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**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

HJ 1045-2019

**Specifications and test procedures for portable monitoring
instrument for SO₂ and NO_x based on ultraviolet absorption
method in flue gas emitted from stationary sources**

固定污染源烟气（二氧化硫和氮氧化物）便携式紫外吸收法测量仪器技术要求及
检测方法

(English Translation)

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Foreword

In order to implement the "Environmental Protection Law of the People's Republic of China" and the "Law Monitoring of pollutants emitted from stationary gas pollution sources, standardizing the performance of portable sulfur dioxide and nitrogen oxide ultraviolet absorption measuring instruments, Quality and testing to develop this standard.

This standard specifies the composition of portable measuring instruments for sulfur dioxide and nitrogen oxides in a fixed source of pollution.

Structure, technical requirements, performance indicators, and instrument testing and evaluation methods.

Appendix A to this standard is a normative appendix, and appendixes B to D are informative appendixes.

This standard is issued for the first time.

This standard is formulated by the Department of Eco-Environmental Monitoring, Laws and Standards Department of the Ministry of Ecology and Environment.

This standard was drafted. China National Environmental Monitoring Station, Shandong Provincial Ecological Environment Monitoring Center.

This standard was approved by the Ministry of Ecology and Environment on October 24, 2019.

This standard will be implemented as of April 24, 2020.

This standard is explained by the Ministry of Ecology and Environment.

Determination of Flue Gas (Sulfur Dioxide and Nitrogen Oxide) from Stationary Pollution Sources by Portable UV Absorptiometry Measuring instrument technical requirements and detection methods

1 Scope

This standard specifies portable instruments for measuring sulfur dioxide and nitrogen oxides in a fixed source of pollution.

(Referred to as instrument) composition structure, technical requirements, performance indicators and instrument detection and evaluation methods.

This standard is applicable to the design and production of portable fixed pollution sources for measuring sulfur dioxide, nitrogen oxides and oxygen.

And performance testing. Technical requirements for portable monitoring instruments that absorb other gases in the near-ultraviolet region can be implemented with reference to this standard.

2 Normative references

The content of this standard refers to the clauses in the following documents. For undated references, the valid version is applicable to this standard.

GB/T 4208 enclosure protection grade (IP code) GB/T 16157 Determination of particulate matter and sampling of gaseous pollutants in exhaust from stationary pollution sources HJ 75 Technical Specifications for Continuous Monitoring of Flue Gas (SO₂, NO_x, Particulate Matter) Emissions from Stationary Pollution Sources HJ 76 Technical requirements and detection methods of continuous monitoring system for the emission of flue gas (SO₂, NO_x, particulate matter) from stationary pollution sources HJ/T 397 Fixed source exhaust gas monitoring technical specifications

3 Terms and definitions

The following terms and definitions apply to this standard.

Full scale span

The maximum measurement value set by the instrument according to the actual application needs.

Response time

Instrument response time is divided into rising response time and falling response time.

Rise response time refers to the passage of the span calibration gas after the zero reading of the instrument stabilizes.

Intervals between the moment when the span calibration gas is 90% of its nominal value.

Falling response time refers to the introduction of zero gas after the reading of the measuring range point of the instrument is stable.

The interval between the time when the calibration value of the calibration gas is 10% and the middle time interval.

Zero drift

Under the premise that the instrument has not been repaired, maintained or adjusted, the instrument is operated for a specified period of time after passing zero gas.

The percentage of the deviation between the meter reading and the initial measurement of the zero gas relative to the full scale.

Span drift

Under the premise that the instrument has not been repaired, maintained or adjusted, the instrument is operated for a specified period of time and a span calibration gas is passed in.

Percentage of deviation between the instrument's reading and the initial measurement of the span calibration gas relative to full scale.

Parallelism

Relative standard deviation of the measurement results when the same model and configuration of the same object are measured under the same environmental conditions.

Reference method

Standard method published by the country or industry for comparison with instrument measurements.

Dry flue gas concentration After the flue gas is pretreated, the concentration of each pollutant in the flue gas when the dew point temperature is $\leq 4^{\circ}\text{C}$ is also called the dry basis concentration.

Standard state

The state at a temperature of 273.15 K and a pressure of 101.325 kPa. The mass concentration of pollutants in this standard are all standards the dry flue gas concentration in the state.

Relative accuracy

The reference method measures the concentration of gaseous pollutants (containing oxygen) in the flue gas synchronously with the instrument to be measured.

The measurement results of the state constitute several data pairs, and the absolute value of the average of the difference between the data pairs and the absolute value of the confidence coefficient, Ratio to the average of the data measured by the reference method.