

Amendment to the 1998 Protocol to the 1979 Convention on Long-Range Transboundary Air Pollution on Heavy Metals

(a) Article 1

1. In paragraph 10 the words “of: (i) this Protocol; or (ii) an amendment to annex I or II, where the stationary source becomes subject to the provisions of this Protocol only by virtue of that amendment” are replaced by the words “for a Party of the present Protocol. A Party may decide not to treat as a new stationary source any stationary source for which approval has already been given by the appropriate competent national authority at the time of entry into force of the Protocol for that Party and provided that the construction or substantial modification is commenced within five years of that date”.

2. A new paragraph 12 is added after paragraph 11 as follows:

12. The terms “this Protocol”, “the Protocol” and “the present Protocol” mean the 1998 Protocol on Heavy Metals, as amended from time to time.

(b) Article 3

3. In paragraph 2, the word “Each” is replaced by the words “Subject to paragraphs 2 bis and 2 ter, each”.

4. In paragraph 2 (a) the words “for which annex III identifies best available techniques” are replaced by the words “for which guidance adopted by the Parties at a session of the Executive Body identifies best available techniques”.

5. In paragraph 2 (c) the words “for which annex III identifies best available techniques” are replaced by the words “for which guidance adopted by the Parties at a session of the Executive Body identifies best available techniques”.

6. New paragraphs 2 bis and 2 ter are inserted after paragraph 2 as follows:

2 bis. A Party that was already a Party to the present Protocol prior to the entry into force of an amendment that introduces new source categories may apply the limit values applicable to an “existing stationary source” to any source in such a new category the construction or substantial modification of which is commenced before the expiry of two years from the date of entry into force of that amendment for that Party, unless and until that source later undergoes substantial modification.

2 ter. A Party that was already a Party to the present Protocol prior to the entry into force of an amendment that introduces new limit values applicable to a “new stationary source” may continue to apply the previously applicable limit values to any source the construction or substantial modification of which is commenced before the expiry of two years from the date of entry into force of that amendment for that Party, unless and until that source later undergoes substantial modification.

7. In paragraph 5:

(a) The words “, for those Parties within geographical scope of EMEP, using as a minimum the methodologies specified by the Steering Body of EMEP, and, for those Parties outside the geographical scope of EMEP, using as guidance the methodologies developed through the work plan of the Executive Body” are deleted and replaced by a full stop “.”.

(b) The following text is added after the first sentence:

Parties within the geographic scope of EMEP shall use the methodologies specified in guidelines prepared by the Steering Body of EMEP and adopted by the Parties at a session of the Executive Body. Parties in areas outside the geographic scope of EMEP shall use as guidance the methodologies developed through the workplan of the Executive Body.

8. A new paragraph 8 is added at the end of article 3, as follows:

8. Each Party should actively participate in programmes under the Convention on the effects of air pollution on human health and the environment and programmes on atmospheric monitoring and modelling.

(c) Article 3 bis

9. A new article 3 bis is added as follows:

Article 3 bis

Flexible transitional arrangements

1. Notwithstanding article 3, paragraphs 2 (c) and 2 (d), a Party to the Convention that becomes a Party to the present Protocol between 1 January 2014 and 31 December 2019 may apply flexible transitional arrangements for the implementation of best available techniques and limit values to existing stationary sources in specific stationary source categories under the conditions specified in this article.

2. Any Party electing to apply the flexible transitional arrangements under this article shall indicate in its instrument of ratification, acceptance, approval or accession to the present Protocol the following:

(a) The specific stationary source categories listed in annex II for which the Party is electing to apply flexible transitional arrangements, provided that no more than four such categories may be listed;

(b) Stationary sources for which construction or the last substantial modification commenced prior to 1990 or an alternative year of the period 1985–1995 inclusive, specified by a Party upon ratification, acceptance, approval or accession, which are eligible for flexible transitional arrangements as set out in paragraph 5; and

(c) An implementation plan consistent with paragraphs 3 and 4 identifying a timetable for full implementation of the specified provisions.

3. A Party shall, as a minimum, apply best available techniques for existing stationary sources in categories 1, 2, 5 and 7 of annex II no later than eight years after the entry into force of the present Protocol for the Party, or 31 December 2022, whichever is sooner, except as provided in paragraph 5.

4. In no case may a Party's application of best available techniques or limit values for any existing stationary sources be postponed past 31 December 2030.

5. With respect to any source or sources indicated pursuant to paragraph 2 (b), a Party may decide, no later than eight years after entry into force of the present Protocol for the Party, or 31 December 2022, whichever is sooner, that such source or sources will be closed down. A list of such sources shall be provided as part of the Party's next report pursuant to paragraph 6. Requirements for application of best available techniques and limit values will not apply to any such source or sources, provided the source or sources are closed down no later than 31 December 2030. For any such source or sources not closed down as of that date, a Party must thereafter apply the best available techniques and limit values applicable to new sources in the applicable source category.

6. A Party electing to apply the flexible transitional arrangements under this article shall provide the Executive Secretary of the Commission with triennial reports of its progress towards implementation of best available techniques and limit values to the stationary sources in the stationary source categories identified pursuant to this article. The Executive Secretary of the Commission will make such triennial reports available to the Executive Body.

(d) Article 7

10. In paragraph 1 (a):

(a) The semi-colon at the end of the paragraph “;” is replaced by “. Moreover.”; and

(b) New subparagraphs (i) and (ii) are inserted as follows:

(i) Where a Party applies different emission reduction strategies under article 3 paragraphs 2 (b), (c) or (d), it shall document the strategies applied and its compliance with the requirements of those paragraphs;

(ii) Where a Party judges the application of certain limit values, as specified in accordance with article 3, paragraph 2 (d), not to be technically and economically feasible, it shall report and justify this;

11. For paragraph 1 (b) there is substituted the following:

(b) Each Party within the geographical scope of EMEP shall report to EMEP, through the Executive Secretary of the Commission, information on the levels of emissions of heavy metals listed in annex I, using the methodologies specified in guidelines prepared by the Steering Body of EMEP and adopted by the Parties at a session of the Executive Body. Parties in areas outside the geographical scope of EMEP shall report available information on levels of emissions of the heavy metals listed in annex I. Each Party shall also provide information on the levels of emissions of the substances listed in annex I for the reference year specified in that annex;

12. New paragraphs are added after paragraph 1 (b) as follows:

(c) Each Party within the geographical scope of EMEP should report available information to the Executive Body, through the Executive Secretary of the Commission, on its air pollution effects programmes on human health and the

environment and atmospheric monitoring and modelling programmes under the Convention using guidelines adopted by the Executive Body;

(d) Parties in areas outside the geographical scope of EMEP should make available information similar to that specified in subparagraph (c), if requested to do so by the Executive Body.

13. In paragraph 3:

(a) The words “In good time before each annual session of” are replaced by “Upon the request of and in accordance with timescales decided by”;

(b) The words “and other subsidiary bodies” are inserted after the word “EMEP”;

(c) The word “relevant” is inserted after the word “provide”.

(e) Article 8

14. The words “EMEP shall, using appropriate models and measurements and in good time before each annual session of the Executive Body” are replaced by “Upon the request of and in accordance with timescales decided by the Executive Body, EMEP and its technical bodies and centres shall, using appropriate models and measurements.”.

(f) Article 10

15. In paragraph 4:

(a) The word “consider” is inserted after the word “shall”;

(b) The word “develop” is replaced by the word “developing”;

(c) The words “to reduce emissions into the atmosphere of the heavy metals listed in annex I” are deleted.

(g) Article 13

16. In paragraph 3:

(a) The words “and to annexes I, II, IV, V and VI” are replaced by the words “other than to annexes III and VII”;

(b) The words “on which two thirds of the Parties” are replaced by the words “on which two thirds of those that were Parties at the time of their adoption”

17. In paragraph 4 the word “ninety” is replaced by the figure “180”.

18. In paragraph 5 the word “ninety” is replaced by the figure “180”.

19. New paragraphs 5 bis and 5 ter are inserted after paragraph 5 as follows:

5 bis. For those Parties having accepted it, the procedure set out in paragraph 5 ter supersedes the procedure set out in paragraph 3 in respect of amendments to annexes II, IV, V and VI.

5 ter. Amendments to annexes II, IV, V and VI shall be adopted by consensus of the Parties present at a session of the Executive Body. On the expiry of one year from the date of its communication to all Parties by the Executive Secretary of the Commission, an amendment to any such annex shall become effective for those Parties which have not

submitted to the Depositary a notification in accordance with the provisions of subparagraph (a):

(a) Any Party that is unable to approve an amendment to annexes II, IV, V and VI shall so notify the Depositary in writing within one year from the date of the communication of its adoption. The Depositary shall without delay notify all Parties of any such notification received. A Party may at any time substitute an acceptance for its previous notification and, upon deposit of an instrument of acceptance with the Depositary, the amendment to such an annex shall become effective for that Party;

(b) Any amendment to annexes II, IV, V and VI shall not enter into force if an aggregate number of 16 or more Parties have either:

(i) Submitted a notification in accordance with the provisions of subparagraph (a); or

(ii) Not accepted the procedure set out in this paragraph and not yet deposited an instrument of acceptance in accordance with the provisions of paragraph 3.

(h) Article 15

20. A new paragraph 3 is added after paragraph 2 as follows:

3. A State or regional economic integration organization shall declare in its instrument of ratification, acceptance, approval or accession if it does not intend to be bound by the procedures set out in article 13, paragraph 5 ter, as regards the amendment of annexes II, IV, V and VI.

(i) Annex II

21. In the table under subheading II, the words “lead and zinc” in the first line under the description of category 5 are replaced with the words “lead, zinc and silico- and ferro- manganese alloys”.

(j) Annex IV

22. The number “1.” is added in front of the first paragraph.

23. In subparagraph (a), the words “for a Party” are inserted after the word “Protocol”.

24. In subparagraph (b):

(a) In the first sentence the word “eight” is replaced by the word “two”.

(b) At the end of the first sentence, the words “for a Party or 31 December 2020, whichever is the later” are inserted after the word “Protocol”.

(c) The last sentence is deleted.

25. At the end of the annex new paragraphs 2 and 3 are inserted as follows:

2. Notwithstanding paragraph 1, but subject to paragraph 3, a Party to the Convention that becomes a Party to the present Protocol between 1 January 2014, and 31 December 2019, may declare upon ratification, acceptance, approval of, or accession to, the present Protocol that it will extend the timescales for application of the limit values

referred to in article 3, paragraph 2 (d) up to 15 years after the date of entry into force of the present Protocol for the Party in question.

3. A Party that has made an election pursuant to article 3 bis of the present Protocol with respect to a particular stationary source category may not also make a declaration pursuant to paragraph 2 applicable to the same source category.

(k) Annex V

26. For Annex V the following text is substituted:

Annex V**Limit values for controlling emissions from major stationary sources**

1. Two types of limit value are important for heavy metal emission control:
 - (a) Values for specific heavy metals or groups of heavy metals; and
 - (b) Values for emissions of particulate matter in general.
2. In principle, limit values for particulate matter cannot replace specific limit values for cadmium, lead and mercury because the quantity of metals associated with particulate emissions differs from one process to another. However, compliance with these limits contributes significantly to reducing heavy metal emissions in general. Moreover, monitoring particulate emissions is generally less expensive than monitoring individual species and continuous monitoring of individual heavy metals is in general not feasible. Therefore, particulate matter limit values are of great practical importance and are also laid down in this annex in most cases to complement specific limit values for cadmium or lead or mercury.
3. Section A applies to Parties other than the United States of America. Section B applies to the United States of America.

A. Parties other than the United States of America

4. In this section only, “dust” means the mass of particles, of any shape, structure or density, dispersed in the gas phase at the sampling point conditions which may be collected by filtration under specified conditions after representative sampling of the gas to be analysed, and which remain upstream of the filter and on the filter after drying under specified conditions.
5. For the purpose of this section, “emission limit value” (ELV) or “limit value” means the quantity of dust and specific heavy metals under this Protocol contained in the waste gases from an installation that is not to be exceeded. Unless otherwise specified, it shall be calculated in terms of mass of pollutant per volume of the waste gases (expressed as mg/m³), assuming standard conditions for temperature and pressure for dry gas (volume at 273.15 K, 101.3 kPa). With regard to the oxygen content of the waste gas, the values given for selected major stationary source categories shall apply. Dilution for the purpose of lowering concentrations of pollutants in waste gases is not permitted. Start-up, shutdown and maintenance of equipment are excluded.
6. Emissions shall be monitored in all cases via measurements or through calculations achieving at least the same accuracy. Compliance with limit values shall be verified through continuous or discontinuous measurements, or any other technically sound method including verified calculation methods. Measurements of relevant heavy metals shall be made at least once every three years for each industrial source. Guidance documents on the methods for undertaking measurements and calculations adopted by the

Parties at the session of the Executive Body shall be taken into account. In case of continuous measurements, compliance with the limit value is achieved if the validated monthly emission average does not exceed the ELV. In case of discontinuous measurements or other appropriate determination or calculation procedures, compliance with the ELVs is achieved if the mean value based on an appropriate number of measurements under representative conditions does not exceed the value of the emission standard. The inaccuracy of the measurement methods may be taken into account for verification purposes. Indirect monitoring of substances is also possible via sum parameters/ cumulative parameters (e.g., dust as a sum parameter for heavy metals). In some cases using a certain technique to treat emissions can assure a value/limit value is maintained or met.

7. Monitoring of relevant polluting substances and measurements of process parameters, as well as the quality assurance of automated measuring systems and the reference measurements to calibrate those systems, shall be carried out in accordance with CEN standards. If CEN standards are not available, ISO standards, national standards or international standards which will ensure the provisions of data of an equivalent scientific quality shall apply.

Combustion plants (boilers and process heaters) with a rated thermal input exceeding 50 MWth¹ (annex II, category 1)

8. Limit values for dust emissions for combustion of solid and liquid fuels, other than biomass and peat²

¹ The rated thermal input of the combustion plant is calculated as the sum of the input of all units connected to a common stack. Individual units below 15 MWth shall not be considered when calculating the total rated thermal input.

² In particular, the ELVs shall not apply to:

- Plants using biomass and peat as their only fuel source
- Plants in which the products of combustion are used for direct heating, drying, or any other treatment of objects or materials;
- Post-combustion plants designed to purify the waste gases by combustion which are not operated as independent combustion plants;
- Facilities for the regeneration of catalytic cracking catalysts;
- Facilities for the conversion of hydrogen sulphide into sulphur;
- Reactors used in the chemical industry;
- Coke battery furnaces;
- Cowpers;
- Recovery boilers within installations for the production of pulp;
- Waste incinerators; and
- Plants powered by diesel, petrol or gas engines or by combustion turbines, irrespective of the fuel used.

Table 1

<i>Fuel type</i>	<i>Thermal input (MWth)</i>	<i>ELV for dust (mg/m³)^a</i>
Solid fuels	50–100	New plants: 20 (coal, lignite and other solid fuels)
		Existing plants: 30 (coal, lignite and other solid fuels)
		100–300
	100–300	New plants: 20 (coal, lignite and other solid fuels)
		Existing plants: 25 (coal, lignite and other solid fuels)
		>300
	>300	New plants: 10 (coal, lignite and other solid fuels)
		Existing plants: 20 (coal, lignite and other solid fuels)
		Liquid fuels 50–100
Liquid fuels 50–100	New plants: 20	
	Existing plants: 30 (in general) 50 for the firing of distillation and conversion residues within refineries from the refining of crude oil for own consumption in combustion plants	
	Liquid fuels 100–300	
Liquid fuels 100–300	New plants: 20	
	Existing plants: 25 (in general) 50 for the firing of distillation and conversion residues within refineries from the refining of crude oil for own consumption in combustion plants	
	>300	
>300	New plants: 10	
	Existing plants: 20 (in general) 50 for the firing of distillation and conversion residues within refineries from the refining of crude oil for own consumption in combustion plants	

^a Limit values refer to an oxygen content of 6% for solid fuels and 3% for liquid fuels.

9. Special provisions for combustion plants referred to in paragraph 8:

(a) A Party may derogate from the obligation to comply with the ELVs provided for in paragraph 8 in the following cases:

(i) For combustion plants normally using gaseous fuel which have 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;

(ii) For existing combustion plants not operated more than 17,500 operating hours, starting from 1 January 2016 and ending no later than 31 December 2023;

(b) Where a combustion plant is extended by at least 50 MWth, the ELV specified in paragraph 8 for new installations shall apply to the extensional part affected by the change. The ELV is calculated as an average weighted by the actual thermal input for both the existing and the new part of the plant;

(c) Parties shall ensure that provisions are made for procedures relating to malfunction or breakdown of the abatement equipment;

(d) In the case of a multi-fuel firing combustion plant involving the simultaneous use of two or more fuels, the ELV shall be determined as the weighted average of the ELVs for the individual fuels, on the basis of the thermal input delivered by each fuel.

Primary and secondary iron and steel industry (annex II, category 2 and 3)

10. Limit values for dust emissions:

Table 2

<i>Activity</i>	<i>ELV for dust (mg/m³)</i>
Sinter plant	50
Pelletization plant	20 for crushing, grinding and drying 15 for all other process steps
Blast furnace: hot stoves	10
Basic oxygen steelmaking and casting	30
Electric steelmaking and casting	15 (existing) 5 (new)

Iron foundries (annex II, category 4)

11. Limit values for dust emissions for iron foundries:

Table 3

<i>Activity</i>	<i>ELV for dust (mg/m³)</i>
Iron foundries: all furnaces (cupola, induction, rotary); all mouldings (lost, permanent)	20
Hot rolling	20 50 where a bag filter cannot be applied due to the presence of wet fumes

Production and processing of copper, zinc and silico- and ferro- manganese alloys, including Imperial Smelting furnaces (annex II, categories 5 and 6)

12. Limit value for dust emissions for copper, zinc and silico- and ferromanganese alloys production and processing:

Table 4

	<i>ELV for dust (mg/m³)</i>
Non-ferrous metal production and processing	20

Production and processing of lead (annex II, categories 5 and 6)

13. Limit value for dust emissions for lead production and processing:

Table 5

	<i>ELV for dust (mg/m³)</i>
Lead production and processing	5

Cement industry (annex II, category 7)

14. Limit values for dust emissions for cement production:

Table 6

	<i>ELV for dust (mg/m³)^a</i>
Cement installations, kilns, mills and clinker coolers	20
Cement installations, kilns, mills and clinker coolers using coincineration of waste	20

^a Limit values refer to an oxygen content of 10%.

Glass industry (annex II, category 8)

15. Limit values for dust emissions for glass manufacturing:

Table 7

	<i>ELV for dust (mg/m³)^a</i>
New installations	20
Existing installations	30

^a Limit values refer to an oxygen content of 8% for continuous melting and 13% for discontinuous melting.

16. Limit value for lead emissions for glass manufacturing: 5 mg/m³.

Chlor-alkali industry (annex II, category 9)

17. Existing chlor-alkali plants using the mercury cell process shall convert to use of mercury free technology or close by 31 December 2020; during the period up until conversion the levels of mercury released by a plant into the air of 1 g per Mg³ chlorine production capacity apply.

18. New chlor-alkali plants are to be operated mercury free.

³ 1 Mg = 1 tonne.

Waste incineration (annex II, categories 10 and 11)

19. Limit value for dust emissions for waste incineration:

Table 8

<i>ELV for dust (mg/m³)^a</i>	
Municipal, non-hazardous, hazardous and medical waste incineration	10

^a Limit value refers to an oxygen content of 11%.

20. Limit value for mercury emissions for waste incineration: 0.05 mg/m³.

21. Limit value for mercury emissions for co-incineration of waste in source categories 1 and 7: 0.05 mg/m³.

B. United States of America

22. Limit values for controlling emissions of particulate matter and/or specific heavy metals from stationary sources in the following stationary source categories, and the sources to which they apply, are specified in the following documents:

- (a) Steel Plants: Electric Arc Furnaces — 40 C.F.R. Part 60, Subpart AA and Subpart AAa;
- (b) Small Municipal Waste Combustors — 40 C.F.R. Part 60, Subpart AAAA;
- (c) Glass Manufacturing — 40 C.F.R. Part 60, Subpart CC;
- (d) Electric Utility Steam Generating Units — 40 C.F.R. Part 60, Subpart D and Subpart Da;
- (e) Industrial-Commercial-Institutional Steam Generating Units — 40 C.F.R. Part 60, Subpart Db and Subpart Dc;
- (f) Municipal Waste Incinerators — 40 C.F.R. Part 60, Subpart E, Subpart Ea and Subpart Eb;
- (g) Hospital/Medical/Infectious Waste Incinerators — 40 C.F.R. Part 60, Subpart Ec;
- (h) Portland Cement — 40 C.F.R. Part 60, Subpart F;
- (i) Secondary Lead Smelters — 40 C.F.R. Part 60, Subpart L;
- (j) Basic Oxygen Process Furnaces — 40 C.F.R. Part 60, Subpart N;
- (k) Basic Process Steelmaking Facilities (after 20 January 1983) — 40 C.F.R. Part 60, Subpart Na;
- (l) Primary Copper Smelters — 40 C.F.R. Part 60, Subpart P;
- (m) Primary Zinc Smelters — 40 C.F.R. Part 60, Subpart Q;

- (n) Primary Lead Smelters — 40 C.F.R. Part 60, Subpart R;
 - (o) Ferroalloy Production Facilities — 40 C.F.R. Part 60, Subpart Z;
 - (p) Other Solid Waste Incineration Units (after 9 December 2004) — 40 C.F.R. Part 60, Subpart EEEE;
 - (q) Secondary lead smelters — 40 C.F.R. Part 63, Subpart X;
 - (r) Hazardous waste combustors — 40 C.F.R. Part 63, Subpart EEE;
 - (s) Portland cement manufacturing — 40 C.F.R. Part 63, Subpart LLL;
 - (t) Primary copper — 40 C.F.R. Part 63, Subpart QQQ;
 - (u) Primary lead smelting — 40 C.F.R. Part 63, Subpart TTT;
 - (v) Iron and steel foundries — 40 C.F.R. Part 63, Subpart EEEEE;
 - (w) Integrated iron and steel manufacturing — 40 C.F.R. Part 63, Subpart FFFFF;
 - (x) Electric Arc Furnace Steelmaking Facilities — 40 C.F.R. Part 63, Subpart YYYYY;
 - (y) Iron and steel foundries — 40 C.F.R. Part 63, Subpart ZZZZ;
 - (z) Primary Copper Smelting Area Sources — 40 C.F.R. Part 63, Subpart EEEEE;
 - (aa) Secondary Copper Smelting Area Sources — 40 C.F.R. Part 63, Subpart FFFFF;
 - (bb) Primary Nonferrous Metals Area Sources: Zinc, Cadmium, and Beryllium — 40 C.F.R. Part 63, Subpart GGGGG;
 - (cc) Glass manufacturing (area sources) — 40 C.F.R. Part 63, Subpart SSSSS;
 - (dd) Secondary Nonferrous Metal Smelter (Area Sources) — 40 C.F.R. Part 63, Subpart TTTTT;
 - (ee) Ferroalloys Production (Area Sources) — 40 C.F.R. Part 63, Subpart YYYYY;
 - (ff) Aluminum, Copper, and Nonferrous Foundries (Area Sources) — 40 C.F.R. Part 63, Subpart ZZZZZ;
 - (gg) Standards of Performance for Coal Preparation and Processing Plants — 40 C.F.R. Part 60, Subpart Y;
 - (hh) Industrial, Commercial, Institutional and Process Heaters — 40 C.F.R. Part 63, Subpart DDDDD;
 - (ii) Industrial, Commercial and Institutional Boilers (Area Sources) — 40 C.F.R. Part 63, Subpart JJJJJ;
 - (jj) Mercury Cell Chlor-Alkali Plants — 40 C.F.R. Part 63, Subpart IIII;
- and
- (kk) Standards of Performance Commercial and Industrial Solid Waste Incineration Units for which Construction is Commenced after November 30, 1999, or for which Modification or Reconstruction is Commenced on or after 1 June 2001 — 40 C.F.R. Part 60, Subpart CCCC.

(I) Annex VI

27. In paragraph 1:
 - (a) The words “Except as otherwise provided in this annex, no” are deleted and replaced by “No”;
 - (b) The words “six months after” are deleted;
 - (c) The words “for a Party” are added after the word “Protocol”.
28. Paragraph 3 is deleted.
29. In paragraph 4, the word “A” is replaced by the words “Notwithstanding paragraph 1, a”.
30. In paragraph 5, the following text is substituted for the chapeau prior to subparagraph (a):

Each Party shall, no later than the date of entry into force of this Protocol for that Party, achieve concentration levels which do not exceed: