Property Index to NSRDS
Data Compilations, 1964-1972

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Foreword

The National Standard Reference Data System provides access to the quantitative data of physical science, critically evaluated and compiled for convenience and readily accessible through a variety of distribution channels. The System was established in 1963 by action of the President's Office of Science and Technology and the Federal Council for Science and Technology, and responsibility to administer it was assigned to the National Bureau of Standards.

NSRDS receives advice and planning assistance from a Review Committee of the National Research Council of the National Academy of Sciences-National Academy of Engineering. A number of Advisory Panels, each concerned with a single technical area, meet regularly to examine major portions of the program, assign relative priorities, and identify specific key problems in need of further attention. For selected specific topics, the Advisory Panels sponsor subpanels which make detailed studies of users' needs, the present state of knowledge, and existing data resources as a basis for recommending one or more data compilation activities. This assembly of advisory services contributes greatly to the guidance of NSRDS activities.

The System now includes a complex of data centers and other activities in academic institutions and other laboratories. Components of the NSRDS produce compilations of critically evaluated data, reviews of the state of quantitative knowledge in specialized areas, and computations of useful functions derived from standard reference data. The centers and projects also establish criteria for evaluation and compilation of data and recommend improvements in experimental techniques. They are normally associated with research in the relevant field.

The technical scope of NSRDS is indicated by the categories of projects active or being planned: nuclear properties, atomic and molecular properties, solid state properties, thermodynamic and transport properties, chemical kinetics, and colloid and surface properties.

Reliable data on the properties of matter and materials is a major foundation of scientific and technical progress. Such important activities as basic scientific research, industrial quality control, development of new materials for building and other technologies, measuring and correcting environmental pollution depend on quality reference data. In NSRDS, the Bureau's responsibility to support American science, industry, and commerce is vitally fulfilled.

Richard W. Roberts, Director
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Property Index to NSRDS Data Compilations, 1964-1972

David R. Lide, Jr., Gertrude B. Sherwood, Charles H. Douglass, Jr.,* and Herman M. Weisman


A property index to data contained in publications of the National Standard Reference Data System during the period 1964-1972 is presented. Data compilations published in the NSRDS-NBS series, other publication series of the National Bureau of Standards, scientific journals, and books of commercial publishers are included. When used with the cumulative property index published annually since 1972 in the Journal of Physical and Chemical Reference Data, this index serves as an entry to the complete output of the NSRDS program.

Key words: Cumulative property index; data compilations; National Standard Reference System.

1. Introduction

The National Standard Reference Data System was established in 1963 to provide a coordinated program on the compilation and evaluation of property data in the physical sciences. Under this program the National Bureau of Standards, through its Office of Standard Reference Data, supports various data compilation activities, coordinates the efforts of Government and private groups, and arranges for publication of tables of reference data and critical data reviews. The output of the program has appeared through a variety of channels, including the publication series of the National Bureau of Standards, professional society journals, books of commercial publishers, and the recently-established Journal of Physical and Chemical Reference Data.

This index is intended as a first step in providing convenient access to the data contained in the publications of the NSRDS program. Ideally, one would like a detailed substance-property index with perhaps additional information on such factors as temperature and pressure ranges. However, the wide variety of physical and chemical properties covered in the NSRDS program and the large number of substances and systems so far included make this task prohibitively difficult with present resources. Consequently, we have first prepared a property index alone, in the hope that this will be of some assistance to users in locating publications which might contain the data they seek.

The publications covered in this index, which are listed in the next section, are those for which the Office of Standard Reference Data provided some financial support at either the compilation or publication stage. The titles appearing in the NSRDS-NBS Series, the Journal of Physical and Chemical Reference Data, and certain other sources contain critically evaluated data. In the remainder, a degree of data selection has been exercised, but the depth of evaluation is not as great. Some of these serve as interim publications pending a more detailed evaluation of the data. The degree of evaluation and the procedures used are described in each publication.

The property index terms have been chosen to correspond to common usage; cross references are given for synonymous or closely related terms. The terms are the same as those used in indexing the Journal of Physical and Chemical Reference Data. The annual index of that journal will therefore serve to maintain a continuing index to data compilations published under the NSRDS program.


2.1. Publications Issued in the NSRDS-NBS Series

Publications in the NSRDS-NBS Series with the exception of those indicated by an asterisk, are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, at the prices listed. Prices are subject to change without notice. These publications may also be ordered...
through the U.S. Department of Commerce Field Office nearest you. Microfiche or paper photo copies of all recent NBS publications may also be ordered through the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22151.

Remittances for documents available from the Superintendent of Documents by check, money order, SD coupons or SD deposit accounts must accompany the order. Foreign remittances should be made either by an international money order or draft on an American bank. Postage stamps are not acceptable.

No charge is made for postage on documents sent to points in the United States and its possessions. To compute foreign postage, add one-fourth the price of the publication to cover the cost of shipping and handling charges.

The letter symbol, publication number, full title and author of the publication, and SD catalog number must be given when ordering. The Superintendent of Documents allows a 25 percent discount on orders of 100 or more copies of one publication.

Publications indicated by an asterisk must be ordered from the National Technical Information Service (NTIS), U.S. Department of Commerce, Springfield, Virginia 22151. Orders must be accompanied by a money order, check payable to NTIS, or American Express credit card number and covering the total cost of the order. Prices are available upon inquiry from NTIS.


☐ NRDS-NBS-3, Sec. 1, Selected Tables of Atomic Spectra, Atomic Energy Levels and Multiplet Tables, Si ii, Si iii, Si iv, by C. E. Moore, 1965 ($1.00), SD Catalog No. C13.48:3/Sec. 1.

☐ NRDS-NBS-3, Sec. 2, Selected Tables of Atomic Spectra, Atomic Energy Levels and Multiplet Tables, Si i, by C. E. Moore, 1967 (70 cents), SD Catalog No. C13.48:3/Sec. 2.

☐ NRDS-NBS-3, Sec. 3, Selected Tables of Atomic Spectra, Atomic Energy Levels and Multiplet Tables, C i, C ii, C iii, C iv, C v, C vi, by C. E. Moore, 1970 ($1.70), SD Catalog No. C13.48:3/Sec. 3.

☐ NRDS-NBS-3, Sec. 4, Selected Tables of Atomic Spectra, Atomic Energy Levels and Multiplet Tables, H i, D, T, by C. E. Moore, E. Moore, 1971 ($1.15), SD Catalog No. C13.48:3/Sec. 4.

☐ NRDS-NBS-3, Sec. 6, Selected Tables of Atomic Spectra, Atomic Energy Levels and Multiplet Tables, H i, D, T, by C. E. Moore, 1972 (40 cents), SD Catalog No. C13.48:3/Sec. 6.


□ NSRDS-NBS-34, Ionization Potentials and Ionization Limits Derived from the Analyses of Optical Spectra, by C. E. Moore, 1970 (75 cents), SD Catalog No. C13.48:34.


2.2. Data Compilations Appearing in Other NBS Publication Series

These publications are available from the Superintendent of Documents or NTIS according to the procedure described in section 2.1.


2.3. Compilations Appearing in the Journal of Physical and Chemical Reference Data

Reprints available from:

JPCRD Reprint Service
American Chemical Society
1155 Sixteenth Street, NW
Washington, D.C. 20036


Selected Values of Evaporation and Condensation Coefficients of Simple Substances, by G. M. Pound, Vol. 1, No. 1, pp. 135-146 (1972). Reprint No. 3 ($3.00).


2.4. Publications of the Berkeley Particle Data Group

Available in the Western Hemisphere and Far East from:
Berkeley Particle Data Group
Lawrence Radiation Laboratory
Berkeley, California 94720

Users elsewhere should order from:
CERN
Geneva, Switzerland

NSRDS-UCRL-20000 YN, A Compilation of YN Reactions, by the Berkeley Particle Data Group, January 1970.
NSRDS-UCRL-20000 NN, NN, and ND Interactions [above 0.5 GeV/c]—A Compilation, by the Berkeley Particle Data Group, August 1970.
NSRDS-LBL-58, NN and ND Interactions—A Compilation, by the Berkeley Particle Data Group, 1972.

2.5. Other Publications

Absorption coefficients, spectral

See: Transition probabilities for atoms and molecules

Absorption oscillator strengths

See: Transition probabilities for atoms and molecules

Activation energies of chemical reactions (see also Rate constants of chemical reactions)


Activity coefficients

Theoretical Mean Activity Coefficients of Strong Electrolytes in Aqueous Solutions from 0 to 100 °C—Walter J. Hamer, NSRDS-NBS-24 (1968).


Appearance potential

Asymmetric rotor properties

Tables for the Rigid Asymmetric Rotor: Transformation Coefficients From Symmetric to Asymmetric Bases and Expectation Values of $P_2^a$, $P_2^b$, $P_2^c$—R. H. Schwendeman, NSRDS-NBS-12 (1968).


Attenuation coefficients for X-rays and gamma rays


Atomic energy levels and spectra


Selected Tables of Atomic Spectra, Atomic Energy Levels and Multiplet Tables, Si I—C. E. Moore, NSRDS-NBS-3, Sec. 2 (1967).


Band spectra

See: Electronic molecular spectra

Boiling point


Bond dissociation energy


Cell constants

See: Lattice constants

Chemical potential

Theoretical Mean Activity Coefficients of Strong Electrolytes in Aqueous Solutions from 0 to 100 °C—Walter J. Hamer, NSRDS-NBS-24 (1968).


Combustion, heat of

See: Heat of combustion

Thermodynamic properties

Compressibility factor

See: Equation of state

Compton scattering cross section


Condensation coefficient

See: Evaporation and condensation coefficients

Conductance

See: Electrical conductance

Conductivity, thermal

See: Thermal conductivity

Critical micelle concentration

Critical pressure, temperature

See: Equation of state

Critical supersaturation ratio


Cross section

See: Compton scattering cross section
   Electron impact cross section
   Heavy particle collision cross section
   High energy reaction cross section
   Ion-molecule reaction cross section
   Pair production cross section
   Photon cross section

Crystal structure


Debye characteristic temperature


Density


Theoretical Mean Activity Coefficients of Strong Electrolytes in Aqueous Solutions from 0 to 100 °C—Walter J. Hamer, NSRDS-NBS-24 (1968).


Dielectric constant (see also Electric dipole moments of molecules)

Theoretical Mean Activity Coefficients of Strong Electrolytes in Aqueous Solutions from 0 to 100 °C—Walter J. Hamer, NSRDS-NBS-24 (1968).


Diffusion coefficient


Dipole moment

See: Electric dipole moments of molecules

Dissociation energy

See: Bond dissociation energy

Electric dipole moments of molecules


Selected Values of Electric Dipole Moments for Molecules in the Gas Phase—R. D. Nelson, Jr., D. R. Lide,
Jr., and A. A. Maryott, NSRDS-NBS-10 (1967).


Electrical conductance


Electrical resistivity


Electromotive force of cells


Electron impact cross section


Electronic molecular spectra


Energy, activation

See: Activation energies of chemical reactions

Energy, dissociation

See: Bond dissociation energy

Energy levels

See: Atomic energy levels and spectra

Molecular energy levels and constants

Enthalpy

See: Thermodynamic properties

Enthalpy of formation

See: Heat of formation

Thermodynamic properties

Entropy

See: Thermodynamic properties

Equation of state


Equilibrium constant (see also Thermodynamic Properties)


Equivalent conductance

See: Electrical conductance

Evaporation and condensation coefficients


See: Transition probabilities for atoms and molecules

Free energy

See: Thermodynamic properties

Frequencies, vibrational

See: Vibrational frequencies of molecules

Fundamental particle properties


Fundamental vibrational frequencies

See: Vibrational frequencies of molecules

See: Magnetic moments of molecules

Gaseous diffusion coefficient

See: Diffusion coefficient

Gibbs energy

See: Thermodynamic properties

Heat capacity (see also Thermodynamic properties)


Heat of combustion (see also Thermodynamic properties)


Heat of formation (see also Thermodynamic properties)


Heat of Solution

Heavy particle collision cross section


High energy reaction cross section

NN and ND Interactions [above 0.5 GeV/e]-A Compilation (UCRL-20000 NN)—Particle Data Group (1970).
$K^0\bar{\nu}$ Interactions—A Compilation (LBL-55)—Particle Data Group (1972).
$\pi N$ Partial Wave Amplitudes (UCRL-20030 $\pi N$)—Particle Data Group (1970).
$\nu N$ and $\bar{\nu} N$ Interactions—A Compilation (LBL-58)—Particle Data Group (1972).

Infrared spectra

See: Vibrational spectra (infrared, Raman)

Intensities, spectral

See: Transition probabilities for atoms and molecules

Interatomic distances

See: Molecular structure

Ion-molecule reaction cross section


Ionization potentials (see also Atomic energy levels and spectra)


Joule-Thompson coefficient


Kinetic rate constants

See: Rate constants of chemical reactions

Lattice constants


Line strengths

See: Transition probabilities for atoms and molecules
Asymmetric rotor properties

Line widths

See: Spectral line widths

Magnetic moments of molecules


Melting point


Micelle concentration

See: Critical micelle concentration

Microwave spectra

See: Rotational spectra

Molecular energy levels and constants

Tables of Molecular Vibrational Frequencies, Part 1—T. Shimanouchi, NSRDS-NBS-6 (1967).
Tables of Molecular Vibrational Frequencies, Part 3—T. Shimanouchi, NSRDS-NBS-17 (1968).


Molecular spectra

See: Electronic molecular spectra
Rotational spectra
Vibrational spectra (infrared, Raman)

Molecular structure


Optical spectra

See: Electronic molecular spectra

Oscillator strengths

See: Transition probabilities for atoms and molecules

Osmotic coefficient


Pair production cross section


Particle data

See: Fundamental particle properties

Phase transition pressures

Phase transition temperatures


Photon cross section


Potential energy curves for atoms and molecules


PVT surface

See: Equation of state

Raman spectra

See: Vibrational spectra (infrared, Raman)

Rate constants of chemical reactions


Resistivity, electrical

See: Electrical resistivity

Rotational constants

See: Molecular energy levels and constants

Rotational spectra


Specific gravity
See: Density

Specific heat
See: Heat capacity
Thermodynamic properties

Spectra
See: Atomic energy levels and spectra
Electronic molecular spectra
Rotational spectra
Vibrational spectra (infrared, Raman)

Spectral line widths

Structure, crystal
See: Crystal structure

Structure, molecular
See: Molecular structure

Superconducting transition temperature

Supersaturation ratio
See: Critical supersaturation ratio

Surface tension


Thermal conductivity


Thermal expansion coefficient

Thermodynamic properties: enthalpy, entropy, Gibbs energy, heat capacity (see also Heat of formation, Heat capacity, and other individual properties)


Transition probabilities for atoms and molecules


Transport properties

See: Diffusion coefficient

Thermal conductivity

Viscosity

Vapor pressure (see also Equation of state)


Vibrational frequencies of molecules (see also Molecular energy levels and constants)

Tables of Molecular Vibrational Frequencies, Part 1—T. Shimanouchi, NSRDS-NBS-6 (1967).


Tables of Molecular Vibrational Frequencies, Part 3—T. Shimanouchi, NSRDS-NBS-17 (1968).


Vibrational spectra (infrared, Raman)


Tables of Molecular Vibrational Frequencies, Part 1—T. Shimanouchi, NSRDS-NBS-6 (1967).


Tables of Molecular Vibrational Frequencies, Part 3—T. Shimanouchi, NSRDS-NBS-17 (1968).


Evaluated Infrared Reference Spectra—Coblentz Society.

Virial coefficients

See: Equation of state

Viscosity


Wavelengths of spectral lines

See: Atomic energy levels and spectra

Electronic molecular spectra

Rotational spectra

Vibration spectra (infrared, Raman)

X-ray energy levels and wavelengths

Property Index to NSRDS Data Compilations, 1964-1972

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Cumulative property index; data compilations; National Standard Reference Data System.
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National Standard Reference Data Series—Provides quantitative data on the physical and chemical properties of materials, compiled from the world’s literature and critically evaluated. Developed under a worldwide program coordinated by NBS. Program under authority of National Standard Data Act (Public Law 90-396).

NOTE: At present the principal publication outlet for these data is the Journal of Physical and Chemical Reference Data (JPCRD) published quarterly for NBS by the American Chemical Society (ACS) and the American Institute of Physics (AIP). Subscriptions, reprints, and supplements available from ACS, 1155 Sixteenth St. N. W., Wash. D. C. 20036.

Building Science Series—Disseminates technical information developed at the Bureau on building materials, components, systems, and whole structures. The series presents research results, test methods, and performance criteria related to the structural and environmental functions and the durability and safety characteristics of building elements and systems.

Technical Notes—Studies or reports which are complete in themselves but restrictive in their treatment of a subject. Analogous to monographs but not so comprehensive in scope or definitive in treatment of the subject area. Often serve as a vehicle for final reports of work performed at NBS under the sponsorship of other government agencies.

Voluntary Product Standards—Developed under procedures published by the Department of Commerce in Part 10, Title 15, of the Code of Federal Regulations. The purpose of the standards is to establish nationally recognized requirements for products, and to provide all concerned interests with a basis for common understanding of the characteristics of the products. NBS administers this program as a supplement to the activities of the private sector standardizing organizations.


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