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酒精真火壁炉

Ethanol fireplace

（征求意见稿）

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前 言

本文件按照 GB/T 1.1—2020《标准化工作导则 第 1 部分：标准化文件的结构和起草规则》的规定起草。

请注意本文件的某些内容可能涉及专利。本文件的发布机构不承担识别专利的责任。

本文件由佛山市彤辉电子壁炉有限公司提出。

本文件由中国中小商业企业协会归口。

本文件起草单位：佛山市彤辉电子壁炉有限公司，中度量恒（北京）计量检测有限公司，北京智丞瀚方知识产权代理有限公司，中冶检测认证有限公司。

本文件主要起草人：

本文件首次发布。

酒精真火壁炉

1 范围

本文件规定了酒精真火壁炉的术语和定义、要求、试验方法、检验规则、标志、包装、储存和使用寿命等。

本文件适用于酒精真火壁炉生产和销售。

2 规范性引用文件

下列文件中的内容通过文中的规范性引用而构成本文件必不可少的条款。其中,注日期的引用文件,仅该日期对应的版本适用于本文件;不注日期的引用文件,其最新版本(包括所有的修改单)适用于本文件。

GB/T 985.1 气焊、焊条电弧焊、气体保护焊和高能束焊的推荐坡口

GB/T 1727 漆膜一般制备法

GB/T 3768 声学 声压法测定噪声源声功率级和声能量级 采用反射面上方包络测量面的简易法

GB 4706.1 家用和类似用途电器的安全 第1部分:通用要求

GB 4706.23 家用和类似用途电器的安全 第2部分:室内加热器的特殊要求

GB 14536.1 家用和类似用途电自动控制器 第1部分:通用要求

GB 31640 食品安全国家标准 食用酒精

GB 17762 耐热玻璃器具的安全要求

GB/T 24267 建筑用阻燃密封胶

GB/T 39802 城镇供热保温材料技术条件

NB/T 47003.1 钢制焊接常压容器

HG/T 2006 热固性粉末涂料

3 术语和定义

下列术语和定义适用于本文件。

3.1

酒精真火壁炉 Ethanol fireplace

酒精真火壁炉是一种通过酒精燃烧产生热能,利用酒精壁炉内空气流动作用扩散热能的采暖设备。

3.2

壁炉架 mantelpiece

安放电酒精壁炉的装饰性框架。

4 要求

4.1 工作环境

在下列环境下酒精真火壁炉应能正常使用：

- a) 周围空气温度在 $-40^{\circ}\text{C}\sim 85^{\circ}\text{C}$ ；
- b) 大气压力在 $70\text{kpa}\sim 106\text{kpa}$ ；
- c) 安装空间内无易燃，易爆气体。

4.2 外观、结构

4.2.1 酒精真火壁炉外观应整洁、无损伤，标识应清晰。

4.2.2 壁炉结构应设计合理，密封性好、操作方便、安全可靠。

4.2.3 电壁炉应进行表面处理，漆膜的制备应符合 GB/T 1727 的规定。表面光洁，喷涂层均匀，无流痕、气泡和剥落。

4.2.5 酒精壁炉应设置储存量适宜的储存腔体。

4.2.6 酒精壁炉酒精燃料储存腔体应设有防回火装置。

4.2.7 酒精壁炉应设置点火装置，点火装置在正常运行条件下应能点火，点火程序完成后自动停止对点火器供电。

4.2.8 酒精壁炉应设置火力观察口。

4.2.9 酒精壁炉应有控制系统精确控制酒精的燃烧供应量，燃烧过程中应能达到对不断炉体以及周围环境数据的监控，如有异常数据，可马上报警并且自动切断酒精供应，停止燃烧。

4.2.10 酒精壁炉的酒精储存腔体与燃烧腔体应达到完全隔离，储存腔体温度不应超过 30°C 。

4.2.11 酒精壁炉面板与燃烧腔体应隔离，使面板温度不超过 30°C 。

4.3 性能要求

4.3.1 额定输入功率

额定输入功率允许的误差为 $\pm 10\%$ 。

4.3.2 温度精度

电壁炉应具备室内温度控制功能，自动控制器应符合 GB 14536.1 的规定，当环境温度达到设定温度时，控温器应动作控制，控制精度应为±3℃。

4.3.4 其他性能

酒精真火壁炉的其他性能应符合 QB/T 4096.1《家用和类似用途室内加热器的性能 第1部分：通用要求》的有关规定。

4.4 电器安全要求

酒精真火壁炉的安全应符合 GB 4706《家用和类似用途电器的安全 第1部分：通用要求》及 GB 4706.23《家用和类似用途电器的安全 第2部分：室内加热器的特殊要求》的有关规定。

4.5 阻燃

电加热器的非金属件燃烧性能应符合水平燃烧HB级、垂直燃烧V0级，移去引燃源后，材料没有可见的有焰燃烧级别的要求。

4.6 有害物质限值

产品的有害物质限值应符合表 1 的要求。

表 1 有害物质限值

项目	限量
铅 (mg / kg)	≤1000
镉 (mg / kg)	≤100
汞 (mg / kg)	≤1000
六价铬 (mg / kg)	≤1000
多溴联苯 a (mg / kg)	≤1000
多溴二苯醚 b (mg / kg)	≤0.1
邻苯二甲酸二丁酯 (DBP) %	≤0.1
邻苯二甲酸丁苄酯 (BBP) %	≤0.1
邻苯二甲酸二(2-乙基)己酯 (DEHP) %	≤0.1
邻苯二甲酸二异丁酯 (DIBP) %	≤0.1
a 多溴联苯包括一溴联苯、二溴联苯、三溴联苯、四溴联苯、五溴联苯、六溴联苯、七溴联苯、八溴联苯、九溴联苯、十溴联苯。	
b 多溴二苯醚包括一溴二苯醚、二溴二苯醚、三溴二苯醚、四溴二苯醚、五溴二苯醚、六溴二苯醚、七溴二苯醚、八	

溴二苯醚、九溴二苯醚、十溴二苯醚。

4.7 一氧化碳排放指标

一氧化碳排放应小于 0.2%。

4.8 酒精质量要求

酒精度应不小于 95%，质量应符合 GB 31640。

4.9 耐火要求

耐火试验后，应无脱离、变形等现象。

5 试验方法

5.1 试验条件

a) 环境温度： $20^{\circ}\text{C} \pm 2^{\circ}\text{C}$ ；

b) 气压：70kPa~106kPa；

5.2 外观、结构

外观应采用目测，温度测试采用温度计。

5.3 额定输入功率、温度精度

额定输入功率采用功率仪测定，温度测试采用温度计测定。

5.4 其他性能

酒精真火壁炉的其他性能应符合 QB/T 4096.1《家用和类似用途室内加热器的性能 第1部分：通用要求》的有关规定。

5.5 电器安全

按照 GB 4706《家用和类似用途电器的安全 第1部分：通用要求》及 GB 4706.23《家用和类似用途电器的安全 第2部分：室内加热器的特殊要求》中的试验方法。

5.6 阻燃

酒精真火壁炉的非金属件燃烧性按 GB/T 2408 规定进行。

5.7 产品有害物质限值

有害物质试验按 GB/T 36560 的规定进行。

5.8 一氧化碳排放指标

一氧化碳排测定应按照 HJ/T 44。

5.9 酒精质量

按 GB/T 3768 规定的方法检测。

5.10 耐火要求

耐火试验：酒精真火壁炉进行连续燃烧 24 小时，炉体和各部件无明显性变形。长、宽和高尺寸偏差应不大于初始尺寸的 1%

6 检验规则

6.1 出厂检验

酒精真火壁炉应经过检验部门检验合格，并出具产品合格证后方可出厂。出厂检验项目应包括外观、结构，额定输入功率。

6.2 型式检验

酒精真火壁炉出现下列情况之一时，应进行该项目型式检验：

- 试制的新产品；
- 改变产品设计、工艺或所用材料明显影响其性能时；
- 连续生产的产品，每年不少于一次；
- 间隔半年以上再生产时；
- 国家监管部门提出检验要求时。

6.3 抽样规则

型式检验应在出厂检验合格的产品中随机抽取，抽取数量不少于 2 台。

6.4 型式检验内容

型式试验内容应包括技术要求的全部内容。

6.5 判定规则

出厂检验的项目有一项不合格时，则判定不合格。型式检验的项目有一项不合格时，可抽双倍数量样品进行复检，如仍有不合格项时，则判定该批不合格。

7 标志、包装、储存和使用寿命

7.1 标志

7.1.1 酒精壁炉应在显著位置设置产品标志及警示标志。

7.1.2 产品标志包括但不限于以下内容：

- a) 制造企业名称；
- b) 产品名称；

- c) 产品商标;
- d) 规格型号;
- e) 燃料种类;
- f) 额定输入功率;
- g) 制造日期;
- h) 出厂编号;
- i) 执行标准号。

7.2 包装

7.2.1 产品包装在装卸和运输中应保持良好状况。

7.2.2 随同包装应提供下列文件:

- a) 产品合格证;
- b) 产品使用说明书;
- c) 出厂清单;
- d) 产品保修单。

7.3 储存和使用寿命

储存场所应防水防潮, 在存放过程中应保持炉体直立;

English version

Ethanol Fireplace

1 Scope

This document specifies the terms and definitions, requirements, test methods, inspection rules, marking, packaging, storage and service life of Ethanol fireplace.

This document applies to the manufacture and sale of Ethanol fireplaces.

2 Normative references

The contents of the following documents constitute indispensable provisions of this document through normative references in the text. In the case of dated references, only the version corresponding to that date applies to this document; in the case of undated references, the latest version (including all change orders) applies to this document.

GB/T 985.1 Recommended joint preparation for gas welding, manual metal arc welding gas-shield arc welding and beam welding

GB/T 1727 General methods for preparation of coating films

GB/T 3768 Acoustics-Determination of sound power levels and sound energy levels of noise sources using sound pressure--Survey method using an enveloping measurement surface over a reflecting plane

GB 4706.1 Safety of household and similar electrical appliances Parts 1: General requirements

GB 4706.23 Safety of household and similar electrical appliances Parts 2: Particular requirements for thermal-storage room heaters

GB 14536.1 Automatic electrical household and similar use Part 1: General requirements

GB 31640 National Food Safety Standard - Edible Ethanol

GB 17762 Safe requirements of thermotolerant glassware

GB/T 24267 Building sealants for fire resistance

GB/T 39802 Technical requirements for thermal insulation material of urban heat-supplying

NB/T 47003.1 Steel welded atmospheric pressure vessels

HG/T 2006 Thermosetting powder coatings

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Ethanol fireplace

Ethanol fireplace is a kind of heating equipment through the combustion of Ethanol to produce heat, the use of Ethanol fireplace air flow inside the role of diffusion of heat.

3.2 Mantelpiece

Decorative frame to house an electric Ethanol fireplace.

4 Requirements

4.1 Working environment

Ethanol fireplaces shall function properly in the following environments:

- a) Ambient air temperature between -40°C and 85°C.;
- b) Atmospheric pressure 70kpa to 106kpa
- c) No flammable or explosive gases in the installation space.

4.2 Appearance, structure

4.2.1 Ethanol fireplaces should be neat and undamaged in appearance and clearly labeled.

4.2.2 The fireplace structure should be reasonably designed, well sealed, easy to operate, safe and reliable.

4.2.3 Electric fireplace should be surface treatment, the preparation of paint film should be in accordance with the provisions of GB/T 1727. The surface is smooth and clean, the spraying layer is even, without flow marks, bubbles and flaking.

4.2.5 Ethanol fireplaces shall be provided with storage cavities of appropriate storage capacity.

4.2.6 Ethanol fireplace Ethanol fuel storage cavities shall be provided with an anti-tempering device.

4.2.7 Ethanol fireplaces shall be provided with an ignition device that shall be capable of igniting under normal operating conditions and automatically stopping power to the igniter upon completion of the ignition program.

4.2.8 Ethanol fireplaces shall be provided with a fire viewing port.

4.2.9 Ethanol fireplace should have a control system to accurately control the supply of Ethanol combustion, combustion process should be able to achieve continuous monitoring of the furnace body and the surrounding environmental data, such as abnormal data, you can immediately alarm and automatically cut off the supply of Ethanol to stop burning.

4.2.10 Ethanol fireplace Ethanol storage chamber and combustion chamber should be completely isolated, the storage chamber temperature should not exceed 30 degrees.

4.2.11 Ethanol fireplace panels should be isolated from the combustion chamber so that panel temperatures do not exceed 30 °C.

4.3 Performance Requirements

4.3.1 Nominal Input Power

The allowable error in testing the power of the Ethanol real fireplace when it is in steady state operation shall not be greater than $\pm 10\%$.

4.3.2 Thermal efficiency

The thermal efficiency of an Ethanol real fireplace should not be less than 80% at rated operating conditions.

4.3.3 Temperature Accuracy

Electric fireplace should have indoor temperature control function, automatic controller should be consistent with the provisions of GB 14536.1, when the ambient temperature reaches the set temperature, the thermostat should be action control, control accuracy should be ± 3 °C.

4.3.4 Other Performance

Other properties of the Ethanol real fireplace should be in accordance with the relevant provisions of QB/T 4096.1 " Performance of room heaters for household and similar purposes Part 1: General requirements ".

4.4 Electrical safety requirements

4. 1 The safety of Ethanol fireplace should be in accordance with the relevant provisions of GB 4706 " Safety of household and similar electrical appliances Part 1: General Requirements" and GB 4706.23 Safety of household and similar electrical appliances Parts 2: Particular requirements for thermal-storage room heaters ".

4.5 Electromagnetic Disturbance

Electromagnetic Disturbance of electric heaters should comply with the relevant requirements of GB18655.

4.6 Flame retardant

The combustion performance of the non-metallic parts of the electric heater should meet the requirements of horizontal combustion class HB, vertical combustion class V0, and no visible flaming combustion level of

the material after removing the ignition source.

4.7 Hazardous substance limits

The limit values of hazardous substances of the products shall comply with the following requirements.

Table 1 Hazardous substance limit values

Item	Limit
lead (mg / kg)	≤ 1000
cadmium (mg / kg)	≤ 100
mercury (mg / kg)	≤ 1000
hexavalent chromium (mg / kg)	≤ 1000
polybrominated biphenyl a (mg / kg)	≤ 1000
polybrominated diphenyl ether b (mg / kg)	≤ 0.1
Dibutyl phthalate (DBP) %	≤ 0.1
Butyl benzyl phthalate (BBP) %	≤ 0.1
Bis(2-ethylhexyl) phthalate (DEHP) %	≤ 0.1
Diisobutyl phthalate (DIBP) %	≤ 0.1
<p>a Polybrominated biphenyls include monobrominated biphenyls, dibromobiphenyls, tribrominated biphenyls, tetrabrominated biphenyls, pentabrominated biphenyls, hexabrominated biphenyls, heptabrominated biphenyls, octabrominated biphenyls, nine brominated biphenyls, and ten brominated biphenyls.</p> <p>b Polybrominated diphenyl ethers include monobrominated diphenyl ethers, dibromodiphenyl ethers, tribrominated diphenyl ethers, tetrabromodiphenyl ethers, pentabromodiphenyl ethers, hexabromodiphenyl ethers, heptabromodiphenyl ethers, octabromodiphenyl ethers, nine bromodiphenyl ethers, and ten bromodiphenyl ethers.</p>	

4.8 Carbon Monoxide Emission Indicators

Carbon monoxide emissions should be less than 0.2%.

4.9 Ethanol quality requirements

The Ethanol content should be not less than 95% and the quality should be in accordance with GB 31640.

5 Test methods

5.1 Test conditions

a) Ambient temperature: $20^{\circ}\text{C} \pm 2^{\circ}\text{C}$;

b) Air pressure: $70\text{kPa} \sim 106\text{kPa}$;

5.2 Appearance, structure

Appearance shall be visually inspected and temperature testing shall be by thermometer.

5.3 Vibration performance

In accordance with the test method in QB/T 4096.22 "Performance of room heaters for household and similar purposes Part 22: Particular requirements for fan heaters"

5.4 Other performance

Other properties of the Ethanol real fireplace should be in accordance with the relevant provisions of QB/T 4096.1 "Performance of room heaters for household and similar purposes Part 1: General requirements".

5.5 Electrical safety requirements

In accordance with the test methods in GB 4706 "Safety of household and similar electrical appliances Parts 1: General requirements" and GB 4706.23 "Safety of household and similar electrical appliances Parts 2: Particular requirements for thermal-storage room heaters".

5.6 Electromagnetic Disturbance

Ethanol fireplace electromagnetic disturbance in accordance with GB 18655.

5.7 Fire retardant

The combustibility of non-metallic parts of Ethanol fireplace is carried out according to GB/T 2408.

5.8 Product Hazardous Substance Limits

Harmful substances test is conducted in accordance with the provisions of GB/T 36560.

5.9 Carbon Monoxide Emission Indicators

Carbon monoxide emissions shall be measured in accordance with HJ/T 44.

5.10 Quality requirements for Ethanol

Tested according to the method specified in GB/T 3768.

6 Inspection rules

6.1 Factory inspection

The Ethanol fireplace should be inspected and qualified by the quality inspection department of the manufacturing unit, and a product certificate should be issued before leaving the factory. The factory inspection items should include appearance, structure, rated input power.

6.2 Type inspection

Ethanol fireplace when one of the following conditions occurs, the item should be carried out type inspection:

- Trial production of new products;
- Changing the product design, process or materials used obviously affect its performance;
- Continuous production of products, not less than once a year;
- Interval of more than half a year when the re-production;
- When the national regulatory authorities put forward inspection requirements.

6.3 Sampling Rules

Type inspection shall be randomly selected in the factory inspection of qualified products, the number of extracted not less than 2 units.

6.4 Contents of type inspection

The type inspection shall include all elements of the technical requirements.

6.5 Decision rules

Factory inspection of the project has a qualified, it is judged unqualified. Type inspection of the project has a failed, double the number of samples can be drawn for re-inspection, such as there are still unqualified items, it will be judged that the batch is unqualified.

7 Marking, packaging, storage and service life

7.1 Marking

7.1.1 Ethanol fireplaces should have product and warning signs prominently displayed.

7.1.2 Product markings include but are not limited to the following:

- a) Name of the manufacturing company;
- b) Product name;
- c)Product trademark;
- d)Specification model;

- e) Type of fuel;
- f) Date of manufacture;
- g) Factory number;
- h) Executive standard number.

7. 2 Packaging

7. 2. 1 Product packaging shall be maintained in good condition during handling and transportation.

7. 2. 2 The following documents shall be provided with the packaging:

- a) Certificate of Conformity of the product;
- b) Product instruction manual;
- c) Factory list;
- d) Product warranty.

7. 3 Storage and service life

The storage place should be waterproof and moisture-proof, and the furnace should be kept upright during storage;
