

ICS 13.060

HJ

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

HJ 674-2013

Replacing GB/T 15507-1995; GB/T 14375-1993

**Water quality. Determination of hydrazine and monomethyl
hydrazine by p-Dimethylaminobenzaldehyde
spectrophotometric method**

(English Translation)

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Foreword

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, to protect the environment, to ensure human health, standardize the monitoring and analysis methods for strontium and methyl hydrazine in water, and develop this standard.

This standard specifies the p-dimethylaminobenzaldehyde spectrophotometric method for the determination of hydrazine and methylhydrazine in water.

This standard applies to the determination of bismuth and methyl hydrazine in surface water, groundwater, domestic wastewater and industrial wastewater.

This standard is for the determination of water quality dimethylaminobenzaldehyde spectrophotometry (GB/T 15507-1995) and "water Determination of quinone monomethyl hydrazine, revision of dimethylaminobenzaldehyde spectrophotometry (GB/T 14375-1993), original standard for the first time Published in 1995 and 1993. The main drafting units of the original standard are respectively, GB/T 15507-1995. Dandong City, Liaoning Province Bao Institute, the 7th Design and Research Institute of the former Aerospace Department, Xi'an Qinghua Electrical Appliance Factory of the former Ministry of Weapons Industry; GB/T 14375-1993. The Seventh Design and Research Institute of the former Aerospace Department.

This standard is divided into two parts. the first part is the determination of hydrazine by p-dimethylaminobenzaldehyde spectrophotometry; the second part is the second part Methylaminobenzaldehyde spectrophotometric determination of methyl hydrazine.

This standard is the first revision, the main revisions are as follows.

Divided into the determination of bismuth, the second part is the determination of methyl hydrazine;

- Modification of the method for eliminating nitrite interference by substituting p-diaminosulfonic acid for sodium azide;
- Revised the editorial errors and formats that appeared in the original standard.

From the date of implementation of this standard, "Determination of water quality dimethylaminobenzaldehyde spectrophotometry" (GB/T 15507-1995) and "Determination of water-methyl hydrazine by p-dimethylaminobenzaldehyde spectrophotometry" (GB/T 14375-1993) Abolished.

This standard is revised by the Science and Technology Standards Department of the State Environmental Protection Administration.

The main revision unit of this standard. National Environmental Analysis and Testing Center, China Aerospace Science and Technology Group Sixth Institute 101 (China Airlines Day Liquid Propellant Research Center).

The units that participate in the verification of this standard are. National Environmental Analysis and Testing Center, China Aerospace Liquid Propellant Research Center, North Beijing Municipal Environmental Protection Monitoring Center, Beijing Physical and Chemical Testing Center, Propellant Testing and Protection Center of the General Armament Department, Army of General Equipment Department Equipment research and

ordering department anti-chemical metering station.

This standard was approved by the Ministry of Environmental Protection on November 21, 2013.

This standard has been implemented since February 1, 2014.

This standard is explained by the Ministry of Environmental Protection.

Water quality and determination of methylhydrazine - dimethylaminobenzaldehyde spectrophotometric method this standard specifies the p-dimethylaminobenzaldehyde spectrophotometric method for the determination of hydrazine and methylhydrazine in water. This standard is divided into two parts.

The first part is spectrophotometric determination of hydrazine with p-dimethylaminobenzaldehyde, and the second part is p-dimethylaminobenzaldehyde spectrophotometry.

The methyl hydrazine was measured.

The first part of the determination of

1 Scope of application

This standard specifies the p-dimethylaminobenzaldehyde spectrophotometric method for the determination of hydrazine in water.

This standard applies to the determination of bismuth in water and industrial wastewater.

According to the water sample 50mL, using the 5cm absorption pool calculation, the detection limit of this method is 0.003 mg/L, the quantitative measurement the circumference is (0.012~0.240) mg/L. If a 1cm absorption cell is used, the detection limit is 0.015 mg/L, and the quantitative determination range is (0.060~1.00) mg/L. When the concentration of strontium in the water sample is greater than 1.00 mg/L, it can be determined after dilution.

2 Principle of the method

Under acidic conditions, hydrazine reacts with p-dimethylbenzaldehyde to form p-dimethylaminobenzyl nitrogen yellow compound. in the absorbance is measured at a wavelength of 458 nm, and its absorbance is proportional to the content of germanium in a certain concentration range.

3 Interference and elimination

Interference determination of semicarbazide, thiourea and urea at 20 mg/L, 50 mg/L and.200 mg/L respectively; methyl hydrazine is strontium content There is interference

when 3 times.

When the water sample contains chromium, add 2mL HCl (4.2) to 10mL water sample, add 0.4mL 1% potassium iodide, shake Evenly, let stand for 10 minutes.

When the NO₂ in the water sample is greater than 1 mg/L, it will have negative interference with the determination. When the concentration of NO₂ in the water sample is 1.0mg/L~4.5mg/L, Add 1.0 mL of ammonium sulfamate or sulfamic acid solution (4.5) to 10 mL of water and shake well to complete the reaction.

To eliminate interference. For different NO₂ concentration, adjust the amount of sulfamic acid added in the above ratio.

4 Reagents and materials

The reagents used in this standard are analyzed using analytical reagents in accordance with national standards, unless otherwise stated.

The water is freshly prepared deionized or distilled water.

4.1

Hydrochloric acid (HCl). $\rho = 1.19 \text{ g/mL}$.

4.2

Hydrochloric acid solution. $c(\text{HCl}) = 0.12 \text{ mol/L}$.

Take 250mL beaker, add.200 water, hydrochloric acid (4.1) 5.0mL, stir evenly, transfer to 500mL volumetric flask, use water Dilute to the mark and shake well. Transfer to a 500mL reagent bottle for later use.

4.3

Ethanol (95%).

4.4 P-Dimethylaminobenzaldehyde solution

Weigh 4.0 g of p-dimethylaminobenzaldehyde in.200 mL of 95% ethanol and 20.0 mL of hydrochloric acid (4.1) and store in brown.

Keep it in the bottle and protect it from light.

4.5 Ammonium sulfamate or sulfamic acid solution. $\rho = 5.0 \text{ mg/mL}$.

0.50 g of ammonium sulfamate (NH₄SO₃NH₂) or sulfamic acid (NH₂SO₃H) was weighed and dissolved in 100 mL of water.

4.6 standard stock solution. $\rho(\text{N}_2\text{H}_4) = 100 \text{ mg/L}$.

Weigh 0.3280g of guanidine hydrochloride (N₂H₄·2HCl) or 0.4060g of barium sulfate