



Japan

The Ministry of the Environment (MOE) of Japan was formed in 2001 from the sub-cabinet level Environmental Agency established in 1971. MOE is responsible for establishing and implementing environmental policy, regulations on air pollution control, monitoring and management, setting up the basic environmental plan and the regional environmental pollution control programme, and so on. The primary law on environmental protection, namely the Basic Law for Environmental Pollution Control, came into force in 1967 and it was replaced in 1993 by the 'Basic Environment Law' that emphasises sustainable development. In 1968, the *Air Pollution Control Law* was enacted providing the basis for air pollution legislation in Japan. The laws have been amended over the years. The latest amendment is 10 April 1998 (see www.env.go.jp/en/air/aq/air.html).

Regulatory measures against air pollutants emitted from factories and business sites are set out in the form of:

- emission/discharge standard, K value control, that limits the amount of flue gas emission;
- total amount control that limits the total amount of an air pollutant emitted into the atmosphere; and
- ambient air quality standard that limits the concentration of air pollutants in the ambient atmosphere.

Emission standards for soot and dust

Emission standards for soot and dust emitted from coal combustion boilers and gasifiers

Type	Specification	Capacity, Nm ³ /h	General standard, mg/Nm ³	Special standard, mg/Nm ³
coal boiler	heating area: 10 m ² or above	≥200,000	100	50
		≥40,000 and <200,000	200	100
		<40,000	300	150
gasifier	coal consumption: 20 t/day or above		50	30

Emission standards for sulphur oxides

In Japan, the allowable discharge amount of sulphur oxides (as SO₂) is limited on the basis of the value estimated from a constant, K, that is determined at every designated area, and the effective stack height, He. The advantage of this standard is that it allows more stringent regulations in vulnerable areas by making K smaller. Emission limit values for SO₂ can be calculated using the following formula:

$$q = K \times 10^{-3} \times He^2$$

where:

q is the permissible hourly emission volume of sulphur oxides (Nm³/h);

He is the effective height (in metres) of the stack and equals the sum of the actual height of the stack and the smoke (exhaust gas) ascent height; and

K is a constant – its value varies according to the region where the plant is located.

Regulations on total amount of SO₂ emissions are also set at each area and/or plant based on the total emission reduction plan.

K values for general emission standards

Rank	K value	Area
1	3	special wards of Tokyo, Yokohama/Kawasaki, Nagoya, Yokkaichi, Osaka/Sakai, Kobe/Amagasaki, Kishiwada
2	3.5	Kawaguchi/Soka, Chiba/Ichihara, Shimizu, Fujinomiya/Fiji, Handa/Hekinan, Kyoto, Himeji, Wakayama, Arao, Kurashiki (Mizushima), Kurashiki (excluding Mizushima), Bizen, Fukuyama, Otake, Ube, Tokuyama, Iwakuni, Niihama, Kitakyushu, Ohmuta, Ohita
3	4	Sapporo
4	4.5	Muroran, Hitachi, Kashima, Hofu
5	5	Toyama/Takaoka, Kure, Toyo/Komatsu
6	6	Hachinohe, Iwaki, An'naka, Niigata, Okayama, Shimonoseki, Marugame/Sakaide, Kawanoe
7	6.42	Tomakomai, Hachioji, Kasaoka
8	7	Sendai, Ashikaga, Tochigi, Fukui, Hamamatsu, Hiroshima
9	8	Otaru, Asahikawa, Sakata, Utsunomiya, Tsuruga, Takehara, Mihara/Onomichi, Tokushima/Anan
10	8.76	Akita, Kanazawa, Toyohashi, Otsu, Aioi, Fukuoka, Nagasaki, Nobeoka
11	9	Takasaki (excluding Yawatamachi), Kawagoe/Urawa, Noda/Narita, Ichinomiya/Inuyama, Seto, Naha
12	10	Kushiro, Takefu/Sabae, Shizuoka, Sasebo
13	11.5	Hakodate, Ishinomaki, Natori, Koriyama, Katsuta, Hiratsuka/Kamakura, Joetsu, Gifu/Ogaki, Tajimi, Fukuchiyama, Takamatsu, Matsuyama, Yatsushiro, Minamata, Sendai
14	13	Shibukawa, Numazu/Mishima, Tamano, Naruto, Kurume, Itoman
15	14.5	Aomori, Morioka, Miyako, Kamaishi, Yamagata, Tsuchiura, Furukawa, Chichibu, Choshi, Mobarra, Nagaoka, Nagano, Matsumoto, Kuwana/Suzuka, Hikone/Nagahama, Nishiwaki/Miki, Imabari, Kumamoto, Hyuga, Kagoshima
16	17.5	others

K values for special emission standards

Rank	K value	Area
1	1.17	special wards of Tokyo, Osaka/Sakai, Yokohama/Kawasaki, Kobe/Amagasaki, Yokkaichi, Nagoya
2	1.75	Chiba/Ichihara, Fuji, Handa/Hekinan, Kishiwada/Ikeda, Himeji, Wakayama/Kainan, Kurashiki (Mizushima), Kitakyushu
3	2.34	Kashima, Kawaguchi/Soka, Toyama/Takaoka, Shimizu, Kyoto, Fukuyama, Ohtake, Ube, Tokuyama, Iwakuni, Marugame/Sakaide, Niihama, Ohmuta, Ohita

Emission standards for NO_x

The same emission limit values for NO_x apply to both existing and new plants.

National emission standards for NO_x (as NO₂) emitted from coal combustion boilers and gasifiers

Type	Specification	Capacity, Nm ³ /h	Emission standard, ppm
coal boiler	heating area: 10 m ² or above	≥700,000	200
		≥40,000 and <700,000	250
		<40,000	300
gasifier	coal consumption: 20 t/day or above		150

General notes

General standards are national standards applying to existing plants. Special standards apply to new plants in the defined areas.

Normalised volume Nm³ is expressed at 0°C and 101.3 kPa.

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

UPDATED: 10 July 2015