desulphurisation set out in Part 5 of this Annex shall apply as a monthly average limit value.

## PART 7

### Average emission limit values for multi-fuel firing combustion plants within a refinery

Average emission limit values (mg/Nm<sup>3</sup>) for SO<sub>2</sub> for multi-fuel firing combustion plants within a refinery, with the exception of gas turbines and gas engines, which use the distillation and conversion residues from the refining of crude-oil for own consumption, alone or with other fuels:

(a) for combustion plants which were granted a permit before 27 November 2002 or the operators of which had submitted a complete application for a permit before that date, provided that the plant was put into operation no later than 27 November 2003: 1 000 mg/Nm<sup>3</sup>;

(b) for other combustion plants: 600 mg/Nm<sup>3</sup>.

These emission limit values shall be calculated at a temperature of 273,15 K, a pressure of 101,3 kPa and after correction for the water vapour content of the waste gases and at a standardised O<sub>2</sub> content of 6% for solid fuels and 3% for liquid and gaseous fuels.