

Annex IV

LIMIT VALUES FOR EMISSIONS OF SULPHUR FROM STATIONARY SOURCES

1. Section A applies to Parties other than Canada and the United States of America, section B applies to Canada and section C applies to the United States of America.

A. Parties other than Canada and the United States of America

2. For the purpose of section A, except table 2 and paragraphs 11 and 12, limit value means the quantity of a gaseous substance 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 exhaust gas, the values given in the tables below for each source category 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.

3. Emissions shall be monitored 1/in all cases. Compliance with limit values shall be verified. The methods of verification can include continuous or discontinuous measurements, type approval, or any other technically sound method.

4. Sampling and analysis of pollutants, as well as reference measurement methods to calibrate any measurement system, shall be carried out in accordance with the standards laid down by the European Committee for Standardization (CEN) or by the International Organization for Standardization (ISO). While awaiting the development of CEN or ISO standards, national standards shall apply.

5. Measurements of emissions should be carried out continuously when emissions of SO₂ exceed 75 kg/h.

6. In the case of continuous measurement for new plant, compliance with the emission standards is achieved if the calculated daily mean values do not exceed the limit value and if no hourly value exceeds the limit value by 100%.

7. In the case of continuous measurements for existing plant, compliance with the emission standards is achieved if (a) none of the monthly mean values exceeds the limit values; and (b) 97% of all the 48-hour mean values do not exceed 110% of the limit values.

8. In the case of discontinuous measurements, as a minimum requirement, compliance with the emission standards 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.

9. Boilers and process heaters with a rated thermal input exceeding 50 MW_{th}:

Table 1. Limit values for SO_x emissions released from boilers a/

	Thermal input(MW _{th})	Limit value(mg SO ₂ /Nm ³) ^{b/}	Alternative for domestic solid fuels removal efficiency
Solid and liquid fuels, new installations	50 - 100	850	90% ^{d/}
	100 - 300	850 - 200 ^{c/} (linear decrease)	92% ^{d/}
	> 300	200 ^{c/}	95% ^{d/}
Solid fuels, existing installations	50 - 100	2000	
	100 - 500	2000 - 400(linear decrease)	
	> 500	400	
	50 - 150		40%
	150 - 500		40 - 90%(linear increase)
> 500		90%	
Liquid fuels, existing installations	50 - 300	1700	
	300 - 500	1700 - 400(linear decrease)	
	> 500	400	
Gaseous fuels in general, new and existing installations		35	
Liquefied gas, new and existing installations		5	
Low-calorific-value gases(e.g. gasification of refinery residues or combustion of coke oven gas)		new 400	
		existing 800	
Blast-furnace gas		new 200	
		existing 800	
New combustion plant in refineries (average of all new combustion installations)	> 50 (total refinery capacity)	600	
Existing combustion plant in refineries (average of all existing combustion installations)		1000	

a/ In particular, the limit values shall not apply to:

- Plant in which the products of combustion are used for direct heating, drying, or any other treatment of objects or materials, e.g. reheating furnaces, furnaces for heat treatment;
- Post-combustion plant, i.e. any technical apparatus designed to purify the waste gases by combustion that is not operated as an independent combustion plant;
- 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;
- Waste incinerators; and
- Plant powered by diesel, petrol or gas engines or by combustion turbines, irrespective of the fuel used.

b/ The O₂ reference content is 6% for solid fuels and 3% for others.

c/ 400 with heavy fuel oil S <0.25%.

d/ If an installation reaches 300 mg/Nm³ SO₂, it may be exempted from applying the removal efficiency.

10. Gas oil:

Table 2. Limit values for the sulphur content of gas oil a/

	Sulphur content (per cent by weight)
Gas oil	< 0.2 after 1 July 2000 < 0.1 after 1 January 2008

a/ "Gas oil" means any petroleum product within HS 2710, or any petroleum product which, by reason of its distillation limits, falls within the category of middle distillates intended for use as fuel and of which at least 85 per cent by volume, including distillation losses, distills at 3500C. Fuels used in on-road and non-road vehicles and agricultural tractors are excluded from this definition. Gas oil intended for marine use is included in the definition if it meets the description above or it has a viscosity or density falling within the ranges of viscosity or density defined for marine distillates in table I of ISO 8217 (1996).

11. Claus plant: for plant that produces more than 50 Mg of sulphur a day:

- (a) Sulphur recovery 99.5% for new plant;
- (b) Sulphur recovery 97% for existing plant.

12. Titanium dioxide production: in new and existing installations, discharges arising from digestion and calcination steps in the manufacture of titanium dioxide shall be reduced to a value of not more than 10 kg of SO₂ equivalent per Mg of titanium dioxide produced.

B. Canada

13. Limit values for controlling emissions of sulphur dioxide from new stationary sources in the following stationary source category will be determined on the basis of available information on control technology and levels including limit values applied in other countries and the following document: Canada Gazette, Part I. Department of the Environment. Thermal Power Generation Emissions - National Guidelines for New Stationary Sources. May 15, 1993. pp. 1633-1638.

C. United States of America

14. Limit values for controlling emissions of sulphur dioxide from new stationary sources in the following stationary source categories are specified in the following documents:

- (a) Electric Utility Steam Generating Units - 40 Code of Federal Regulations (C.F.R.) Part 60, Subpart D, and Subpart Da;
- (b) Industrial-Commercial-Institutional Steam Generating Units - 40 C.F.R. Part 60, Subpart Db, and Subpart Dc;
- (c) Sulphuric Acid Plants - 40 C.F.R. Part 60, Subpart H;
- (d) Petroleum Refineries - 40 C.F.R. Part 60, Subpart J;
- (e) Primary Copper Smelters - 40 C.F.R. Part 60, Subpart P;
- (f) Primary Zinc Smelters - 40 C.F.R. Part 60, Subpart Q;
- (g) Primary Lead Smelters - 40 C.F.R. Part 60, Subpart R;
- (h) Stationary Gas Turbines - 40 C.F.R. Part 60, Subpart GG;
- (i) Onshore Natural Gas Processing - 40 C.F.R. Part 60, Subpart LLL;
- (j) Municipal Waste Combustors - 40 C.F.R. Part 60, Subpart Ea, and Subpart Eb; and
- (k) Hospital/Medical/Infectious Waste Incinerators - 40 C.F.R. Part 60, Subpart Ec.

Note

1/ Monitoring is to be understood as an overall activity, comprising measuring of emissions, mass balancing, etc. It can be carried out continuously or discontinuously.