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JJF

**National Metrology Technical Specifications
of the People's Republic of China**

JJF 1424-2013

**Program of Pattern Evaluation of
Ammonia-Nitrogen Automatic Analyzers**

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Program of Pattern Evaluation of Ammonia-Nitrogen Automatic Analyzers

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National Environmental Chemical Metrology Technical Committee

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Foreword

This program of pattern evaluation is drafted and based on JJF 1016 '*The Rules for Drafting Program of Pattern Evaluation of Measuring Instruments*', JJF 1015 '*General Norm for Pattern Evaluation and Pattern Approval of Measuring Instruments*', and JJF 1001 '*General Terms in Metrology and Their Definitions*'.

The technical index of this program of pattern evaluation has referred to JJG 631-2013 '*Ammonia-Nitrogen Automatic Analyzers*', GB/T11606-2007 '*Methods of Environmental Test for Analytical Instruments*', and other technical regulations and standards.

This is the first release.

Program of Pattern Evaluation of Ammonia-Nitrogen Automatic Analyzers

1 Scope

This program of pattern evaluation is applicable to the pattern evaluation of the Ammonia-Nitrogen automatic analyzer that are based on the electrode method and spectrophotometric method.

2 Reference

JJG 631-2013 Ammonia and Nitrogen Automatic Analyzer

GB/T 11606-2007 Analyzer Instrument Environmental Testing Method

The articles in the above documents, through the reference of this program, become the articles of this program. For documents indicated with date, all the subsequent modifications (excluding the corrigendum) or revisions are not applicable to this program, however, the parties who have entered into agreement based on this program are encouraged to investigate whether the latest version of these documents can be applied. For all cited documents without date, their latest versions are applicable to this program.

3 General

Ammonia-Nitrogen automatic analyzer can continuously monitor the Ammonia-Nitrogen concentration of the water body such as underground water, surface water and industrial wastewater. Measurement methods for Ammonia-Nitrogen automatic analyzer (hereinafter referred to as instrument) include spectrophotometric method and electrode method. Spectrophotometric method includes salicylic acid spectrophotometric method and Nessler reagent spectrophotometric method etc. The principle is that ammonia or ammonium ion under free state in the water sample will be color-developed after reacting with indicator. The absorbance and Ammonia-Nitrogen content of the solution at specified wave length are in direct proportion. So the quantitative analysis for Ammonia-Nitrogen in the water sample is realized. Electrode method includes air-sensitive electrode method and ion selective electrode method. The Ammonia-Nitrogen content in the water sample will be obtained through measurement of electrode potential.

Instrument mainly consists of sampling unit, water sample treatment unit, detection unit, data collection and processing unit, display, transmission unit, and other units.

4 Technical data and prototype that shall be submitted by application organization

4.1 Technical Information

- a) Prototype photo;
- b) Product standard (containing testing method);
- c) General assembly drawing, circuit diagram and main parts drawing;
- d) Operating manuals;

9.2.9.2 Test conditions

In accordance with the requirements in Table 3 of 7.4.4

9.2.9.3 Testing equipment

Within the working space of test chamber (room), the temperature conditions specified in Table 3 shall be able to be provided. Permissible error is $\pm 2^{\circ}\text{C}$. Air circulation can be forced to keep the temperature uniformity. In order to limit the radiation effect, the temperature difference between the temperature of each section of inner wall of test chamber (room) and the specified test temperature shall not exceed 3% (calculated by thermodynamic temperature). And the instrument shall not be affected by the direct radiation of any above heated or cooled elements which are not meeting the above requirements. The volume of the test chamber (room) shall be 3 times larger than the volume of the instrument.

9.2.9.4 Test procedures

- a) Put the instrument to the normal position in the test chamber. The temperature of the test chamber at this time is consistent with the instrument temperature;
- b) Change the temperature of test chamber to the stipulated value at the rate $\leq 1^{\circ}\text{C}/\text{min}$. Power on. Maintain for 8 hours;
- c) Increase the temperature of test chamber to the stipulated value at the rate $\leq 1^{\circ}\text{C}/\text{min}$ to the initial temperature after reaching the test time of duration. Recover for 24h under normal test conditions.

9.2.9.5 Qualification judgment

The result in accordance with requirements of 7.4.4 is deemed as qualified.

9.2.10 High temperature storage test

9.2.10.1 Experimental purpose

Check the adaptability of the instrument with intact packing under low temperature condition in transportation, storage during delivery.

9.2.10.2 Test conditions

In accordance with the requirements in Table 3 of 7.4.4.

9.2.10.3 Testing equipment

Within the working space of test chamber (room), the temperature conditions specified in Table 3 shall be able to be provided. Permissible error is $\pm 2^{\circ}\text{C}$. Air circulation can be forced to keep the temperature uniformity. In order to limit the radiation effect, the temperature difference BETWEEN the temperature of each section of inner wall of test chamber (room) AND the specified test

15. Alternating damp heat test

Starting time of test: __YY __MM __DD __HH __MM

Ending time of test: __YY __MM __DD __HH __MM

Test conditions:

Measuring instruments and equipment used:

Name	Model number	No.	Accuracy

Environment temperature:_____

Relative humidity:_____

Evaluator:_____

16. Crash tests

Starting time of test: __YY __MM __DD __HH __MM

Ending time of test: __YY __MM __DD __HH __MM

Test conditions:

Measuring instruments and equipment used:

Name	Model number	No.	Accuracy

Environment temperature:_____

Relative humidity:_____

Evaluator:_____

17. Drop test

Starting time of test: __YY __MM __DD __HH __MM

Ending time of test: __YY __MM __DD __HH __MM

Test conditions:

Measuring instruments and equipment used:

Name	Model number	No.	Accuracy

Environment temperature:_____

Relative humidity:_____

Evaluator:_____

_____ **END** _____

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