

ICS 13.100
CCS C 52



**NATIONAL OCCUPATIONAL HEALTH STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GBZ/T 300.62-2017

Replacing GBZ/T 160.40-2004

**Determination of toxic substances in workplace air -- Part 62:
Solvent gasoline, liquified petroleum gas, raffinate and
turpentine**

工作场所空气有毒物质测定 第62部分：溶剂汽油、液化石油气、抽余油和松节油
(English Translation)

Issued on: November 9, 2017

Implemented on: May 1, 2018

Issued by: National Health and Family Planning Commission

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1 Scope

This part of GBZ/T 300 specifies the direct injection of liquefied petroleum gas in the air of the workplace-gas chromatography, solvent gasoline and raffinate oil Thermal desorption-gas chromatography of turpentine, solvent desorption-gas chromatography of turpentine.

This section applies to the detection of the concentration of vaporous liquefied petroleum gas, solvent gasoline, raffinate oil and turpentine in the air of the workplace.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this document.

For undated reference documents, the latest version (including all amendments) is applicable to this document.

GBZ 159 Sampling Specification for Monitoring of Hazardous Substances in the Air of Workplaces GBZ/T 210.4 Guidelines for the Establishment of Occupational Hygiene Standards Part 4: Determination Methods of Chemical Substances in the Air of Workplaces

3 Basic information of liquefied petroleum gas, solvent gasoline, raffinate oil and turpentine the basic information of liquefied petroleum gas, solvent gasoline, raffinate oil and turpentine is shown in Table 1

4.1 Principle

The vaporous solvent gasoline in the air is collected with activated carbon, injected after thermal desorption, separated by a gas chromatographic column, and detected by a hydrogen flame ionization detector.

Measured by retention time qualitatively, peak height or peak area quantified.

4.2 Apparatus

4.2.1

Activated carbon tube, thermal desorption type, with 100 mg activated carbon inside.

4.2.2

Air sampler, the flow range is 0 mL/min~500 mL/min.

4.2.3

Airtight syringes, 1 mL and 100 mL.

4.2.4

Thermal desorber.

4.2.5

Gas chromatograph with hydrogen flame ionization detector.

4.2.5.1

Reference conditions for operation of packed column instrument.

- a) Chromatographic column. 2 mx4 mm, with 28 g 80 mesh ~ 100 mesh glass microspheres, 3 g 100 mesh ~ 140 mesh glass microspheres and 2.5 g Tetrakis (2-cyanoethoxymethyl) methane. 202 red support = 25.100;
- b) Column temperature. 110°C;
- c) The temperature of the gasification chamber. 150°C;
- d) Testing room temperature. 150°C;
- e) Carrier gas (nitrogen) flow rate. 46 mL/min.

4.2.5.2

Reference conditions for capillary column instrument operation.

- a) Chromatographic column. 30 mx0.53 mmx1.20 m, PEG 20M;
- b) Column temperature. 110°C;
- c) The temperature of the gasification chamber. 150°C;
- d) Testing room temperature. 150°C;
- e) Carrier gas (nitrogen) flow rate. 6 mL/min.

4.3 Reagents

4.3.1

Tetrakis (2-cyanoethoxymethyl) methane, chromatographic stationary liquid.

4.3.2 202 red carrier. 60 mesh to 80 mesh.

4.3.3

Glass microspheres, 80 mesh to 100 mesh and 100 mesh to 140 mesh.

4.3.4

n-hexane, at 20°C, the mass of 1 L liquid is 0.6603 mg.

4.3.5

Standard gas. before use, use a micro syringe to accurately extract a certain amount of n-hexane and inject it into a 100 mL airtight glass syringe.

Dilute it to 100.0 mL with clean air, prepare a standard gas, and calculate its concentration.

4.4 Collection, transportation and storage of samples

4.4.1

On-site sampling shall be carried out in accordance with GBZ 159.

4.4.2

Short-term sampling. At the sampling point, use an activated carbon tube to collect air samples for 15 minutes at a flow rate of 100 mL/min.

4.4.3

Long-term sampling. At the sampling point, use an activated carbon tube to collect air samples for 2 h to 8 h at a flow rate of 50 mL/min.

4.4.4

After sampling, immediately seal both ends of the activated carbon tube and place it in a clean container for transportation and storage. The sample can be stored for 7 days at room temperature.

4.4.5

Sample blank. At the sampling point, open both ends of the activated carbon tube and close it immediately, and then transport, store and measure the same product together.

There are no less than 2 blank samples for each batch of samples.

4.5 Analysis steps

4.5.1

Sample processing. Put the sampled activated carbon tube into the thermal desorber, and connect its inlet end to a 100 mL airtight syringe, and the other the end is connected to the carrier gas (nitrogen), the flow rate is 50 mL/min, and it is desorbed to 100.0 mL at 230°C. Sample gas supply for measurement.

4.5.2

Preparation of the standard curve. Take 4~7 100mL airtight glass syringes and dilute the standard gas with clean air to 0.0 g/mL~ 10.0 g/mL concentration range of solvent gasoline