

# Effluent Standards

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Environmental Protection Administration of the Republic of China on Taiwan

English Translation<sup>1</sup>

by

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## Article 1

These Standards are promulgated pursuant to Section 2 of Article 7 of Water Pollution Control Act (hereinafter "the Act").

## Article 2

The quality characteristics and limitations of effluent from industries, sewage systems and sewage treatment facilities attached to buildings are given in the following table:

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<sup>1</sup> Translators' note: This translation is for information purposes only and does not represent the binding law of the Republic of China. The binding law appears only in the national language--Chinese. Therefore, for purposes other than acquiring information, reference must be made to the original Chinese version of these Standards.

In translating these Standards, the translators did not depart from the original Chinese text. Accordingly, ambiguities present in the translation are also present in the original.

In the Chinese version of these Standards, each paragraph is referred to as a "section" (*hsiang*). Bracketed text indicates translator additions for the purpose of increasing clarity.

<b>[Industrial] Application</b>	<b>Effluent Characteristic</b>	<b>Maximum Effluent Limitations</b>	<b>[Explanatory] Note</b>
Generally applicable to wastewater from industries, sewage system and sewage treatment facilities attached to buildings	Water temperature	1. For effluents discharged into surface water bodies other than the ocean: 1) Below 38°C (from May to September) 2) Below 35°C (from October to April)  2. For effluents discharged directly into marine waters, the temperature at the discharge point shall not exceed 42°C; the temperature difference should not exceed 4°C for surface water at 500 meters from discharge point.	
	pH	6.0~9.0	
	Fluoride (excluding complex ions)	15.0	
	Nitrate-N	100	

Ammonia nitrogen (NH <sub>3</sub> -N)	20.0	The effluent limitation for ammonia nitrogen (NH <sub>3</sub> -N) and phosphate is only applicable to water quantity and quality protection areas. However, the effluent limitation for ammonia nitrogen (NH <sub>3</sub> -N) and phosphate for the livestock industries and the effective date thereof shall be promulgated by the Responsible Agency at the central government level in consultation with the Responsible Agency for the Enterprise Associated with the Industry at Issue at the central government level.
Phosphate (calculated by phosphoric radical (III))	10.0	
Phenols	2.0	
Anionic surfactant	10.0	
Cyanide	1.0	
Oil and grease (n-Hexane extraction)	10.0	
Soluble iron	10.0	
Soluble manganese	10.0	
Cadmium	0.03	
Lead	1.0	
Total chromium	2.0	
Hexavalent chromium	0.5	
Organic mercury	not detectable	
Total mercury	0.005	
Copper	3.0	
Zinc	5.0	
Silver	0.5	
Nickel	1.0	
Selenium	0.5	
Arsenic	0.5	
Boron	1.0	
Sulfide	1.0	
Formaldehyde	3.0	
Polychlorinated biphenyls (PCBs)	not detectable	

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	Total organophosphorous compounds (such as Parathion, Diazinon, Tamaron, Azodrin, EPN, etc.)	0.5	
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		Total aminomethyl-carbamate (such as Mipcin, Carbofuran, Lannate, Uden, BPMC, etc.)	0.5	
		Herbicides (such as Butachlor, Paraquat, 2,4-D (sodium), Lasso, MO-401, Glyphosate, etc.)	1.0	
		Endosulfan	0.03	
		Endrin	0.0003	
		Lindane	0.004	
		Heptachlor and its derivatives	0.001	
		DDT and its derivatives	0.001	
		Aldrin, Dieldrin	0.003	
		Pentachlorophenol and its salts	0.005	
		Toxaphene	0.005	
		Pentachloronitro-benzene	not detectable	
		Folpet phaltan	not detectable	
		Captafol	not detectable	
		Captan	not detectable	
Industrial or mining wastewater	Dyeing or leather manufacturing	Biological oxygen demand (BOD)	50	
		Chemical oxygen demand (COD)	200	
		Suspended solids (SS)	50	
	Pulp industry	COD	200	
		SS	100	

Fermentation industry	BOD	80
	COD	200
	SS	100
Petroleum refining industry	COD	200
	SS	50
Petrochemical industry	COD	250
	SS	50
Paper manufacturing industry	COD	200
	SS	50
Wool production or chemical industry	BOD	50
	COD	200
	SS	50
Pharmaceutical or pesticide manufacturing industry	BOD	50
	COD	200
	SS	50
Food industry	BOD	50
	COD	150
	SS	50
Meat processing industry	BOD	100
	COD	200
	SS	100
Metal, metal surface treatment, electroplating, or ship manufacturing industry	COD	100
	SS	50
Power plants	BOD	50
	COD	200
	SS	50
	Total residual chlorine	0.5
Rubber manufacturing	BOD	50
	COD	200
	SS	50
Cement manufacturing industry	COD	100
	SS	100

	Powder manufacturing industry		BOD	80	
			COD	150	
			SS	100	
	Textile industry		BOD	50	
			COD	200	
			SS	50	
	Sugar processing industry		BOD	50	
			COD	150	
			SS	50	
	Mineral extraction, ceramic, porcelain enameling, or soil or rock extraction industries		COD	100	
			SS	100	
	Automotive repair facilities		COD	100	
			SS	50	
	Glass manufacturing industry		COD	100	
			SS	100	
	Printed circuit-board industry		COD	120	
			SS	50	
	Other industries		BOD	50	
COD			200		
SS			50		
Wastewater from industries designated by the Responsible Agency at the central government level	Wastewater treatment service industry		BOD	50	
			COD	200	
			SS	50	
			Coliform groups	3000	
	Livestock industry (I)		BOD	100	includes non-grazing animals, such as pigs, chickens, ducks and geese.
			COD	400	
			SS	200	
	Livestock industry (II)		BOD	100	includes to grazing (grass-fed) animals, such as cows, horses, sheep, deer, and rabbits.
			COD	650	
			SS	200	
	Fish and meat markets	Meat markets		BOD	100
				COD	200
SS				100	

		Fish markets	BOD	50
			COD	150
			SS	50
waste disposal plants	Human waste (night soil) treatment plants		BOD	80
			COD	200
			SS	100
			Coliform groups	5000
	Sanitary landfills		COD	500
			SS	80
	Waste incinerators and other waste disposal facilities		COD	200
			SS	50
Plate-making or photo processing industry		COD	100	
		SS	50	
Laundry and dyeing industry, ship scrapping or refurbishing industry		COD	200	
		SS	80	
aquaculture industry		BOD	50	
		SS	50	
Laboratory or other academic research room, academic or research institutes		BOD	50	
		COD	300	
		SS	60	
Hospitals or medical institutions		BOD	50	
		COD	150	
		SS	50	
		Coliform groups	3000	
Zoos		BOD	80	
		SS	80	
		Coliform groups	5000	
Environmental inspection and testing institutions		BOD	50	
		COD	150	
		SS	50	
Tap-water plants		COD	150	
		SS	100	
		Total residual chlorine	0.5	

	Restaurants, hotels and recreational resorts		BOD	80
			SS	80
			Coliform groups	5000
	Container freight stations		COD	100
			SS	50
	Car washes		SS	80
	Coal stockpiling facilities and construction industry		BOD	50
			COD	200
			SS	50
	Other industries designated by the Responsible Agency at the central government level		BOD	50
			COD	200
			SS	50
Sewage systems	Designated sewers	for petro-chemical industrial parks	COD	250
			SS	50
		for other industrial parks or other industries	BOD	50
			COD	180
			SS	50
	Public and community sewers	Flow rate more than 250 cubic-meters-per-day (CMD)	BOD	50
			SS	50
			Coliform groups	3000
		Flow rate between 50 and 250 CMD	BOD	80
			SS	80
			Coliform groups	5000
	Flow rate less than 50 CMD	BOD	100	
SS		100		
The sewage treatment facilities attached to buildings	Flow rate more than 250 CMD		BOD	50
			SS	50
			Coliform groups	3000
	Flow rate between 50 and 250 CMD		BOD	80
			SS	80
			Coliform groups	5000
	Flow rate less than 50 CMD		BOD	100
			SS	100

**Article 3**

In accordance with these Effluent Standards in effect as of January 1, 1998, characteristics and limitations of effluents shall be as following:

<b>[Industrial] Application</b>	<b>Effluent Characteristic</b>	<b>Maximum Effluent Limitations</b>	<b>[Explanatory] Note</b>
Generally applicable to wastewater from industries, sewage systems and sewage treatment facilities attached to buildings	Water temperature	1. For effluents discharged into surface water bodies other than the ocean: 1) Below 38°C (from May to September) 2) Below 35°C (from October to April)  2. For effluents discharged directly into marine waters, the temperature at the discharge point shall not exceed 42° C; and the temperature difference should not exceed 4°C for surface water at 500 meters from the discharge point.	
	pH	6.0~9.0	
	Fluoride (excluding complex ions)	15.0	
	Nitrate-N	50	

Ammonia nitrogen (NH <sub>3</sub> -N)	10.0	The limitation for ammonia nitrogen (NH <sub>3</sub> -N) and phosphate is only applicable to water quantity and quality protection areas. However, the effluent limitation for ammonia nitrogen (NH <sub>3</sub> -N) and phosphate for the livestock industries and the effective date thereof shall be promulgated by the Responsible Agency at the central government level in consultation with the Responsible Agency for the Enterprise Associated with the Industry at Issue at the central government level.
Phosphate (calculated by phosphoric radical (III))	4.0	
Phenols	1.0	
Anionic surfactant	10.0	
Cyanide	1.0	
Oil and grease (n-Hexane extraction)	10.0	
Soluble iron	10.0	
Soluble manganese	10.0	
Cadmium	0.03	
Lead	1.0	
Total chromium	2.0	
Hexavalent chromium	0.5	
Organic mercury	not detectable	
Total mercury	0.005	
Copper	3.0	
Zinc	5.0	
Silver	0.5	
Nickel	1.0	
Selenium	0.5	
Arsenic	0.5	
Boron	1.0	
Sulfide	1.0	
Formaldehyde	3.0	
PCBs	not detectable	
Total organophosphorous compounds (such as Parathion, Diazinon, Tamaron, Azodrin, EPN, etc.)	0.5	

		Total aminomethyl-carbamate (such as Mipcin, Carbofuran, Lannate, Uden, BPMC, etc.)	0.5
		Herbicides (such as Butachlor, Paraquat, 2,4-D (sodium), Lasso, MO-401, Glyphosate, etc.)	1.0
		Endosulfan	0.03
		Endrin	0.0002
		Lindane	0.004
		Heptachlor and its derivatives	0.001
		DDT and its derivatives	0.001
		Aldrin, Dieldrin	0.003
		Pentachlorophenol and its salts	0.005
		Toxaphene	0.005
		Pentachloronitro-benzene	not detectable
		Folpet phaltan	not detectable
		Captafol	not detectable
		Captan	not detectable
Industrial or mining wastewater	Dyeing or leather manufacturing	BOD	30
		COD	100
		SS	30
		True color	400
	Pulp industry	COD	150
		SS	50
		True color	400

Fermentation industry	BOD	50
	COD	150
	SS	50
	True color	400
Petroleum refining industry	COD	100
	SS	30
	True color	400
Petrochemical industry	COD	100
	SS	30
	True color	400
Paper manufacturing industry	BOD	30
	COD	100
	SS	30
	True color	400
Wool production or chemical industry	BOD	30
	COD	100
	SS	30
	True color	400
Pharmaceutical or pesticide manufacturing industry	BOD	30
	COD	100
	SS	30
	True color	400
Food industry	BOD	30
	COD	100
	SS	30
Meat processing industry	BOD	80
	COD	150
	SS	80
	True color	400
Metal, metal surface treatment, electroplating, or ship manufacturing industry	COD	100
	SS	30

	Power plants	BOD	30
		COD	100
		SS	30
		Total residual chlorine	0.5
	Rubber manufacturing	BOD	30
		COD	100
		SS	30
	Cement manufacturing industry	COD	100
		SS	50
	Powder manufacturing industry	BOD	50
		COD	100
		SS	80
	Textile industry	BOD	30
		COD	100
		SS	30
		True color	400
	Sugar processing industry	BOD	30
		COD	100
		SS	30
	Mineral extraction, ceramic, porcelain enameling, or soil or rock extraction industries	COD	100
SS		50	
Automotive repair facilities	COD	100	
	SS	30	
Glass manufacturing industry	COD	100	
	SS	50	
Printed circuit-board industry	BOD	50	
	COD	120	
	SS	50	
Other industries	BOD	30	
	COD	100	
	SS	30	
	True color	400	

Wastewater from industries designated by the Responsible Agency at the central government level	wastewater treatment service industry		BOD	30	
			COD	100	
			SS	30	
			True color	400	
			Coliform groups	2000	
	Livestock industry ( I )		BOD	80	includes non-grazing animals, such as pigs, chickens, ducks and geese.
			COD	250	
			SS	150	
	Livestock industry ( II )		BOD	80	includes grazing (grass fed) animals, such as cows, horses, sheep, deer and rabbits.
			COD	450	
			SS	150	
	Fish and meat markets	Meat markets	BOD	80	
			COD	150	
			SS	80	
			True color	400	
		Fish markets	BOD	30	
			COD	100	
	waste disposal plants	human waste (night soil) treatment plants	BOD	50	
			COD	100	
			SS	50	
Coliform groups			3000		
Sanitary landfills		COD	200		
		SS	50		
Waste incinerators and other waste disposal facilities		COD	100		
		SS	30		
Plate-making or photo processing industry		COD	100		
		SS	30		

	Laundry and dyeing industry, ship scrapping or refurbishing industry	COD	100
		SS	50
	aquaculture industry	BOD	30
		COD	100
		SS	30
	Laboratory or other academic research room, academic or research institutes	BOD	30
		COD	200
		SS	50
	Hospitals or medical institutions	BOD	30
		COD	100
		SS	30
		Coliform groups	2000
	Zoos	BOD	50
		COD	150
		SS	50
		Coliform groups	3000
	Environmental inspection and testing institutions	BOD	30
		COD	100
		SS	30
	Tap-water plant	COD	100
SS		50	
Total residual chlorine		0.5	
Restaurants, hotels and recreational resorts	BOD	50	
	COD	150	
	SS	50	
	Coliform groups	3000	
Container freight stations	COD	100	
	SS	30	
Car-washes	COD	100	
	SS	50	

	Coal stockpiling facilities and construction industries		BOD	30
			COD	100
			SS	30
			True color	400
	Other industries designated by the Responsible Agency at the central government level		BOD	30
			COD	100
			SS	30
			True color	400
Sewage systems	Designated sewers	for petro-chemical industrial parks	COD	100
			SS	30
			True color	400
	for other industrial parks or other industries	BOD	30	
		COD	100	
		SS	30	
		True color	400	
	Public and community sewers	Flow rate more than 250 CMD	BOD	30
			COD	100
			SS	30
			Coliform groups	2000
		Flow rate between 50 and 250 CMD	BOD	50
			COD	150
			SS	50
			Coliform groups	3000
Flow rate less than 50 CMD	BOD	80		
	COD	250		
	SS	80		
The sewage treatment facilities attached to buildings	Flow rate more than 250 CMD		BOD	30
			COD	100
			SS	30
			Coliform groups	2000
	Flow rate between 50 and 250 CMD		BOD	50
			COD	150
SS			50	

		Coliform	3000	
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	Flow rate less than 50 CMD	BOD	80	
		COD	250	
		SS	80	

**Article 4**

The Responsible Agency at the central government level may collect and analyze relevant data, after consulting relevant Responsible Agencies for the Enterprise Associated with the Industry at Issue, to modify the characteristics and limitations prescribed in Article 3 of these Standards, and may set up different dates for entry into force.

The industries, their associations, or relevant environmental groups may submit detailed scientific data to the Responsible Agency at the central government level to support argument for revision of these Standards.

**Article 5**

The following industries may submit improvement plans to the Responsible Agency at the municipal government level or county (city) government level demonstrating that they will be able to meet the effluent limitations prescribed in Article 3 by December 31, 1999. Prior to the expiration of the time period for needed improvements, effluents from these industries will not be subject to the limitations provided in Article 3 of these Standards, yet must meet the following effluent limitations for the extension period:

<b>[Industrial] Application</b>		<b>Effluent Characteristic</b>	<b>Limitations for extension period</b>	<b>[Explanatory] note</b>
Chemical industry	paint and varnish manufacturing industry	COD	180	
	titanium dioxide industry	SS	50	
	artificial fiber industry	COD	150	

Paper manufacturing industry	Paper manufacturing industry ( I )	BOD	50	Paper manufacturing industry (I): employing recycled paper as raw materials of less than 60%  Paper manufacturing industry (II): employing recycled paper as raw materials of more than 60%
		COD	160	
	Paper manufacturing industry ( II )	BOD	50	
		COD	180	
		SS	50	
	Pulp industry		COD	
Petro-chemical industry		COD	200	
		SS	50	
Livestock industry ( I )		COD	400	
Leather manufacturing industry		COD	150	
Dyeing industry		BOD	40	
		COD	180	

Industry members which fail to improve effluent as characteristics and quantities as required scheduled and from the Responsible Agencies of a Notice of violation, shall meet these standards prescribed under Article 3 upon the receipt.

#### Article 6

The Responsible Agency at the provincial (municipal) government level may in accordance with Section 2, Article 7 of the Act promulgate more stringent effluent characteristics and/or more stringent effluent limitations under Articles 2 and 3 of these Standards.

#### Article 7

The test methods for these Standards will be established and published by the

Responsible Agency at the central government level.

**Article 8**

The COD shall be measured by dichromate reflux method for all the effluent limitations mentioned in these Standards; true color shall be measured by ADMI method.

**Article 9**

All values of the effluent characteristics used in these Standards constitute maximum limitations, with the exception of the lowest limits for pH, and the units for such characteristics are defined as follows:

1. pH: Unitless
2. True color: Unitless
3. Coliform groups: No./ml
4. Other characteristics: mg/l

**Article 10**

The industrial application, effluent characteristics and limitations for chlorohydrocarbon compounds and toxic pollutants shall be approved and promulgated by the Responsible Agency at the central government level after consultation with the Responsible Agency associated with the Industry at Issue at the central government level, if necessary.

**Article 11**

The limitations for true color prescribed in Article 3 shall become effective on July 1, 1998.

The COD limitations for zoos, restaurants, aquaculture industry, car-washes, public and community sewers, and sewage treatment service facilities attached to buildings [prescribed in Article 3] shall become effective on July 1, 1998.

**Article 12**

Unless another date of promulgation is specified, all provisions under these Standards shall come into force on the date of promulgation.