

AHRI Standard 700 with Addendum 1

2017 Standard for

Specifications for Refrigerants



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AHRI STANDARD 700-2017 WITH ADDENDUM 1, *SPECIFICATIONS FOR REFRIGERANTS*

September 2017

Addendum 1 (dated September 2017) of AHRI Standard 700-2017, Specifications for Refrigerants, modifies AHRI Standard 700-2017 as follows. The following changes have been incorporated (additions are shown with shading) as well as the addition of refrigerants R-407H, R-461A, R-462A, R-514A, and R-516A to the scope of Section 2 and to Table 2A and Table 3 respectively of AHRI Standard 700-2017. The September 2017 Addendum 1 has been incorporated into the already published 2017 version of AHRI Standard 700 to avoid confusion.

The changes include:

2.1.4 Zeotropic Blend Refrigerants: R-401A; R-401B; R-402A; R-402B; R-403A; R-403B; R-404A; R-405A; R-406A; R-407A; R-407B; R-407C; R-407D; R-407E; R-407F; R-407G; R-407H; R-408A; R-409A; R-409B; R-410A; R-410B; R-411A; R-411B; R-412A; R-413A; R-414A; R-414B; R-415A; R-415B; R-416A; R-417A; R-417B; R-417C; R-418A; R-419A; R-419B; R-420A; R-421A; R-421B; R-422A; R-422B; R-422C; R-422D; R-422E; R-423A; R-424A; R-425A; R-426A; R-427A; R-428A; R-429A; R-430A; R-431A; R-434A; R-435A; R-437A; R-438A; R-439A; R-440A; R-442A; R-444A; R-444B; R-445A; R-446A; R-447A; R-447B; R-448A; R-449A; R-449B; R-449C; R-450A; R-451A; R-451B; R-452A; R-452B; R-452C; R-453A; R-454A; R-454B; R-454C; R-455A; R-456A; R-457A; R-458A; R-459A; R-459B; R-460A; R-460B; R-461A; and R-462A

2.1.6 Azeotropic Blend Refrigerants: R-500; R-502; R-503; R-507A; R-508A; R-508B; R-509A; R-510A; R-511A; R-512A; R-513A; R-513B; R-514A; R-515A; and R-516A.

IMPORTANT

SAFETY DISCLAIMER

AHRI does not set safety standards and does not certify or guarantee the safety of any products, components or systems designed, tested, rated, installed or operated in accordance with this standard/guideline. It is strongly recommended that products be designed, constructed, assembled, installed and operated in accordance with nationally recognized safety standards and code requirements appropriate for products covered by this standard/guideline.

AHRI uses its best efforts to develop standards/guidelines employing state-of-the-art and accepted industry practices. AHRI does not certify or guarantee that any tests conducted under its standards/guidelines will be non-hazardous or free from risk.

Note:

This standard supersedes AHRI Standard 700-2017.

AHRI CERTIFICATION PROGRAM PROVISIONS

Scope of the Certification Programs

The Reclaimed Refrigerant and Refrigerant Testing Laboratory Certification Programs are based on this standard. The Reclaimed Refrigerant Certification Program includes purity specifications for reclaimed refrigerants. The Refrigerant Testing Laboratory Certification Program includes verification for refrigerant testing laboratories that perform testing of refrigerants to AHRI Standard 700.

Certified Ratings

The following ratings are verified by test for the Reclaimed Refrigerant Certification Program:

- a. Water (ppm by weight)
- b. Chloride (pass/fail)
- c. Acidity (ppm by weight)
- d. High boiling residue (% by volume or % by weight)
- e. Particulates/solids (pass/fail)
- f. Air and other non-condensables (% by volume)
- g. All other volatile impurities (% by weight)

The following contaminants are verified by test for the Refrigerant Testing Laboratory Certification Program:

- a. Water (ppm by weight)
- b. High boiling residue (% by volume or % by weight)
- c. Air and other non-condensables (% by volume)
- d. All other volatile impurities (% by weight)

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SPECIFICATIONS FOR REFRIGERANTS

Section 1. Purpose

1.1 *Purpose.* The purpose of this standard is to establish purity specifications, to verify composition, and to specify the associated methods of testing for acceptability of the refrigerants listed in Section 2.1 regardless of source (new, reclaimed and/or repackaged) for use in new and existing refrigeration and air-conditioning products within the scope of AHRI.

1.1.1 *Intent.* This standard is intended for the guidance of the industry including manufacturers, reclaimers, repackagers, distributors, installers, servicemen, contractors and users of fluorocarbon, hydrocarbon and carbon dioxide containing refrigerants.

1.1.2 *Review and Amendment.* This standard is subject to review and amendment as technology advances or as additional data becomes available. This data can be submitted to AHRI for review.

Section 2. Scope

2.1 *Scope.* This standard specifies acceptable levels of contaminants (purity requirements) for fluorocarbon, hydrocarbon, and carbon dioxide refrigerants regardless of source and lists acceptable test methods. These refrigerants are as referenced in the ANSI/ASHRAE Standard 34 with Addenda:

2.1.1 Single-Component Fluorocarbon Refrigerants: R-11; R-12; R-13; R-22; R-23; R-32; R-113; R-114; R-115; R-116; R-123; R-124; R-125; R-134a; R-141b; R-142b; R-143a; R-152a; R-218; R-227ea; R-236fa; R-245fa; R-1233zd(E); R-1234yf; R-1234ze(E); and R-1336mzz(Z).

2.1.2 Single Component Hydrocarbon Refrigerants: R-50; R-170; R-E170; R-290; R-600; R-600a; R-601; R-601a; R-610; R-1150; and R-1270.

2.1.3 Carbon Dioxide Refrigerant: R-744.

2.1.4 Zeotropic Blend Refrigerants: R-401A; R-401B; R-402A; R-402B; R-403A; R-403B; R-404A; R-405A; R-406A; R-407A; R-407B; R-407C; R-407D; R-407E; R-407F; R-407G; R-407H; R-408A; R-409A; R-409B; R-410A; R-410B; R-411A; R-411B; R-412A; R-413A; R-414A; R-414B; R-415A; R-415B; R-416A; R-417A; R-417B; R-417C; R-418A; R-419A; R-419B; R-420A; R-421A; R-421B; R-422A; R-422B; R-422C; R-422D; R-422E; R-423A; R-424A; R-425A; R-426A; R-427A; R-428A; R-429A; R-430A; R-431A; R-434A; R-435A; R-437A; R-438A; R-439A; R-440A; R-442A; R-444A; R-444B; R-445A; R-446A; R-447A; R-447B; R-448A; R-449A; R-449B; R-449C; R-450A; R-451A; R-451B; R-452A; R-452B; R-452C; R-453A; R-454A; R-454B; R-454C; R-455A; R-456A; R-457A; R-458A; R-459A; R-459B; R-460A; R-460B; R-461A; and R-462A

2.1.5 Zeotropic Hydrocarbon Blend Refrigerants: R-432A; R-433A; R-433B; R-433C; R-436A; R-436B; R-441A; and R-443A.

2.1.6 Azeotropic Blend Refrigerants: R-500; R-502; R-503; R-507A; R-508A; R-508B; R-509A; R-510A; R-511A; R-512A; R-513A; R-513B; R-514A; R-515A; and R-516A.