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

GB/T 16411-2008

**Universal test methods of gas burning appliances for domestic
use
(English Translation)**

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1 Scope

This Standard specifies terms and definitions of gas burning appliances, test conditions, test gas and test methods for general performance.

This Standard is applicable to various gas water heaters, heaters, hot water heating stoves, cooking utensils, ovens, oven stoves and rice cookers for household use.

The gas referred to in this Standard is the gas specified in GB/T 13611. The domestic gas appliances that use gas types other than those specified in GB/T 13611 can refer to this Standard.

2 Normative references

The provisions in following documents become the provisions of this Standard through reference in this Standard. For dated references, the subsequent amendments (excluding corrigendum) or revisions do not apply to this Standard, however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB/T 1690-2006, Rubber vulcanized or thermoplastic - Determination of the effect of liquids (ISO 1817:2005, MOD)

GB/T 1740, Determination of resistance to heat and humidity of paint films

GB/T 1765, Method of producing of paint films for testing heat and humidity resistance, salt-fog resistance and accelerated weathering

GB/T 1771, Paints and Varnishes - Determination of resistance to neutral salt spray

GB/T 2421, Environmental testing for electric and electronic products - Part 1.

General and guidance (GB/T 2421-1999, IEC 68-1.1988, IDT)

GB/T 2903, Copper/Copper-Nickel (Constantan) thermocouple wires

GB/T 3772, Platinum-10% Rhodium/Platinum thermocouple wires

GB 4706.1-2005, Household and Similar Electrical Appliances - Safety - Part 1.

General Requirements (IEC 60335-1.2004 (Ed 4.1), IDT)

GB/T 12206-2006, Testing method to determine the calorific values of town gas

GB/T 13611, Classification and basic characteristics of city gas

GB/T 17626.4, Electromagnetic compatibility - Testing and measurement techniques

- Electrical fast transient/burst immunity test (GB/T 17626.4-1998, IEC 61000-4-4.1995, IDT)

GB/T 17626.5, Electromagnetic compatibility - Testing and measurement techniques

- Surge immunity test (GB/T 17626.5-1999, IEC 61000-4-5.1995, IDT)

GB/T 17626.11, Electromagnetic compatibility - Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests (GB/T 17626.11-1999, IEC 61000-4-11.1994, IDT)

GB/T 17799.1-1999, Electromagnetic compatibility - Generic Standards - Immunity for residential, commercial and light-industrial environments (IEC 61000-6-1.1997, IDT)

CJ/T 3075.2, Laboratory of gas burning appliances - Test equipment and device

CJ/T 3085-1999, Terms of city gas

QB/T 3826, Corrosion-resistant testing method of the metal deposits and conversion coatings for the light industrial products - Neutral salt spraying test (NSS)

QB/T 3832, Evaluation of the corrosion test results of the metal deposits for the light industrial products

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

reference conditions the dry gas state under the conditions that the temperature is 15°C and the absolute pressure is 101.3kPa

3.2

standard conditions the dry gas state under the conditions that the temperature is 0°C and the absolute pressure is 101.3kPa

3.3

nominal heat flow rate; rated heat input under the rated gas pressure, the heat released by the burning appliance using the reference gas per unit time

[CJ/T 3085-1999, definition 7.2.15]

3.4

converted actual heat rate under the test conditions, the heat flow of the burner when using the test gas is converted to the value under the reference conditions

4.1 Laboratory conditions

When there are no special provisions for laboratory conditions for each inspection item or standard for burning appliances in this Standard, the following provisions shall be followed.

- a) Laboratory temperature. 20°C ± 5°C;
- b) Atmospheric pressure. 86kPa~106kPa;
- c) Ambient air in the laboratory. the carbon monoxide content is less than 0.002%, and the carbon dioxide content is less than 0.2%. There shall be no airflow affecting combustion.

NOTE 1: The humidity requirements of the laboratory during the electrical test refer to the provisions of GB/T 2421.

NOTE 2: How to determine room temperature. In front of the burning appliance, 1m on the left and right, fix the temperature-sensing part of the thermometer at a position roughly the same height as the upper end of the burning appliance. Measure the temperature of the above three points. The average value is the room temperature.

4.2 Installation and test state of burning appliances

The installation of burning appliances shall be carried out in accordance with the inspection items of this Standard or the provisions of each standard of burning appliances.

Use a burner with adjustable air volume. At the beginning of the test, the air regulator shall be adjusted to an appropriate opening. And it shall not be adjusted again during the test.

4.3 Power supply conditions

The power supply conditions for the test shall meet the following requirements.

4.3.1 Burning appliances that use commercial power

appliance.

7.2 Open the first sealing valve at the gas inlet of the burning appliance. Close the second sealing valve at the gas inlet of the burning appliance. At the gas inlet of the burning appliance, use 4.2kPa air to test the air tightness of the second sealing valve in the burning appliance.

7.3 Use "0-1" gas to ignite all burning appliances. From the first sealing valve at the gas inlet of the burning appliance to the burning appliance port, use leak detection fluid to test the external air tightness.

8 Burning condition test

8.1

The state of the burning appliance and the condition of the test gas during the burning condition test of the burning appliance shall comply with the provisions in

Table 2.

For burning appliances using commercial power, the voltage condition shall be 220V.

8.2 Test method for burning conditions

8.2.1

Flame pass. After igniting a fire hole of the main burning appliance, test the time for the flame to be transmitted to all the fire holes and whether there is detonation. The ignition method shall be carried out according to the regulations of each burning appliance standard.

8.2.2

From the flame. Observe after the main burner is ignited for 15s.

8.2.3

Extinguishing. Observe after igniting the main burning appliance for 15s.