



**BSR/ASHRAE Addendum n
to ANSI/ASHRAE Standard 34-2019**

Public Review Draft

Proposed Addendum n to Standard 34-2019, Designation and Safety Classification of Refrigerants

**First Public Review (July 2020)
(Draft shows Proposed Changes to Current Standard)**

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(This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

FOREWORD

This proposed addendum adds an informative note to Section 9.5.2 which references the new Informative Appendix I.

Note: This addendum makes proposed changes to the current standard. These changes are indicated in the text by underlining (for additions) and ~~strike through~~ (for deletions) except where the reviewer instructions specifically describe some other means of showing the changes. Only these changes to the current standard are open for review and comment at this time. Additional material is provided for context only and is not open for comment except as it relates to the proposed changes.

Addendum n to Standard 34-2019

Revise Section 9 as shown. The remainder of Section 9 is unchanged.

9.5.2 Refrigerant Data

Informative Note: Recommended Precision and Specification of Source: The numerical data required in Section 9.5.2 are recommended to conform to the levels of precision stated in Informative Appendix I, “Recommended Significant Figures Reporting of Quantities in Applications to ASHRAE SSPC 34.”

Add new Informative Appendix I as shown.

(This appendix is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

INFORMATIVE APPENDIX I—RECOMMENDED SIGNIFICANT FIGURES REPORTING OF QUANTITIES IN APPLICATIONS TO ASHRAE SSPC 34

This appendix provides guidance on the recommended number of significant figures for refrigerant data in applications for designation and safety group classifications for refrigerants, including blends, in addenda or revisions to the standard on new compounds or blends to be added to the standard.

1. Recommended Significant Figures

Table I-1 Recommended Significant Figures

<u>Property</u>	<u>Recommended Data Reporting</u>	<u>Examples</u>
<u>Temperatures (normal boiling point, critical point, azeotropic, bubble point, dew point, and temperature glide)</u>	<u>0.1</u>	<u>23.0°C (73.4°F)</u>
<u>Application Temperatures</u>	<u>1</u>	<u>-40 to + 10°C</u>
<u>Pressures</u>	<u>3 Significant Figures</u>	<u>5.78 MPa</u>
<u>Specific Volume</u>	<u>3 Significant Figures</u>	<u>0.00195 m³/kg</u>
<u>Density</u>	<u>3 Significant Figures</u>	<u>472 kg/m³</u>
<u>Latent Heat of Vaporization</u>	<u>3 Significant Figures</u>	<u>125 kJ/kg</u>
<u>Specific Heat Ratio</u>	<u>3 Significant Figures</u>	<u>1.53</u>
<u>Compositions (Nominal, WCF, WCFF, Tolerances)</u>	<u>0.1</u>	<u>(23.0/25.0/52.0)</u>
<u>Molecular Weights</u>	<u>0.01</u>	<u>102.03 g/mole</u>

12. Specification of Sources

The source of all of the quantities required in Section 9.5.2 are recommended to be stated and documented. Examples include:

1. direct experimental measurement; state method used and experimental uncertainty
2. calculation by an equation of state model; state the program used (e.g., NIST REFPROP, version 10.0)
3. literature references for the underlying equations of state for each of the components (e.g., for R-134a: Tillner-Roth, R. and Baehr, H.D., An international standard formulation of the thermodynamic properties of 1,1,1,2-tetrafluoroethane (HFC-134a) for temperatures from 170 K to 455 K at pressures up to 70 MPa, *J. Phys. Chem. Ref. Data*, 23:657-729, 1994.) and, in the case of mixtures, the mixing rule and associated parameter values.
4. calculation by an approximate method, such as the calculation of critical properties given by Section 9.5.2.5 in ANSI/ASHRAE Standard 34 or the calculation of the heat of combustion given by the method in Normative Appendix B of ANSI/ASHRAE Standard 34.