
HANDBOOK OF

Vapor

PRESSURE

VOLUME 1

C₁ TO C₄ COMPOUNDS

Carl L. Yaws

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Handbook of Vapor Pressure, Volume 1

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DISCLAIMER

This handbook presents a variety of thermodynamic and physical property data. It is incumbent upon the user to exercise judgment in the use of the data. The author and publisher do not provide any guarantee, express or implied, with regard to the general or specific applicability of the data, the range of errors that may be associated with any of the data, or the appropriateness of using any of the data in any subsequent calculation, design or decision process. The author and publisher accept no responsibility for damages, if any, suffered by any reader or user of this handbook as a result of decisions made or actions taken on information contained herein.

PREFACE

Vapor pressure data are important in many engineering applications in the chemical processing and petroleum refining industries. The objective of this book is to provide the engineer with such vapor pressure data. The data are presented in graphs covering a wide temperature range to enable the engineer to quickly determine values at the desired temperatures of interest.

The contents of the book are arranged in the following order:

- Graphs
- References
- List of compounds
- Coefficients for vapor pressure equation

The graphs for vapor pressure as a function of temperature are arranged by carbon number and chemical formula to provide ease of use. Most of the graphs cover the full liquid range from melting point to boiling point to critical point. English units are used for the vapor pressure. For those involved in metric and SI usage, each graph displays a conversion factor to provide the SI units.

The coverage encompasses a wide range of organic compounds, including hydrocarbons, such as alkanes, olefins, acetylenes, cycloalkanes; oxygenates such as alcohols, aldehydes, ketones, acids, ethers, glycols, anhydrides; halogenates such as chlorinated, brominated, fluorinated and iodinated compounds; nitrogenates such as nitriles, amines, cyanates, amides; sulfur compounds such as mercaptans, sulfides, sulfates; silicon compounds such as silanes and chlorosilanes, and many other chemical types.

The literature has been carefully searched. The following primary references were used extensively in construction of the graphs:

Daubert, T. E. and R. P. Danner, *Data Compilation of Properties of Pure Compounds*, Parts 1, 2, 3, and 4, Supplements 1 and 2, DIPPR Project, AIChE, New York, NY (1985–1992).

Yaws, C. L., *Physical Properties*, McGraw-Hill, New York, NY (1977).

Yaws, C. L., *Thermodynamic and Physical Property Data*, Gulf Publishing Co., Houston, TX (1992).

Yaws, C. L. and R. W. Gallant, *Physical Properties of Hydrocarbons*, Vol 1 (2nd ed.), Vol 2 (3rd ed.), and Vol 3 (1st ed.), Gulf Publishing Co., Houston, TX (1992, 1993, 1993).

Additional references are given in the section at the end of this book. These primary and additional references provide full documentation for the original sources used in regression of the data.

A list of compounds is given near the end of the book to aid the user in quickly locating the compound of interest from the chemical formula or name.

Coefficients for the vapor pressure equation are provided at the end of the book. The tabulated values are arranged for quick usage with hand calculator or computer. A computer program, containing coefficients for vapor pressure for all compounds, is available for a nominal fee. The program, which is in ASCII, can be accessed by other software. Contact Carl L. Yaws, Ph.D., P.O. Box 10053, Beaumont, TX 77710.

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