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

GB/T 5750.11-2006

**Standard examination methods for drinking water --
Disinfectants parameters
(English Translation)**

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Foreword

GB/T 5750 "Standard examination methods for drinking water" is divided into the following parts.

- General principles;
- Collection and preservation of water samples;
- Water analysis quality control;
- Organoleptic and physical parameters;
- Nonmetal parameters;
- Aggregate organic parameters;
- Organic parameters;
- Pesticides parameters;
- Disinfection by-products parameters;
- Disinfectants parameter;
- Microbiological parameters;
- Radiological parameters.

This standard replaces the residual chlorine in Part II of GB/T 5750-1985

Standard examination methods for drinking water.

As compared with GB/T 5750-1985, the main changes are as follows.

- ADJUST the structure in accordance with GB/T 1.1-2000 Directives for standardization-Part 1.Rules for the structure and drafting of standards and GB/T 20001.4-2001 Rules for drafting standards - Part 4.Methods of chemical analysis;
- REVISE the quantity and unit of measurement in accordance with the requirements of national standards;
- CHANGE the equivalent concentration into the molar concentration (the redox part still retains the equivalent concentration);
- CHANGE the mass concentration symbol C into ρ , CHANGE the content symbol from M into m ;

Standard examination methods for drinking water -

Disinfectants parameters

1.1.1 Scope

This standard specifies the use of N,N-diethyl-p-phenylenediamine (DPD) spectrophotometric method to determine free residual chlorine in drinking water and its source water.

This method is applicable to the determination of free residual chlorine and combined residual chlorine in various forms in drinking water and its source water after chlorination and disinfection.

The minimum detection mass of this method is 0.1 μg . If a 10 mL water sample is taken for the determination, the minimum detection mass concentration is

0.01 mg/L.

High concentrations of monochloramine interfere with the determination of free residual chlorine, arsenite or thioacetamide can be used to control the reaction to remove interference. Manganese oxide interference can be eliminated from making the water sample blank. Chromate interference can be eliminated with thioacetamide.

1.1.2 Principle

DPD reacts rapidly with free chlorine in water to produce red color. Under the catalysis of iodide, monochloramine also reacts with DPD to develop color.

When iodide is added prior to the addition of the DPD reagent, a portion of the trichloramine is developed with the free residual chlorine, and the concentration of trichloramine can be determined by changing the order of addition of the shift reagent. This method can use potassium permanganate solution to prepare a permanent standard series.

1.1.3.2 Potassium iodide solution (5 g/L). WEIGH 0.50 g of potassium iodide

(KI), DISSOLVE it in fresh boiled cold purified water, DILUTE it to 100 mL.

permanganate in the standard solution is similar to the DPD and the red color of the indicated residual chlorine.

1.1.3.9 Chlorine standard use solution [$p(\text{Cl}_2) = 1 \mu\text{g/mL}$]. PIPETTE 10.0 mL of

chlorine standard stock solution (1.1.3.8), ADD pure water to dilute it to 100 mL.

MIX it uniformly, TAKE 1.00 mL and DILUTE it to 100 mL.

1.1.5.1 Standard curve drawing. PIPETTE 0, 0.1, 0.5, 2.0, 4.0, 8.0 mL of

chlorine standard use solution (1.1.3.9) into six 10 mL stoppered colorimetric tubes, USE water requiring no chlorine (1.1.3.7) to dilute it to the mark.

Respectively ADD 0.5 mL of phosphate buffer solution (1.3.3.3) and 0.5 mL of

DPD solution (1.1.3.4), MIX it uniformly. DETERMINE the absorbance at a

wavelength of 515 nm in a 1 cm cuvette with pure water as a reference. DRAW

a standard curve.

0.5 mL phosphate buffer solution (1.1.3.3), 0.5 mL of DPD solution (1.1.3.4),

MIX it uniformly; immediately DETERMINE the absorbance at a wavelength of

515 nm in a 1 cm cuvette with pure water as a reference, RECORD the reading

as A, meanwhile MEASURE the sample blank value, DEDUCT it from the reading.

Note: If the content of monochloramine in the sample is too high, the water sample can be treated with arsenite or thioacetamide.

1.1.5.3 CONTINUE adding a small crystal of iodinated crystal (about 0.1 mg) to the above test tube. After mixing it uniformly, MEASURE the absorbance, RECORD the reading as B.

Note: If the content of dichloramine in the sample is too high, it may add 0.1 mL of freshly prepared potassium iodide solution (1 g/L).

1.1.5.4 Then ADD potassium iodide crystal (about 0.1 g) to the above tube, MIX it uniformly. After 2 min, MEASURE the absorbance and RECORD the reading as C.

1.1.5.5 Take another two 10 mL colorimetric tubes, TAKE 10 mL of water sample in one of the colorimetric tubes, then ADD a small amount of potassium iodide crystal (about 0.1 mg), MIX it uniformly; ADD 0.5 mL of buffer solution (1.1.3.3) and 0.5 mL of DPD solution (1.1.3.4) into the second colorimetric tube, POUR

4.1.1 Scope

This standard specifies the use of N,N-diethyl-p-phenylenediamine (DPD)-ammonium ferrous sulfate titration method for the determination of chlorine dioxide in drinking water.

This method applies to the determination of chlorine dioxide in drinking water.

The method requires that the total available chlorine (Cl_2) of the water sample be no higher than 5 mg/L. Once above this value, the sample must be diluted.

The determination scope of this method is 0.025 mg/L ~ 9.5 mg/L, the minimum detection concentration is 0.025 mg/L (ClO_2).

Oxidized manganese and chromate can make DPD produce color, resulting in high measurement results, it may add sodium arsenite or thioacetamide to the