

HJ

INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

HJ 101-2019

**Technical specifications and test procedures for water quality
on-line automatic monitoring equipment of ammonia
(English Translation)**

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1 Scope

This Standard specifies the technical specifications, performance indexes and test methods for water quality on-line automatic monitoring equipment of ammonia.

This Standard applies to guiding production and design, guiding to application type-selection and implementing performance test.

The measuring range of water quality on-line automatic monitoring equipment of ammonia shall include 0.1 mg/L ~ 150 mg/L, which can satisfy the monitoring requirements for underground water, surface water, domestic wastewater and industrial wastewater.

2 Normative references

This Standard referenced the following documents or clauses therein. For undated references, the latest edition of the referenced documents (including all amendments) applies to this document.

GB/T 9969, General principles for preparation of instructions for use of industrial products

GB/T 13306, Plate

HJ 212, Data transmission standard for online monitoring systems of pollutant

HJ 535, Water quality - Determination of ammonia nitrogen - Nessler reagent spectrophotometry

HJ 536, Water quality-Determination of ammonia nitrogen - Salicylic acid spectrophotometry expressed as relative standard deviation, provided that no unplanned artificial maintenance and correction is carried out for instruments.

3.7 low level drift in 24 h

The mean value of the deviation absolute value between measured value and initial value of instruments for the continuous measurement (0 ~ 20%) of upper limit of the test range of a low concentration reference solution at specified periods, provided that no unplanned artificial maintenance and correction is carried out for instruments.

3.8 high level drift in 24 h

The percentage of the mean value, in relation to the upper limit of the test range (80% ~ 100%), of the deviation absolute value between measured value and initial value of instruments for the continuous measurement (0 ~ 20%) of upper limit of the test range of a high concentration reference solution at specified periods, provided that no unplanned artificial maintenance and correction is carried out for instruments.

3.9 memory effect

The degree of interference of the residues in the tubes of instruments on the next result of measurement after the measurement of some reference solution or sample using instruments.

3.10 interference of voltage

The deviations of measured values, which are obtained in the measurement of the same reference solution using instruments under different supply voltages, from measured value under reference voltage (220 V).

3.11 interference of pH

The deviation of measured values, which are obtained from the measurement of a reference solution using instruments under different pH values, from measured value from the measurement of a neutral reference solution (pH = 7).

3.12 management, data and running log query and output, and so on; meanwhile, they have such functions as sample reservation triggering sampling. Control units are capable of providing corresponding communication protocols when performing the above- mentioned functions, and such communication protocols satisfy the requirements of

HJ 212.

4.2 Environmental conditions for service

Environmental temperature: 5°C ~ 40°C;

Relative humidity: 65% ± 20%;

Supply voltage: alternating voltage 220 V ± 22V;

Supply frequency: 50 Hz ± 0.5 Hz;

Water sample temperature: 0°C ~ 50°C.

4.3 Appearance requirements

4.3.1

The marking of instruments shall be as specified in GB/T 13306. Plates shall be affixed to an appropriate, visible position. Plates shall include the following content:

- a) category of power supply;
- b) name and address of manufacturer;
- c) name and specifications of instruments;
- d) factory number;
- e) manufacturing date;
- f) test range and limit of quantitation;
- g) limit of quantitation;
- h) environmental conditions for service.

4.3.2

The monitor shall be free from stains and damages. All display interfaces shall be in Chinese and the characters uniform and clear; the screen shall be free from dark corners, black spots, rainbows, bubbles, flickers, etc.; it is capable of finishing all operations according to the instructions of the monitor.

4.3.3

The enclosure shall be made of corrosion resistant materials; the surface shall be free from crack, deformation, contamination, burr, etc.; the coating of the surface shall be uniform, without corrosion, rust, shedding or abrasion.

4.4.4.2 The output signals of test modules shall be stable.

4.4.4.3 Signal converters shall have the function to convert measured values into a corresponding quantity of electric signals (4 mA ~ 20 mA DC or RS232/RS485 interfaces).

4.4.4.4 The test period shall not be greater than 60 min.

4.4.5 Control units

4.4.5.1

They shall have the timed test function.

4.4.5.2

They shall have the manual and automatic cleaning function for the units including sample introduction/measurement, physical/chemical pretreatment and analysis and test.

4.4.5.3

They shall have the manual and automatic correction function; they are capable of setting automatic correction period.

4.4.5.4

They shall have the automatic reference sample inspection function.

4.4.5.5

If they have multiple measuring ranges, they shall have the automatic measuring range switching function; instruments display the final results of measurement.

4.4.5.6

They shall be capable of automatic acquisition, storage, processing, query, display, output, etc. of all data, instruments' parameters and running logs.

4.4.5.7

They shall store initial data and running logs for at least 12 months.

4.4.5.8

They shall have the function to add marks for different test data; the specific marks shall be as specified in HJ 212.

4.4.5.9

The unit of measured results of instruments shall be mg/L, which shall be rounded off to the second decimal place.

4.4.5.10

They shall have the digital quantity communication interfaces; output instructions, relevant data and running logs through the digital quantity communication interfaces; can receive the remote control instructions of the platform, at least including remote start, remote time setting function.

4.4.5.11

Data transmission shall be accompanied by communication protocols, as specified in HJ 212.

4.4.5.12

They shall realize the serial port output and internet access output of monitored data. of ammonia standard stock solution.

5.3.3 Other reagents: to be provided by the manufacturer of instruments.