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

HJ 585-2010

Replacing GB 11897-1989

**Water quality. Determination of free chlorine and total chlorine.
Titrimetric method using N, N-diethyl-1, 4-phenylenediamine**

水质 游离氯和总氯的测定 N,N-二乙基-1,4-苯二胺滴定法

(English Translation)

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6.7 Potassium dichromate standard solution. $c(1/6\text{K}_2\text{Cr}_2\text{O}_7) = 100.0 \text{ mmol/L}$

6.8 Ammonium ferrous sulfate stock solution. $c[(\text{NH}_4)_2\text{Fe}(\text{SO}_4)_2 \cdot 6\text{H}_2\text{O}] \sim 56 \text{ mmol/L}$

6.9 Ammonium ferrous sulfate standard titration solution. $c[(\text{NH}_4)_2\text{Fe}(\text{SO}_4)_2 \cdot 6\text{H}_2\text{O}] \sim 2.8 \text{ mmol/L}$

6.10 Diphenylamine sulfonate indicator solution. $\rho[(\text{C}_6\text{H}_5\text{-NH-C}_6\text{H}_4\text{-SO}_3)_2\text{Ba}] = 3.0 \text{ g/L}$

6.11 Phosphate buffer solution. $\text{pH} = 6.5$

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Foreword

To protect the environment and protect the human body in order to implement the Environmental Protection Law of the People's Republic of China and the Law of the People's Republic of China on Water Pollution Prevention and Control this standard is developed for the determination of free chlorine and total chlorine in water.

This standard specifies the determination of free chlorine and total chlorine in landscape water for industrial wastewater, medical wastewater, domestic sewage, intermediate water and sewage regeneration.

N,N-Diethyl-1,4-phenylenediamine titration.

This standard is for the determination of free chlorine and total chlorine in water, N, N-diethyl-1,4-phenylenediamine titration (GB 11897-89) Revised.

This standard was first published in 1989. The original standard was drafted. Anhui Environmental Monitoring Center, China Academy of Preventive Medicine Environmental Health Health Monitoring Institute and Anhui Wuhu Environmental Monitoring Center Station. This is the first revision. The main contents of the revision are as follows.

- Revised the scope of application of the standard;
- Increased method of preservation of samples;
- increased interference and elimination clauses;
- Modified the amount of buffer solution added;
- Added considerations.

From the date of implementation of this standard, the national environmental protection standard "Water" approved and issued by the former National Environmental Protection Agency on December 25, 1989 Determination of free chlorine and total chlorine The N,N-diethyl-1,4-phenylenediamine titration method (GB 11897-89) was abolished.

Appendix A of this standard is a normative appendix.

This standard was formulated by the Science and Technology Standards Department of the Ministry of Environmental Protection.

This standard is mainly drafted by. Dalian Environmental Monitoring Center.

This standard is verified by. Liaoning Provincial Environmental Monitoring Experimental Center, Anshan Environmental Monitoring Center, Yingkou Environmental Monitoring Center, Shenyang City Environmental Monitoring Center, Jinzhou Environmental Monitoring Center.

This standard was approved by the Ministry of Environmental Protection on September 20, 2010.

This standard has been implemented since December 1, 2010.

This standard is explained by the Ministry of Environmental Protection.

Determination of free chlorine and total chlorine in water N,N-diethyl-1,4-phenylenediamine titration Warning. Mercury salt is a highly toxic chemical. Wear protective equipment as required to avoid contact with skin and clothing. Waste after inspection the liquid should be properly and safely handled.

1 Scope of application

This standard specifies the titration method for the determination of free chlorine and total chlorine in water.

This standard applies to the measurement of free chlorine and total chlorine in landscape water for industrial wastewater, medical wastewater, domestic sewage, intermediate water and sewage regeneration.

set.

The detection limit (in terms of Cl₂) of this standard is 0.02 mg/L, and the measurement range (in terms of Cl₂) is 0.08 to 5.00 mg/L. For free chlorine the sample having a total chlorine concentration exceeding the upper limit of the method can be appropriately diluted and then measured.

2 Normative references

The contents of this standard refer to the terms in the following documents. For undated references, the valid version applies to this standard.

GB/T 5750.10 Standard Test Method for Drinking Water Standards for disinfection by-products GB/T 5750.11 Standard Test Method for Drinking Water Standards

3 Terms and definitions

The following terms and definitions apply to this standard.

Free chlorine free chlorine Refers to chlorine in the form of hypochlorous acid, hypochlorite ions and dissolved elemental chlorine.

Chlorine combined chlorine Refers to chlorine in the form of chloramines and organic chloramines.

Total chlorine total chlorine Refers to chlorine in the form of "free chlorine" or "chlorinated chlorine", or both.

Chloramine chloramines A derivative in which one, two or three hydrogen atoms of ammonia are replaced by chlorine atoms as determined by the method (eg monochloramine, dichloramine, nitrogen trichloride) and chlorinated derivatives of organic nitrogen compounds.

The composition of free chlorine and total chlorine is shown in Table 1.

Table 1 Nouns and their composition

Noun composition

Free chlorine (free residual chlorine) Active free chlorine elemental chlorine, hypochlorous acid Potential free chlorine hypochlorite Total chlorine (total residual chlorine) elemental chlorine, hypochlorous acid, hypochlorite, chloramine

4.1 Determination of free chlorine

At pH 6.2-6.5, free chlorine and N,N-diethyl-1,4-phenylenediamine (DPD) form a red compound with ferrous sulfate the ammonium standard solution was titrated until the red color disappeared.

4.2 Determination of total chlorine

At pH 6.2-6.5, elemental chlorine, hypochlorous acid, hypochlorite and chloramine react with DPD in the presence of excess potassium iodide.

The red compound was titrated to a red color with a standard solution of ammonium ferrous sulfate.

5.1 Interference from other chlorine compounds

Chlorine dioxide interferes with the determination of free chlorine and total chlorine, and chlorite interferes with the determination of total chlorine. Chlorine dioxide and chlorite it can be corrected by measuring its concentration. For the determination method, see GB/T 5750.11 and GB/T 5750.10.

High concentrations of monochloramine interfere with the determination of free chlorine. Can be added by adding sodium arsenite solution (6.13) or thioacetamide solution (6.13) Elimination of interference with monochloramine, determination of monochloramine in accordance with Appendix A.