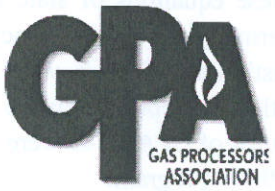
# Table of Physical Properties for Hydrocarbons and Other Compounds of Interest to the Natural Gas Industry




*Adopted 1942*
*Revised 1957,1962, 1966, 1971, 1975, 1977, 1982, 1983, 1984, 1985, 1986, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 2000, 2003, 2005, 2007, 2009*
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## FOREWORD

The Table of Physical Properties for Hydrocarbons and Other Components of Interest to the Natural Gas Industry, GPA Publication Standard 2145, provides the gas processing industry with a convenient compilation of authoritative numerical values for the paraffin hydrocarbons and other compounds occurring in natural gas and natural gas liquids as well as for a few other compounds of interest to the industry. The physical properties selected are those considered most valuable for engineering and analytical computations in gas processing plants and laboratories. Most properties are based upon two NIST Standard Reference Databases: the Web Thermo Tables, WTT, (NIST SRSD-3) and the Reference Fluid Thermodynamic and Transport Properties Database, REFPROP, (NIST SRD-23). The data in this publication were checked, evaluated, and recalculated when necessary by Robert Chirico and Eric Lemmon of the Physical and Chemical Properties Division of the Chemical Science and Technology Laboratory at NIST in Boulder, Colorado. The listed flammability limits and octane numbers were not evaluated at NIST and sources for these properties are provided in the references.

Some of the listed values result from other values in the tables by simple calculation. Numbers obtained from such related data may differ from the tabulated values in the last digit because of numerical round off, but the differences are within the standard uncertainty of the data. The value of the gas constant used in the tables is 8.314472 J/(K·mol). Numerous values were updated from the previous edition of GPA-2145 to provide full thermodynamic consistency between properties. This was accomplished through consistent use of properties derived with the equations of state underlying the NIST REFPROP database. Properties derived with these equations of state are inherently consistent. This publication represents the first time for which thermodynamic consistency is assured for all properties listed in GPA-2145. Required enthalpies of combustion at 298.15 K were taken from the NIST Web Thermo Tables (WTT). These enthalpies of combustion are reprinted in the notes of this document. All adjustments of these values to the selected temperatures of GPA-2145 were completed using consistent thermophysical property values from the NIST REFPROP program.

The values of the physical properties for the components in GPA 2145, as well as those for many more compounds, appear in the GPSA Engineering Data Book. Property values for compounds listed here in GPA 2145-09 supersede those listed in the GPSA Engineering Data Book. For components not listed in GPA 2145, the property values in GPA TP-17 may be used.

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