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Mobile GC-MG3310N

Portable Natural Gas Chromatograph

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Analytical Technologies Limited

An ISO 9001 Certified Company

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Instrument overview

According to the current national standards such as GB17820-2012 “Natural Gas” and GB18047-2000 “Compressed Natural Gas for Vehicles”, there are 5 technical indicators for the commercial natural gas delivered through the pipeline after the natural gas produced in the gas field or oil field is pretreated. Schedule 1), ie high calorific value,total sulfur, hydrogen sulfide,carbon dioxide and water dew point, wherein the high calorific value is analyzed by gas chromatography.

The Mobile GC-MG3310N Portable Natural Gas Chromatograph is equipped with a highly sensitive thermal conductivity and hydrogen flame detector. The 10-way valve backflushing process can complete the hydrocarbons such as C1-C6 and C6+ in the natural gas specified in GB/T13610-2014. Analysis of class components and inorganic gases such as He, H2, O2, N2, CO2;according to the content of each component, and according to GB/T 11062-2014 "calculation of natural gas calorific value, density,average density and Wobbe index" Method" calculates the high calorific value (heat value) of natural gas.

Item	One Type	Two Type	Three Type
High calorific value,MJ/m^3 ≥	36.0	31.4	31.4
Total sulfur (calculated as sulfur), mg/ m^3 ≤	60	200	350
H2S, mg/ m^3 ≤	6	≤20	≤350
Co2, %（V/V） ≤	2.0	3.0	-
Water dew point, ℃	At the junction pressure, the water dew point should be 5 ° C lower than the minimum ambient temperature under the transport conditions.		

Note:

- The standard reference condition for gas volume in this standard is 101.325 kPa, 20 °C
- Under the conveying condition, when the buried temperature of the pipe top is 0 °C, the water dew point should not be higher than -5 °C.
- For natural gas entering the gas pipeline, the pressure at the water dew point should be the highest delivery pressure.

Measuring range

Component name	Concentration range (molar fraction)y/%	Component name	Concentration range (molar fraction)y/%
helium	0.001~10	Isobutane	0.01~10
hydrogen	0.01~10	N-butane	0.01~10
oxygen	0.01~20	Neopentane	0.01-2
N2	0.01~100	Isopentane	0.01-2
CO2	0.01~100	N-pentane	0.01-2
CH4	0.01~100	Hexane	0.01-2
Ethane	0.01~100		
Propane	0.01~100		

Precision

Component concentration range (molar fraction)	Repeatability	Reproducibility
0～0.1	0.01	0.02
0.1～1.0	0.04	0.07
1.0~5.0	0.07	0.10
5.0~10	0.08	0.12
>10	0.20	0.30

Standard function

- Organic Gas Analysis System
- Inorganic gas analysis system
- Data Processing System
- Calorific value calculation software

Technical performance

- Analysis period: <20min
- Maximum error: <3%
- Stabilization time: <30min
- working environment：-10～50℃

Other parameters

- Dimensions: 625 × 500 × 297mm
- Weight: <20kg
- Power source: 220V±22V, 50Hz
- Power: ≤500W

Technical characteristics

The Mobile GC-MG3310N Portable Natural Gas Chromatograph adopts a new integrated design,which integrates four gas sources, computer and chromatography workstations such as argon,hydrogen, air and standard gas into the instrument. No external gas source and computer are required. The original imported storm trolley case has an anti-drop height of more than 1.2 meters.

The third detector process technology enables complete separation of all components:

The Mobile GC-MG3310N Portable Natural Gas Chromatograph uses a valve cutting process technology with a high-sensitivity thermal conductivity detector and a flame ionization detector to reduce inspection time while greatly improving detection sensitivity.The helium carrier gas uses back pressure control technology to greatly reduce the impact of the injection peak on hydrogen analysis:

Due to the short peak time, hydrogen is more susceptible to interference from the injection peak. The Mobile GC-MG3310N Portable Natural Gas Chromatograph uses back pressure valve control technology, which can effectively reduce the interference of the injection peak on the hydrogen peak and reduce the human factor. The effect of hydrogen detection greatly improves the accuracy of hydrogen detection.

Using mixed packing column technology to greatly improve peak response and extend column life:

The Mobile GC-MG3310N Portable Natural Gas Chromatograph uses a new mixed-package column and ERIC tubing to minimize sample adsorption and increase hydrocarbon response by up to 20 times.

High sensitivity thermal conductivity detector is used to greatly improve the detection sensitivity of hydrogen:

Unlike traditional thermal conductivity detectors, the Mobile GC-MG3310N portable natural gas chromatograph is equipped with a high-sensitivity thermal conductivity detector with a thorium -tungsten wire resistance of 130 Ω. It has a small cell size and fast response, and the detection limit for hydrogen can be reduced. Up to 2 μL/L.

Use computer anti-control technology to realize the digital operation of the instrument and one-button boot:

The analysis parameters of the Mobile GC-MG3310N Portable Natural Gas Chromatograph, including the carrier gas pressure, sample pressure, temperature, etc., are set or displayed through the workstation. The operation is simple and the analysis conditions are mastered in real time.The heating and cooling of the instrument can be realized by tapping the mouse on the workstation, completely eliminating the cumbersome operation in the laboratory chromatogram,and basically achieving one-button boot.

Digital electronic zeroing technology to enhance the anti-jamming capability of the instrument:

Mobile GC-MG3310N Portable Natural Gas Chromatograph detector zero signal adopts electronic zero adjustment technology, using high-precision digital circuit for base flow compensation,electronic adjustment of output signal level, reducing parasitic parameters,and thus strong resistance Interference ability.Automatic gas shutoff protection to ensure safe operation of the detector:

Mobile GC-MG3310N breathe Portable Natural Gas Chromatograph having protection function, when the carrier gas flow rate is below the threshold value set, a current instrument automatically switches off the thermal conductivity, thermal conductivity detector to prevent burning,improve the safety of use of the instrument.

The instrument comes with an aging program, and the user can automatically aging the instrument without any complicated settings:

In the daily use of the instrument, in order to ensure the good running state of the instrument, the instrument needs to be aging irregularly. The aging program of the Mobile GC-MG3310N Portable Natural Gas Chromatograph allows the user to set the aging program without setting complicated parameters. The instrument will automatically run according to the required parameters, which is convenient for the user to carry out daily maintenance work on the instrument.

Regulatory compliances

Corporate Social Responsibility

Analytical Foundation is a nonprofit organization (NGO) found for the purpose of:

1.Research & Innovation Scientist's awards/QC Professional Award : Quality life is possible by innovation only and the innovation is possible by research only, hence ANALYTICAL FOUNDATION is committed to identify such personallities for their contributions across various field of Science and Technology and awarding them yearly. To participate for award, send us your details of research / testing / publication at Info@analyticalfoundation.org

2. Improving quality of life by offering YOGA Training courses, Work shops/Seminars etc.

3. ANALYTICAL FOUNDATION aims to DETOXIFY human minds,souls and body by means of yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Camps etc.

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