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ANSI/CAN/UL/ULC 1370:2024

JOINT CANADA-UNITED STATES
NATIONAL STANDARD

STANDARD FOR SAFETY

Unvented Alcohol Fuel Burning Decorative Appliances



ANSI/UL 1370-2024



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UL Standard for Safety for Unvented Alcohol Fuel Burning Decorative Appliances, ANSI/CAN/UL/ULC 1370

Second Edition, Dated November 13, 2024

Summary of Topics

This new edition of ANSI/CAN/UL/ULC 1370 dated November 13, 2024, combines requirements from UL 1370 and ULC-S674, and publishing as a new joint US/Canada Standard reflecting the latest ANSI and SCC approval dates and incorporating the proposal dated February 9, 2024 and July 26, 2024.

The new requirements are substantially in accordance with Proposal(s) on this subject dated February 9, 2024 and July 26, 2024.

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ANSI/CAN/UL/ULC 1370:2024

Standard for Unvented Alcohol Fuel Burning Decorative Appliances

First Edition – July, 2011

Second Edition

November 13, 2024

This ANSI/CAN/UL/ULC Safety Standard consists of the Second Edition.

The most recent designation of ANSI/UL 1370 as an American National Standard (ANSI) occurred on November 13, 2024. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page, Preface or SCC Foreword.

This Standard has been designated as a National Standard of Canada (NSC) on November 13, 2024.

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Preface

This is the Second Edition of ANSI/CAN/UL/ULC 1370, Standard for Unvented Alcohol Fuel Burning Decorative Appliances.

ULSE is accredited by the American National Standards Institute (ANSI) and the Standards Council of Canada (SCC) as a Standards Development Organization (SDO). ULC Standards is accredited by the Standards Council of Canada (SCC) as a Standards Development Organization (SDO).

This Standard has been developed in compliance with the requirements of ANSI and SCC for accreditation of a Standards Development Organization.

This ANSI/CAN/UL/ULC 1370 Standard is under continuous maintenance, whereby each revision is approved in compliance with the requirements of ANSI and SCC for accreditation of a Standards Development Organization. In the event that no revisions are issued for a period of four years from the date of publication, action to revise, reaffirm, or withdraw the standard shall be initiated.

Annex [A](#) is identified as Normative, as such, forms mandatory parts of this Standard.

Annex [B](#) is identified as Normative for Canada and Informative for the US. Informative text is for informational purposes only, and Normative text is considered to be mandatory.

This joint American National Standard and National Standard of Canada is based on, and now supersedes, the First Edition of UL 1370 and the First Edition of CAN/ULC-S674.

In Canada, there are two official languages, English and French. All safety warnings must be in French and English. Attention is drawn to the possibility that some Canadian authorities may require additional markings and/or installation instructions to be in both official languages.

Requests for interpretation of this Standard should be sent to ULC Standards. The requests should be worded in such a manner as to permit a "yes" or "no" answer based on the literal text of the requirement concerned.

Comments or proposals for revisions on any part of the Standard may be submitted at any time. Proposals should be submitted via a Proposal Request in the Collaborative Standards Development System (CSDS) at <https://csds.ul.com>.

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This Edition of the Standard has been formally approved by the Technical Committee (TC) on Unvented Alcohol Fuel Burning Decorative Appliances, TC 1370.

This list represents the TC 1370 membership when the final text in this Standard was balloted. Since that time, changes in the membership may have occurred.

TC 1370 Membership

Name	Representing	Interest Category	Region
E. Adair	Hearth Patio & Barbecue Association	Producer	USA
S. Ayers	U.S. Consumer Product Safety Commission (CPSC)	Non-voting member	USA
I. Brodzinski	UL Standards & Engagement	TC Project Manager – Non-voting member	USA
K. Bush	Office of the Maryland State Fire Marshal	Authorities Having Jurisdiction	USA
L. Gill	IPEX Management Inc.	Commercial / Industrial Users	Canada
R. Harper	Hearthman Specialties	General	USA
J. Hershberger	Johnson Gas Appliance Company	Producer	USA
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This Standard is intended to be used for conformity assessment.

The intended primary application of this Standard is stated in its scope. It is important to note that it remains the responsibility of the user of the standard to judge its suitability for this particular application.

CETTE NORME NATIONALE DU CANADA EST DISPONIBLE EN VERSIONS FRANÇAISE ET ANGLAISE

INTRODUCTION

1 Scope

1.1 These requirements apply to factory-built unvented decorative appliances, that burn liquid or gelled alcohol-based fuels, and are intended to be fixed, non-moveable appliances, including only the following:

- a) Floor-mounted appliances;
- b) Wall-mounted appliances;
- c) Free-standing appliances;
- d) Fireplace grates installed in existing masonry fireplaces, and rated below 40,000 Btu/h (11.7 kW) output; and
- e) Appliance combustion chambers installed into site-built enclosures.

1.2 These appliances are intended to be decorative in nature and not intended to be utilized as a primary heat source. These appliances are limited to a maximum fuel input rate of 0.25 US gal/h (0.95 L/h).

1.3 Floor-mounted, wall-mounted and free-standing appliances include an integral enclosure, fire chamber and fuel reservoir, or combination unit, and provision for refueling.

1.4 These appliances are not intended for:

- a) Use with fuel oils, kerosene, gasoline, and other non-alcohols;
- b) Use in spaces in which flammable vapors or gases may be present;
- c) Use as cooking appliances;
- d) Use in conjunction with blower assemblies;
- e) Installation in a bathroom; or
- f) Installation in a room where sleeping accommodation is provided.

1.5 These appliances are intended for installation in occupancies where use is permitted by local codes, such as:

- a) In the United States:
 - 1) NFPA 1, Uniform Fire Code;
 - 2) NFPA 101, Life Safety Code;
 - 3) Other applicable federal and state regulations.
- b) In Canada:
 - 1) The National Building Code of Canada; and
 - 2) The National Fire Code of Canada;
 - 3) Regulation of the authority having jurisdiction.

2 Components

2.1 Except as indicated in [2.2](#), a component of a product covered by this Standard shall comply with the requirements for that component.

2.2 A component is not required to comply with a specific requirement that:

- a) Involves a feature or characteristic not required in the application of the component in the product covered by this Standard; or
- b) Is superseded by a requirement in this Standard.

2.3 A component shall be used in accordance with its rating established for the intended conditions of use.

2.4 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

3 Units of Measurement

3.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

4 Referenced Publications

4.1 The documents shown below are referenced in the requirements text of this Standard. Any undated reference to a code or standard appearing in the requirements of this Standard shall be interpreted as referring to the latest edition of that code or standard.

ASTM A463/A463M, *Standard Specification for Steel Sheet, Aluminum-Coated, by the Hot-Dip Process*

ASTM A653/A653M, *Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process*

ASTM B858, *Standard Test Method for Ammonia Vapor Test for Determining Susceptibility to Stress Corrosion Cracking in Copper Alloys*

ASTM E136, *Standard Test Method for Assessing Combustibility of Materials Using a Vertical Tube Furnace at 750°C*

ASTM F3429/F3429M, *Standard Specification for Performance of Flame Mitigation Devices Installed in Disposable and Pre-Filled Flammable Liquid Containers*

CSA C22.2 No. 0.15, *Adhesive Labels*

Health Canada Consumer Chemicals and Containers Regulations

NFPA 1, *Fire Code*

NFPA 101, *Life Safety Code*

National Building Code of Canada

National Fire Code of Canada

UL 127, Factory-Built Fireplaces

UL 737, Fireplace Stoves

UL 969, Marking and Labeling Systems

UL 1482, Solid-Fuel Type Room Heaters

ULC 114, Standard Method of Test for Determination of Non-Combustibility in Building Materials

ULC 610, Factory-Built Fireplaces

ULC 627, Space Heaters for Use with Solid Fuels

5 Glossary

5.1 For the purpose of this Standard, the following definitions apply:

5.2 ALCOHOL – Any of a series of hydroxyl compounds having the general formula $C_nH_{2n+1}OH$, including ethanol. The fuel may be provided in liquid or gelled form.

5.3 ETHYL ALCOHOL (ETHANOL) – A monohydric compound having the general formula of C_2H_5OH . The ethanol-based fuel may be provided in liquid or gelled form.

5.4 ISOPROPYL ALCOHOL (ISOPROPANOL) – A monohydric compound having the general formula of C_3H_7OH . The isopropyl alcohol-based fuel may be provided in liquid or gelled form.

5.5 AUTHORITY HAVING JURISDICTION (AHJ) – The governmental body responsible for the enforcement of any part of this Standard or the official or agency designated by that body to exercise such a function.

5.6 BURNER – A device for the final conveyance of fuel vapor, or a mixture of vapor and air, to the combustion zone.

5.7 CARTRIDGE or CAN – A container that is used to confine the fuel for shipment and transportation and in addition is used to hold the fuel while it is burning (i.e., acts as the burner also).

5.8 COMBUSTIBLE – A material, construction, surface, etc., that fails to meet the acceptance criteria of ULC 114 or ASTM E136.

5.9 COMBUSTION – The rapid oxidation of fuel accompanied by the production of heat, or heat and light. Complete combustion of a fuel is possible only in the presence of an adequate oxygen supply.

5.10 COMBUSTION CHAMBER – Combustion chamber - the portion of an appliance in which combustion occurs.

5.11 ENCLOSURE:

a) APPLIANCE ENCLOSURE – The surfaces that surround and contain all parts of a floor-mounted appliance, a wall-mounted appliance, or a free-standing appliance, including the fire chamber and fuel reservoir, or combination unit.

b) **SITE-BUILT ENCLOSURE** – The assembly of components and materials installed with an appliance combustion chamber, as defined in the manufacturer's installation instructions.

c) **TEST ENCLOSURE** – The elements of the test structure installed to simulate the framing, wallboards, ceiling boards, surface finishes, etc., of a field installation.

NOTE: For testing of appliance combustion chambers, the test enclosure will conform to the manufacturer's installation instructions for a site-built enclosure.

5.12 **FIRE CHAMBER** – The volume within the appliance where the fuel is intended to be combusted.

5.13 **FUEL RESERVOIR** – A chamber, basin or receptacle for holding fuel.

5.14 **GEL** – A continuous solid network enveloped in a continuous liquid phase, where the solid phase occupies less than 10 % (volume) of the material.

5.15 **NONCOMBUSTIBLE** – A material, construction, surface, etc., that meets the acceptance criteria of ULC 114 or ASTM E136.

5.16 **READILY ACCESSIBLE** – Accessible without the need to open an access door or cover.

5.17 **TEST STRUCTURE** – The laboratory-built structure used to test decorative unvented alcohol fueled appliances.

5.18 **UNVENTED DECORATIVE APPLIANCE** – A factory-built product that burns liquid or gelled alcohol-based fuels, intended to be a fixed non-moveable appliance.

5.19 **FLOOR-MOUNTED APPLIANCE** – An unvented decorative appliance intended for attachment to a floor, which may be in contact with a wall, as specified by the manufacturer's installation instructions.

5.20 **WALL-MOUNTED APPLIANCE** – An unvented decorative appliance intended for attachment to a wall, as specified by the manufacturer's installation instructions.

5.21 **FREE-STANDING APPLIANCE** – An unvented decorative appliance intended for attachment to a floor, with clearances from walls, other appliances, etc., as specified by the manufacturer's installation instructions.

5.22 **FIREPLACE GRATE** – An unvented decorative appliance intended for installation in an existing masonry fireplace, as specified by the manufacturer's installation instructions.

5.23 **APPLIANCE COMBUSTION CHAMBER** – An unvented decorative appliance intended for installation into a site-built enclosure, as specified by the manufacturer's installation instructions.

CONSTRUCTION

6 General

6.1 Each unvented decorative appliance shall include all the essential components necessary for its intended function when installed in accordance with the manufacturer's installation instructions.

6.2 The various parts of an unvented decorative appliance shall be constructed and assembled in accordance with these requirements to provide the strength, rigidity, and durability required.

6.3 The unvented decorative appliance shall be completely assembled by the manufacturer before shipment from the factory, or may be site-assembled, in which case complete instructions must accompany the unassembled appliance.

Exception No. 1: An unvented decorative appliance that incorporates decorative logs may be shipped with the logs uninstalled.

Exception No. 2: A fire chamber and fuel reservoir, or combination unit, that complies with the requirements in [7.5.3](#) may be furnished without being assembled on the unvented decorative appliance.

Exception No. 3: An unvented decorative appliance that incorporates a guard or grille may be shipped with the guard or grille unassembled, provided the appliance is marked in accordance with [23.4\(n\)](#).

6.4 A fireplace grate shall be provided with means to secure it within an existing masonry fireplace.

7 Materials

7.1 General

7.1.1 An unvented decorative appliance shall be constructed of materials having the necessary strength and durability to provide intended service of the parts and the assembly. Parts shall not sag, distort, melt, oxidize, or show leakage of fuel during any of the tests specified herein.

7.2 Fuel confining parts

7.2.1 A fuel-confining part of an unvented decorative appliance or an operating part in contact with the fuel, if malfunction of the part would allow leakage of fuel, risk of fire, or prevent a safety device from functioning, shall have the necessary strength, durability, and resistance to fire to provide intended service of the parts and the assembly and shall meet the following criteria:

- a) Parts formed from drawn- or machined-brass rod or bar stock shall comply with the Moist Ammonia Air Stress Cracking Test, Section [18](#);
- b) A fuel confining part or a part that comes into contact with fuel shall be made of material having a melting point (solidus temperature) of not less than 950 °F (510 °C) and a tensile strength of not less than 10,000 psi (68.9 MPa) at 400 °F (204.4 °C); and
- c) A material used for the gaskets and seals to confine alcohol-based fuels shall be compatible with the intended fuel as determined by tests in Section [19](#), Gasket Test.

7.3 Base

7.3.1 The base of an unvented decorative appliance shall be constructed of metal or fabricated of other noncombustible material in a manner that provides equivalent strength and durability.

7.3.2 All materials used in the base construction shall be provided with corrosion protection.

7.4 Appliance enclosures and site-built enclosures

7.4.1 Appliance enclosures

7.4.1.1 An appliance enclosure shall be provided for the protection of the fire chamber and fuel reservoir, or combination unit.

Exception: Fireplace grates do not require an integral appliance enclosure; they utilize the existing masonry fireplace as their appliance enclosure, see [1.1\(c\)](#).

7.4.1.2 An appliance enclosure shall be made of steel or material of equivalent strength and durability so that it is not likely to be damaged by handling in shipment, installation, and use.

7.4.1.3 Sheet metal appliance enclosures shall have a minimum thickness of 0.025 in (0.635 mm).

7.4.2 Site-built enclosures

7.4.2.1 Component parts shall be secured against distortion, warpage or other damage and constructed so as to maintain a fixed relationship between essential parts under normal and reasonable conditions of handling and usage. Refer to Section [23](#), Installation Instructions.

7.5 Fire chamber, and fuel reservoir, or combination unit

7.5.1 The fire chamber and fuel reservoir, or combination unit, shall comply with this section and Fuel confining parts, [7.2](#).

7.5.2 Fuel containers used to refill these appliances shall be fitted with a flame mitigation device (FMD) that conforms to the requirements of:

- a) In the U.S., the Portable Fuel Container Safety Act;
- b) In Canada, the Health Canada Consumer Chemicals and Containers Regulations.

NOTE: The above regulations require conformance with ASTM F3429/F3429M.

7.5.3 A fire chamber and fuel reservoir, or a combination unit, if furnished as a separate assembly, shall be arranged for attachment to the unvented decorative appliance in the intended position only and in a manner that will establish and maintain the intended position of the fire chamber and fuel reservoir, or combination unit, with respect to the appliance.

7.5.4 The fire chamber and fuel reservoir, or combination unit, shall be designed to limit the amount of fuel loaded into the fire chamber and have provisions to prevent spillage of fuel onto combustible surfaces, for example a pouring device and a level indicator. A manufacturer specified jug or decanter can be used with an incorporated fuel limiter, that will limit the amount of fuel poured into the reservoir. The maximum total fuel volume of all fuel reservoirs and the fire chamber shall be 2.6 US gal (10 L).

7.5.5 The thickness of uncoated sheet steel used in the fire chamber and fuel reservoir, or combination unit, construction shall not be less than 0.042 in (1.07 mm). A preservative shall be applied to uncoated surfaces to prevent rusting prior to use.

7.5.6 The wall thickness of aluminum-coated steel, galvanized steel, terne sheet, and corrosion-resistant sheet metal shall be not less than 0.016 in (0.41 mm) uncoated. Coated sheet shall be of prime finish, that is, free from blisters, flux, and uncoated spots visible to the unaided eye.

7.5.7 Zinc coating on sheet steel shall not be less than Grade G90. Galvanized steel conforming to ASTM A653, certified as such by the steel mill, as evidenced by a marking on each bundle or roll, ordinarily conforms to the above.

7.5.8 The coating of aluminum-coated steel sheet shall not be less than T1 40, (120 g/m²) of sheet conforming to ASTM A463.

7.5.9 A joint of a fire chamber and fuel reservoir, or combination unit, shall be locked-seamed, brazed, welded, or otherwise made mechanically secure. A joint not continuously brazed or welded shall be thoroughly sweated with solder or the equivalent. Brazing or welding of coated sheets less than 0.042 in (1.07 mm) thick shall not damage the coating of surfaces in contact with the fuel when the fire chamber and fuel reservoir, or combination unit, is full. All connections shall be made through solid threaded bosses or fittings mechanically secured to the fire chamber and fuel reservoir, or combination unit.

7.5.10 Safety measures shall be provided to prevent fuel filling while the flame is not fully extinguished.

7.6 Piping, tubing and fittings

7.6.1 Pipe and fittings shall be standard full-weight wrought iron or steel, or iron-pipe size brass or copper pipe. Unions, if used, shall be the ground-joint type or the equivalent.

7.6.2 Steel tubing of the seamless, brazed, or welded type shall be not less than 0.236 inch (6.00 mm) outside diameter and shall have a wall thickness not less than that shown in [Table 7.1](#).

Table 7.1
Wall Thickness – Steel Tubing

Outside diameter inch (mm)	Wall thickness inch (mm)
0.236 (6.00)	0.029 (0.71)
5/16 (7.94)	0.028 (0.71)
3/8 (9.53)	0.028 (0.71)
1/2 (12.7)	0.028 (0.71)
5/8 (15.88)	0.035 (0.89)
3/4 (19.05)	0.035 (0.89)

7.6.3 Steel tubing used for confinement of liquid fuel or refilling the appliance shall be constructed of corrosion resistant material such as stainless steel or shall be plated, dipped, coated, or otherwise treated to resist external corrosion.

7.6.4 Seamless drawn aluminum or copper tubing employed in the fabrication of factory assembled equipment shall be not less than 1/4 inch (6.35 mm) outside diameter and shall have a wall thickness not less than that shown in [Table 7.2](#).

Table 7.2
Wall Thickness – Aluminum and Copper Tubing

Outside diameter inch (mm)	Wall thickness inch (mm)
1/4 (6.35)	0.029 (0.74)
5/16 (7.94)	0.029 (0.74)
3/8 (9.53)	0.032 (0.81)
7/16 (11.11)	0.032 (0.81)
1/2 (12.70)	0.035 (0.89)
9/16 (14.29)	0.038 (0.96)
5/8 (15.88)	0.038 (0.96)
3/4 (19.05)	0.045 (1.14)