

EMISSIONS STANDARDS

JAPAN



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JAPAN

The Ministry of the Environment (MOE) of Japan was formed in 2001 from the sub-cabinet level Environmental Agency established in 1971. The 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. The primary law on environmental protection, the Basic Law for Environmental Pollution Control, came into force in 1967 and was then replaced in 1993 by the Basic Environment Law emphasising sustainable development. In 1968, the [Air Pollution Control Act](#) was enacted, providing the basis for air pollution legislation in Japan. There have been a number of amendments to the laws regarding emission standards over the years, the latest being in [1998](#). The Air Pollution Control Act allows individual prefectures to set their own emission standards for soot, dust, and harmful substances, which are often more stringent than those set by the national government.

Emission standards for particulate matter

Emission standards for soot and dust (particulate matter) for coal combustion boilers and gasifiers

Type	Specification	Capacity, m ³ /h	General standard, mg/m ³	Special standard, mg/m ³
Coal boiler	Heating area: ≥10 m ²	≥200,000	100	50
		≥40,000 and <200,000	200	100
		<40,000	300	150
Gasifier	Coal consumption: ≥20 t/day	-	50	30

Emission standards for SO_x

In Japan, the allowable discharge amount of sulphur oxides (as SO₂) is limited based on 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 to be calculated in vulnerable areas, by giving these areas a smaller K value. The formula used to calculate emission limit values for SO₂ is as follows:

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

where:

q is the permissible hourly emission volume of SO₂ (m³/h);

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

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

Regulations on total SO₂ emissions are also set at each area 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, Ashikawa, Sakata, Utsunomiya, Tsuruga, Takehara, Mihara/Onomichi, Tokushima/Anan
10	8.76	Akita, Kanazawa, Toyohashi, Otsu, Aioi, Fukuoka, Nagasaki, Nobeoka
11	9	Takasaki (excluding Yawatamaci), 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, Chchibu, Choshi, Mobarra, Nagaoka, Ngano, Matsumoto, Kuwana/Suzuka, Hikone/Ngahama, Nishiwaki/Miki, Imabari, Kumamoto, Hyuga, Kagoshima
16	17.5	Others

K values for specific 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	2.344	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.

Emission standards for NO_x (as NO₂) for coal combustion boilers and gasifiers

Type	Specification	Capacity, m ³ /h	Emission standard, ppm*
Coal boiler	Heating area: ≥10 m ²	≥700,000	200 (410 mg/m ³)
		≥40,000 and <700,000	250 (512.5 mg/m ³)
		<40,000	300 (615 mg/m ³)
Gasifier	Coal consumption: ≥20 t/day	-	150 (307.5 mg/m ³)

* The ppm limits have been converted into mg/m³ under the assumption that 1 ppm = molecular weight of NO + NO₂ (46.01 g/mol) divided by a constant (22.41), that is, ppm x 2.05.

General Notes

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

The reference conditions for the emission limits are 0°C and 101.3 kPa.

MEASURES AGAINST VOLATILE ORGANIC COMPOUNDS (2006)

A bill partially amending the Air Pollution Control Law was enacted during the 159th Diet Session in 2004 and was promulgated on [26 May 2004](#). The basic approach taken under the revised law to suppress volatile organic compounds (VOC) emissions is an optimum combination of regulatory and voluntary measures. Businesses owning VOC emitting facilities are obliged to submit reports on these facilities and to comply with emission standards.



Based on this regulation, the Minister of the Environment requested the Central Environment Council, on 1 July 2004, to study the designation of VOC emitting facilities, emission standards, and measuring methods for VOC concentrations. After the deliberation at the affiliated expert committees and public comment procedure on a draft report, the Council submitted the report entitled "Requirements for Implementing Emission Control System of Volatile Organic Compounds (VOCs)" on 8 April 2005. The Cabinet Order and the Ministerial Ordinance enacted 1 April 2006 are based on this report.

THE ACT ON PREVENTING ENVIRONMENTAL POLLUTION OF MERCURY (2015)

The Minamata Convention on Mercury to protect human health and the environment from mercury pollution was adopted in October 2013 in Japan. The Minamata Convention comprehensively regulates the entire life cycle of mercury from mining, trade, use, emissions, release, and through to disposal. [The Act on Preventing Environmental Pollution of Mercury](#) was established in 2015 to ensure the reliable and smooth implementation of the Minamata Convention.

Point sources of mercury emissions (including coal-fired power plants and coal-fired industrial boilers) are required to submit advance notification of installation or modification of the structure. They must also comply with emission standards and monitor, record and retain the results of mercury concentration in exhaust gas. Facilities requiring emission control are required to prepare voluntary standards, to monitor, record and retain the results of mercury concentration measurements, and to make public their implementation status and evaluations.

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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