

## STANDARD INFORMATION

**Standard:** CSA C22.2 No. 60335-2-35

**Standard ID:** Household and Similar Electrical Appliances - Part 2-35: Particular Requirements for Instantaneous Water Heaters [CSA C22.2#60335-2-35:2022 Ed.3]

**Previous Standard ID:** Safety of Household and Similar Electrical Appliances - Part 2-35: Particular Requirements for Instantaneous Water Heaters (R2016) [CSA E60335-2-35:2001 Ed.2+G1]

## EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

**Effective Date:** **February 1, 2024**

## 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 Reports not updated to this version by the effective date above will be withdrawn.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:

- Addition of Canadian Deviations
- Addition of requirements for heating
- Addition of requirements for appliances with programmable electronic circuits
- Addition of requirements for requirements for water heaters

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 – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records.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 <del>lined-out</del> below.</i>
	Info	<b>New clauses for Canadian Deviations (refer to the standard for details):</b>
1		This Standard does not apply to instantaneous water heaters intended to heat potable water above a temperature of 65 °C.
7.1		Bare-element water heaters shall be rated 240 V or less.
7.1A-7.1E		Additional marking requirements, such as for bare-element water heaters and household instantaneous water heaters intended to heat potable water.
7.12		Additional instructions requirements.
7.16		Additional markings for replaceable fuses.
7.102A		Additional marking requirements for appliances if the construction makes allowance for cleaning or similar servicing by the user that involves the exposure of any normally enclosed or protected live part to accidental contact.
13.2		[Delete the fourth paragraph of the “Addition” in the Part 2 and add the following] For class I bare-element water heaters, the leakage current test shall be repeated with the earthing terminal disconnected from the neutral conductor. The leakage current shall not exceed 4 mA.
15.3A		Appliances intended for use outdoors shall comply with the requirements of CSA C22.2 No. 94.2 for Type 3R enclosures.
15.3B		Additional requirements for appliances having joints or openings, which could be exposed to the ingress of fluids that can have an impact on shock hazards.
19.13		Bare-element water heaters shall comply with Clause 13.2.
22.2		Appliances with a rated voltage less than 150 V may use a single-pole switch for disconnection from the supply mains, provided that the supply cord or cord set is polarized. This switch shall not be used to disconnect the neutral supply conductor. All other appliances shall provide all-pole disconnection from the supply mains. Note: Supply cords and cord sets used in Class I appliances are considered to be polarized.
22.39.1A- 22.39.1C		Additional requirements for appliances incorporating Edison-base lampholders and lamps.
22.47, 22.106		Additional requirements for bare-element water heaters
22.107		For appliances intended to heat potable water, the temperature of the water at the outlet shall not exceed 65 °C.



CLAUSE	VERDICT	COMMENT
22.110A- 22.110F		<p>Additional requirements for:</p> <ul style="list-style-type: none"> <li>• Openings in external enclosures</li> <li>• Aluminum-sheathed elements</li> <li>• Overcurrent devices</li> <li>• Fuseholders</li> <li>• Protection and replacement of bare-element water heaters</li> </ul>
25.1A		Bare-element water heaters shall not be cord-connected.
25.5		Additional requirements for openings for conduit connection.
25.7DV		Replacement of Clause 25.DV and 25.8DV.1 of Part 1 for supply cords and attachment plug.
26.1A		Additional requirements for the location of terminal boxes or wiring compartments in which supply connections are made.
27.1		Additional requirements for provision for earthing for bare-element water heaters.
30.2		Non-metallic enclosures shall comply with the 5VA requirements in CAN/CSA-C22.2 No. 0.17. Materials having flame-retardant coatings, liners, or coverings shall comply with the flame-retardant coating requirements in CAN/CSA-C22.2 No. 0.17, except for the flexing and surface resistivity tests.
<b>Changes to existing standard:</b>		
7	Info	<b>Marking and instructions</b>
		The marked rated frequency for bare-element water heaters shall not be less than 50 Hz.
		Appliances shall be marked with the rated pressure in pascals.
7.1		<u>If the appliance is intended for use as a booster for inlet water heated by other water heating systems, the maximum inlet water temperature shall be marked.</u>
		Bare-element water heaters shall be marked with the minimum water resistivity with which the appliance may be used, and the marked value shall not be greater than 1 300 Ωcm.
11	Info	<b>Heating</b>
<b><i>New clause added;</i></b>		
11.3		Where the external accessible surfaces are suitably flat and access permits, then the test probe of Figure 104 is used to measure the temperature rises of external accessible surfaces specified in Table 101. The probe is applied with a force of 4 N ± 1 N to the surface in such a way that the best possible contact between the probe and the surface is ensured. The measurement is performed after a contact period of 30 s.
		The probe may be held in place using a laboratory stand clamp or similar device. Any measuring instrument giving the same results as the probe may be used.



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11.8		<p><i>New clause added;</i></p> <p>During the test, the temperature rises are monitored continuously and shall not exceed the values shown in Table 3 and Table 101.</p>
22	Info	<p><b>Construction</b></p> <p><i>New clause added;</i></p> <p>The requirement is not applicable provided the maximum temperature of the water from the system cannot exceed 55 °C in normal use.</p>
22.50		<p>If the maximum temperature of the water from the system exceeds 55 °C in normal use, then the requirement is not applicable provided that the system is such that a shower outlet normal use water temperature control takes precedence in setting the system temperature. In the case of systems with multiple shower outlets, the shower with the lowest temperature setting shall take precedence, the other shower outlets taking precedence over non-shower outlets.</p>
22.51		<p><i>New clause added;</i></p> <p>The requirement is not applicable provided the maximum temperature of the water from the system cannot exceed 55 °C in normal use.</p> <p>If the maximum temperature of the water from the system exceeds 55 °C in normal use, then the requirement is not applicable provided that the system is such that the shower outlet normal use water temperature control takes precedence in setting the system temperature. In the case of systems with multiple shower outlets, a shower with the lowest temperature setting shall take precedence, the other shower outlets taking precedence over non-shower outlets.</p>
22.108		<p><i>New clause added;</i></p> <p>The Outlet water of the appliances intended to supply water for showering shall not attain an excessive temperature due to a sudden pressure drop in the water supply.</p> <p>Compliance is checked by the following test.</p> <p>The appliance is supplied with water at a pressure of 0,4 MPa. It is operated at rated power input with the regulating valve adjusted so that the outlet water temperature is <math>25\text{ K} \pm 1\text{ K}</math> above the inlet water temperature. The water pressure is then reduced to 0,2 MPa within 1 s.</p> <p>The outlet water temperature shall not rise by more than 25 K within 10 s. The outlet water temperature is measured by means of a fine-wire thermocouple placed in the centre of a plastic cylindrical receptacle having a diameter of 30 mm and a height of 12 mm.</p>



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		<p>The receptacle is positioned 25 mm below the shower head.</p> <p>If compliance relies on the operation of an electronic circuit, the test is repeated under the following conditions applied separately:</p> <ul style="list-style-type: none"><li>– the fault conditions in a) to g) of 19.11.2 applied one at a time to the electronic circuit;</li><li>– the electromagnetic phenomena tests of 19.11.4.1 to 19.11.4.7 applied to the appliance.</li></ul> <p>The outlet water temperature shall not rise by more than 25 K within 10 s during or after each of the tests.</p> <p>If the electronic circuit is programmable, the software shall contain measures to control the fault/error conditions specified in Table R.1 and is evaluated in accordance with the relevant requirements of Annex R.</p>
Annex R		<p><b><i>New annex added;</i></b></p> <p><b>Software evaluation</b></p>
R.2.2.5		<p>For programmable electronic circuits with functions requiring software incorporating measures to control the fault/error conditions specified in Table R.1 or Table R.2, detection of a fault/error shall occur before compliance with Clause 19, 22.105 and 22.108 is impaired.</p>
R.2.2.9		<p>The software and safety-related hardware under its control shall be initialized and shall terminate before compliance with Clause 19, 22.105 and 22.108 is impaired.</p>