

STANDARD INFORMATION

Standard: CSA/ANSI Z21.1 / CSA 1.1

Standard ID: Household Cooking Gas Appliances [CSA/ANSI Z21.1/CSA 1.1:2024 Ed.3]

Previous Standard ID: Household Cooking Gas Appliances [CSA/ANSI Z21.1/CSA 1.1:2018 Ed.2+E2019;U1;U2]

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **January 31, 2028**

IMPACT, OVERVIEW, AND ACTION REQUIRED

Impact Statement: Per our accreditation, Intertek is required to review reports against the standard revisions to confirm compliance. Once compliance is confirmed, the standard reference in the report is updated to show continued compliance to the technical requirements of the standard. Reports not updated to this version by the effective date above will be withdrawn.

Overview of Changes:

- Updated automatic gas ignition systems to include new control standards
- New oven rack testing that requires the test be performed in multiple locations and temperatures
- Testing for this standard shall be performed under 2000 ft
- Update of requirement for reaching for controls test
- New surface temperature testing method that includes new temperature probes, revised tables, and method
- Update of test to cover momentary switches and if the product contains a connector that connects neutral to ground
- Updated hot coil ignition test to rename and provide more detail on setup
- Added new annex that details the method of measuring and calculating input rate

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

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 – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records.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
		<i>Additions to existing requirements are <u>underlined</u> and deletions are shown lined-out below.</i>
4	Info	Construction
4.15	Info	Automatic gas ignition systems
4.15.1		Automatic gas ignition systems and components shall comply with the applicable provisions of ANSI Z21.20 • CSA C22.2 No. 199, ANSI Z21.20/CAN/CSA-C22.2 No. 60730-2-5, ANSI Z21.92 • CSA 6.29, <u>or UL 60730-2-5</u> , as applicable.
4.20	Info	Oven racks, rack supports, and broiler pans
		<i>New clause added;</i>
		Support
4.20.8		An oven rack shall not fall from its supports and the test weight shall not slide off the rack when tested per Clauses 4.20.9 to 4.20.15. Testing shall be performed with the oven at room temperature except for Clause 4.20.15. If a unit is provided with two or more different rack styles, each rack style shall be tested through Clauses 4.20.9 to 4.20.15.
		<i>New clause added;</i>
4.20.9		Test weight The test weight shall be 8.85 in (225 mm) square and shall weigh the amount shown in Table 6.
		<i>New clause added;</i>
		Lowest position
4.20.10		With the oven rack in the lowest position, the rack shall be pulled out to the full extent of its travel and the weight shall be placed on the centre of the rack. The rack shall be slid in as far as possible with the weight in place, then the rack shall be slid back out to the full extent of its travel.
		<i>New clause added;</i>
		Centre position
4.20.11		The test specified in Clause 4.20.10 shall be repeated with the rack in the centremost position.



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		<i>New clause added;</i>
4.20.12		Uppermost position The test specified in Clause 4.20.10 shall be repeated with the rack in the uppermost position. If there is less than 1.8 in (45.7 mm) of vertical space for the load, the test shall be performed on the next lower rack position.
		<i>New clause added;</i>
4.20.13		Thermal conditioning Thermal conditioning shall be performed. On self-clean ovens, the longest available self-clean cycle shall be run with racks in place unless instructions indicate to remove the rack. On non-self-clean ovens, the oven shall be run on bake at 475 °F (246 °C) for 3 h with racks in place. The oven shall be allowed to fully cool.
		<i>New clause added;</i>
4.20.14		Repeat testing The tests specified in Clauses 4.20.10, 4.20.11, and 4.20.12 shall be repeated.
		<i>New clause added;</i>
4.20.15		Oven heating The oven shall be heated to 475 °F (246 °C). After 1 h, Clause 4.20.10 shall be repeated. The oven temperature shall be allowed to recover to 475 °F (246 °C) and Clauses 4.20.11 and 4.20.12 shall be repeated.
5	Info	Performance
5.1		General
		<i>New clause added;</i>
5.1.2		Criteria for altitude Household cooking gas appliances submitted for examination under this Standard shall be tested at an altitude of less than 2000 ft (600 m) above sea level with the type(s) of gas selected by the manufacturer.



CLAUSE	VERDICT	COMMENT
5.16	Info	<p>Evaluation of clothing ignition potential</p> <p>Reaching for controls or performing cooking operations</p> <p>This test shall be conducted on appliances with top surface cooking section burners and wok burner(s) as per the following test:</p> <p>An uncovered pan of the appropriate size as shown in Table 5 shall be 3/4 filled with water and centred over the burner under test.</p> <p>Each pan shall have a flat bottom, a radius of not more than 1/2 in (12.7 mm) at the juncture of the bottom and sides, and a straight side taper and no external lip. The wok pan(s) shall be the minimum size possible to be installed or the manufacturer's minimum specified wok pan(s). Wok pan(s) shall be filled to 80% capacity with water at approximately room temperature.</p> <p><u>If the pan cannot be centred over the burner due to interference with portions of the range structure, the next size smaller pot shall be used as shown in Table 5. For elongated burners, the manufacturer may supply a custom-sized pot which centres the pot if there is interference in centering the pot as detailed in the note to Table 5.</u></p> <p>5.16.3</p> <p>Only one surface cooking section top burners shall be ignited and operated at maximum input for at least 10 min. <u>Upon completion of that test, the next burner shall be placed in operation and the test conducted again.</u></p> <p>The 4 in (102 mm) wide free ends of a sample of the test material, 22 in (559 mm) long and 4 in (102 mm) wide, shall be fastened to a 4 in (102 mm) long and 3 in (76.2 mm) wide horizontal support so a loop, at least 9-1/2 in (241 mm) long, is formed.</p> <p>The loop shall be positioned so its bottom curve coincides with the horizontal plane of the utensil support surface and one side is just touching the top edge of the pan over the burner being tested (see Figures 14 and 15). The loop shall be allowed to remain in this position for 30 s.</p> <p><u>The loop shall only be positioned at the front and sides of the burner being tested and not brought towards the back of the burner (see Figure 16).</u></p> <p>No flaming of the test material shall occur.</p> <p>This test shall be conducted on each top surface cooking section burner.</p>
5.17		<p>Evaluation of burn hazard potential of exterior surfaces</p> <p>Clause 5.17 has been majorly re-written.</p> <p>See standard for details.</p>



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Sponge washing test

Electrical equipment including switches, latches, controls, and control panels shall not be adversely affected by washing the product with a wet sponge. Testing shall be conducted as follows:

The appliance shall be isolated from ground with the normal grounding means disconnected and shall be connected to line voltage so the component to be tested is in the ungrounded side of the supply. If the product contains a conductor that connects neutral and ground, it shall be removed. Control knobs, guards, panels, etc., located in the area to be cleaned that are removable without the use of tools, shall be removed. The test shall be conducted at a temperature of 77 ± 9 °F (25 ± 5 °C). The appliance shall not be connected to a gas supply.

The measurement circuit for leakage current shall be as shown in Figure 25. The meter used for measurement of leakage current shall have the same characteristics as the meter used in current leakage test per Clause 4.26.26. The meter shall be connected between a metal backing on a cellulose sponge and the grounded conductor of the power supply.

5.30

The sponge shall be approximately $1\text{-}5/8 \times 3 \times 5$ in ($41.3 \times 76.2 \times 127.0$ mm), capable of retaining from 2.6 to 3.5 oz (75 to 100 g) of solution, and shall have a corrosion-resistant metal backing on one of the 3×5 in (76.2×127.0 mm) faces as shown in Figure 26.

The sponge shall be saturated in a solution consisting of 2 tsp (10 mL) of sodium bicarbonate and 0.2 oz (4.5 g) of chip soap or liquid hand soap, in 1 qt (0.95 L) of water at approximately 77 °F (25 °C). After saturation, the sponge shall be weighed to establish that between 75 and 100 g have been absorbed. The saturated sponge shall be wiped six times with a pressure of 2 to 3 lb (8.9 to 13.4 N) applied to the metal-backed side, over the control panel or other area being tested. The sponge shall be wiped directly over low-profile switches (such as rocker switches). If removal of knobs has left exposed control shafts, the sponge shall be wiped so that the side of the sponge contacts the shafts. The direction of wiping shall be such that liquid is forced into or above electrical components. The sponge shall be re-saturated in the test cleaning solution after the third wipe. During the test, the technician is to be properly insulated.

The test shall be conducted with manually operable switch contacts, integral to the appliance, in the open and closed positions. An equal number of wipes shall be applied at each position of the switch or control for a total of six wipes (three wipes at each position for 2-position switch; two wipes at each position for 3-position switch). A variable position switch shall be tested with two wipes each at off, high, and low settings. Momentary switches shall be tested with three wipes each in the



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normally off position, and in the depressed position. The product shall be observed for 5 min following the final wipe for compliance with Item b).

The appliance shall comply with the following:

- a) Leakage current through the sponge shall not exceed 0.5 mA for appliances rated 120 V or less, and 5 mA for appliances rated greater than 120 V. This requirement applies equally to electromechanical, electronic, membrane, capacitance, and mechanical switches.
- b) There shall be no evidence of arcing, short-circuiting, or insulation breakdown nor shall there be unintended operation or change of power level of burners or heating elements. In the case of touch-type controls, activation of keys, including power level settings, is acceptable, provided that burners or heating elements do not turn on from the OFF position.

Hot coil ignition test

If required per Clause 4.30.1, an electrical connection shall be tested as specified in this provision. Each connection shall be evaluated using one connector sample. Multiple connections may be evaluated within the same appliance if connections are located such that the test results of one individual connection do not affect the results of the other connections. As a result of the test, there shall be no evidence of ignition of the cheesecloth referenced in this Clause as indicated by broken threads of the cheesecloth. Browning of the cheesecloth is acceptable provided that all individual threads are unbroken.

Note: Cheesecloth fibres may become brittle after exposed to heat. Care should be taken to prevent breakage of fibres during inspection. fibres broken during inspection are not considered as a non-compliance.

5.31

The test shall be considered inconclusive and then repeated if there is evidence of

- a) fracture or shorting of the hot coil prior to completion of the test; or
- b) a shift in the position of the hot coil sufficient to alter the severity of the test.

Testing shall be conducted as follows:

The test location shall have sufficient fresh air to sustain the flame. This test shall be conducted at an elevation of less than 2000 ft (610 m) above sea level. A floor-supported appliance shall be supported on a non-combustible and non-conductive surface. The top, sides, front, and back of the appliance shall be completely covered by single-layer cheesecloth panels. A mechanical means, such as small pieces of metal foil adhesive tape, shall be used to secure the cheesecloth panels so there are no gaps between the panels. A single layer of cheesecloth, slightly larger than the appliance bottom surface, shall cover the supporting surface. If



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agreeable to those concerned, cheesecloth may be placed only in the area of the anticipated breach.

A built-in oven or a built-in top or surface unit shall be placed in an enclosure constructed of nominal 3/8 in thick minimum plywood, calcium silicate board, or cement board as shown in Figure 27 or 28. The appliance shall be levelled, starting with any adjustable feet at the maximum distance from the bottom of the appliance to the supporting surface. The enclosure shall be firmly assembled so that the sides, back, and top will provide as close a fit as the construction of the product will permit — a sliding fit. The surfaces of the test enclosure shall be completely covered with two layers of cheesecloth secured as tightly as practicable to the enclosure surface. A single layer of cheesecloth shall be held in close contact with the exposed surfaces of the appliance.

All labels applied by the manufacturer shall be applied to the intended surfaces of the test appliance. Printing on the labels is not required. The manufacturer shall place the wiring diagram in the test appliance as intended.

During this test, the appliance shall be supported on a non-conductive surface, and the appliance shall be de-energized unless equipped with a protective control or device. The connection under evaluation shall be electrically isolated from the appliance circuitry. If the appliance is energized during the test, a duplicate connection that is electrically isolated from live parts shall be evaluated. Thermocouples shall be placed around the connector (but not in direct contact) such that when ignition occurs, an increase in temperature can be detected. When appropriate, windows made of glass or other clear noncombustible material may be used in the appliance to allow viewing of the connector being tested. Windows shall be sealed to prevent extraneous drafts or air leaks. Windows shall be located in areas not likely to be involved in or influence flame propagation. Video cameras may be employed to assist in verification of ignition. An ac or dc power supply shall be used, and the test current shall be monitored for evidence of shorting or resistance wire breaks.

An appliance control or device employed to provide protection from risk of fire shall be evaluated as protective control and may be used to de-energize the hot coil if found to actuate during the test.

The coil shall be nichrome wire (80% nickel, 20% chromium, 20 AWG, in accordance with ASTM B344) or FeCrAl alloy wire (72.2% iron, 22% chromium, 5.8% aluminum, 20 AWG, in accordance with ASTM B603), and shall be applied to a connector or switching contact such that the adjacent non-metallic combustible materials will be ignited during the test.

In the application of the hot coil to the part under test, the hot coil may be inserted into the part, or the wire may be externally wrapped around the part under test.



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The intent is to achieve complete combustion of the part under test and/or adjacent materials. Hot coils shall be fashioned in the following way:

a) A single strand of hot coil with a minimum length of 4.0 in (100 mm) shall be formed into a coil with a diameter and length that approximates the connection under evaluation. The coil shall be inserted in place of the connection under evaluation. In the case of a multi-pin connector, a single terminal pin shall be removed from the connector such that the coil can be inserted in the worst case location (typically the lowest position). If worst case position is not obvious, then multiple positions shall be evaluated. A 0.138 in (3.5 mm) diameter (max.) solid ceramic-rod support may be used to support the hot wire coil during the test. The ceramic-rod may be either smooth (non- threaded) or threaded (8 wraps/in) to accommodate the wire.

b) When externally wrapping a connector or uninsulated terminal, use minimum 2.0 in (50 mm) of hot coil to achieve a minimum of three evenly spaced wraps along the length of the connector or uninsulated terminal.

c) Uninsulated terminals shall be wrapped with a non-flammable tape or sleeve prior to wrapping with hot coil to prevent shorting out portions of the hot coil.

d) In the case of switching devices, a coil of wire shall be placed inside the device in the position of the contacts and appropriately supported to prevent movement during the test.

Insulated wire leads shall be used to supply power to the hot coil and shall be supported and strain- relieved to prevent the hot coil from shifting during testing.

Note: With reference to Items a) and d), the preferred method of wrapping a coil is wrapping nichrome wire around the threads of a No. 6-8 screw with a nominal root diameter of 0.094 in (2.4 mm) and a thread per 1 in (25.4 mm) count of 8.

The hot coil shall be energized such that current in the circuit is immediately increased to 13.9, or 12.5 A if using the FeCrAl alloy, and held constant for the duration of the test. If no ignition is detected within 20 min, the current shall be removed from the hot coil. If ignition is detected, as evidenced from the thermocouples, the current shall be held constant until burning of the non-metallic combustible material ceases naturally or there is ignition of the cheesecloth. If ignition of the cheesecloth occurs, the fire shall be extinguished as soon as possible. If the hot coil fractures prematurely, the test shall be repeated.

New annex added;

Formula for calculation of input

Annex G

The following is the rate calculation procedure necessary for measuring the gas input of a gas cooking appliance using a positive displacement-type gas meter.

See standard for details.
