

ICS 13.060.30

CCS Z 60



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 18918-2002

**Discharge standard of pollutants for municipal wastewater
treatment plant**

城镇污水处理厂污染物排放标准

Issued on: December 24, 2002

Implemented on: July 1, 2003

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

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Foreword Foreword

The document was drawn up to give effect to the Environmental Protection Law, the Law on the Prevention and Control of Water Pollution, the Law on the Protection of the Marine Environment, the Law on the Prevention and Control of Atmospheric Pollution and the Law on the Prevention and Control of Environmental Pollution by Solid Waste, and in step with the national Technical Policy for Urban Wastewater Treatment and Pollution Prevention, in order to promote the construction and management of municipal wastewater treatment plants, to strengthen discharge control and the reuse of treated water, to protect human health and to maintain a sound ecological environment.

It fixes the control items and the standard values for pollutants in the effluent, the waste gas and the sludge of municipal wastewater treatment plants. From the date it takes effect, the discharge of water pollutants and air pollutants by such plants and the control of their sludge are governed by it alone.

Industrial wastewater and hospital sewage entering a municipal wastewater treatment plant have to meet the corresponding limits of GB 8978 Integrated wastewater discharge standard, of the relevant sectoral national discharge standards and of local discharge standards, together with local total-load control requirements.

The foreword records that this is a first edition. It was proposed by the Department of Science, Technology and Standards of the State Environmental Protection Administration; drafting was the responsibility of the Beijing Municipal Research Institute of Environmental

Protection and the Chinese Research Academy of Environmental Sciences; it was approved by the State Environmental Protection Administration on 2 December 2002, which also retains the right of interpretation.

1 Scope

The document fixes pollutant limits for the effluent, the waste gas discharge and the disposal or control of the sludge of municipal wastewater treatment plants.

It applies to the management of the effluent, the waste gas discharge and the sludge disposal or control of municipal wastewater treatment plants.

Discharge management of the self-contained domestic wastewater treatment facilities inside residential districts and industrial enterprises is also carried out according to it.

2 Normative references

The provisions of the following standards become provisions of this document through reference in it and have the same force. Where those standards are revised, their latest editions apply.

GB 3838 Environmental quality standard for surface water; GB 3097 Sea water quality standard; GB 3095 Ambient air quality standard; GB 4284 Control standards for pollutants in sludges for agricultural use; GB 8978 Integrated wastewater discharge standard; GB 12348 Standard of noise at boundary of industrial enterprises; GB 16297 Integrated emission standard of air pollutants; HJ/T 55 Technical guideline for fugitive emission monitoring of air pollutants.

3 Terms and definitions

3.1 Municipal wastewater: the domestic sewage of town and city residents, the drainage of government offices, schools, hospitals, commercial service establishments and public facilities of every kind, together with the industrial wastewater and early-stage rainwater that are allowed into the municipal sewage collection system.

3.2 Municipal wastewater treatment plant: a wastewater treatment plant that purifies the sewage entering the municipal sewage collection system.

3.3 Enhanced primary treatment: a treatment process that adds chemical coagulation, mechanical filtration or incomplete biological treatment on top of conventional primary treatment, which is gravity settling, so as to raise the effect of primary treatment.

4.1.1 Control items and their classification

4.1.1.1 According to their origin and their nature, the pollutant control items are divided into

basic control items and optional control items. The basic control items mainly cover the conventional pollutants that affect the water environment and that the ordinary process of a municipal wastewater treatment plant can remove, together with some class-one pollutants: nineteen items in all. The optional control items cover pollutants with a longer-lasting effect on the environment or with higher toxicity: forty-three items in all.

4.1.1.2 The basic control items have to be enforced. The optional control items are selected for control by the local environmental protection administration according to the categories of industrial pollutants the treatment plant receives and to the water quality objectives.

4.1.2 Grading of the standard

The standard values of the conventional pollutants among the basic control items are divided into a first-class, a second-class and a third-class standard according to the environmental function and protection objective of the surface water body the plant discharges into and according to the treatment process of the plant. The first-class standard is split into an A standard and a B standard. Some class-one pollutants and the optional control items are not graded.

4.1.2.1 The A standard of the first class is the basic requirement for effluent of a municipal wastewater treatment plant that is used as reclaimed water. Where the effluent is led into rivers or lakes of low dilution capacity for urban landscape water and other general reuse purposes, the A standard of the first class is enforced.

4.1.2.2 Where the effluent is discharged into a class III functional water body of GB 3838 surface water, excluding designated drinking water source protection zones and swimming zones, into a class II functional sea area of GB 3097 sea water, or into a lake, reservoir or other closed or semi-closed water body, the B standard of the first class is enforced.

4.1.2.3 Where the effluent is discharged into a class IV or class V functional water body of GB 3838 surface water, or into a class III or class IV functional sea area of GB 3097 sea water, the second-class standard is enforced.

4.1.2.4 For treatment plants of established towns outside key control basins and outside water source protection zones, where an enhanced primary treatment process is adopted in the light of local economic conditions and water pollution control requirements, the third-class standard is enforced; but space for secondary treatment facilities has to be reserved and the second-class standard reached in stages.

4.1.3 Standard values

4.1.3.1 The basic control items for the discharge of water pollutants by a municipal wastewater treatment plant follow the provisions of Table 1 and Table 2. 4.1.3.2 The optional control items follow the provisions of Table 3.

Table 1 gives the maximum allowable discharge concentration, as a daily mean and in mg/L, of twelve numbered basic control items, in four columns: A standard and B standard of the first class, second-class standard and third-class standard. The items are chemical oxygen demand, five-day biochemical oxygen demand, suspended solids, animal and vegetable oils, petroleum-type oils, anionic surfactants, total nitrogen as N, ammonia nitrogen as N, total phosphorus as P, colour as dilution factor, pH and faecal coliform count. For chemical oxygen demand the four columns read 50, 60, 100 and 120 mg/L. The pH row is a single value spanning all four grades, 6 to 9. The total phosphorus row is split in two by construction date, one line for plants built before 31 December 2005 and one for plants built from 1 January 2006 onwards, the later line being the stricter of the two. Two footnotes apply: where influent chemical oxygen demand exceeds 350 mg/L the removal-rate criterion is used instead, the removal being required to exceed 60 %, and where influent biochemical oxygen demand exceeds 160 mg/L the removal is required to exceed 50 %; for ammonia nitrogen the value outside the brackets is the control figure for water temperature above 12 °C and the value inside the brackets the figure for water temperature at or below 12 °C.

Table 2 gives the maximum allowable discharge concentration, as a daily mean and in mg/L, of seven class-one pollutants: total mercury, alkyl mercury, total cadmium, total chromium, hexavalent chromium, total arsenic and total lead. The alkyl mercury row does not carry a figure but the requirement that it not be detected.

Table 3 gives the maximum allowable discharge concentration, as a daily mean and in mg/L, of the forty-three optional control items, printed in two side-by-side blocks of item number, item and standard value. The items run from metals such as nickel, beryllium, silver, copper, zinc, manganese and selenium, through benzo(a)pyrene, volatile phenols, total cyanides, sulfides, formaldehyde, anilines and total nitro compounds, organophosphorus pesticides and named pesticides, chlorinated solvents, benzene and its homologues, chlorobenzenes, nitrochlorobenzenes, phenols, phthalate esters and acrylonitrile, to adsorbable organic halides expressed as chlorine.

4.1.4 Sampling and monitoring

4.1.4.1 Water quality sampling is done at the discharge outlet at the end of the treatment process of the plant. At that outlet an automatic flow-measuring device and an automatic proportional sampling device have to be installed, and on-line monitoring devices have to be installed for the main water quality indicators such as pH, water temperature and chemical oxygen demand.

4.1.4.2 The sampling frequency is at least once every two hours, a 24 h composite sample being taken and the result reckoned as a daily mean.

4.1.4.3 The methods of monitoring and analysis follow Table 4, or substitute or equivalent methods recognised by the State Environmental Protection Administration. Table 4 lists, for