



ADDENDA

**ANSI/ASHRAE Addendum c to
ANSI/ASHRAE Standard 72-2022**

Method of Testing Open and Closed Commercial Refrigerators and Freezers

Approved by ASHRAE and the American National Standards Institute on August 31, 2026.

This addendum was approved by a Standing Standard Project Committee (SSPC) for which the Standards Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely, documented, consensus action on requests for change to any part of the standard. Instructions for how to submit a change can be found on the ASHRAE® website (www.ashrae.org/continuous-maintenance).

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Cognizant TC: 10.7, Commercial Food and Beverage Refrigeration Equipment

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FOREWORD

Addendum c adds test method requirements for refrigerators operating with R-744 as the refrigerant in a direct-expansion configuration. It also adds two definitions associated with this addition.

Informative Note: In this addendum, changes to the current standard are indicated in the text by underlining (for additions) and ~~striketrough~~ (for deletions) unless the instructions specifically mention some other means of indicating the changes.

Addendum c to Standard 72-2022

Modify Section 3 as follows. The remainder of Section 3 remains unchanged.

3. DEFINITIONS

[...]

liquid overfeed system: system feeding an evaporator with refrigerant at a rate to make the exit vapor quality less than one.

[...]

mechanical subcooler: a heat exchanger external to a remote refrigerator used to reduce the liquid refrigerant temperature prior to entering the refrigerator.

[...]

Modify Section 6 as follows. The remainder of Section 6 remains unchanged.

6. TEST CONDITIONS

[...]

6.4.7 R-744 Refrigerator Test Considerations

6.4.7.1 Scope. This method and the measurements specified in Normative Appendix A apply only to direct-expansion refrigerators. It does not apply to refrigerators intended to use R-744 in a liquid overfeed system.

6.4.7.2 Mechanical Subcooler. For direct-expansion remote refrigerators, if a mechanical subcooler is used to maintain the liquid temperatures as specified in Normative Appendix A, it shall be installed upstream of the refrigerant flowmeter.

NOTE: 13 mm (1/2 in.), 10 mm (3/8 in.), AND 7 mm (1/4 in.) INLET LINES MAY BE ENLARGED IN AREA OF THE THERMOCOUPLE WELL TO PROVIDE UNRESTRICTED REFRIGERANT FLOW.

REFRIGERATOR'S TUBING ENTRANCE

INLET

OUTLET

P_L

P_V

T_L

T_V

OPTIONAL MECHANICAL SUBCOOLER. IF USED, MUST BE UPSTREAM OF FLOW METER

INLET SIGHT GLASS - WITHIN 300 mm (12 in.) OF FLOW METER

REFRIGERANT FLOW METER

13 mm (1/2 in.) INSULATION FROM TUBING ENTRANCE TO AT LEAST 150 mm (6 in.) BEYOND T_L AND T_V

THERMOCOUPLE OR THERMOMETER

BRAZE OR WELD

TEMPERATURE INDICATOR

REFRIGERANT LINE

INSULATION

COPPER TUBING

FILL WELL WITH LIGHT OIL

ANSI/ASHRAE Addendum c to ANSI/ASHRAE Standard 72-2022

Modify Normative Appendix A as follows. The remainder of Normative Appendix A remains unchanged. (Note to Reviewers: All references to “Figure 11” are replaced by references to “Figure 13.”

(This is a normative appendix and is part of the standard.)

NORMATIVE APPENDIX A MEASUREMENT LOCATIONS, TOLERANCES, ACCURACIES, AND OTHER CHARACTERISTICS

Table A-1 Measurement Locations, Tolerances, Accuracies, and Other Characteristics

Measured Quantity and Measurement Standard	Location	Period of Time Measurement is Taken	Required Accuracy	Required Value(s)
[. . .]				
Compartment Temperature				
Test simulator temperature	See <u>Section 5.4</u> Section 4	At least once every 3 min throughout Test A and Test B	±0.8°C (±1.4°F)	N/A
Refrigerant Measurements for Direct-Expansion Remote Units				
Liquid refrigerant temperature <u>for refrigerants other than R-744</u>	Inlet line at a distance not greater than 155 mm (6.1 in.) from the refrigerator. (See Section 6.4.3 and <u>Figure 13</u> Figure 11)	At least once every 3 min during running cycles throughout Test A and Test B	±0.8°C (±1.4°F)	Individual measurements: 26.7°C ± 5.6°C (80.0°F ± 10.0°F) Average over test period: 26.7°C ± 2.8°C (80.0°F ± 5.0°F)
<u>Liquid refrigerant temperature for R-744</u>	<u>Inlet line at a distance not greater than 155 mm (6.1 in.) from the refrigerator. (See Section 6.4.3 and Figure 13)</u>	<u>At least once every 3 min during running cycles throughout Test A and Test B</u>	<u>±0.8°C (±1.4°F)</u>	<u>Value used to calculate liquid refrigerant subcooling</u>
Liquid refrigerant pressure <u>for refrigerants other than R-744</u>	Inlet line at a distance not greater than 155 mm (6.1 in.) from the refrigerator. (See Section 6.4.3 and <u>Figure 13</u> Figure 11)	At least once every 3 min during running cycles throughout Test A and Test B	±35.0 kPa (±5.1 psi)	Average over test period: Saturated liquid pressure corresponding to a condensing temperature (bubble point) in the range of 32°C to 49°C (89.6°F to 120.2°F)
<u>Liquid refrigerant pressure for R-744</u>	<u>Inlet line at a distance not greater than 155 mm (6.1 in.) from the refrigerator. (See Section 6.4.3 and Figure 13)</u>	<u>At least once every 3 min during running cycles throughout Test A and Test B</u>	<u>±35.0 kPa (±5.1 psi)</u>	<u>Average over test period: Saturated liquid pressure corresponding to a condensing temperature (bubble point) in the range of 0.0°C to 3.3°C (32.0°F to 38.0°F)</u>
Liquid refrigerant subcooling <u>for refrigerants other than R-744</u>	Calculated from measured temperature and pressure	At least once every 3 min during running cycles throughout Test A and Test B	N/A	Average over test period: >0K (>0°R)
<u>Liquid refrigerant subcooling for R-744</u>	<u>Calculated from measured temperature and pressure. Temperature measured at inlet line at a distance not greater than 155 mm (6.1 in.) from the refrigerator.</u>	<u>At least once every 3 minutes, starting 5 minutes after the end of each defrost period, during running cycles throughout Test A and Test B.</u>	<u>N/A</u>	<u>Individual measurements: 1.0 to 6.0K (1.8 to 10.8°R)</u> <u>Average over test period: 1.0 to 3.0K (1.8 to 5.4°R)</u>
[. . .]				

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ASHRAE is concerned with the impact of its members' activities on both the indoor and outdoor environment. ASHRAE's members will strive to minimize any possible deleterious effect on the indoor and outdoor environment of the systems and components in their responsibility while maximizing the beneficial effects these systems provide, consistent with accepted Standards and the practical state of the art.

ASHRAE's short-range goal is to ensure that the systems and components within its scope do not impact the indoor and outdoor environment to a greater extent than specified by the Standards and Guidelines as established by itself and other responsible bodies.

As an ongoing goal, ASHRAE will, through its Standards Committee and extensive Technical Committee structure, continue to generate up-to-date Standards and Guidelines where appropriate and adopt, recommend, and promote those new and revised Standards developed by other responsible organizations.

Through its *Handbook*, appropriate chapters will contain up-to-date Standards and design considerations as the material is systematically revised.

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