

EMISSIONS STANDARDS

CHINA



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China implemented the Environmental Protection Law in 1989. It established the framework for protecting the environment, including setting standards, assessing (and limiting) environmental impacts, fines for pollution, and bans on polluting technologies/facilities. The emissions standards are published on the Chinese Environmental Standards Net at <http://www.es.org.cn/>. The emissions limit values for air pollutants from coal combustion are given in GB13223-2011 (Emission Standard for Air Pollutants from Thermal Power Plants, available from <http://www.es.org.cn/download/2011/6-12/2239-1.pdf>) and GB13271-2014 (Emission Standard for Air Pollutions for Boiler, available from <http://www.es.org.cn/siteadmin/File/StdView.php?bzlistID=1363>).

1. Emission standards for air pollutants from coal-fired power plants (GB13223-2011)

Emission standard of air pollutants for thermal power plants (GB13223-2011) came into force from 1 Jan 2012, replacing GB13223-2003. It applies to all pulverised coal combustion power generating boilers, and all coal-fired power generating boilers with unit capacity larger than 65 tonnes/hour (t/h) except for stokers. Ganguge-fired power generating unit with capacity larger than 65 t/h should meet the emission standards for circulating fluidised bed (CFB) thermal power generating boilers. The gas turbines of integrated coal gasification combined cycle (IGCC) power generating units should meet emission limit values for natural gas-fired turbines.

Air pollutants emissions control requirements

Pollutant	Application	Emission limit values, mg/m ³	Location of monitoring and emissions controls
Particulate, mg/m ³	all	30	stack and flue
SO ₂ , mg/m ³	new boiler	100	stack and flue
		200 ^a	
	existing boiler	200	
		400 ^a	
NO _x (as NO ₂), mg/m ³	all	100	stack and flue
		200 ^b	
Mercury and mercury compounds, mg/m ³	all	0.03	stack and flue
Opacity (Ringelmann smoke chart)	all	1	stack vent

- a Emission limits apply to plants in Guangxi Zhuang Autonomous Region, Chongqing Municipality, Sichuan Province and Guizhou Province.
- b Emission limit applies to arch fired furnaces, existing CFB power generating boilers, and power generating boilers commissioned or which received approval for construction before 31 December 2003.

Notes

- 1 Existing thermal power generating boilers should meet the emission limit values for particulate, sulphur dioxide, nitrogen oxides and opacity from 1 July 2014.
- 2 New thermal power generating boilers should meet the emission limit values for particulate, sulphur dioxide, nitrogen oxides and exhaust gas opacity from 1 January 2012.
- 3 Coal-fired boilers should meet the emission limit values for mercury and mercury compounds from 1 January 2015.

Special air pollutant emissions control requirements for key regions

Coal-fired power plants located within the key regions should meet the following special emission limit values:

Pollutant	Application	Emission limit values, mg/m ³	Location of monitoring and emissions controls
Particulate, mg/m ³	all	29	stack and flue
SO ₂ , mg/m ³	all	50	stack and flue
NO _x (as NO ₂), mg/m ³	all	100	stack and flue
Mercury and mercury compounds, mg/m ³	all	0.03	stack and flue
Opacity (Ringelmann smoke chart)	all	1	stack vent

The key regions include the following areas@

Beijing City, Tianjin City, Hebei Province, Yangzi River Delta, Pearl River Delta, Central Liaoning Province, Shandong Province, Wuhan City and surrounding areas, Changsha City, Zhuzhou City, Xiangtan City, Chengdu and Chongqing City, coastal areas of Fujian Province, Central and Northern Shanxi Province, Guanzhong Region of Shaanxi Province, Gansu Province, Ningxia Province, Wulumuqi (Ürümqi, Xinjiang Uyghur Autonomous Region).

2. Emissions standards for air pollution from coal-fired boilers

Emission limit values (ELVs) for air pollutants from in-use boilers (GB13271-2001)

Before 30 September 2015, in-use steam boilers with capacity larger than 10 t/h and in-use hot water boilers with capacity of 7 MW should meet the following emission limit values.

ELVs for particulate matter from coal-fired boilers installed with emission control equipments (GB13271-2001)

Boiler type	Applicable area	Emission limit values, mg/m ³		Opacity (Ringelmann smoke chart)
		Period I	Period II	
Natural circulation (<0.7 MW (1 t/h))	zone 1	100	80	1
	zone 2, 3	150	120	
Other boilers	zone 1	100	80	1
	zone 2	250	200	
	zone 3	350	250	

Ambient air function area classification

by 31 December 2015 (GB3095—1996):

Zone 1: nature reserves, famous tourist sites and other areas in need of special protection;

Zone 2: residential areas, commercial traffic and residential mixed areas, cultural district, general industrial and rural areas as defined in town planning;

Zone 3: Specific industrial areas.

From 1 January 2016 (GB3095—2012, replace GB3095—1996):

Zone 1: nature reserves, famous tourist sites and other areas in need of special protection;

Zone 2: residential areas, commercial traffic and residential mixed areas, cultural district, industrial and rural areas as defined in town planning.

ELVs for particulate matter from coal-fired boilers without emission control equipments (GB13271-2001)

Boiler type	Ash content of coal, as-received, %	Emission limit values, mg/m ³		Opacity (Ringelmann smoke chart)	
		Period I	Period II		
Layer-combustion stoker	natural circulation (<0.7 MW (1 t/h))		150	120	1
	other boilers (≤2.8 MW (4 t/h))	≤25	1800	1600	1
		>25	2000	1800	
	other boilers (>2.8 MW (4 t/h))	≤25	2000	1800	1
>25		2200	2000		
Fluidised bed	CB boilers		15000	15000	1
	other boilers		20000	18000	
Spreader-stoker			5000	5000	1

ELVs for SO₂ from coal-fired boilers (GB13271-2001)

Applicable area	Emission limit values, mg/m ³	
	Period I	Period II
All zones	1200	900

Note: Reference condition for above standards is 0°C, 101.325 kPa and on a dry flue gas basis.

From 1 October 2015, in-use steam boilers with capacity larger than 10 t/h and in-use hot water boilers with capacity larger 7 MW should meet the following emission limit values. From 1 July 2016, in-use steam boilers with capacity smaller than 10 t/h and in-use hot water boilers with capacity smaller 7 MW should meet the following emission limit values.

ELVs for air pollutants from in-use coal-fired boilers (GB13271-2014)

Pollutant	Emission limit values, mg/m ³	Monitoring locations
Particulate	80	stack or flue
SO ₂	400	
	550*	
Nitrogen oxides	400	
Hg and mercury compounds	0.05	
Opacity (Ringelmann smoke chart)	≤1	stack exit

* Value applicable to in-use coal-fired boilers located in Guangxi Zhuang Autonomous Region, Chongqing City, Sichuan Province and Guizhou Province.

ELVs for air pollutants from new coal-fired boilers (GB13271-2014)

Pollutant	Emission limit values, mg/m ³	Monitoring locations
Particulate	50	stack or flue
SO ₂	300	
Nitrogen oxides	300	
Hg and mercury compounds	0.05	
Opacity (Ringelmann smoke chart)	≤1	stack exit

Special limitation for air pollutants from coal-fired boilers located in key region (GB13271-2014)

Coal-fired boilers located in the key region should meet the following emission limit values. The geographical area and time to which the special ELVs should apply are set by Environmental Protection Administrative Department of the State Council or Provincial government.

Pollutant	Emission limit values, mg/m ³	Monitoring locations
Particulate	30	stack or flue
SO ₂	200	
Nitrogen oxides	200	
Hg and mercury compounds	0.05	
Opacity (Ringelmann smoke chart)	≤1	stack exit

This paper reflects the IEACCC understanding of the relevant legislation and is not a substitute for the official version. The IEACCC does not guarantee the accuracy of the data included in this paper and accepts no responsibility for any consequences of their use.

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