

STANDARD INFORMATION

Standard Number: UL 1082
Standard Name: Standard for Household Electronic Coffee Makers and Brewing-Type Appliances
Standard Edition and Issue Date: 6th Edition Dated March 17, 2009
Date of Revision: September 28, 2017
Date of Previous Revision of Standard: March 24, 2017

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **January 15, 2020**

IMPACT, OVERVIEW, AND ACTION REQUIRED

Impact Statement: A review of all Listing Reports is necessary to determine which products comply with new/revise requirements and which products will require re-evaluation. **NOTE:** Effective immediately, this revised standard will be exclusively used for evaluation of new products unless the Applicant requests in writing that current requirements be used along with their understanding that their listings will be withdrawn on Effective Date noted above, unless the product is found to comply with new/revise requirements.

Overview of Changes:

- Pressurized Brewing
- New Supplement SC for safety of smart enabled household electric coffee makers and brewing-type appliances.

Specific details of new/revise requirements are found in table below.

If the applicable requirements noted in the table are not described in your report(s), these requirements will need to be confirmed as met and added to your report(s) such as markings, instructions, test results, etc. (as required).

Client Action Required:

Information – To assist our Engineer with review of your Listing Reports, please submit technical information in response to the new/revise paragraphs noted in the attached or explain why these new/revise requirements do not apply to your product (s).

Current Listings Not Active? – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records. We will do this at no charge as long as Intertek is notified in writing prior to the review of your reports.



STANDARD INFORMATION

CLAUSE	VERDICT	COMMENT
<p>Additions to existing requirements are <u>underlined</u> and deletions are shown lined out below.</p>		
18	Info	<p>Thermal Cutoffs</p> <p><i>New clause added;</i></p>
18.4		<p>A pressure brewing appliance provided with a function to keep water heated above room temperature before brewing, or to keep brewed beverage heated after the cycle is complete shall be provided with limiting-type devices in accordance with 22C.3.</p>
22C		<p><i>New section added;</i></p> <p>Capsule-Type Brewing Appliance Controls</p>
22C.1		<p>General</p>
22C.1.1		<p>A capsule-type brewing appliance provided with an automatic reset temperature regulating thermostat that operates more than once during a function to keep water heated before the brew cycle, and/or to keep brewed beverage heated after the brew cycle shall comply with 22C.2 and 22C.3.</p>
22C.1.2		<p>A separate temperature limiting-type device is required if the short-circuiting of a temperature-regulating control during abnormal operation (see Abnormal Operation Tests, Section 47) increases the risk of fire or electric shock. A single combination regulating-limiting control is unacceptable for this purpose.</p>
22C.2		<p>Temperature regulating</p>
22C.2.1		<p>An automatic reset temperature-regulating thermostat that operates more than once during a complete cycle of brewing and warming shall comply with the applicable requirements for drip-type coffee maker thermostats in the Standard for Temperature-Indicating and -Regulating Equipment, UL 873. Compliance with the Standard for Automatic Electrical Controls for Household and Similar Use, Part 1: General Requirements, UL 60730-1, and the Standard for Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Temperature Sensing Controls, UL 60730-2-9, fulfills these requirements.</p>
22C.2.2		<p>The insulating material of a temperature regulating control shall have a Comparative Tracking Index of 175 or more. The Comparative Tracking Index (CTI) is referenced in the Standard for Polymeric Materials – Use in Electrical Equipment Evaluations, UL 746C.</p>



22C.2.3	<p>A temperature sensing positive temperature coefficient (PTC) or a negative temperature coefficient (NTC) thermistor, that performs the same function as an operating or protective control shall comply with the following:</p> <ul style="list-style-type: none">a) Standard for Automatic Electrical Controls for Household and Similar Use, Part 1: General Requirements, UL 60730-1; and the Standard for Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Temperature Sensing Controls, UL 60730-2-9, with Annex J; orb) The Standard for Thermistor-Type Devices, UL 1434.
22.C.3	Limiting-type devices
22.C.3.1	<p>Limiting-type device shall consist of one of the following:</p> <ul style="list-style-type: none">a) A single thermal cutoff with an established TH-100 rating (which includes having a Conductive Heat (CH) rating) as described in the Standard for Thermal-Links – Requirements and Application Guide, UL 60691, and as tested per 33.2.5.8 and 33.2.5.10;b) Two thermal cutoffs such that one of the following conditions is met:<ul style="list-style-type: none">1) Each of the thermal cutoffs has a Conductive Heat (CH) rating as described in UL 60691; or2) One thermal cutoff has a Conductive Heat (CH) rating:<ul style="list-style-type: none">i) and temperature on the stationary contact lead of the thermal cutoff without a CH rating is greater than or equal to the temperature on its case, as tested per 33.2.5.10; orii) the CH rated thermal cutoff has a set-point temperature equal to or higher than the thermal cutoff without a CH rating; or3) The temperature on the stationary contact lead of both thermal cutoffs without a CH rating is greater than or equal to the temperature on their respective cases as tested per 33.2.5.10.c) A single-operation thermostat; ord) A manual-reset thermostat that is inaccessible to the user without the use of tools.
22C.3.2	<p>A single-operation thermostat or a manual-reset thermostat that is provided as the thermal limiting device shall comply with the applicable requirements in the Standard for Temperature-Indicating and -Regulating Equipment, UL 873, for limiting controls. Compliance with the Standard for Automatic Electrical Controls for Household and Similar Use, Part 1: General Requirements, UL 60730-1; and the Standard for Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Temperature Sensing Controls, UL 60730-2-9, fulfills these requirements.</p>
22C.3.3	<p>A thermal cutoff shall comply with the applicable requirements in the Standard for Thermal-Links – Requirements and Application Guide, UL 60691.</p>



22C.3.4	If a grounding-type attachment plug is provided or the enclosure of the appliance has metal parts that are likely to become grounded, such as a metal bottom with bumped-out metal feet, the limiting-type device shall be located in the ungrounded supply conductor (if it can be identified) and the temperature-regulating control shall be in the other conductor. If the ungrounded supply conductor cannot be identified, the limiting-type device shall be located in one supply conductor and the temperature-regulating control shall be located in the other supply conductor.
26	Info Protection Against Injury to Persons
<i>New clause added;</i>	
26.11	A pressure brewing appliance shall be provided with a brewer operation indicator that is readily visible and distinguishable from the “off” position. The brewer operation indicator shall be “on” starting when the user initiates the cycle, and shall turn off when the dispensing stops.
<i>New clause added;</i>	
26.12	A pressure brewing appliance shall be constructed so that the brewing chamber cannot be opened by a simple or unintentional operation when the chamber is pressurized. Note 1: An espresso coffee filter that can only be removed after having been rotated through an angle of at least 30 degrees is considered to comply with this requirement. For other brewing appliances, a brewing material holder provided with two separate and distinct means for securement, accomplished either manually or by an automatic process, is also acceptable. Note 2: A brewing chamber that cannot be opened while under pressure by exerting a force of less than 2.25 pounds (10 Newtons) is considered to comply with this requirement. <i>Exception: An appliance that meets the requirements of the Open Brew Chamber Test – Pressure Brewing Appliances, Section 46B is not required to comply with this requirement.</i>
27	Info Pressure Vessels and Parts Subject to Pressure
27.15	The start-to-discharge pressure setting of the pressure-relief device shall not be higher than the working pressure marked on <u>maximum operating pressure</u> of the vessel. The discharge rate of the device shall acceptably relieve the pressure. <u>The Maximum Operating Pressure of a pressure vessel of 27.3 is the marked Maximum Allowable Operating Pressure.</u>



27.16	<p>A pressure-relief device shall comply with all four of the following:</p> <ul style="list-style-type: none">a) Shall be connected as close as possible to the pressure vessel or parts of the system that it is intended to protect.;b) Shall be installed so that it is readily accessible for inspection and repair and cannot be readily rendered inoperative;c) Shall have its discharge opening located and directed so that the risk of scalding is reduced to a minimum.; andd) Shall have its discharge opening located and directed so that operation of the device does not deposit moisture on bare live parts or on insulation or components affected detrimentally by moisture; <u>and</u>e) Shall be <u>non-user serviceable.</u>
33	Normal Temperature Tests
33.2	Specific test conditions
33.2.5	<i>New section added;</i>
33.2.5.1	Capsule-type brewing appliances
33.2.5.1	With regard to 33.1.2, a transient temperature rise not exceeding the maximum temperature rise specified in Table 33.1 by more than 20 percent is acceptable.
33.2.5.2	A capsule-type coffee maker provided with a feature to keep water heated at the ready is to be operated in the pre-heat mode until temperatures stabilize. The initial water temperature is not to be greater than 40°C (104°F).
33.2.5.3	A capsule-type coffee maker is to be operated for a minimum of 5 cycles of actual brewing. After 5 cycles, the test may be discontinued when temperatures stabilize, or a total of 250 oz has been brewed, whichever occurs first. The cycles are to be accomplished back to back, with only the time that is required to add water (if the water level in the reservoir is below the minimum fill line), and the time to exchange the capsule. Water added to the reservoir is not to be greater than 40°C (104°F). The cycle is considered as having ended when all brewed material is delivered to the container.
33.2.5.4	Temperatures are to be measured throughout the necessary cycles, and also when a capsule-type coffee maker has subsequently operated at low heat, when a “keep warm” mode is provided, until temperatures have become stabilized. If a separate switch is provided to de-energize the brewing element or warming element, it is to be left in the on position for all phases of the test. During operation of the capsule-type coffee maker in the low-heat mode, temperatures are to be measured under the following conditions in the sequence given below: <ul style="list-style-type: none">a) Container full, resting on warmer surface.b) Container empty, resting on warmer surface.c) Container removed.
33.2.5.5	The capsule-type coffee maker is also to be tested in accordance with any operating procedure recommended in the manufacturer’s instructions that could result in temperatures higher than those attained while conducting the test described in 33.2.5.2.



33.2.5.6	A counter-top capsule-type coffee maker is to be supported on a softwood surface painted flat black.
33.2.5.7	If the capsule coffee maker utilizes a mechanism to keep the water reservoir heated or keeps the brewed material heated, the temperature of a regulating thermostat's sensing surface shall not exceed its Maximum Normal Use Temperature Rating, T _{max} , as defined in SA2.2 during normal operation of the coffee maker.
33.2.5.8	If the capsule coffee maker utilizes a mechanism to keep the water reservoir heated or keeps the brewed material heated, the sensing surface of a thermal cutoff as defined in 22C.3.1(a) shall not exceed 90 percent of its established TH-100 temperature (stated in degrees Celsius) during normal operation of the coffee maker.
33.2.5.9	To determine compliance with 33.2.5.7, thermocouples are to be secured at the periphery of the regulating thermostat's sensing surface that is in contact with the part being sensed. Temperatures are to be measured during the normal operation tests described in 33.2.5.3 and 33.2.5.4.
33.2.5.10	To determine compliance with 33.2.5.8 and 22C.3.1(b)(2) and 22C.3.1(b)(3), thermocouples are to be secured at the midpoint of the longitudinal axis of the thermal cutoff body, or at the end of the thermal cutoff body which does not contain the insulator cone, at any point along its circumference. In addition, to determine compliance with 22C.3.1(b)(2) and 22C.3.1(b)(3), a thermocouple is to be secured on the stationary contact lead of the thermal cutoff approximately 0.04 inches (1 mm) from the tip of the insulator cone. Temperatures are to be measured during the steady state condition of the keep warm stages (carafe full, carafe empty, no carafe) of the normal operation test described in 33.2.5.3 and 33.2.5.4.
46A	<i>New section added;</i>
	Hydrostatic Pressure Tests for Parts Subject to Pressure
46A.1	An appliance is to be operated until maximum pressure is attained, by any combination of functional controls, at rated voltage or at the upper limit of a rated voltage range, with the inlet of the brewing chamber both un-blocked and blocked and the steam valve, if provided, closed, except that, during the period that steam is produced, the supply voltage shall be such that the input is equal to the maximum rated input. If the steam valve is linked to the switch used for starting the production of steam, this link must not be disturbed during determination of maximum pressure. The maximum pressures are to be noted.
46A.2	The appliance is then to be subjected for five minutes, to a pressure equal to twice the maximum pressure noted with the inlet of the pressurized brewing chamber blocked, as measured in 46A.1. The over pressure may be supplied from an external source; the appliance shall be at its intended operating temperature for starting the brewing period.



46A.3	<p>If the appliance is provided with a steam system that is normally open to ambient pressures, the steam system of an appliance shall be subjected for five minutes, to a pressure equal to twice the maximum pressure noted with the inlet of the pressurized brewing chamber not blocked as measured in 46A.1. During the test, the system under test (pressure system) is not to be altered or modified, the steam outlet tube is to be blocked, and the steam valve is to be opened. The over pressure may be supplied from an external source; the appliance shall be at its intended operating temperature for starting the steaming period.</p>
46A.4	<p>During the tests described in 46A.2 and 46A.3, the appliance shall not rupture and there shall be no leakage other than at places intended for that purpose and shall not result in an increased risk of fire, electric shock, or injury to persons. If provided, leakage is only acceptable through a self-resetting overpressure relief device.</p>
46A.5	<p>Following the test specified in 46A.2, the appliance is to be subjected to the same pressure as described in 46A.2, except with any means for limiting the pressure during determination of the maximum pressure made inoperative. During this test the steam outlet, if provided is blocked, as it is regarded as the limiting device during determining the maximum pressure. The appliance shall withstand this test without exploding or emitting fluid and/or media as described in 47.1.10.</p>
46A.6	<p>If a part that is intended to reduce pressure ruptures during the test in 46A.5, a second sample is to be tested and should provide equivalent (or comparable) results. Rupture of a part that is intended to reduce pressure shall render the appliance incapable of delivering a brewed beverage and not pose a risk of personal injury, electrical shock, or fire hazard.</p>
46B	<p><i>New section added;</i> Open Brew Chamber Test – Pressure Brewing Appliances</p>
46B.1	<p>To determine compliance with the exception to 26.12, the appliance shall not emit fluid and/or media as described in 47.1.10 when tested as described in 46B.2 and 46B.3. The test is to be conducted on 3 samples, with the applied voltage, method of mounting, and thermostat connection in accordance with 33.1.10 – 33.1.18.</p>
46B.2	<p>Each sample is to be filled to normal capacity with liquid and grounds or other media as described in the manufacturer’s instructions. The sample shall be energized and the brew cycle shall be started. While the brew chamber is being pressurized, the brew chamber shall be opened to the full extent.</p>
46B.3	<p>The test in 46B.2 is to be repeated on each sample, but without grounds or other media in place.</p>
46C	<p><i>New section added;</i> Brew Chamber Blockage Following Mold Stress Test for Capsule-Type Brewing Appliances</p>



46C.1		Following the mold-stress test of Standard for Polymeric Materials – Use in Electrical Equipment Evaluations, UL 746C, the appliance shall be operated for one cycle, with the outlet of the brewing chamber or the brewing capsule blocked and shall not emit fluid and/or media as described in 47.1.10.
47	Info	Abnormal Operation Tests
		<i>New clause added;</i>
		Fluid or media shall not be emitted greater than 3.0 inches (76.2 mm) from the perimeter of the base of the appliance and shall not be emitted in areas of intended user interaction during normal brewing operation of the appliance.
47.1.10		<i>Exception No. 1: If emission is found beyond 3.0 inches (76.2 mm) or in areas of intended user interaction during normal brewing operation, the test shall be repeated with a thermocouple placed to measure the emission as it leaves the appliance. If fluid or media is emitted from more than one location, the temperature of the fluid shall be measured at all locations. The maximum temperature shall not exceed 75°C.</i>
		<i>Exception No. 2: Small volumes of fluid or media which create an area of less than or equal to 0.59 inches (15 mm) diameter when measured on tissue paper are not prohibited.</i>
47.4	Info	Fusible devices test
47.4.1		To determine whether or not a thermal cutoff complies with the requirement in 18.2, the appliance is to be operated with separate cutoffs five times as described in 18.2 while any other thermally operated <u>all other operating control devices</u> in the appliance are short-circuited. <u>At the start of the test, the appliance shall not contain liquid in the reservoir.</u> Each <u>thermal</u> cutoff is required to perform acceptably. During the test, the enclosure is to be connected through a 3-A fuse to a supply conductor not containing the thermal cutoff.
		<i>Exception: A single sample may be tested five times with the thermal cutoff <u>fusible device</u> being replaced after each test if agreeable to those concerned.</i>
47.6		<i>New section added;</i>
		Pressure brewing appliances
47.6.1		General



47.6.1.1	<p>An appliance shall not cause an increased risk of fire, electric shock, or personal injury after being subjected to the tests in 47.6.2 – 47.6.4. The appliance shall not emit fluid and/or media as described in 47.1.10 when subjected to the tests in 47.6.2 – 47.6.4. Unless specifically stated, all operating and protective controls not under test shall remain in the system. During the test, the enclosure is to be connected through a 3-A fuse to a supply conductor not containing the thermal cutoff.</p>
	<p><i>Exception: If the fault test creates a test condition that has already been evaluated, the test need not be repeated.</i></p>
47.6.2	Operating controls fault test
47.6.2.1	<p>The test in 47.4.1 is to be repeated on one sample, except with the reservoir filled to the minimum fill line. If the appliance has a user-selectable function to heat a specific amount of water, the smallest amount of water shall be selected. The appliance shall have a normal load of brewing media.</p>
47.6.2.2	<p>The test in 47.6.2.1 shall be repeated on one sample, except the reservoir shall be filled to the maximum fill line. If the appliance has a user-selectable function to heat a specific amount of water the largest amount of water shall be selected. The test shall be discontinued after 1 hour of operation or if the appliance ceases to operate.</p>
47.6.2.3	<p>The tests in 47.6.2.1 and 47.6.2.2 shall be repeated on one sample, except with the outlet of the brewing chamber or sealed capsule is to be blocked.</p>
47.6.2.4	<p>The tests in 47.6.2.1 and 47.6.2.2 shall be repeated on one sample, except with the inlet of the brewing chamber blocked.</p>
47.6.3	Pump fault test
47.6.3.1	<p>An appliance with a pump is to be operated for one complete cycle. The pump shall be set to remain on during the cycle. If the appliance is provided with more than one pump, only one pump shall be set to remain on during the cycle, all other pumps shall operate normally. The test shall be repeated as many times as necessary to evaluate the operation of each pump. At the start of the test, the reservoir shall be filled to the maximum fill line, and the appliance shall have a normal load of brewing media.</p>
47.6.3.2	<p>The test in 47.6.3.1 shall be repeated on a new sample, except with the pump set to remain off during the cycle.</p>
47.6.3.3	<p>The tests in 47.6.3.1 and 47.6.3.2 shall be repeated on a new sample for each test, except with the outlet of the brewing chamber or sealed capsule chamber when provided is to be blocked.</p>
47.6.3.4	<p>The tests in 47.6.3.1 and 47.6.3.2 shall be repeated on a new sample for each test, except with the inlet of the brewing chamber or sealed capsule when provided is to be blocked.</p>
47.6.4	Valve fault test



47.6.4.1	An appliance with a solenoid valve is to be operated for one complete cycle. The valve shall be set to remain open during the cycle. If the appliance is provided with more than one solenoid valve, only one valve shall be set to remain open during the cycle, all other valves shall operate normally. The test shall be repeated as many times as necessary to evaluate the operation of each solenoid valve. At the start of the test, the reservoir shall be filled to the maximum fill line, and the appliance shall have a normal load of brewing media.
47.6.4.2	The test in 47.6.4.1 shall be repeated on a new sample, except with the solenoid valve set to remain closed during the cycle.
47.6.4.3	The tests in 47.6.4.1 and 47.6.4.2 shall be repeated on a new sample for each test, except with the outlet of the brewing chamber or sealed capsule chamber when provided is to be blocked.
47.6.4.4	The tests in 47.6.4.1 and 47.6.4.2 shall be repeated on a new sample for each test, except with the inlet of the brewing chamber or sealed capsule when provided is to be blocked.
47.7	<i>New section added;</i> Abnormal operation reused sealed capsule test
47.7.1	A brewing appliance intended for use with sealed capsules that is capable of being punctured in more than one location if reused, whether intended or not intended by the manufacturer, shall not result in any of the following conditions when tested in accordance with 47.7.2 – 47.7.7: a) Emission of fluids and/or media as described in 47.1.10. b) Result in the opening of a 3 A-fuse with the fuse connected to accessible dead metal parts and ground.
47.7.2	All operating and protective controls shall remain in the system.
47.7.3	The test shall be performed with sealed capsules consisting of a “regular” caffeinated grind.
47.7.4	The appliance shall be loaded with a sealed capsule and filled to its maximum intended capacity with water and operated for one brew cycle.
47.7.5	Upon completion of the first cycle, the brew chamber shall be opened and then resealed without removing or replacing the sealed capsule and operated for a second cycle in accordance with 47.7.4.
47.7.6	If the sealed capsule is capable of being rotated or inserted in more than one orientation, the test conditions of 47.7.4 – 47.7.5 are to be repeated using a new sealed capsule. Upon completion of the first cycle, the test shall be repeated using the same sealed capsule per 47.7.5, except the sealed capsule shall be oriented such that a puncture is made in a new location.
47.7.7	The testing of 47.7.1 – 47.7.6 shall be repeated using sealed capsules consisting of a “decaffeinated” grind.
	Info MARKINGS
54	Info Details



New clause added;

54.14

A pressure brewing appliance shall include a distinctive marking, such as an arrow, vertical bar, dot, or other equivalent marking, or the word “lock”, which clearly indicates the proper position to secure the brewing chamber during the brewing cycle. This marking shall be readily visible during positioning of the brew chamber and during operation of the appliance.

Exception No. 1: An appliance that meets the requirements of the Open Brew Chamber Test in Section 46B is not required to comply with this requirement.

Exception No. 2: An appliance that cannot be provided with a lock marking, such as a drawer or latched lid and which includes instructions in accordance with 58.7 is not required to comply with this requirement.

58

Info

Specific Appliances

New clause added;

58.6

Pressure brewing appliances

a) Only use capsules intended for this appliance. If the capsule does not fit, do not force the capsule into the appliance.

b) WARNING: To avoid the risk of injury, do not open the brew chamber during the brew process.

Exception: The marking in 58.6(a) does not apply to an appliance that is not intended to be used with sealed capsules.

58.7

New clause added;

To comply with Exception No. 2 to 54.14, the manufacturer shall supply explicit instructions detailing proper closure of the brew chamber.

Exception: May be located in any part of the instruction manual provided that the Important Safeguards state “See instructions regarding closing the Brew Chamber on Page ____” or the equivalent wording.

New section added;

Supplement
SC

SAFETY OF SMART ENABLED HOUSEHOLD ELECTRIC COFFEE MAKERS AND BREWING-TYPE APPLIANCES

This new supplement includes household electric coffee makers and brewing-type appliances intended to receive and respond to communication signals or data relating to power billing rate or demand response or communication signals from a remote user interface. (see standard section for details).

CUSTOMERS PLEASE NOTE: This Table and column “Verdict” can be used in determining how your current or future production is or will be in compliance with new/revised requirements.