

Maximum Allowable Discharge Concentrations for Other Pollutants in China

National Standard of the People's Republic of China Integrated Wastewater Discharge Standard GB 8978 - 1996						EPA
No.	Pollutant	Application Scope	Class 1	Class 2	Class 3	Potential effects of excessive discharge
1	pH (1)	All discharging work units	6 ~ 9	6 ~ 9	6 ~ 9	low pH: bitter metallic taste; corrosion high pH: slippery feel; soda taste; deposits
2	Color (Dilution Ratio)	All discharging work units	50	80	-	Color may be indicative of dissolved organic material, inadequate treatment, high disinfectant demand and the potential for the production of excess amounts of disinfectant by-products. Inorganic contaminants such as metals are also common causes of color. Rapid changes in color levels may provoke more citizen complaints than a relatively high, constant color level.
3	Suspended Solids (SS) (2)	Mining, ore dressing, coal dressing industries	70	300	-	Higher turbidity levels are often associated with higher levels of disease-causing microorganisms such as viruses, parasites and some bacteria. These organisms can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
		Arterial gold dressing	70	400	-	
		Alluvial gold dressing in outlying districts	70	800	-	
		Urban secondary wastewater treatment plants	20	30	-	
		Other discharging industries	70	150	400	

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4	BOD ₅ (3)	Beet sugar processing, ramie de-gluing, wet method fibre board, dyes, fur treating industries	20	60	600	Waste water quality indicator
		Cane sugar processing, alcohol, MSG, leather, chemical fibre starch industries	20	100	600	Waste water quality indicator
		Urban secondary wastewater treatment plants	20	30	-	Waste water quality indicator
		Other discharging work units	100	150	300	Waste water quality indicator
5	COD (4)	Beet sugar processing, synthetic fatty acid, wet method fibre board, dyes, fur treating, organophosphorus pesticide industries	100	200	1000	Waste water quality indicator
		MSG, alcohol, pharmaceuticals and pharmaceutical raw materials, biological pharmaceuticals, ramie degluing, leather, chemical fibre starch industries	100	300	1000	Waste water quality indicator
		Petrochemical industry (including refining)	60	120	500	Waste water quality indicator
		Urban secondary wastewater treatment plants	60	120	-	Waste water quality indicator
		Other discharging work units	100	150	500	Waste water quality indicator
6	Petroleum Hydrocarbons	All discharging work units	5	10	20	Not defined in the EPA list
7	Vegetable and Animal Oils	All discharging work units	10	15	100	Not defined in the EPA list
8	Volatile Phenols	All discharging work units	0.5	0.5	2	Not defined in the EPA list
9	Total Cyanides (CN ⁻)	All discharging work units	0.5	0.5	1	Free cyanide may cause nerve damage and thyroid problems
10	Sulphides (S ²⁻)	All discharging work units	1	1	1	Not defined in the EPA list

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11	Ammonium Nitrogen	Pharmaceuticals and pharmaceutical raw materials, dyes, petrochemical industries	15	50	-	Eutrophication and Algae bloom
		Other discharging work units	15	25	-	Eutrophication and Algae bloom
12	Fluorides (F ⁻)	Yellow phosphorous industry	10	15	20	Tooth discoloration and bone disease
		Low phosphate areas (water bodies containing <0.5mg/L phosphate)	10	20	30	Tooth discoloration and bone disease
		Other discharging work units	10	10	20	Tooth discoloration and bone disease
13	Phosphates (as P)	All discharging work units	0.5	1	-	Eutrophication and Algae bloom
14	Formaldehyde	All discharging work units	1	2	5	Not defined in the EPA list
15	Aniline	All discharging work units	1	2	5	Not defined in the EPA list
16	Nitrobenzene	All discharging work units	2	3	5	Not defined in the EPA list
17	Anionic Surfactant (LAS)	All discharging work units	5	10	20	Not defined in the EPA list
18	Total Copper (Cu)	All discharging work units	0.5	1	2	Metallic taste; blue-green staining; For human health, short term exposure can cause gastrointestinal distress and on long term liver or kidney damage
19	Total Zinc (Zn)	All discharging work units	2	5	5	Metallic taste
20	Total Manganese (Mn)	Synthetic fatty acid industry	2	5	5	Black to brown color; black staining; bitter metallic taste
		Other discharging industries	2	2	5	Black to brown color; black staining; bitter metallic taste

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23	Phosphorus (as an element)	All discharging work units	0.1	0.1	0.3	Not defined in the EPA list
24	Organophosphorus Pesticide	All discharging work units	below detection limit	0.5	0.5	Listed as a pesticide agent
25	Dimethoate (Rogor)	All discharging work units	below detection limit	1	2	Not defined in the EPA list
26	Parathion	All discharging work units	below detection limit	1	2	Not defined in the EPA list
27	Methyl Parathion	All discharging work units	below detection limit	1	2	Not defined in the EPA list
28	Malathion	All discharging work units	below detection limit	5	10	Not defined in the EPA list
29	Pentachlorophenol and Santobrite (as Pentachlorophenol)	All discharging work units	5	8	10	Liver or kidney problems, increased cancer risk
30	Absorptive Organic Halide (as Cl)	All discharging work units	1	5	8	To be checked
31	Chloroform	All discharging work units	0.3	0.6	1	Not defined in the EPA list
32	Carbon Tetrachloride	All discharging work units	0.03	0.06	0.5	Liver problem; increased risk of cancer
33	Chlorylene	All discharging work units	0.3	0.6	1	Not defined in the EPA list
34	Tetrachloroethylene	All discharging work units	0.1	0.2	0.5	Liver problem; increased risk of cancer
35	Benzene	All discharging work units	0.1	0.2	0.5	Anemia, decrease in blood platelets
36	Methylbenzene	All discharging work units	0.1	0.2	0.5	Not defined in the EPA list
37	Ethylbenzene	All discharging work units	0.4	0.6	1	Liver or Kidney problems
38	o-Xylene	All discharging work units	0.4	0.6	1	Total xylene in excess can cause nervous damages

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39	Paraxylene (p-Xylene)	All discharging work units	0.4	0.6	1	Total xylene in excess can cause nervous damages
40	m-Xylene	All discharging work units	0.4	0.6	1	Total xylene in excess can cause nervous damages
41	Chlorobenzene	All discharging work units	0.2	0.4	1	Not defined in the EPA list
42	o-Dichlorobenzene	All discharging work units	0.4	0.6	1	Liver, kidney or circulatory system problems
43	p-Dichlorobenzene	All discharging work units	0.4	0.6	1	Anemia, liver, kidney or spleen damage, changes in blood
44	p-Nitrochlorobenzene	All discharging work units	0.5	1	5	Not defined in the EPA list
45	2,4-Dinitrochlorobenzene	All discharging work units	0.5	1	5	Not defined in the EPA list
46	Oxybenzene	All discharging work units	0.3	0.4	1	Not defined in the EPA list
47	m-Oxytoluol	All discharging work units	0.1	0.2	0.5	Not defined in the EPA list
48	2,4-Chlorophenol	All discharging work units	0.6	0.8	1	Not defined in the EPA list
49	2,4,6-Trichlorophenol	All discharging work units	0.6	0.8	1	Not defined in the EPA list
50	Dibutyl (o-) phthalate	All discharging work units	0.2	0.4	2	Not defined in the EPA list
51	Diocetyl (o-) phthalate	All discharging work units	0.3	0.6	2	Not defined in the EPA list
52	Acrylonitrile	All discharging work units	2	5	5	Not defined in the EPA list
53	Total Selenium (Se)	All discharging work units	0.1	0.2	0.5	Hair or finger nail loss; numbness in fingers or toes; circulatory problems

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54	Excrement, Intestines, Fungus Count	Hospitals*, veterinary hospitals and medical institutions with wastewater containing pathogens	500 pieces/L	Not defined in the EPA list	5000 pieces/L	Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)
		Wastewater from contagious disease and tuberculosis hospitals	100 pieces/L	500 pieces/L	1000 pieces/L	Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)
55	Total Excess Chlorine (used for Chlorine)	Hospitals*, veterinary hospitals and medical institutions with wastewater containing pathogens	<0.5**	>3 (contact time ³ 1hr)	>2 (contact time ³ 1hr)	Eyes/nose irritation, stomach discomfort
		Wastewater from contagious disease and tuberculosis hospitals	<0.5**	>6.5 (contact time ³ 1.5hr)	>5 (contact time ³ 1.5hr)	Eyes/nose irritation, stomach discomfort
56	Total Organic Carbon (TOC)	Synthetic fatty acid industry	20	40	-	Waste water quality indicator
		Ramie degluing industry	20	60	-	Waste Water quality indicator
		Other discharging work units	20	30	-	Waste Water quality indicator

Source: China Water Risk: based on the National Standard of the People's Republic of China Integrated Wastewater Discharge Standard GB 8978 – 1996 and the US Environmental Protection Agency drinking water contaminants list

Note: Other discharging work units: refers to all work units not specified in the controlled parameter

* Refers to hospitals with more than 50 beds

** After chlorine disinfection, dechlorination should be undertaken to reach the standard.

Standard Classifications: Wastewater discharged into a GB3838 Class 3 water area (excluding designated protected areas and scenic areas), and wastewater discharged into a GB3097 Class 2 marine area, must meet Class 1 standards. Wastewater discharged into city and town sewage systems which have a secondary wastewater treatment plant, must meet Class 3 standards. Wastewater discharged into city and town sewage systems which do not have a secondary wastewater treatment plant, should be subject to provisions in 4.1.1 or 4.1.2 according to the functional requirements of the water area which receives effluent from the sewage system.

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Definitions:

- (1) pH is a measure of hydrogen ion concentration; a measure of the acidity or alkalinity of a solution. Aqueous solutions at 25°C with a pH less than seven are acidic, while those with a pH greater than seven are basic or alkaline. A pH level of is 7.0 at 25°C is defined as 'neutral' because the concentration of H_3O^+ equals the concentration of OH^- in pure water (www.about.com)
- (2) Suspended Solid presence is defined as turbidity which is the measure of the cloudiness of water. It is used to indicate water quality and filtration effectiveness.
- (3) BOD5: Emissions of organic water pollutants are measured by biochemical oxygen demand, which refers to the amount of oxygen that bacteria in water will consume in breaking down waste. This is a standard water-treatment test for the presence of organic pollutants (Word Bank).
- (4) COD: Standard method for indirect measurement of the amount of pollution (that cannot be oxidized biologically) in a sample of water. COD test procedure is based on the chemical-decomposition of organic and inorganic contaminants, dissolved or suspended in water. The result of a COD test indicates the amount of water dissolved oxygen (expressed as parts per million or milligrams per liter of water) consumed by the contaminants, during two hours of decomposition from a solution of boiling potassium dichromate. Higher the COD, higher the amount of pollution in the test sample. For the contaminants that can be oxidized biologically, biological oxygen demand (BOD) method is used (Business Dictionary).

Risks

The water contaminants type of risks is based on the US [Environmental Protection Agency definitions](#).