

# HJ

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

### HJ 636-2012

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**Water quality - Determination of total nitrogen - Alkaline  
potassium persulfate digestion UV spectrophotometric method  
(English Translation)**

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### Foreword

This Standard is specified so as to implement Environmental Protection Law of the People 's Republic of China, Water Pollution Control Act of the People 's Republic of China, to protect environment, to protect human health, to standardize the determination method for total nitrogen in water.

This Standard specifies determination of total nitrogen in surface water, groundwater, industrial wastewater and domestic sewage - Alkaline potassium persulfate digestion UV spectrophotometric method.

This Standard is the modification of Water quality - Determination of total nitrogen - Alkaline potassium persulfate digestion - UV spectro photometric method (GB 11894-89).

This Standard was issued in 1989 for the first time. The original drafting organization was Shanghai Environmental Monitoring Center. This is the first

revision. The main content of revision is as follows.

- expanded the scope of standard application;
- added nitrogen content requirements of sodium hydroxide and potassium persulfate and method for determination of nitrogen content;
- added quality assurance and quality control provisions;
- added terms and conditions on precautions.

Since the date of implementation of this Standard, the national environmental protection standard. Water quality - Determination of total nitrogen - Alkaline potassium persulfate digestion - UV spectro photometric method (GB 11894-89) approved and issued by former China State Environmental Protection Administration on December 25, 1989 shall be abolished.

Annex A of this Standard is informative.

This Standard is organized and made by Department of Science and Technology Standards, Ministry of Environmental Protection.

Main drafting organization of this Standard. Dalian Environmental Monitoring Center.

The verification organizations of this Standard. Tianjin Environmental Monitoring Center, Liaoning Provincial Environmental Monitoring Experimental Center, Shenyang Environmental Monitoring Center Station, Anshan Environmental Monitoring Center Station, Jinzhou Environmental Monitoring Center Station, Yingkou Environmental Monitoring Center Station.

Water quality - Determination of total nitrogen -  
Alkaline potassium persulfate digestion UV  
spectrophotometric method

## **1 Application scope**

This Standard specifies water quality - determination of total nitrogen - alkaline potassium persulfate digestion UV spectrophotometric method.

This Standard is applicable to the determination of total nitrogen in surface

water, groundwater, industrial wastewater and domestic sewage.

When the amount of sample is 10 ml, the detection limit of this method shall be

## 2 Normative references

The following standards contain the provisions which, through reference in this Standard, constitute the provisions of this Standard. For undated reference documents, the latest versions apply to this Standard.

HJ/T 91 Technical specifications requirements for monitoring of surface water and waste water

HJ/T 164 Technical specifications for environmental monitoring

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

total nitrogen (TN)

under the conditions specified by this Standard, total nitrogen in dissolved nitrogen and suspended solids of samples which can be determined, including nitrogen in nitrite nitrogen, nitrate nitrogen, inorganic ammonium salt, dissolved ammonia and most of the organic nitrogen compounds

Dry it at 105 ~ 110°C for 2h. Cool it to room temperature in dryer.

### 6.9 Sodium hydroxide solution. $\rho(\text{NaOH}) = 200 \text{ g/L}$

Weigh 20.0 g of sodium hydroxide (6.2) and make it dissolved in a small amount of water. Dilute to 100 ml.

### 6.10 Sodium hydroxide solution. $\rho(\text{NaOH}) = 20 \text{ g/L}$

Weigh 10.0 ml of sodium hydroxide solution (6.9). Use water to dilute to 100 ml.

### 6.11 Alkaline potassium persulfate solution

Weigh 40.0 g of potassium persulfate (6.3) and make it dissolved in 600 ml of water (it may heat in 50°C water bath till all is dissolved). Weigh 15.0 g of sodium hydroxide (6.2) in 300 ml of water. When sodium oxide solution is

cooled to room temperature, mix these two solutions and set volume to 1000 ml. Store in polyethylene bottle, which can be stored for one week.

#### **6.12 Potassium nitrate standard stock solution. rho (N) = 100 mg/L**

Weigh 0.7218 g of potassium nitrate (6.4) and make it dissolved in appropriate amount of water. Move it to 1000 ml volumetric flask. Use water to dilute it to gauge mark. Well mix. Add 1 ~ 2 ml of trichloromethane as protector. Store it in dark place at 0 ~ 10°C. It can be maintained stable for 6 months. It can also directly purchase the commercially available certified standard solution.

#### **6.13 Potassium nitrate standard use solution. rho (N) = 10.0 mg/L**

Weigh 10.00 ml of potassium nitrate standard stock solution (6.12) to 100 ml volumetric flask. Use water to dilute it to gauge mark. Well mix. Prepare it when required.

### **7.2 High-pressure steam sterilizer. the maximum working pressure shall not**

be less than 1.1 ~ 1.4 kg/cm<sup>2</sup>; the maximum working temperature shall not be less than 120 ~ 124°C.

corresponding Ar value as ordinate to draw calibration curve.

$$Ab = Ab_{220} - 2Ab_{275} \dots (2)$$

$$As = As_{220} - 2As_{275} \dots (3)$$

$$Ar = As - Ab \dots (4)$$

Where,

Ab - corrected absorbance of zero concentration (blank) solution;

Ab<sub>220</sub> - corrected absorbance of zero concentration (blank) solution at wavelength of 220 nm;

Ab...

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