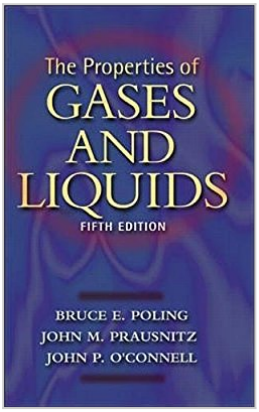

The Properties of Gases and Liquids

By Bruce E. Poling, John M. Prausnitz, John P. O'Connell

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Must-have reference for processes involving liquids, gases, and mixtures

Reap the time-saving, mistake-avoiding benefits enjoyed by thousands of chemical and process design engineers, research scientists, and educators. Properties of Gases and Liquids, Fifth Edition, is an all-inclusive, critical survey of the most reliable estimating methods in use today --now completely rewritten and reorganized by Bruce Poling, John Prausnitz, and John O'Connell to reflect every late-breaking development. You get on-the-spot information for estimating both physical and thermodynamic properties in the absence of experimental data with this property data bank of 600+ compound constants. Bridge the gap between theory and practice with this trusted, irreplaceable, and expert-authored expert guide -- the only book that includes a critical analysis of existing methods as well as hands-on practical recommendations. Areas covered include pure component constants; thermodynamic properties of ideal gases, pure components and mixtures; pressure-volume-temperature relationships; vapor pressures and enthalpies of vaporization of pure fluids; fluid phase equilibria in multicomponent systems; viscosity; thermal conductivity; diffusion coefficients; and surface tension.

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Editorial Review

Review
By L. A. Wenzel, Lehigh University

This new edition provides a very thorough and careful presentation of modern methods of estimating the physical properties of gases and liquids. Pure gases, pure liquids, multicomponent mixtures of gases and of liquids, and equilibrium multiphase systems are all considered. In the phase equilibria area, solid-liquid and solid-gas systems are included. Properties considered include vapor pressure, critical properties, boiling and freezing points, PVT (pressure-volume-temperature) properties, thermodynamic properties (viscosity, thermal conductivity, diffusion coefficents, and surface tension). Estimation methods are chosen for their accuracy, range of utility, and the availability of needed input data. Methods that are based on a theoretical model of the system are generally preferred. The emphasis on new work is strong, so that in many cases, old familiar methods are omitted. A very extensive database of properties of pure components is provided in the appendixes. Generally, simplicity has been sacrificed to accuracy, so that these methods will not be as easy for the process engineer to use, as was the case with earlier editions. Still, this is a useful, and possibly even vital book for a practicing process engineer; highly recommended for libraries serving them. Graduate students through professionals.

Ever since the first edition of this work was published in 1958, it has been a "must have" in the reference library of Chemical Engineers, particularly those engaged in process design. It has long been the primary reference for anyone who must estimate physical or thermodynamic properties required for equipment design knowing little more than the chemical formula of the materials to be handled. The main value of this book over a simple bibliography that can now be generated by a computer search is that the authors continue the practice started in the first edition of publishing tables comparing the results of using the various estimation methods to each other and experimental data when available and then make recommendations as to which method seems to work best under various conditions.

The need for regular updating was succintly stated by Reid and Sherwood in their Preface to the second edition in 1966 when they commented that the half life of estimation correlations seemed to be about four years. Although there are now more fundamentally based properties estimation methods than there were then, the authors note in their Preface to the new edition that ..".most estimation methods rely heavily on empiricism..." Thus the need for periodic updating of this work continues.

Space does not permit listing chapter by chapter the significant differences from the previous edition, but they are substantial. The properties data bank in Appendix A has been completed revised.

This new edition should be added to the library of anyone who must estimate physical properties of materials to be processed.--Kunesh, John "AIChE Journal "

From the Back Cover
Latest Estimation Methods and Property Values *Validated databank *Tested estimation methods *Pure substances and mixtures *Thermodynamics, phase equilibria, and more *Fully worked examples *Instantly usable information Bridge the gap between theory and practice with this expert guide. You’ll reap the time-saving, mistake-avoiding benefits already enjoyed by thousands of chemical and process design engineers, research scientists, and educators. Trusted, irreplaceable, and expert-authored, this is the only book that

includes a critical analysis of existing methods as well as hands-on practical recommendations.

About the Author
Bruce E. Poling is professor of chemical engineering and associate dean of engineering at the University of Toledo (Ohio). He has taught and conducted research for over 30 years in the areas of thermodynamics, physical properties, and process design. John M. Prausnitz is professor of chemical engineering at the University of California at Berkeley. He has extensive physical property experience as a consultant on petroleum, natural gas, petrochemical, cryogenic, and polymeric processes. He is a member of the National Academy of Sciences and the National Academy of Engineering. John P. O'Connell is the Harry Douglas Forsythe Professor of Chemical Engineering at the University of Virginia. He has 35 years of experience in teaching, research, and consulting in physical properties and process design.

Users Review

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William Fuller:

The experience that you get from The Properties of Gases and Liquids will be the more deep you rooting the information that hide in the words the more you get serious about reading it. It doesn't mean that this book is hard to be aware of but The Properties of Gases and Liquids giving you joy feeling of reading. The copy writer conveys their point in a number of way that can be understood by means of anyone who read this because the author of this e-book is well-known enough. This particular book also makes your own personal vocabulary increase well. That makes it easy to understand then can go along with you, both in printed or e-book style are available. We suggest you for having this kind of The Properties of Gases and Liquids instantly.

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Pearl Miller:

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