



THE SOCIALIST REPUBLIC OF VIETNAM

QCVN 22: 2009/BTNMT

**NATIONAL TECHNICAL REGULATION ON EMISSION
OF THERMAL POWER INDUSTRY**

(This English version is for reference only)

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Foreword

QCVN 22 :2009/BTNMT was prepared by the Committee of National Technical Regulations on atmosphere quality, submitted for approval by the General Department of Environment, Department of Science and Technology, and the Legal Department and promulgated under the Circular No.25/2009/TT-BTNMT dated on 16 November 2009 of the Minister of Natural Resources and Environment.

National Technical Regulation on Emission of Thermal Power Industry

1. GENERAL PROVISIONS

1.1 Scope of regulation

This Technical regulation specifies maximum allowable concentration of pollution parameters in Emission of Thermal Power Industry when emitting into air environment

1.2. Subject of application

This Technical regulation is applicable to organizations and individuals related to the operation of emission of Thermal Power Industry in the air environment

1.3. Explanation of terms

In this Regulation, the following terms can be expressed as follows:

1.3.1. Emissions of Thermal Power Industry are a mixture of material compositions which emitting into the air environment from smokestacks, exhaust pipe of the thermal power plants

1.3.2. The thermal power plant is defined in this technical regulation using the technology of fossil fuels (coal, oil, gas) to produce power.

1.3.3. K_p is the power coefficient corresponding to a total design capacity of the thermal power plants.

1.3.4. K_v is the area coefficient corresponding to the location of the thermal power plants.

1.3.5. P is a total design capacity of the thermal power plants, including a unit or units.

1.3.6. Standard Emission cubic meters (Nm³) is a cubic meter of emission at a temperature of 25⁰C and a absolute pressure of 760 mm of mercury

2. TECHNICAL REGULATIONS

2.1. Maximum allowable concentration of pollution parameters in Emission of Thermal Power Industry is calculated as follows:

$$C_{\max} = C \times K_p \times K_v$$

In which:

- C_{\max} is maximum allowable concentration of pollution parameters in emission of thermal power industry, is calculated by miligrams per cubic meters of Standard Emission (mg/Nm³);

QCVN 22: 2009/BTNMT

- C is concentration of pollution parameters in emission of thermal power industry defined in section 2.2 ;
- K_p is Power coefficient defined in section 2.3;
- K_v is the area coefficient defined in section 2.4;

2.2. Concentration C of pollution parameters as a basic to calculate maximum allowable concentration of pollution parameters in emission of thermal power industry defined in table 1 as follows:

Table 1: Concentration C of pollution parameters in emission of thermal power industry

No	Parameter	Concentration C (mg/Nm ³)			
		A	B (Depending on type of using fuel)		
			Coal	Oil	Gas
1	Total dust	400	200	150	50
2	Nitrogen, NO _x (calculated by NO ₂)	1000	- 650 (coal with volatile content > 10%) - 1000 (coal with volatile ≤ 10%)	600	250
3	sulfur dioxide SO ₂	1500	500	500	300

Note: According to type of used fuel, maximum allowable concentration of pollution parameters as NO_x, SO₂ and dust in the emission of thermal power plants are defined in table 3. This concentration values is calculated in standard condition. For thermal power plant uses coal, the concentration of residual oxygen (O₂) in the emission is 6% for gas turbines, the concentration of residual oxygen in the emission is 15%.

In which:

- Column A defines concentration C as a basis to calculate the maximum allowable concentration of pollution parameters in the emission of thermal power industry for thermal power plants operating before 17 October 2005 with applicable time to December 31, 2014.
- Column B defines concentration C as a basis to calculate the maximum allowable concentration of pollution parameters in the emission of thermal power industry applies to:
 - + nits of thermal power plant have operated since October 17, 2005.
 - + All units of thermal power plants with applicable time from 01 January 2015.
- In addition to 03 parameters are defined in Table 1, according to demand and purpose of pollution control, the concentration of other pollution parameters are applied in accordance with column A or column B in Table 1 of QCVN19: 2009 / BTNMT- National Technical Regulation for industrial emissions for dust and inorganic substances.

2.3. Power coefficient K_p of the thermal power plant is defined in table 2 as follows:

Table 2: Power coefficient K_p

Design capacity of thermal power plant (MW)	Coefficient K_p
$P \leq 300$	1
$300 < P \leq 1200$	0,85
$P > 1200$	0,7

2.4. The area coefficient value K_v of thermal power plant is defined in table 3 as follows:

Table 3: Coefficient K_v of thermal power plant

Zone, area		Coefficient K_v
Type 1	special city and urban areas, and the first grade-city ⁽¹⁾ ; special- use forests ⁽²⁾ ; natural heritage, historical relics, rated cultural ⁽³⁾ ; the thermal power plants	0,6
Type 2	Urban areas, Court savant and the fourth, third, second grade-city ⁽¹⁾ ; special vicinity, the first grade - city with distance to the boundary of urban area is greater than or equals to 05km; thermal power plants with distance to the boundary of this area below 05 km.	0,8
Type 3	Industrial Zone, the fifth grade - city ⁽¹⁾ ; suburbs and outskirts of the fourth, third, second grade-city with distance to the boundary of the Urban areas, Court savant is greater than or equal to 05 km, thermal power plants with distance to the boundary of this area below 05 km ⁽⁴⁾ .	1,0
Type 4	Countryside	1,2
Type 5	Mountain	1,4

Note:

⁽¹⁾ Urban is determined in accordance with Decree No. 42/2009/ND-CP May 7, 2009 by the Government on the classification of urban areas;

⁽²⁾ Special-use forests are identified by the Law on Protection and Development of Forests December 14, 2004 including national parks, nature reserves, landscape protected areas, Forestry research, experimental science;

⁽³⁾ Natural heritage, historical relics, rated cultural are decided establishment and ratings by UNESCO, the Prime Minister or the managing;

⁽⁴⁾ In case, the emissions source have a distance to 02 areas and over is smaller than 02 km, then applying area coefficient , K_v area for area with smallest coefficient

⁽⁵⁾ The specified distances in Table 3 are calculated from the emission source.

3. DETERMINATION METHOD

3.1. Methods to determine concentrations of pollution parameters in emission of thermal power industry comply with the following national standards:

- TCVN 5977:2005 Stationary source emission. Determination of concentration and mass flow rate of particulate material in gas - carrying ducts. Manual gravimetric method;
- TCVN 6750:2005 Stationary source emissions – Determination of mass concentration of sulfur dioxide – Ion chromatography method;
- TCVN 7172:2002 Stationary source emissions. Determination of the mass concentration of nitrogen oxides – Naphthylethylenediamine photometric method;

3.2. When there is no national standard for determining the concentrations of the pollution parameters in emission of thermal power industry site specified in this regulation, applying to international standards with accuracy equal to or higher.

4. ORGANIZATION OF IMPLEMENTATION

4.1. This regulation is replaced the application of Vietnam Standard TCVN 7440 :2005 Emission standards for thermal power industry which is issued enclosed with Decision No. 07/2005 /QD-BTNMT dated September 20th, 2006 of the Minister of Natural Resources and Environment on the obligatory application of Vietnam standards TCVN 7440 :2005 -Emission standards for thermal power industry

4.2. State management agency on environment shall take responsibility to guide, inspect and supervise the implementation of this regulation.

4.3. In cases, the national standards for determining methods cited in Section 3.1 of this regulation are amended, supplemented or replaced, then apply the new standard.
