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

GB/T 13611-2018

Replacing GB/T 13611-2006

Classification and basic characteristics of city gas

城镇燃气分类和基本特性

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1 Scope

GB/T 13611-2018 is the Chinese national standard on classification and basic characteristics of city gas, in the field of petroleum and related technologies. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 15 March 2018 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 February 2019. Classification: ICS 75.160.30, CCS P45. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This Standard specifies the classification principles of city gas, the calculation method of characteristic indicators, the requirements of categories and characteristic indicators, the test gas of city gas, and the test pressure of test gas of city gas burning appliances. This Standard applies to the classification of various types of gas used as urban fuel.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 11062, Natural gas - Calculation of calorific values, density, relative density and Wobbe indices from composition

3 Terms and definitions

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

3.1 city gas The public gas that meets the standard gas quality requirements, is supplied for residential life, commercial (public buildings) and industrial enterprises as fuel for production. NOTE: City gas generally includes artificial gas, natural gas, liquefied petroleum gas, liquefied petroleum gas mixed air, dimethyl ether gas, and biogas.

3.2 reference conditions The dry gas state that the temperature is 15°C and the absolute pressure is 101.325kPa. [GB/T 16411-2008, Definition 3.1]

3.3 heating value; calorific value The heat released by the complete combustion of a specified amount of gas. NOTE: The heat released, including the latent heat of vaporization of water vapor in the flue gas, is called high calorific value. The heat released, excluding the latent heat of vaporization of the water vapor in the flue gas, is called low calorific value. [Rewrite GB/T 12206-2006, Definition 3.1]

3.4 relative density; specific gravity The ratio of the mass of a certain volume of dry gas to the mass of the same volume of dry air at the same temperature and pressure. NOTE: The relative density is a dimensionless quantity, indicated by the symbol d . [GB/T 12206-2006, definition 3.5]

3.5 Wobbe number; Wobbe index The ratio of the calorific value of a gas to the square root of its relative density.

3.6 reference gas The standard gas representing a certain type of gas.

3.7 limit gas The standard gas prepared according to the allowable fluctuation range of gas.

4 Classification principle

City gas should be classified according to the type of gas and its characteristic indicator Wobbe number W . The fluctuation range of Wobbe number W and calorific value H should be controlled.

5 Calculation method of characteristic indicator

5.1 Heating value The calorific value can be calculated according to formula (1): Where, H - Gas calorific value (high calorific value H_s and low calorific value H_i), in megajoules per cubic meter (MJ/m³); H_r - The calorific value of r combustible components in the gas, in megajoules per cubic

Annex A

(normative) Mass requirements and characteristic values of single gas used for preparing

test gas A.1 The purity of the single gas used to prepare the test gas should not be lower than the following values:

- a) Nitrogen (N₂): 99%;
- b) Hydrogen (H₂): 99%;
- c) Methane (CH₄): 95%;
- d) Propylene (C₃H₆): 95%;
- e) Propane (C₃H₈): 95%;
- f) Butane (C₄H₁₀): 95%;

g) The total content of hydrogen, carbon monoxide and oxygen in the above c), d),

f) should be less than 1%. The total nitrogen and carbon dioxide content should be less than 2%. A.2 When the supply of methane is difficult, local natural gas can be used instead. When the supply of propane, butane and propylene is difficult, liquefied petroleum gas can be used instead. However, the error between the Wobbe number W of the prepared test gas and the given value should be within the specified range of $\pm 2\%$. A.3 The relative density d and calorific value H of various single gases used for preparing the test gas should be calculated and determined according to the provisions of GB/T 11062. Commonly used single gas characteristic value (15°C, 101.325kPa, dry) should adopt the value specified in Table A.1.