

HJ

INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

HJ 754-2015

**Water quality. Determination of atrazine by Gas
chromatography**

水质 阿特拉津的测定 气相色谱法

(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 determination method of atrazine in water, and develop this standard.

This standard specifies the gas chromatographic method for the determination of atrazine in water.

This standard is the first release.

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

This standard is mainly drafted by. Taizhou Environmental Monitoring Center Station.

This standard is verified by. Jiangsu Environmental Monitoring Center, Wuxi Environmental Monitoring Center Station, Suzhou Environmental Monitoring Center, Changzhou Environmental Monitoring Center, Zhenjiang Environmental Monitoring Center Station and Taizhou Environmental Monitoring Center Station.

This standard was approved by the Ministry of Environmental Protection on October 22, 2015.

This standard has been implemented since December 1, 2015.

This standard is explained by the Ministry of Environmental Protection.

1 Water quality atrazine determination gas chromatography

Warning. The solvents and reagents used in the experiment are all toxic. The sample preparation process should be carried out in a fume hood.

Wear protective equipment as required to avoid contact with skin and clothing.

1 Scope of application this standard specifies the gas chromatographic method for the determination of atrazine in water.

This standard applies to the determination of atrazine in surface water, groundwater, domestic sewage and industrial wastewater.

When the sample size is 100 ml, the detection limit of atrazine is 0.2 µg/L, and the lower limit of determination is 0.8 µg/L.

2 Normative references

The contents of this standard refer to the following documents or their terms. For undated references, the valid version is appropriate.

Used in this standard.

HJ/T 91 Surface Water and Wastewater Monitoring Technical Specifications HJ/T 164
Technical Specifications for Groundwater Environmental Monitoring

3 Principle of the method

The atrazine in the water is extracted with dichloromethane, and the extract is dried over anhydrous sodium sulfate, concentrated, and converted into acetone.

Agent, after constant volume, separated and detected by gas chromatograph-nitrogen phosphorus detector (NPD), qualitative according to retention time, external standard method Quantitative.

4 Reagents and materials

Unless otherwise stated, analytically pure reagents and laboratory water in accordance with national standards were used for the analysis.

4.1

Dichloromethane (CH_2Cl_2). pesticide residue grade.

4.2

Acetone ($\text{C}_3\text{H}_6\text{O}$). pesticide residue grade.

4.3

n-hexane (C_6H_{14}). pesticide residue grade.

4.4

Ethyl acetate ($\text{C}_4\text{H}_8\text{O}_2$). pesticide residue grade.

4.5 Sodium chloride (NaCl)

It was fired in a muffle furnace at 400°C for 4 h, cooled and placed in a ground glass bottle and stored in a desiccator.

4.6 Anhydrous sodium sulfate (Na_2SO_4)

It was fired in a muffle furnace at 400°C for 4 h, cooled and placed in a ground glass bottle and stored in a desiccator.

4.7 Atrazine standard solution. $\rho = 100\text{ mg/L}$, the solvent is acetone, commercially available.

4.8 Carrier gas. nitrogen, purity $\geq 99.999\%$.

4.9 Combustion gas. hydrogen, purity $\geq 99.95\%$.

4.10 Gas-assisted gas. oil-free compressed air, purified by $5\text{ \AA}$ molecular sieve.

5 Instruments and equipment

5.1

Gas Chromatograph. Nitrogen Phosphorus Detector (NPD).

5.2

Column. quartz capillary column, 30 m x 0.25 mm, coated with 5% phenylmethylpolysiloxane, film thickness 0.25 μm , 2 or other equivalent capillary column.

5.3

Auxiliary Qualitative Column. Quartz capillary column, 30 m x 0.25 mm, internally coated with 35% phenylmethylpolysiloxane, film thickness 0.25 μm , or other equivalent capillary column.

5.4

Concentration device. A device with comparable performance such as a nitrogen blow concentrator, a rotary evaporator or a KD concentrator.

5.5

separatory funnel. 250 ml.

5.6

Microinjectors. 10 μl , 50 μl and 100 μl .

5.7

Purification column. silica gel type adsorption column, 500 mg/6 ml, commercially available.

5.8

Common instruments and equipment used in general laboratories.

6.1 Sample collection and preservation

Samples were taken with reference to the relevant regulations of HJ/T 91 and HJ/T 164. Use 500 ml hard ground glass bottle or have poly four Samples are taken from the threaded glass bottle of the vinyl fluoride cover. The sample should be filled with the sample bottle and sealed, placed in a refrigerator at 4 °C.

Save inside. The sample should be extracted within 7 days after sampling.

6.2.1 Extraction

Take 100 ml of sample into a 250 ml separatory funnel (5.5), add 5 g of sodium chloride (4.5), dissolve and add 15 ml Dichloromethane (4.1), shaken for 5 min, allowed to stand for 15 min, layered, collected organic phase, repeated extraction, combined extraction the