GB

NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA

UCD 551463

GB 3097-1997

Replacing GB 3097-82

Sea Water Quality Standard

海水水质标准

Issued on: December 03, 1997 **Implemented on: July 01, 1998**

Issued by: State Environmental Protection Administration of the People's Republic of China

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Foreword

This standard was formulated to implement "Environmental Protection Law of the People's Republic of China" and "Marine Environment Protection Law of the People's Republic of China", prevent and control seawater pollution, protect marine living resources and other marine resources, be in favor of sustainable use of marine resources, maintain ecological balance of marine, and guarantee human health.

This standard shall be implemented from July 1, 1998 and shall replace GB 3097-82 simultaneously.

This standard has the changes in the following contents and chapters:

— 3.1 (for classification of sea water quality, three classes are changed into four classes);

— 3.2 (supplement and adjust the pollutant items);

— 4.1 (add the specification on acquisition, storage, transportation and pretreatment of sea water quality monitoring sample);

— 4.2 (add analysis method of sea water quality).

This standard was proposed by the National Environmental Protection Agency and the National Bureau of Oceanography.

State Environment Protection Administration is responsible for the interpretation of this standard.

Sea Water Quality Standard

1 Subject Content and Standard Application Scope

This standard specifies the water quality requirements of every kind of application function in sea area.

This standard is applicable to the sea area governed by the People's Republic of China.

2 Normative References

The provisions involved in the following criteria are quoted in this standard to constitute the provisions of this standard, and have the same effect as this standard.

GB 12763.4-91 The Specification for Oceanographic Survey Observations of Chemical Parameters in Sea Water

HY 003-91 Code for Marine Monitoring

GB 12763.2-91 The Specification for Oceanographic Survey - Marine hydrographic observations

GB 7467-87 Water Quality - Determination of Chromium (VI) - Diphenylcarbazide Spectrophotometric Method

GB 7485-87 Water Quality - Determination of Total Arsenic - Silver Diethyldithiocarbamate Spectrophotometric Method

GB 11910-89 Water Quality - Determination of Nickel - Dimethylglyoxime Spectrophotometric Method

GB 11912-89 Water Quality - Determination of Nickel - Flame Atomic Absorption Spectrometric Method

GB 13192-91 Water Quality - Determination of Organic Phosphorous Pesticide in Water - Gas Chromatography

GB 11895-89 Water Quality - Determination of Benzo(alpha)-pyrene - Acetylated Paper Chromatography with Fluorescence Spectrophotometric Method

When above standards are revised, the latest edition shall be applied.

3 Sea Water Quality Classification and Standard

3.1 Classification of sea water quality

The sea water quality may be divided into four classes according to different application functions and protection objectives of sea area:

Class I It is applicable to marine fishery water area, marine natural protection area and rare marine organism protection area.

Class II It is applicable to aquiculture area, bathing beach, movement overseas or recreational area with direct sea water contact for human body as well as industrial water area having direct connection with human edible.

Class III It is applicable to general industrial water area and offshore landscape tourist area.

Class IV It is applicable to ocean port water area and ocean exploitation operating area.

3.2 Sea water quality standard

Each kind of sea water quality standard is listed in the Table 1.

Table 1 Sea Water Quality Standard mg/L

SN	Item	Class I	Class II	Class III	Class IV
1	Floating matter	The sea surface shall be free from oil layer, spume and other floating matters			The sea surface shall be free from obvious oil layer, spume and other floating matters
2	Color, odor and smell	The sea water shall be free from any heterochrosis, abnormal odor and peculiar smell			The sea water shall be free from any distasteful and unhappy color, odor and smell.
3	Suspended matter	Artificially added quantity ≤10		Artificially added quantity ≤ 100	Artificially added quantity≤150
4	Coliform bacteria ≤ (piece/L)	10000 Water quality of shellfish culture for raw edible ≤700			-
5	Coliform bacteria ≤ (piece/L)	2000 Water quality of shellfish culture for raw edible ≤140			-
6	Pathogenic agent	Water quality of shellfish culture for raw edible shall not contain pathogenic agent.			
7	Water temperature (℃)	The sea water temperature rise caused by human shall not exceed 1℃ then and there in summer, and shall not exceed 2℃ for other seasons		The sea water temperature rise caused by human shall not exceed 4℃ then and there	
8	pH	7.8~8.5 Not exceed 0.2 pH unit of normal variation range of this sea area		6.8~8.8 Not exceed 0.5 pH unit of normal variation range of this sea area	
9	Dissolved oxygen >	6	5	4	3
10	Chemical oxygen demands≤ (COD)	2	3	4	5
11	Biochemical oxygen demand ≤ (BOD5)	1	3	4	5
12	Inorganic nitrogen ≤ (by N)	0.20	0.30	0.40	0.50
13	Non-ionic ammonia≤ (by N)	0.020			
14	Reactive phosphate ≤ (by P)	0.015	0.030		0.045
15	Mercury≤	0.00005	0.0002		0.0005

34	Anionic surface active agent (by LAS)		Methene blue spectrophotometric method	0.023	HY 003.4-91
35	Radionuclide Bq/L	^{60}Co	Ion exchange-extraction-electro-precipitation process	2.2×10^{-3}	HY/T 003.8-91
		^{90}Sr	(1) HDEHP extraction-β counting method (2) Ion exchange-β counting method	1.8×10^{-3} 2.2×10^{-3}	HY/T 003.8-91 HY/T 003.8-91
		^{106}Ru	(1) Tetrachloromethane extraction-powdered magnesium reduction-β counting method (2) Gamma spectrum method 1.	3.0×10^{-3} 4.4×10^{-3}	HY/T 003.8-91
		^{134}Cs	Gamma spectrum method, see 137Cs analysis method		
		^{137}Cs	(1) Ferro cupric cyanide-silicagel site enrichment-gamma spectrum method (2) Ammonium phosphomolybdate-cesium iodine bismuth-β counting method	1.0×10^{-3} 3.7×10^{-3}	HY/T 003.8-91 HY/T 003.8-91

Notes:

1. The following analysis method shall be adopted temporarily, and the national standard shall be implemented after national method standard issuance.
   a. "Standard Methods for Examination of Water and Wastewater", 15th edition, China Architecture and Building Press, 805~827, 1985.
   b. Environmental science: 7(6): 75~79, 1986.
   c. "Radiation Protection Manual", Atomic Energy Press, 2:259, 1988.
2. See Appendix A
3. See Appendix B
4. The detection limit of benzene hexachloride and DDT refers to the sum of detection limit of four kinds of foreign matters.

5 Specification of Mixing Area

The mixing area formed by concentrated discharge of wastewater shall not influence the water quality of adjacent functional zone and fish migration channel.

Appendix A

(Normative)

Calculation of Inorganic Nitrogen

The inorganic nitrogen is the sum of nitrate nitrogen, nitrite nitrogen and ammonia nitrogen, and inorganic nitrogen is also referred as "active nitrogen" or hereinafter referred to as "three nitrogen".

The concentration of nitrate, nitrite and nitrogen in water sample during current monitoring is the sum expressed with μmol/L. But this standard specifies inorganic nitrogen is calculated by nitrogen (N), and the unit shall be adopted with mg/L; therefore, the inorganic nitrogen shall be calculated according to the following formula:

$$c(N) = 14\times10^{-3}[c(NO_3 - N)+c(NO_2 - N)+c(NH_3) - N)]$$

Where:

c(N) - the concentration of inorganic nitrogen, by N, mg/L;

$c(NO_3\text{-}N)$ - the concentration of nitrate in water sample measured with monitoring method, μmol/L;

$c(NO_2\text{-}N)$ - the concentration of nitrite in water sample measured with monitoring method, μmol/L;

$c(NH_3\text{-}N)$ - the concentration of ammonia in water sample measured with monitoring method, μmol/L.

Additional Explanations:

This standard was drafted by Third Institute of Oceanography, State Oceanic Administration and Ocean University of Qingdao.

Chief drafting staffs of this standard: Huang Ziqiang, Zhang Ke, Xu Kuncan, Sui Yongnian, Sun Shuyuan, Lu Xiankun and Lin Qingli.

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