

Standard Information

Standard Number: UL 471

Standard Name: Commercial Refrigerators and Freezers

Standard Edition and Issue Date: 10th Edition Dated November 24, 2010

Date of Revision: June 17, 2016

Date of Previous Revision to Standard: 10th Edition Revised November 17, 2014

Effective Date of New/Revised Requirements

Effective Date (see Schedule below): **June 19, 2017**

Impact, Overview, Fees and Action Required

Impact Statement: A review of all Listing Reports is necessary to determine which products comply with new/revised 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requests in writing that current requirements be used along with their understanding that their listings will be withdrawn on Effective Date noted above, unless the product is found to comply with new/revised requirements.

Overview of Changes (Specific details of new/revised requirements are found in table below):

- Addition of requirements for thermoelectric refrigerators
- Addition of UL 60335-1 based requirements for the evaluation of electronic circuits

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).

Schedule: So that shipping of products with Listing Marks will not be interrupted, an **approximate** schedule has been established to ensure Listing Reports are found compliant by Effective Date:

- October 19, 2016 = 8 Month Report Review – Intertek will review all Reports. Update if compliance is verified or issue Findings Letter/Quote for any re-evaluations needed
- December 19, 2016 = 6 Month Quote Cut-off – Quotes returned for necessary re-evaluations
- **June 19, 2017** = Effective Date – ATM Suspended for all non-compliant Reports

Fees: An initial review of Listing Report (s) will be covered by a direct billing project and will be invoiced at not more than \$1000 per report.

Client Action Required:

Information – To assist our Engineer with review of your Listing Reports, please submit technical information in response to the new/revised paragraphs noted in the attached or explain why these new/revised 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.

Description of New/Revised Technical Requirements

Clause	Verdict	Comment
3.26		<p>Additions to existing requirements are <u>underlined</u> and deletions are shown lined out below.</p> <p>THERMOELECTRIC <u>REFRIGERATOR</u> – Equipment that uses the Peltier effect for refrigerating, whereby the passage of an electrical current through a junction consisting of two dissimilar metals results in a cooling effect. As contemplated by this standard, the Peltier device is supplied by a Class 2 or a limited voltage/current power source. A refrigerator in which the air is cooled using the Peltier Effect such that a direct current supply source is applied to a semiconductor thermoelectric module creating a temperature gradient which transfers heat from one surface to another.</p>
38A		<p><i>New section added;</i></p> <p>Thermoelectric System</p>
38A.1		A thermoelectric cooling appliance shall comply with requirements in this standard except for those requirements specifically applying to vapor-compression refrigeration systems.
38A.2		In addition to the temperature test in the cooling mode, when a thermoelectric appliance can also be operated in a heating mode, it shall comply with the Temperature Test, Section 44, when operated in the heating mode, except the ambient temperature shall be $77 \pm 5^{\circ}\text{F}$ ($25 \pm 3^{\circ}\text{C}$).
38A.3		A thermoelectric cooling appliance in which the thermoelectric circuit is powered by a low voltage Class 2 or Limited Power Source supply shall not result in a risk of fire as specified in accordance with 83D.1.1, if no fan is provided or 83D.1.2 if provided with fan(s).
38A.4		A thermoelectric cooling appliance in which the thermoelectric circuit is powered by other than a low voltage Class 2 or Limited Power Source supply shall not result in a risk of fire or electric shock in accordance with 83D.1.1 (if no fan is provided), 83D.1.2 (if provided with fan(s)), and 83D.1.3.
38A.5		In reference to 38A.3 and 38A.4, a thermoelectric cooling appliance that uses a fan motor, other than one that is protected in accordance with Section 18.2, to cool the semiconductor thermoelectric module shall not develop temperatures exceeding 302°F (150°C) on the fan motor winding (open type) or on the fan motor enclosure (enclosed type) when tested in accordance with 83D.3.1. This requirement also applies to fan motors supplied by a low voltage Class 2 or Limited Power Source circuit.
38A.6		In reference to the polymeric material requirements, a semiconductor thermoelectric module powered by other than a low voltage Class 2 or Limited Power Source circuit shall be considered an ignition source.
83D		<p><i>New section added;</i></p> <p>Tests on Thermoelectric Refrigerators and Freezers</p>



Standards Update Notice (SUN)

Issued: July 21, 2016

Clause	Verdict	Comment
Supplement SC	Info	<i>New section added;</i> UL 60335-1 BASED REQUIREMENTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS This new section includes alternative investigation requirements, performance test requirements, and markings for Electronic Circuits (see standard for section details).
SC1.2	Info	These requirements provide alternate requirements for the investigation of electronic controls and other circuits used in appliances covered by this standard.
		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.