

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

HJ 1012-2018

**Ambient air and stationary source emission - Specifications and test
procedures for hydrocarbons, methane and nonmethane hydrocarbons
portable total monitoring instrument**

环境空气和废气 总烃、甲烷和非甲烷总烃便携式监测仪技术要求及检测方法
(English Translation)

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Foreword

To protect the "Environmental Protection Law of the People's Republic of China" and the "Air Pollution Control Law of the People's Republic of China" Environment, safeguarding human health, regulating the regulation of ambient air and fixed pollution sources, total hydrocarbons, methane and non-methane total hydrocarbons the performance and quality of the tester shall be formulated in accordance with this standard.

This standard specifies the main technical requirements, testing items and testing of portable monitors for total hydrocarbons, methane and non-methane total hydrocarbons. method.

This standard is the first release.

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

This standard was drafted. China Environmental Monitoring Station.

This standard is approved by the Ministry of Ecology and Environment on December 29, 2018.

This standard has been implemented since July 1, 2019.

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

1 Ambient air and exhaust gas total hydrocarbon, methane and non-methane total hydrocarbon portable monitor Technical requirements and testing methods

1 Scope of application

This standard specifies the composition, technical requirements and performance indicators of portable monitors for total hydrocarbons, methane and non-methane total hydrocarbons.

And detection methods.

This standard applies to ambient air and fixed pollution source exhaust gas, methane and non-methane total hydrocarbon portable monitor (below Design, production and testing of the "instrument" for short.

For the instruments used in different occasions, the detection range of the corresponding instrument is specified. For ambient air and ambient air pollution Instrument for emergency monitoring of dyeing accidents This standard is called type I instrument. It is used to fix the instrument for monitoring the pollution of waste gas. This standard is called II.

Type instrument.

2 Normative references

This standard refers to the following documents or their terms. For undated references, the valid version applies to this standard.

GB 3836.1 Explosive environment Part 1. General requirements for equipment GB/T 4208 enclosure protection grade (IP code) GB/T 16157 Determination of particulate matter in fixed pollution source exhaust gas and sampling method of gaseous pollutants Determination of total hydrocarbons, methane and non-methane total hydrocarbons from stationary sources - Gas chromatographic method HJ 168 Technical Guidelines for Standardization and Revision of Environmental Monitoring and Analysis Methods HJ 604 Determination of total hydrocarbons, methane and non-methane total hydrocarbons - Direct injection - Gas chromatography

3 Terms and definitions

The following terms and definitions apply to this standard.

Total hydrocarbons (THC) Under the conditions specified by HJ 38 and HJ 604, the total amount of gaseous organic compounds in response to the hydrogen flame ionization detector and (except unless otherwise stated, the results are in terms of carbon).

Nonmethane hydrocarbons (NMHC) Under the conditions specified by HJ 38 and HJ 604, other gaseous states other than methane are responsive on the hydrogen flame ionization

detector.

The sum of the organic compounds (the results are in terms of carbon unless otherwise stated).

23.3

Instrument detection limit the instrument can qualitatively detect the minimum concentration of the substance to be tested from the sample within a given confidence level.

Quantitative measurement repeatability Under a set of repetitive measurement conditions, based on the measurement precision of the indication value of the component to be tested, the instrument is continuously measured multiple times.

The same standard substance is expressed based on the relative standard deviation of the indication values of one or more of the components to be tested.

Response factor

In this standard, a hydrogen flame ionization detector measures the response of other gaseous organic compounds relative to the measured methane response.

The dimensionless ratio.

Parallel instrumentation parallelism Under the same environmental conditions, the relative standard deviation of the measurement results of the same test object by two sets of the same type of system.

Conversion efficiency the efficiency of oxidizing gaseous organic compounds other than methane using a catalytic oxidation unit.

4.1 Overall structural composition of the instrument

The instrument structure mainly includes sample collection and transmission unit, sample separation/pretreatment unit, analysis unit, and data acquisition.

And processing units, auxiliary equipment, etc. Depending on the measurement method and principle of the instrument, the instrument may have all or part of the above.

The structural composition, power supply and gas supply should ensure the needs of on-site monitoring work.

4.2 Sample Collection and Transfer Unit

It mainly includes sampling probe, sample transmission pipeline, flow control equipment and sampling pump. For the specific technical requirements, see 5.1.4.

And 5.2.4.1.

4.3 Sample separation/pretreatment unit

Mainly includes sample filter components and chromatographic separation components/high temperature catalytic components; sample separation/pretreatment component units Materials and installations shall not affect instrument measurements. See 5.2.4.2 for specific technical requirements.

4.4 Analysis unit

It is used to measure and analyze the collected samples. For specific technical requirements, see 5.2.4.3.

34.5 Data Acquisition and Processing Unit

Used to collect, process, and store monitoring data, and to transmit monitoring data and device operating status according to central computer commands Information; specific technical requirements for the data acquisition and processing unit are given in 5.2.4.5.

4.6 Auxiliary equipment the portable instrument adopts the extraction measurement method, and its auxiliary equipment mainly includes exhaust gas discharge device, back-blowing purification and its control.

Equipment, condensate discharge equipment, explosion-proof equipment, etc.

5 Technical requirements

5.1 Type I Instrument Technical Requirements

5.1.1 General requirements Same as 5.2.1.

5.1.2 Working conditions Same as 5.2.2.

5.1.3 Security requirements Same as 5.2.3.

5.1.4 Functional requirements in addition to the sample collection and transmission unit heating, insulation and filtration functions, and the sampling pump to overcome the negative pressure function must not be required in addition, the remaining requirements are the same as 5.2.4. The sample collection and transmission unit has a heating function, and the heating temperature is generally not lower than 120 ° C, and above the sampling pressure of the gas sample water dew point value or hydrocarbon dew point value (whichever is the maximum) 20 ° C or more, the actual temperature value should be displayed in the instrument.

45.2 Type II instrument technical requirements

5.2.1 Appearance requirements

5.2.1.1 The instrument shall have a nameplate, and the nameplate shall be marked with the