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**NATIONAL STANDARD OF THE
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Energy saving test rules for gas burners

燃气燃烧器节能试验规则

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009. This standard is proposed and managed by the National Technical Committee for Combustion and Energy Purification Standardization (SAC/TC441). This standard is mainly drafted by: Huazhong University of Science and Technology, Suzhou Anhongtai New Material Co., Ltd., Shenwu Technology Group Co., Ltd., National Petroleum Planning Institute. Participated in the drafting of this standard. Hefei Shunchang Distributed Energy Integrated Application Technology Co., Ltd., China Quality Certification Center Wuhan Branch Heart, Zhongchen Wuhan Huazhong Innovation Technology Service Co., Ltd., University of Science and Technology of China, Hunan Baling Furnace Energy Saving Co., Ltd., Baowuji Tuanbao Steel Central Research Institute Wuhan Branch, Wuhan Anhe Energy Saving New Technology Co., Ltd., Wuxi Bruce Energy Technology Co., Ltd., Anhui Province Shaped Wear Materials Co., Ltd., Shaoxing Ximan Life Electric Co., Ltd., Shaoxing Bolemi Kitchen & Bathroom Technology Co., Ltd., Shaoxing Haile Electric Appliance Co., Ltd., Zhejiang Province Gas Appliances and Kitchenware Kitchen Industry Association. The main drafters of this standard. Yu Shiping, Chen Weibin, Wu Daohong, Xie Hongjun, Zeng Jiansan, Chen Yuanxin, Liu Ke, Tai Qilong, Zhou Shaofang, Ouyang Degang, Long Hao, Yan Qinglong, Yu Weiguo, Wang Dongfang, Gu Limin, Zheng Wenhong, Yao Bin, Ding Cuijiao, Xu Feng, Du Yiqing, Zhao Guangjie, Ma Xiaoyong, Liu Zhichun, Zhu Qiyang, Shu Zhaohui, Lin Yizhen, Wen Wuqi, Li Tan, Wang Xiaoyu, Huang Jian, Peng Chao, Zhou Kai, Zhang Xiumei, Luo Xiaoping, Gao Jie, Zhang Jiashun, Lin Qichen. Gas burner energy test rules

1 Scope

China's national test rules for the energy performance of gas burners. It specifies the terms and definitions, the test conditions and requirements, and the test content and methods, with an informative annex giving a test report template. This is the measurement behind the grading scheme, and the conditions are most of it. A burner's efficiency is not a single number: it varies with firing rate, with excess air, with the temperature of the combustion air

and with the load it is coupled to, and a manufacturer left to choose the conditions will choose the flattering ones. So the rules fix the firing rates at which the burner is tested, the excess air it is allowed, the instrumentation and its accuracy, and how the result is computed from what was measured. The report template in the annex is not an administrative flourish either - a test whose conditions are not reported alongside its result is a number that cannot be checked, and for a scheme that carries commercial weight that is the difference between an incentive and a loophole.

This standard specifies the conditions, requirements, contents and methods for energy-saving testing of gas burners. This standard applies to general industrial gas burners, not for non-oxidizing burners, regenerative burners, self-heating burners, high Quick burners, porous media burners, civil burners and other special burners.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article. Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 11062 Calculation method for calorific value, density, relative density and Wobbe index of natural gas

GB/T 13610 Natural Gas Composition Analysis Gas Chromatography TSGZB001 Fuel (Gas) Burner Safety Technical Regulations

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Combustion efficiency The amount of heat actually released after combustion of the fuel as a percentage of the heat released after it is completely burned.

Note. Combustion efficiency is an important indicator to examine the adequacy of fuel combustion.

3.2 Excess air coefficient excessaircoefficient The mass of air actually burned per kilogram of fuel is the percentage of air mass that is theoretically required to completely burn per kilogram of fuel.

3.3 Furnace effective volume effectivefurnacevolume The spatial geometric volume of the fuel combustion and effective radiative heat transfer process within the furnace boundary.

3.4 Furnace volume exothermic strength furnacevolumeheatreleaserate The heat release per unit time of the effective volume of the unit furnace is equal to the ratio of the input heat power of the furnace to the effective volume of the furnace.

Note. The heat release intensity of the furnace volume is referred to as the heat capacity of

the furnace volume, also known as the heat load of the furnace volume.

3.5 Load rate loadregulatingratio The average load of the burner and the percentage of the rated load within the specified time.

4 Test conditions and requirements

4.1 Testing fuel requirements Gas type corresponding to gas burners, such as natural gas, liquefied petroleum gas, coke oven gas, blast furnace gas, converter gas, urban coal