Chinastandards.org

JJF

NATIONAL METROLOGY TECHNICAL SPECIFICATION OF THE

PEOPLE'S REPUBLIC OF CHINA

JJF 1907-2021

Calibration Specification for On-line Monitoring of Ambient Air Gas Analyzer

环境空气在线监测气体分析仪校准规范

(English Translation)

Issued on: July 28, 2021 **Implemented on: January 28, 2022**

Issued by: State Administration for Market Regulation

Preview: page 1 of 4 shown, 13 in the full document. Complete English PDF, instant download:
https://chinastandards.org/standards/jjf-1907-2021

Chinastandards.org

Table of Contents

1 Scope(1)
2 Overview(1)
3 Metrology Characteristics(1)
4 Calibration Conditions(2)
4.1 Environmental conditions (2)
4.2 Measurement standards and supporting equipment (2)
5 Calibration items and calibration methods (2)
5.1 Instrument Linearity(2)
5.2 Indication error(3)
5.3 Repeatability(3)
5.4 Response time(4)
6 Expression of calibration results (4)
7 Recalibration interval(4)
Introduction

7 Recalibration interval(4)

Appendix A Calibration Raw Record(5)

Appendix B Calibration Certificate (Inner Page) Format (8)

Appendix C Working principle and data processing of dynamic gas distribution online calibration device (9)

Appendix D Example of Uncertainty Evaluation of Indication Error of Ambient Air Online Monitoring Gas Analyzer(13)

Introduction

JJF 1071 "Rules for Compilation of National Metrology Calibration Specifications", JJF 1001 "General Metrology Terms and Definitions", JJF 1059.1 "Assessment and Representation of Measurement Uncertainty" together constitute the basic series of regulations supporting the formulation of this specification.

Fan. The technical indicators of the instrument linear parameters in this specification refer to HJ818 "Ambient Air Gaseous Pollutants (SO2, NO2, O3, CO) Continuous Automatic Monitoring System Operation and Quality Control Technical Specifications, HJ193 "Ambient

Preview: page 2 of 4 shown, 13 in the full document. Complete English PDF, instant download:
https://chinastandards.org/standards/jjf-1907-2021

Air Gaseous Pollution" "Technical Specifications for Installation and Acceptance of Continuous Automatic Monitoring System for Substances (SO2, NO2, O3, CO)"; working condition measurement range reference HJ654 "Ambient air gaseous pollutants (SO2, NO2, O3, CO) continuous automatic monitoring system technical requirements and testing methods" and other standards.

This specification is published for the first time.

Specification for calibration of gas analyzers for on-line monitoring of ambient air

1 Scope

This specification applies to the measurement of nitrogen dioxide, sulfur dioxide, ozone, and carbon monoxide in ambient air.

Analyzer calibration.

The measurement range of SO2, NO2, O3 analyzer in this specification. (0~0.5) μmol/mol; CO analyzer Working condition measurement range. (0~10)μmol/mol.

2 Overview

The detection principles of the ambient air online monitoring gas analyzer (hereinafter referred to as the instrument) mainly include chemiluminescence, ultraviolet Spectral analysis methods such as fluorescence method, ultraviolet absorption method, non-dispersive infrared absorption method and gas filter correlation infrared absorption method.

Law. The sampling method is inhalation. The instrument is mainly composed of sampling unit, detection unit, signal processing unit, display unit, etc.

The ambient air is sampled by the sampling unit and then enters the detection unit, and the measured components in the sample pass through the optical sensing module.

The signal processing unit converts it into an electrical signal, and then converts it into a digital signal through an electronic circuit, and the display unit outputs SO2, NO2, O3, CO concentration. The schematic diagram of the instrument structure is shown in Figure 1.

Figure 1 Schematic diagram of the structure

3 Metrology characteristics the measurement performance is shown in Table 1.

Table 1 Metrology performance

Calibration item

Metrology performance Nitrogen dioxide gas analyzer Sulfur dioxide gas analyzer Ozone gas analyzer Carbon monoxide gas analyzer Instrument linearity Correlation coefficient (r). >0.995 0.90<=slope(a)<=1.10 Intercept (b) within ±1% of measurement range Indication error ±10% Repeatability2% 2% 2% 2% Response time 180s 120s 180s 120s Note. The

Preview: page 3 of 4 shown, 13 in the full document. Complete English PDF, instant download:
https://chinastandards.org/standards/jjf-1907-2021

Chinastandards.org

above indicators are not used for eligibility determination and are for reference only.

Preview: page 4 of 4 shown, 13 in the full document. Complete English PDF, instant download:
https://chinastandards.org/standards/jjf-1907-2021