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JJF

NATIONAL METROLOGY TECHNICAL SPECIFICATION OF THE PEOPLE'S REPUBLIC OF CHINA

JJF 1822-2020

Calibration Specification for Urea Analyzers of Water Sample Detection

水样检测用尿素检测仪校准规范

(English Translation)

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Introduction

This specification is written in accordance with the requirements of JJF 1071-2010 "Rules for Compiling National Measurement and Calibration Specifications".

This specification refers to JJG179-1990 "filter photoelectric colorimeter" and JJF

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1059.1-2012 "measurement uncertainty" Degree evaluation and expression "formulation.

This specification is the first release.

Calibration specification of urea detector for water sample detection

1 Scope

This specification applies to the calibration of water sample urea detectors based on the principle of colorimetry.

2 Reference documents JJF 1071-2010 Compilation Rules for National Measurement and Calibration Specifications GB/T 6682-2008 Analytical laboratory water specifications and test methods for dated reference documents, only the dated version applies to this specification; for those without date references the latest version (including all amendments) is applicable to this specification.

3 Overview

The urea detector for water sample detection (hereinafter referred to as the instrument) uses the colorimetric principle to detect the urea content in the water sample Measurement. The urea in the water sample reacts with the matching reagent to develop a color, and the degree of color development within a certain range is related to the urea in the tested sample.

The content is proportional, and the urea content of the sample is calculated according to the absorbance value of the coloring solution.

There are three main principles of color reaction.

The first is the diacetyl-oxime-antipyrine method. Under strong acid and heating conditions, urea and diacetyl-oxime-an the reaction of tepirin is yellow, with a maximum absorption peak at a wavelength of about 460nm. The linear range of the method is (0.5 ~

10) mg/L.

The second is the sodium dichloroisocyanurate-thymol method, in the presence of soluble starch, urea can be combined with dichloroisocyanurate the reaction of sodium urea and thymol produces a yellow compound with a maximum absorption wavelength of about 470nm. square the normal linear range is (0.5 ~ 5) mg/L.

The third is the urease blue method. The ammonia nitrogen generated when urease hydrolyzes urea is used to neutralize sodium phenolate and secondary in a strong alkaline medium.

The sodium chlorate reacts to form a blue-green compound with a maximum absorption wavelength of about 610nm. The line of urea solution in this reaction the sex range is (0.1 ~ 2.5) mg/L. In order to meet the needs of use, the detection range of urea can be reached through sample dilution to (0.1 ~ 5) mg/L.

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The instrument is mainly composed of light source, monochromator, sample room, detector, data processing, display unit and matching reagents, etc.

composition.

4 Measurement characteristics

4.1 Stability

4.2 Indication error

4.3 Measurement repeatability

5 Calibration conditions

5.1 Environmental conditions

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