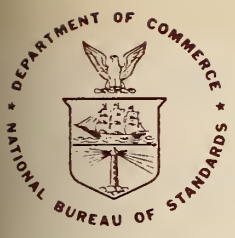

NBS TECHNICAL NOTE 1005

U.S. DEPARTMENT OF COMMERCE / National Bureau of Standards

Publications and Services of the Cryogenics Division National Bureau of Standards 1953 - 1977

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CRYOGENICS DIVISION
NATIONAL BUREAU OF STANDARDS
Boulder, Colorado 80303

THERMOPHYSICAL PROPERTIES DIVISION 736 (Formerly Cryogenics Division)

Develops accurate and reliable cryogenic measurement methods; measures properties of cryogenic liquids, solids, and systems; gathers, evaluates, and compiles the world's literature on research and development at cryotemperatures; performs scientific and engineering research, as well as consulting services, for Federal agencies, public institutions, and industrial associations; and aids in developing codes, standards, and recommended practices for safe handling of liquefied gases.

FLUID DYNAMICS

Investigates the fundamental principles of cryogenic measurements and performs research on the basic phenomena that may be applied to cryogenic instruments; operates and maintains two cryogenic fluid standard reference facilities, one determines the flow rates for liquid nitrogen, the other density standards for liquefied natural gas (LNG); provides the cryogenic industry with innovative ideas for the optimum performance of cryogenic systems; fluid dynamics functions help to promote and establish cryogenic standard practices and procedures.

CRYOGENIC DATA CENTER

Surveys the world's literature on low-temperature science and technology; catalogs and stores on magnetic tape for computer retrieval data and references concerning cryogenic properties of materials and cryogenic engineering; compiles custom bibliographies; publishes four subscription services (Current Awareness Service, Superconducting Devices and Materials, Liquefied Natural Gas and Hydrogen-Future Fuel); provides computer programs for the thermodynamic and transport properties of gases.

FLUID PROPERTIES

Measures and critically evaluates thermodynamic, transport, and electromagnetic properties data for compressed and liquefied gases and their mixtures--critically evaluated data are used to prepare comprehensive tables of Standard Reference Data and for the development of empirical equations of state to predict the properties of pure fluids and mixtures; studies components of liquefied natural gas (LNG)--methane, ethane, propane, butanes, and nitrogen; provides liquefied natural gas (LNG) thermophysical properties data, improved structural and insulation materials, custody transfer measurement technology and consultation and advisory services in support of the LNG industry and related government agencies.

PROPERTIES OF SOLIDS

Performs basic and applied research on the physical and metallurgical properties of solids in the temperature range 2 K to 300 K; obtains materials property information to support a growing interest in the design and application of superconducting electrical machinery and energy systems; performs research on impurity-grain boundary interactions in high-purity metals, x-ray and electron microscopy studies of lattice defects, martensitic phase transformations, and detailed investigation (using controlled laser heating) of burning metals in gaseous oxygen.

Contents

Publications and Services of the Cryogenics Division
National Bureau of Standards
1953 - 1977

D. J. Frizén and J. R. Mendenhall

This NBS Technical Note catalogs the publications of the Cryogenics Division, along with author and subject indexes, for the period 1953 through 1977. It also contains a listing of available thermodynamic properties charts, bibliographies, and miscellaneous reports of cryogenic interest.

A resumé of the activities of and services provided by the Cryogenics Division is also included.

Key words: Author indexes; bibliography; cryogenics; liquefaction; metrology; properties of fluids; properties of solids; subject indexes; superconductivity; transport processes.

Introduction

In August 1973, the National Bureau of Standards, Cryogenic Data Center, published NBS Technical Note 639, which included all previous lists of publications and supplements resulting from the work of the NBS-Cryogenics Division for the period 1953 - 1972. Since that date, nine supplements have been issued. This Technical Note updates and supersedes NBS Technical Note 639 and covers the entire period 1953 - 1977. A number of indexes, including subject and author, are included as well as information regarding other services of the Cryogenic Data Center and the Cryogenics Division.

Future supplements to this list of publications are available to anyone asking to be placed on the mailing list. Request for inclusion on the mailing list should be directed to Thermophysical Properties Division, Center for Mechanical Engineering and Process Technology, National Engineering Laboratory, Boulder, Colorado 80303, Attn: Deborah Frizén, Cryogenic Data Center.

CRYOGENICS DIVISION
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List of Publications

NOTICE: Copies of these publications may be obtained as indicated by the superscripts at the end of each item. The superscripts refer to availability and are listed on page 62.

R-1 THE VAPOR PRESSURES OF THE DEUTEROMETHANES, by G. T. Armstrong, F. G. Brickwedde and R. B. Scott. J. Chem. Phys. Vol 21, No. 7, 1297-8 (Jul 1953). (PB172000)[1]

R-2 NBS-AEC CRYOGENIC ENGINEERING LABORATORY. Nat. Bur. Stand. (U.S.), Tech. News Bull. Vol 37, No. 10, 152-8 (Oct 1953). (PB172001)[1]

R-3 LOW-TEMPERATURE LIQUID-LEVEL INDICATOR FOR CONDENSED GASES. Nat. Bur. Stand. (U.S.), Tech. News Bull. Vol 38, No. 1, 3-4 (Jan 1954). (PB172002)[1]

R-4 LIQUID LEVEL INDICATOR FOR CONDENSED GASES AT LOW TEMPERATURES, by W. E. Williams and E. Maxwell. Rev. Sci. Instrum. Vol 25, No. 2, 111-4 (Feb 1954). (PB172003)[1]

R-5 THERMAL CONDUCTIVITY OF METALS AND ALLOYS AT LOW TEMPERATURES, by R. L. Powell and W. A. Blanpied. Nat. Bur. Stand. (U.S.), Circ. No. 556 68 pages (Sep 1954). (COM73-50843)[7]

R-6 ADVANCES IN CRYOGENIC ENGINEERING (Proc. 1954 Cryogenic Engineering Conf., Sept. 8-10, Boulder, Colorado; K. D. Timmerhaus, Editor) Vol 1. Plenum Press, New York (1960). (Plenum Press, New York - $39.50)[4]

R-7 A FEW REMARKS ON THE BEGINNINGS OF THE NBS-AEC CRYOGENIC ENGINEERING LABORATORY, by F. G. Brickwedde. Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 1-4. Plenum Press, New York (1960). (PB172005)[1]

R-8 EXPERIMENTAL DEWARS DEVELOPED BY THE NATIONAL BUREAU OF STANDARDS, by B. W. Birmingham, E. H. Brown, C. R. Class and A. F. Schmidt. Paper B-1 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 49-61. Plenum Press, New York (1960). (PB172006)[1]

R-9 A RE-LIQUEFYING HYDROGEN REFRIGERATOR, by G. E. McIntosh, D. Mann, J. Macinko and P. C. Vander Arend. Paper B-2 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 62-76. Plenum Press, New York (1960). (PB172007)[1]

R-10 JOINING ALUMINUM TO STAINLESS STEEL, by M. C. Smith and D. D. Rabb. Paper B-3 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 77-86. Plenum Press, New York (1960). (PB172008)[1]

R-11 THE TRANSFER OF LIQUEFIED GASES, by R. B. Jacobs, R. J. Richards and S. B. Schwartz. Paper B-4 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 87-94. Plenum Press, New York (1960). (PB172009)[1]

R-12 A TRANSFER LINE FOR LIQUEFIED GASES, by K. B. Martin and O. E. Park. Paper B-5 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 95-104. Plenum Press, New York (1960). (PB172010)[1]

R-13 PERFORMANCE OF AN AIR EXPANSION ENGINE, by J. E. Jensen. Paper B-6 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 105-10. Plenum Press, New York (1960). (PB172011)[1]

R-14 A HIGH-VACUUM SEAL-OFF VALVE, by R. J. Richards. (a) Paper B-7 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 111-3. Plenum Press, New York (1960). (Out of print). (b) Rev. Sci. Instrum. Vol 25, 520-1 (May 1954). (PB172012)[1]

R-15 CONTINUOUS ANALYSIS OF ORTHO-PARAHYDROGEN MIXTURES, by D. H. Weitzel and R. L. Hershey. Paper C-2 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 122-5. Plenum Press, New York (1960). (PB172013)[1]

R-16 A HYDROGEN GAS METER UNIT WITH REMOTE TOTALIZATION OF FLOW, by R. H. Kropschot. Paper C-4 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 131-7. Plenum Press, New York (1960). (PB172014)[1]

R-17 PULSATION DAMPING, by C. R. Myer. Paper C-5 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 138-43. Plenum Press, New York (1960). (PB172015)[1]

R-18 THERMISTOR INDICATING FLOWMETER FOR LOW RATES OF NITROGEN AND HYDROGEN GASES, by J. W. Allen, M. M. Fulk and M. M. Reynolds. Paper D-1 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 151-3. Plenum Press, New York (1960). (PB172016)[1]

R-19 A SENSITIVE ELECTRONIC LIQUID LEVEL INDICATOR FOR CONDENSED GASES, by D. W. Braudway, S. B. Schwartz and J. W. Allen. Paper D-2 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 154-5. Plenum Press, New York (1960). (PB172017)[1]

R-20 LOW TEMPERATURE ELECTRICAL RESISTANCE OF FIFTEEN COMMERCIAL CONDUCTORS, by O. E. Park, M. M. Fulk and M. M. Reynolds. Paper D-3 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 156-7. Plenum Press, New York (1960). (PB172018)[1]

R-21 CARBON RESISTORS AND VARIABLE DIFFERENTIAL TRANSFORMERS FOR LIQUID LEVEL INDICATION, by S. B. Schwartz and A. E. Wilson. Paper D-4 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 158-61. Plenum Press, New York (1960). (PB172019)[1]

R-22 MODIFICATION OF A CALORIMETRIC OXYGEN DETECTOR FOR USE WITH NON-EQUILIBRIUM HYDROGEN, by A. E. Wilson, S. B. Schwartz and R. J. Corruccini. Paper D-6 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 164-7. Plenum Press, New York (1960). (PB172020)[1]

R-23 TRACE OXYGEN ANALYSIS FOR LIQUID HYDROGEN PRODUCTION, by E. Catalano. Paper D-8 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 169-70. Plenum Press, New York (1960). (PB172021)[1]

R-24 VACUUM POWDER INSULATION, by M. M. Reynolds, J. D. Brown, M. M. Fulk, O. E. Park and G. W. Curtis. Paper F-2 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 216-23. Plenum Press, New York (1960). (PB172022)[1]

R-25 THERMAL RADIATION ABSORPTION BY METALS, by M. M. Fulk, M. M. Reynolds and O. E. Park. Paper F-3 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 224-9. Plenum Press, New York (1960). (PB172023)[1]

R-26 THE MECHANICAL PROPERTIES TESTING PROGRAM AT THE NBS-AEC CRYOGENIC ENGINEERING LABORATORY, by R. H. Kropschot. Paper G-1 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 235-41. Plenum Press, New York (1960). (PB172024)[1]

R-27 THERMAL CONDUCTIVITY OF SOLIDS AT LOW TEMPERATURES, by R. L. Powell and D. O. Coffin. Paper G-5 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 262-6. Plenum Press, New York (1960). (PB172025)[1]

R-28 ORTHO-PARAHYDROGEN CONVERSION STUDIES, by P. L. Barrick, D. H. Weitzel and T. W. Connolly. Paper H-4 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol 1, 285-90. Plenum Press, New York (1960). (PB172026)[1]

R-29 VIBRATION TESTING OF AIRBORNE CRYOGENIC EQUIPMENT, by P. R. Weaver, W. E. Smull and E. H. Brown. Paper H-6 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol I, 296-301. Plenum Press, New York (1960). (PB172027)[1]

R-30 PERFORMANCE OF NBS HYDROGEN LIQUEFIER PLANT, by V. J. Johnson and W. A. Wilson. Paper J-4 in Advances in Cryogenic Engineering (Proc. 1954 Cryogenic Engineering Conf.) Vol I, 329-35. Plenum Press, New York (1960). (PB172028)[1]

R-31 CONTINUOUS ANALYSIS OF ORTHOPARAHYDROGEN MIXTURES, by D. H. Weitzel and L. E. White. Rev. Sci. Instrum. Vol 26, No. 3, 290-2 (Mar 1955). (PB172029)[1]

R-32 LOW-TEMPERATURE THERMAL CONDUCTIVITY OF A FREE-MACHINING COPPER, by R. L. Powell and D. O. Coffin. Rev. Sci. Instrum. Vol 26, No. 5, 516 (May 1955). (PB172030)[1]

R-33 VALVE FOR COLD FLUIDS, by R. J. Richards and R. B. Jacobs. Rev. Sci. Instrum. Vol 26, No. 730 (Jul 1955). (PB172031)[1]

R-34 VAPOR PRESSURES OF THE METHANES, by G. T. Armstrong, F. G. Brickwedde and R. B. Scott. J. Res. Nat. Bur. Stand. (U.S.), Vol 55, No. 1, 39-52 (Jul 1955). (PB172032)[1]

R-35 ACTIVITIES OF THE NATIONAL BUREAU OF STANDARDS CRYOGENIC ENGINEERING LABORATORY, by R. B. Scott. In Conference de Physique des Basses Temperatures (Paris, France, Sept. 2-8, 1955) Communication, 368-71. (PB172033)[1]

R-36 SOME ASPECTS OF THE LARGE SCALE LIQUEFACTION OF HYDROGEN, by B. W. Birmingham. Paper 55-2-1 in Proc. Instrum. Soc. Amer. Vol 10, pt. 2, 1-4 (Sep 12-16, 1955). (PB172034)[1]

R-37 LOW TEMPERATURE SCALES FROM 90° to 5° K, by R. B. Scott. In Temperature, Its Measurement and Control in Science and Industry Vol 2, 179-84. Reinhold-Van Nostrand, New York (1955). (PB172035)[1]

R-38 IRON CATALYST FOR PRODUCTION OF LIQUID PARA-HYDROGEN, by D. H. Weitzel and O. E. Park. Rev. Sci. Instrum. Vol 27, No. 1, 57-8 (Jan 1956). (PB172036)[1]

R-39 CRYOGENIC ENGINEERING CONFERENCE. Nat. Bur. Stand. (U. S.), Tech. News Bull. Vol 40, No. 11, 165-6 (Nov 1956). (PB172037)[1]

R-40 HEAT CONDUCTION THROUGH INSULATING SUPPORTS IN VERY LOW TEMPERATURE EQUIPMENT, by R. P. Mikesell and R. B. Scott. J. Res. Nat. Bur. Stand. (U. S.), Vol 57, No. 6, 371-8 (Dec 1956). (PB172038)[1]

R-41 ADVANCES IN CRYOGENIC ENGINEERING (Proc. 1956 Cryogenic Engineering Conf., Sept. 5-7, Boulder, Colorado; K. D. Timmerhaus, Editor) Vol 2. Plenum Press, New York (1960). (Plenum Press, New York - $39.50)[4]

R-42 CATALYSIS OF THE ORTHO-PARAHYDROGEN CONVERSION, by D. H. Weitzel, J. W. Draper, O. E. Park, K. D. Timmerhaus and C. C. Van Valin. Paper A-3 in Advances in Cryogenic Engineering (Proc. 1956 Cryogenic Engineering Conf.) Vol 2, 12-8. Plenum Press, New York (1960). (PB172039)[1]

R-43 A NEW ARRANGEMENT FOR ORTHO-PARA CONVERSION OF LIQUID HYDROGEN IN THE LARGE CEL-NBS LIQUEFIER, by V. J. Johnson. Paper A-4 in Advances in Cryogenic Engineering (Proc. 1956 Cryogenic Engineering Conf.) Vol 2, 19-26. Plenum Press, New York (1960). (PB172040)[1]

R-44 DISTILLATION OF HYDROGEN-DEUTERIUM MIXTURES, by T. M. Flynn, D. H. Weitzel, K. D. Timmerhaus, P. C. Vander Arend and J. W. Draper. Paper A-6 in Advances in Cryogenic Engineering (Proc. 1956 Cryogenic Engineering Conf.) Vol 2, 39-44. Plenum Press, New York (1960). (PB172041)[1]

R-45 BREATHING OXYGEN STORAGE DEWARS, by W. A. Wilson. Paper B-1 in Advances in Cryogenic Engineering (Proc. 1956 Cryogenic Engineering Conf.) Vol 2, 54-8. Plenum Press, New York (1960). (PB172042)[1]

R-46 MECHANICAL PROPERTIES OF SOME ENGINEERING MATERIALS BETWEEN 20°K AND 300°K, by R. H. Kropschot, R. M. McClintock and D. A. Van Gundy. Paper C-2 in Advances in Cryogenic Engineering (Proc. 1956 Cryogenic Engineering Conf.) Vol 2, 93-9. Plenum Press, New York (1960). (PB172043)[1]

R-47 AN EXPERIMENTAL STUDY OF THE STRENGTH AND FATIGUE OF GLASS AT VERY LOW TEMPERATURES, by R. H. Kropschot and R. P. Mikesell. Paper D-5 in Advances in Cryogenic Engineering (Proc. 1956 Cryogenic Engineering Conf.) Vol 2, 136-44. Plenum Press, New York (1960). (PB172044)[1]

R-48 CHARACTERISTICS OF SOME INSULATIONS FOR LIQUID OXYGEN TRANSFER LINES, by D. A. Van Gundy and R. B. Jacobs. Paper E-1 in Advances in Cryogenic Engineering (Proc. 1956 Cryogenic Engineering Conf.) Vol 2, 156-62. Plenum Press, New York (1960). (PB172045)[1]

R-49 HEAT TRANSFER THROUGH FOAMS AND POWDERS, by M. M. Fulk, R. J. Devereux and J. E. Schrodt. Paper E-2 in Advances in Cryogenic Engineering (Proc. 1956 Cryogenic Engineering Conf.) Vol 2, 163-5. Plenum Press, New York (1960). (PB172046)[1]

R-50 THERMAL CONDUCTIVITIES OF COPPER AND COPPER ALLOYS, by R. L. Powell, W. M. Rogers and H. M. Roder. Paper E-3 in Advances in Cryogenic Engineering (Proc. 1956 Cryogenic Engineering Conf.) Vol 2, 166-71. Plenum Press, New York (1960). (PB172047)[1]

R-51 CRYOGENIC CHARACTERISTICS OF WIRE RESISTANCE STRAIN GAGES, by R. M. McClintock. Paper E-4 in Advances in Cryogenic Engineering (Proc. 1956 Cryogenic Engineering Conf.) Vol 2, 172-6. Plenum Press, New York (1960). (PB172048)[1]

R-52 PERFORMANCE OF PUMPS WITH LIQUEFIED GASES, by K. B. Martin, R. B. Jacobs and R. J. Hardy. Paper G-6 in Advances in Cryogenic Engineering (Proc. 1956 Cryogenic Engineering Conf.) Vol 2, 295-302. Plenum Press, New York (1960). (PB172049)[1]

R-53 LONG DISTANCE TRANSFER OF LIQUEFIED GASES, by R. B. Jacobs. Paper G-7 in Advances in Cryogenic Engineering (Proc. 1956 Cryogenic Engineering Conf.) Vol 2, 303-17. Plenum Press, New York (1960). (PB172050)[1]

R-54 A LARGE LIQUID HYDROGEN BUBBLE CHAMBER, by D. B. Chelton, D. B. Mann and R. A. Byrns. Paper H-2 in Advances in Cryogenic Engineering (Proc. 1956 Cryogenic Engineering Conf.) Vol 2, 325-9. Plenum Press, New York (1960). (PB172051)[1]

R-55 VACUUM-INSULATED TRANSFER TUBE, by R. B. Jacobs and R. J. Richards. Rev. Sci. Instrum. Vol 28, No. 4, 291-2 (Apr 1957). (PB172052)[1]

R-56 STRENGTH AND FATIGUE OF GLASS AT VERY LOW TEMPERATURES, by R. H. Kropschot and R. P. Mikesell. J. Appl. Phys. Vol 28, No. 5, 610-4 (May 1957). (PB172053)[1]

R-57 VESSELS FOR STORAGE AND TRANSPORT OF LIQUID HYDROGEN, by B. W. Birmingham, E. H. Brown, C. R. Class and A. F. Schmidt. J. Res. Nat. Bur. Stand. (U.S.), Vol 58, No. 5, 243-53 (May 1957). (PB172054)[1]

R-58 POWDERS FOR LOW-TEMPERATURE INSULATION. Nat. Bur. Stand. (U.S.), Tech. News Bull. Vol 41, No. 6, 87 (Jun 1957). (PB172055)[1]

R-59 THERMAL DESIGN OF LARGE STORAGE VESSELS FOR LIQUID HYDROGEN AND HELIUM, by R. B. Scott. J. Res. Nat. Bur. Stand. (U.S.), Vol 58, No. 6, 317-25 (Jun 1957). (PB172056)[1]

R-60 DIRECT-COUPLED POWER AMPLIFIER FOR CRYOSTAT HEATING CONTROL, by R. D. Goodwin and J. R. Purcell. Rev. Sci. Instrum. Vol 28, No. 7, 581-2 (Jul 1957). (PB172057)[1]

R-61 A MECHANICAL REFRIGERATION PROCESS FOR THE NO-LOSS STORAGE OF LIQUID HYDROGEN, by B. W. Birmingham. Refrig. Eng. Vol 65, No. 7, 42-4 (Jul 1957). (PB172058)[1]

R-62 SINGLE-PHASE TRANSFER OF LIQUEFIED GASES, by R. B. Jacobs. Nat. Bur. Stand. (U.S.) Circ. No. 596, 42 pages (Aug 1957). (PB172059)[2]

R-63 HYDROGEN LIQUEFACTION BY A DUAL PRESSURE PROCESS, by D. B. Chelton, J. Macinko and J. Dean. Refrig. Eng. Vol 65, No. 8, 39-41 (Aug 1957). (PB172060)[1]

R-64 PROPERTIES OF MATERIALS AT LOW TEMPERATURES, by R. J. Corruccini. Chem. Engr. Progr. Vol 53, Part 1, 262-7; Part 2, 342-6; Part 3, 397-402 (Jun, Jul, Aug 1957). (PB172061)[1]

R-65 LARGE BUBBLE CHAMBER. Nat. Bur. Stand. (U.S.), Tech. News Bull. Vol 41, No. 9, 129-30 (Sep 1957). (PB172062)[1]

R-66 CATALYST FOR PARAHYDROGEN PRODUCTION. Nat. Bur. Stand. (U.S.), Tech. News Bull. Vol 41, No. 10, 154-7 (Oct 1957). (PB172063)[1]

R-67 AN APPARATUS FOR MEASUREMENT OF THERMAL CONDUCTIVITY OF SOLIDS AT LOW TEMPERATURES, by R. L. Powell, W. M. Rogers and D. O. Coffin. J. Res. Nat. Bur. Stand. (U.S.), Vol 59, No. 5, 349-55 (Nov 1957). (PB172064)[1]

R-68 LOW-TEMPERATURE THERMAL CONDUCTIVITY OF SOME COMMERCIAL COPPERS, by R. L. Powell, H. M. Roder and W. M. Rogers. J. Appl. Phys. Vol 28, No. 11, 1282-8 (Nov 1957). (PB172065

R-69 1957 CRYOGENIC ENGINEERING CONFERENCE, Nat. Bur. Stand. (U.S.), Tech. News Bull. Vol 41, No. 11, 177-8 (Nov 1957). (PB172066)[1]

R-70 EMISSIVITIES OF METALLIC SURFACES AT 76°K, by M. M. Fulk and M. M. Reynolds. J. Appl. Phys. Vol 28, No. 12, 1464-7 (Dec 1957). (PB172067)[1]

R-71 HELIUM LIQUEFACTION WITH THE LARGE HYDROGEN LIQUEFIER. Nat. Bur. Stand. (U.S.), Tech. News Bull. Vol 41, No. 12, 197 (Dec 1957). (PB172068)[1]

R-72 ON THE MOST GENERAL FORM OF THE COMPATIBILITY EQUATIONS AND THE CONDITIONS OF INTEGRABILITY OF STRAIN RATE AND STRAIN, by E. H. Brown. J. Res. Nat. Bur. Stand. (U.S. Vol 59, No. 6, 421-6 (Dec 1957). (PB172069)[1]

R-73 ADVANCES IN CRYOGENIC ENGINEERING (Proc. 1957 Cryogenic Engineering Conf., Aug. 19-21, Boulder, Colorado; K. D. Timmerhaus, Editor) Vol 3. Plenum Press, New York (1960). (Plenum Press, New York - $[illegible])[4]

R-74 HYDROGEN LIQUEFACTION CYCLES, by J. Macinko, D. B. Chelton and J. Dean. Paper A-1 in Advances in Cryogenic Engineering (Proc. 1957 Cryogenic Engineering Conf.) Vol 3, 1-10. Plenum Press, New York (1960). (PB172070)[1]

R-75 REMOVAL OF NITROGEN FROM HYDROGEN WITH SILICA GEL AT LOW TEMPERATURES, by V. J. Johnson. Paper A-2 in Advances in Cryogenic Engineering (Proc. 1957 Cryogenic Engineering Conf.) Vol 3, 11-8. Plenum Press, New York (1960). (PB172071)[1]

R-76 SEPARATION OF HYDROGEN ISOTOPES BY MULTICOMPONENT DISTILLATION, by T. M. Flynn, K. D. Timmerhaus, D. H. Weitzel and J. W. Draper. Paper A-6 in Advances in Cryogenic Engineering (Proc. 1957 Cryogenic Engineering Conf.) Vol 3, 58-63. Plenum Press, New York (1960). (PB172072)[1]

R-77 DESIGN DATA FOR ORTHO-PARAHYDROGEN CONVERTERS, by D. H. Weitzel, C. C. Van Valin and J. W. Draper. Paper B-2 in Advances in Cryogenic Engineering (Proc. 1957 Cryogenic Engineering Conf.) Vol 3, 73-84. Plenum Press, New York (1960). (PB172073)[1]

R-78 VAPOR PHASE ORTHO-PARA CONVERSION IN THE LARGE CEL-NBS HYDROGEN LIQUEFIER, by W. A. Wilson and D. H. Weitzel. Paper B-3 in Advances in Cryogenic Engineering (Proc. 1957 Cryogenic Engineering Conf.) Vol 3, 85-91. Plenum Press, New York (1960). (PB172074)[1]

R-79 TECHNICAL ASPECTS OF LARGE SCALE LIQUID HELIUM LIQUEFACTION AND TRANSPORTATION, by D. B. Mann, B. W. Birmingham and P. C. Vander Arend. Paper C-3 in Advances in Cryogenic Engineering (Proc. 1957 Cryogenic Engineering Conf.) Vol 3, 125-35. Plenum Press, New York (1960). (PB172075)[1]

R-80 A UNIQUE THERMAL CONDUCTIVITY GAS ANALYZER, by J. R. Purcell, J. W. Draper and D. H. Weitzel. Paper D-4 in Advances in Cryogenic Engineering (Proc. 1957 Cryogenic Engineering Conf.) Vol 3, 191-5. Plenum Press, New York (1960). (PB172076)[1]

R-81 OPERATION OF BEARINGS AND PUMPS AT LOW TEMPERATURES, by K. B. Martin, R. B. Jacobs and R. J. Hardy. Paper D-6 in Advances in Cryogenic Engineering (Proc. 1957 Cryogenic Engineering Conf.) Vol 3, 209-16. Plenum Press, New York (1960). (PB172077)[1]

R-82 DESIGN OF SIMPLE DC RESISTANCE THERMOMETER BRIDGES FOR WIDE RANGE TEMPERATURE CONTROL, by R. D. Goodwin. Paper E-5 in Advances in Cryogenic Engineering (Proc. 1957 Cryogenic Engineering Conf.) Vol 3, 254-68. Plenum Press, New York (1960). (PB172078)[1]

R-83 CALIBRATION OF THERMOCOUPLES AT LOW TEMPERATURES, by M. D. Bunch and R. L. Powell. Paper E-6 in Advances in Cryogenic Engineering (Proc. 1957 Cryogenic Engineering Conf.) Vol 3, 269-74. Plenum Press, New York (1960). (PB172079)[1]

R-84 EPOXY RESINS AS CRYOGENIC STRUCTURAL ADHESIVES, by R. M. McClintock and M. J. Hiza. (a) Paper F-3 in Advances in Cryogenic Engineering (Proc. 1957 Cryogenic Engineering Conf.) Vol 3, 305-15. Plenum Press, New York (1960). (Out of print). (b) Modern Plastics Vol 35, 172-4, 176, 237 (Jun 1958). (PB172080)[1]

R-85 THE IMPACT TESTING OF VARIOUS ALLOYS AT LOW TEMPERATURES, by R. P. Mikesell and R. P. Reed. Paper F-4 in Advances in Cryogenic Engineering (Proc. 1957 Cryogenic Engineering Conf.) Vol 3, 316-24. Plenum Press, New York (1960). (PB172081)[1]

R-86 CALCULATION OF GASEOUS HEAT CONDUCTION IN DEWARS, by R. J. Corruccini. Paper G-1 in Advances in Cryogenic Engineering (Proc. 1957 Cryogenic Engineering Conf.) Vol 3, 353-66. Plenum Press, New York (1960). (PB172082)[1]

R-87 HEAT TRANSFER TO BOILING LIQUID NITROGEN AND HYDROGEN FLOWING AXIALLY THROUGH NARROW ANNULAR PASSAGES, by R. J. Richards, R. F. Robbins, R. B. Jacobs and D. C. Holten. Paper G-3 in Advances in Cryogenic Engineering (Proc. 1957 Cryogenic Engineering Conf.) Vol 3, 375-89. Plenum Press, New York (1960). (PB172083)[1]

R-88 THERMAL CONDUCTIVITIES OF COMMON COMMERCIAL ALUMINUM ALLOYS, by W. J. Hall, R. L. Powell and H. M. Roder. Paper G-6 in Advances in Cryogenic Engineering (Proc. 1957 Cryogenic Engineering Conf.) Vol 3, 408-15. Plenum Press, New York (1960). (PB172084)[1]

R-89 ELECTRICAL CONTACT RESISTANCE OF COPPER - COPPER JUNCTIONS AT LOW TEMPERATURES, by R. L. Powell and A. A. Aboud. Rev. Sci. Instrum. Vol 29, No. 3, 248-9 (Mar 1958). (PB172085)[1]

R-90 THE JOULE-THOMSON PROCESS IN THE LIQUEFACTION OF HELIUM, by E. H. Brown and J. W. Dean. J. Res. Nat. Bur. Stand. (U.S.), Vol 60, No. 3, 161-8 (Mar 1958). (PB172086)[1]

R-91 ORTHO-PARA CATALYSIS IN LIQUID-HYDROGEN PRODUCTION, by D. H. Weitzel, W. V. Loebenstein, J. W. Draper and O. E. Park. J. Res. Nat. Bur. Stand. (U.S.), Vol 60, No. 3, 221-7 (Mar 1958). (PB172087)[1]

R-92 VALVE, by R. J. Richards and R. B. Jacobs. U.S. Patent No. 2,831,326 (Apr 22, 1958). (50¢)[5]

R-93 CRYOSTAT FOR PRECISE TEMPERATURE CONTROL OVER VERY WIDE RANGE. Nat. Bur. Stand. (U.S.), Tech. News Bull. Vol 42, No. 5, 98 (May 1958). (PB172089)[1]

R-94 LOW-TEMPERATURE STRENGTH OF EPOXY-RESIN ADHESIVES. Nat. Bur. Stand. (U.S.), Tech. News Bull. Vol 42, No. 5, 84-5 (May 1958). (PB172090)[1]

R-95 DESIGN OF SIMPLE RESISTANCE THERMOMETER BRIDGES FOR WIDE-RANGE CONTROL OF LOW TEMPERATURES, by R. D. Goodwin. Rev. Sci. Instrum. Vol 29, No. 6, 497-501 (Jun 1958). (PB172091)[1]

R-96 LOW TEMPERATURE DISTILLATION OF HYDROGEN ISOTOPES, by K. D. Timmerhaus, D. H. Weitzel and T. M. Flynn. Chem. Eng. Progr. Vol 54, No. 6, 35-46 (Jun 1958). (PB172092)[1]

R-97 TABLES OF TRANSPORT INTEGRALS $J_n(x) = \int_0^x \frac{e^z z^n dz}{(e^z-1)^2}$, by W. M. Rogers and R. L. Powell. Nat. Bur. Stand. (U.S.) Circ. No. 595, 46 pages (Jul 1958). (No charge for single copy)[5]

R-98 SOME MECHANICAL PROPERTIES OF MYLAR AND DACRON POLYESTER STRANDS AT LOW TEMPERATURES, by R. P. Reed and R. P. Mikesell. Rev. Sci. Instrum. Vol 29, No. 8, 734-6 (Aug 1958). (PB172094)[1]

R-99 LOW TEMPERATURE PROPERTIES OF PLASTICS FOAMS, by R. M. McClintock. Soc. Plast. Eng. J. Vol 14, No. 11, 36-8 (Nov 1958). (PB172095)[1]

R-100 CRYOGENICS, by V. J. Johnson, Editor; R. J. Corruccini, V. J. Johnson, G. E. McIntosh and R. B. Scott, Contributors. In ASRE Data Book Vol 1, No. 1, Refrigeration Applications. Chapter 45, 45-01 - 45-22. American Society of Refrigeration Engineers, New York (1959). (PB172096)[2]

R-101 LIQUID HELIUM CRYOSTAT WITH AN INTEGRAL SUPERCONDUCTING RESONATOR, by E. Maxwell and A. F. Schmidt. Bull. Inst. Int. Froid Annexe Vol 1958-1, 95-101 (1958). (PB172097)[1]

R-102 THE THERMAL e.m.f. OF SEVERAL THERMOMETRIC ALLOYS, by R. L. Powell and M. D. Bunch. Bull. Inst. Int. Froid Annexe Vol 1958-1, 129-35 (1958). (PB172098)[1]

R-103 THERMAL e.m.f. OF SOME THERMOMETRIC ALLOYS, by M. D. Bunch, R. L. Powell, and R. J. Corruccini. Low Temperature Physics and Chemistry (Proc. Fifth International Conf. on Low Temperature Physics and Chemistry, Aug. 26-31, Madison, Wisconsin; Joseph R. Dillinger, Editor) 484-6. University of Wisconsin Press, Madison (1958). (PB172099)[1]

R-104 THERMAL AND ELECTRICAL CONDUCTIVITY OF ALUMINUM AND ALUMINUM ALLOYS, by W. J. Hall, H. M. Roder and R. L. Powell. Low Temperature Physics and Chemistry (Proc. Fifth International Conf. on Low Temperature Physics and Chemistry, Aug. 26-31, Madison, Wisconsin; Joseph R. Dillinger, Editor) 389-91. University of Wisconsin Press, Madison (1958). (PB172100)[1]

R-105 THERMAL AND ELECTRICAL CONDUCTIVITY OF PURE COPPER, by H. M. Roder, R. L. Powell and W. J. Hall. Low Temperature Physics and Chemistry (Proc. Fifth International Conf. on Low Temperature Physics and Chemistry, Aug. 26-31, Madison, Wisconsin; Joseph R. Dillinger, Editor) 364-6. University of Wisconsin Press, Madison (1958). (PB172101)[1]

R-106 ADVANCES IN CRYOGENIC ENGINEERING (Proc. 1958 Cryogenic Engineering Conf., Sept. 3-5, Massachusetts Institute of Technology, Cambridge, Massachusetts; K. D. Timmerhaus, Editor) Vol 4. Plenum Press, New York (1960). (Plenum Press, New York - $39.50)[4]

R-107 MAGNETIC LOSSES AT LOW TEMPERATURES, by E. H. Brown and J. R. Brennand, Jr. (a) Paper A-5 in Advances in Cryogenic Engineering (Proc. 1958 Cryogenic Engineering Conf.) Vol 4, 65-70. Plenum Press, New York (1960). (PB172102-A)[1] (b) J. Appl. Phys. Vol 30, No. 1, 112-4 (Jan 1959). (PB172102-B)[1]

R-108 THE STABILITY OF AUSTENITIC STAINLESS STEELS AT LOW TEMPERATURES AS DETERMINED BY MAGNETIC MEASUREMENTS, by R. P. Reed and R. P. Mikesell. Paper B-2 in Advances in Cryogenic Engineering (Proc. 1958 Cryogenic Engineering Conf.) Vol 4, 84-100. Plenum Press, New York (1960). (PB172103)[1]

R-109 THE TENSILE AND IMPACT STRENGTH OF ANNEALED AND WELDED 5086 ALUMINUM DOWN TO 20°K, by R. P. Mikesell and R. P. Reed. Paper B-3 in Advances in Cryogenic Engineering (Proc. 1958 Cryogenic Engineering Conf.) Vol 4, 101-13. Plenum Press, New York (1960). (PB172104)[1]

R-110 MECHANICAL PROPERTIES OF INSULATING PLASTIC FOAMS AT LOW TEMPERATURES, by R. M. McClintock. Paper B-6 in Advances in Cryogenic Engineering (Proc. 1958 Cryogenic Engineering Conf.) Vol 4, 132-40. Plenum Press, New York (1960). (PB172105)[1]

R-111 MEASUREMENT OF THE FLOW OF LIQUEFIED GASES WITH SHARP-EDGED ORIFICES, by R. J. Richards, R. B. Jacobs and W. J. Pestalozzi. Paper E-1 in Advances in Cryogenic Engineering (Proc. 1958 Cryogenic Engineering Conf.) Vol 4, 272-85. Plenum Press, New York (1960). (PB172106)[1]

R-112 FLOW CONVERSION KINETICS OF ORTHO AND PARAHYDROGEN, by D. H. Weitzel, J. H. Blake and M. Konecnik. Paper E-2 in Advances in Cryogenic Engineering (Proc. 1958 Cryogenic Engineering Conf.) Vol 4, 286-95. Plenum Press, New York (1960). (PB172107)[1]

R-113 POISONING AND REACTIVATION OF ORTHO-PARAHYDROGEN CONVERSION CATALYST, by R. N. Keeler and K. D. Timmerhaus. Advances in Cryogenic Engineering (Proc. 1958 Cryogenic Engineering Conf.) Vol 4, 296-306. Plenum Press, New York (1960). (PB172108)[1]

R-114 PREDICTION OF PRESSURE DROP IN TWO-PHASE SINGLE-COMPONENT FLUID FLOW, by M. R. Hatch. R. B. Jacobs, R. J. Richards, R. N. Boggs and G. R. Phelps. Paper F-4 in Advances in Cryogenic Engineering (Proc. 1958 Cryogenic Engineering Conf.) Vol 4, 357-77. Plenum Press, New York (1960). (PB172109)[2]

R-115 SOME METHODS FOR REDUCING HEAT LEAK THROUGH SUPPORT MEMBERS IN LIQUEFIED GAS STORAGE VESSELS, by R. W. Arnett, L. O. Mullen and K. A. Warren. Paper G-1 in Advances in Cryogenic Engineering (Proc. 1958 Cryogenic Engineering Conf.) Vol 4, 410-7. Plenum Press, New York (1960). (PB172110)[1]

R-116 PILOT PLANT STUDIES OF THE LOW TEMPERATURE DISTILLATION OF HYDROGEN ISOTOPES, by T. M. Flynn, K. D. Timmerhaus and D. H. Weitzel. (a) Paper H-1 in Advances in Cryogenic Engineering (Proc. 1958 Cryogenic Engineering Conf.) Vol 4, 464-75. Plenum Press, New York (1960). (PB172111-A)[1] (b) Colorado Engineer Vol 55, No. 1, 12-5, 20, (Nov 1958). (PB172111-B)[1]

R-117 TESTING AND OPERATION OF BALL BEARINGS SUBMERGED IN LIQUEFIED GASES, by K. B. Martin and R. B. Jacobs. (a) Paper H-2 in Advances in Cryogenic Engineering (Proc. 1958 Cryogenic Engineering Conf.) Vol 4, 476-86. Plenum Press, New York (1960). (Out of print). (b) ASLE Trans. Vol 2, No. 1, 101-7 (Apr 1959). (PB172112)[1]

R-118 WIDE-RANGE CRYOSTAT TEMPERATURE CONTROL, by R. D. Goodwin. Paper H-3 in Advances in Cryogenic Engineering (Proc. 1958 Cryogenic Engineering Conf.) Vol 4, 487-95. Plenum Press, New York (1960). (PB172113)[1]

R-119 SUPPORTING AND HEAT INSULATING MEANS, by B. W. Birmingham, E. H. Brown, R. B. Scott and P. C. Vander Arend. U.S. Patent No. 2,871,042 (Jan 27, 1959). (50¢)[5]

R-120 RADIATION SHIELD CIRCULATION SYSTEM FOR LARGE LIQUEFIED GAS STORAGE CONTAINERS, by D. B. Mann and J. Macinko. U.S. Patent No. 2,871,669 (Feb 3, 1959). (50¢)[5]

R-121 HELIUM LIQUEFACTION AND TRANSPORTATION. Nat. Bur. Stand. (U.S.), Tech. News Bull. Vol 43, No. 2, 30-1 (Feb 1959). (PB172116)[1]

R-122 COOL-DOWN APPARATUS FOR CRYOGENIC LIQUID CONTAINERS, by P. C. Vander Arend and D. B. Mann. U.S. Patent No. 2,882,694 (Apr 21, 1959). (50¢)[5]

R-123 GASEOUS HEAT CONDUCTION AT LOW PRESSURES AND TEMPERATURES, by R. J. Corruccini. Vacuum Vol 7-8, 19-29 (Apr 1957). (PB172118)[1]

R-124 RECENT ADVANCES IN CRYOGENIC ENGINEERING, by R. B. Jacobs. ARS J. Vol 29, 245-51 (Apr 1959). (PB172119)[1]

R-125 THE VAPOR PRESSURES OF SOME HYDROCARBONS IN THE LIQUID AND SOLID STATE AT LOW TEMPERATURES, by W. T. Ziegler. Nat. Bur. Stand. (U.S.) Tech. Note No. 4, 17 pages (May 1959). (PB151363)[2]

R-126 THERMODYNAMIC PROPERTIES OF HELIUM AT LOW TEMPERATURES AND HIGH PRESSURES, by D. B. Mann and R. B. Stewart. Nat. Bur. Stand. (U.S.) Tech. Note No. 8, 39 pages (May 1959). (PB151367)[2]

R-127 DIRECT MEASUREMENT OF NET POSITIVE SUCTION HEAD, by R. B. Jacobs, K. B. Martin and R. J. Hardy. J. Basic Eng. Vol 81, No. 2, 147-52 (Jun 1959). (PB172120)[1]

R-128 LOW-TEMPERATURE DISTILLATION OF HYDROGEN ISOTOPES. Nat. Bur. Stand. (U.S.), Tech. News Bull. Vol 43, No. 6, 116-8 (Jun 1959). (PB172121)[1]

R-129 LOW-TEMPERATURE TRANSPORT PROPERTIES OF COPPER AND ITS DILUTE ALLOYS: PURE COPPER, ANNEALED AND COLD-DRAWN, by R. L. Powell, H. M. Roder and W. J. Hall. Phys. Rev. Vol 115, No. 2, 314-23 (Jul 1959). (PB172122)[1]

R-130 PROVIDING LIQUID REFRIGERANTS TO RESEARCH WORKERS. Nat. Bur. Stand.(U.S.), Tech. News Bull. Vol 43, No. 8, 146-7 (Aug 1959). (PB172123)[1]

R-131 STRAIN GAUGE CALIBRATION DEVICE FOR EXTREME TEMPERATURES, by R. M. McClintock. Rev. Sci. Instrum. Vol 30, No. 8, 715-8 (Aug 1959). (PB172124)[1]

R-132 CRYOGENIC ENGINEERING OF HYDROGEN BUBBLE CHAMBERS, by B. W. Birmingham, D. B. Chelton, D. B. Mann and H. P. Hernandez. ASTM Bull. No. 240, 34-9 (Sep 1959). (PB172125)[1]

R-133 CRYOGENIC INSULATION, by R. H. Kropschot. Amer. Soc. Heat Refrig. Air Cond. Eng. J. Vol 1, No. 9, 48-54 (Sep 1959). (PB172126)[1]

R-134 LOW-TEMPERATURE TENSILE PROPERTIES OF COPPER AND FOUR BRONZES, by R. M. McClintock, D. A. Van Gundy and R. H. Kropschot. ASTM Bull. No. 240, 47-50 (Sep 1959). (PB172127)[1]

R-135 TABLES OF TRANSPORT INTEGRALS: A SUPPLEMENT, by W. M. Rogers, W. J. Hall and R. L. Powell. J. Res. Nat. Bur. Stand. (U.S.), Sect. B, Vol 63, No. 1, 23-30 (Jul-Sep 1959). (PB172128)[1]

R-136 THERMODYNAMIC PROPERTIES OF HELIUM AT LOW TEMPERATURES AND HIGH PRESSURES, by D. B. Mann and R. B. Stewart. J. Heat Transfer Vol 81, No. 4, 323-6 (Nov 1959). (PB172129)[1]

R-137 CRYOGENIC ENGINEERING, by R. B. Scott. Reinhold Van Nostrand, New York (1959). (Out of print).

R-138 EVACUATED POWDER INSULATION FOR LOW TEMPERATURES, by M. M. Fulk. Progr. Cryog. Vol 1, 63-84 (1959). (PB172130)[2]

R-139 ADVANCES IN CRYOGENIC ENGINEERING (Proc. 1959 Cryogenic Engineering Conf., Sept. 2-4, University of California, Berkeley, California; K. D. Timmerhaus, Editor) Vol 5. Plenum Press, New York (1960). (Out of print).

R-140 TRANSFER OF LIQUID HYDROGEN THROUGH UNINSULATED LINES, by R. J. Richards, W. G. Steward and R. B. Jacobs. Paper B-4 in Advances in Cryogenic Engineering (Proc. 1959 Cryogenic Engineering Conf.) Vol 5, 103-10. Plenum Press, New York (1960). (PB172131)[1]

R-141 METAL POWDER ADDITIVES IN EVACUATED-POWDER INSULATION, by B. J. Hunter, R. H. Kropschot, J. E. Schrodt, and M. M. Fulk. Paper C-3 in Advances in Cryogenic Engineering, (Proc. 1959 Cryogenic Eng. Conf.) Vol 5, 146-56. Plenum Press, New York (1960). (PB172132)[1]

R-142 A STUDY OF CONDENSING-VACUUM INSULATION, by D. A. Van Gundy, L. O. Mullen and R. B. Jacobs. Paper C-5 in Advances in Cryogenic Engineering (Proc. 1959 Cryogenic Engineering Conf.) Vol 5, 162-70. Plenum Press, New York (1960). (PB172133)[1]

R-143 MULTIPLE-LAYER INSULATION, by R. H. Kropschot, J. E. Schrodt, M. M. Fulk and B. J. Hunter. Paper D-2 in Advances in Cryogenic Engineering (Proc. 1959 Cryogenic Engineering Conf.) Vol 5, 189-98. Plenum Press, New York (1960). (PB172134)[1]

R-144 THE VENTURI TUBE AS A LIQUEFIED-GAS FLOW MEASURING DEVICE, by J. R. Purcell, A. F. Schmidt and R. B. Jacobs. Paper F-2 in Advances in Cryogenic Engineering (Proc. 1959 Cryogenic Engineering Conf.) Vol 5, 282-8. Plenum Press, New York (1960). (PB172135)[1]

R-145 DESIGN, CONSTRUCTION, AND PERFORMANCE OF A LABORATORY-SIZE HELIUM LIQUEFIER, by D. B. Mann, W. R. Bjorklund, J. Macinko and M. J. Hiza. Paper G-5 in Advances in Cryogenic Engineering (Proc. 1959 Cryogenic Engineering Conf.) Vol 5, 346-53. Plenum Press, New York (1960). (PB172136)[1]

R-146 THE STRENGTH OF TEN STRUCTURAL ADHESIVES AT TEMPERATURES DOWN TO -424°F, by W. M. Frost. Paper H-1 in Advances in Cryogenic Engineering (Proc. 1959 Cryogenic Engineering Conf.) Vol 5, 375-84. Plenum Press, New York (1960). (PB172137)[1]

R-147 SOME MECHANICAL PROPERTIES OF MAGNESIUM ALLOYS AT LOW TEMPERATURES, by R. P. Reed, R. P. Mikesell and R. L. Greeson. (a) Paper H-3 in Advances in Cryogenic Engineering (Proc. 1959 Cryogenic Engineering Conf.) Vol 5, 397-405. Plenum Press, New York (1960). (Out of print). (b) Symposium on Low-Temperature Properties of High-Strength Aircraft and Missle Materials, Spec. Tech. Publ. No. 287, 61-73. American Society for Testing Materials, Philadelphia, Pa. (1960). (PB172138)[1]

R-148 AN EXPERIMENTAL STUDY CONCERNING THE PRESSURIZATION AND STRATIFICATION OF LIQUID HYDROGEN, by A. F. Schmidt, J. R. Purcell, W. A. Wilson and R. V. Smith. (a) Paper J-6 in Advances in Cryogenic Engineering (Proc. 1959 Cryogenic Engineering Conf.) Vol 5, 487-97. Plenum Press, New York (1960). (PB172139-A)[1] (b) Revised version in J. Res. Nat. Bur. Stand.(U.S.), Sect. C, Vol 65, No. 2, 81-7 (Apr-Jun 1961). (PB172139-B)[1]

R-149 A KINETICS STUDY OF ORTHO-PARA HYDROGEN CONVERSION, by R. N. Keeler, D. H. Weitzel, J. H. Blake and M. Konecnik. Paper K-1 in Advances in Cryogenic Engineering (Proc. 1959 Cryogenic Engineering Conf.) Vol 5, 511-7. Plenum Press, New York (1960). (PB172140)[1]

R-150 A COMPILATION AND CORRELATION OF THE P-V-T DATA OF NORMAL HYDROGEN FROM SATURATED LIQUID TO 80°K, by R. B. Stewart and V. J. Johnson. Paper K-7 in Advances in Cryogenic Engineering (Proc. 1959 Cryogenic Engineering Conf.) Vol 5, 557-65. Plenum Press, New York (1960). (PB172141)[1]

R-151 THE CRYOGENIC DATA CENTER, by V. J. Johnson. Paper K-8 in Advances in Cryogenic Engineering (Proc. 1959 Cryogenic Engineering Conf.) Vol 5, 566-74. Plenum Press, New York (1960). (PB172142)[1]

R-152 AN IMPROVED dc POWER REGULATOR, by R. D. Goodwin. Paper L-1 in Advances in Cryogenic Engineering (Proc. 1959 Cryogenic Engineering Conf.) Vol 5, 577-9. Plenum Press, New York (1960). (PB172143)[1]

R-153 DESIGN AND CONSTRUCTION OF A LIQUID HYDROGEN TEMPERATURE REFRIGERATION SYSTEM, by D. B. Chelton, J. W. Dean and B. W. Birmingham. Nat. Bur. Stand. (U.S.) Tech. Note No. 38, 37 pages (Jan 1960). (PB151397)[2]

R-154 HELIUM REFRIGERATION AND LIQUEFACTION USING A LIQUID HYDROGEN REFRIGERATOR FOR PRECOOLING, by D. B. Chelton, J. W. Dean, T. R. Strobrudge, B. W. Birmingham and D. B. Mann. Nat. Bur. Stand. (U.S.), Tech. Note No. 39, 31 pages (Jan 1960). (PB151398)[2]

R-155 EXPANSION ENGINES FOR HYDROGEN LIQUEFIERS, by E. H. Brown. J. Res. Nat. Bur. Stand.(U.S.), Sect. C, Vol 64, No. 1, 25-36 (Jan-Mar 1960). (PB172144)[1]

R-156 TEMPERATURE STRATIFICATION IN A NONVENTING LIQUID HELIUM DEWAR, by L. E. Scott, R. F. Robbins, D. B. Mann and B. W. Birmingham. J. Res. Nat. Bur. Stand.(U.S.), Sect. C, Vol 64, No. 1, 19-23 (Jan-Mar 1960). (PB172145)[1]

R-157 CRYOGENIC PIPING SYSTEM: DESIGN CONSIDERATIONS, by R. B. Jacobs. Heat. Piping Air Cond. Vol 32, 130-40 (Feb 1960). (PB172146)[1]

R-158 LIQUID HYDROGEN FOR CHEMICAL AND NUCLEAR ROCKETS, by R. B. Scott. Discovery Vol 21, 74-7 (Feb 1960). (PB172147)[1]

R-159 SENSITIVE THERMAL CONDUCTIVITY GAS ANALYZER, by J. R. Purcell and R. N. Keeler. Rev. Sci. Instrum. Vol 31, No. 3, 304-6 (Mar 1960). (PB172148)[1]

R-160 LOW-TEMPERATURE TRANSPORT PROPERTIES OF COMMERCIAL METALS AND ALLOYS, II. ALUMINUMS, by R. L. Powell, W. J. Hall and H. M. Roder. J. Appl. Phys. Vol 31, No. 3, 496-503 (Mar 1960). (PB172149)[1]

R-161 LOW-TEMPERATURE TRANSPORT PROPERTIES OF COMMERCIAL METALS AND ALLOYS, III. GOLD-COBALT, by R. L. Powell, M. D. Bunch and E. F. Gibson. J. Appl. Phys. Vol 31, No. 3, 504-5 (Mar 1960). (PB172150)[1]

R-162 LOW-TEMPERATURE STRENGTHS OF METAL ADHESIVES. Nat. Bur. Stand.(U.S.), Tech. News Bull. Vol 44, No. 3, 41-2 (Mar 1960). (PB172151)[1]

R-163 PILOT PLANT DATA FOR HYDROGEN ISOTOPE DISTILLATION, by T. M. Flynn. Chem. Eng. Progr. Vol 56, No. 3, 37-42 (Mar 1960). (PB172152)[1]

R-164 CRYOGENIC PIPING SYSTEM: DESIGN AND INSTALLATION, by R. B. Jacobs. Heat. Piping Air Cond. Vol 32, 142-56 (May 1960). (PB172153)[1]

R-165 A BIBLIOGRAPHY OF THE PHYSICAL EQUILIBRIA AND RELATED PROPERTIES OF SOME CRYOGENIC SYSTEMS, by T. M. Flynn. Nat. Bur. Stand. (U. S.) Tech. Note No. 56, 123 pages (May 1960). (PB161557)[2]

R-166 TRANSFERRING LIQUEFIED GASES BY PIPELINE. Nat. Bur. Stand. (U. S.), Tech. News Bull. Vol 44, No. 5, 80 (May 1960). (PB172154)[1]

R-167 INTERPOLATION OF PLATINUM RESISTANCE THERMOMETERS, 20° TO 273.15°K, by R. J. Corruccini. Rev. Sci. Instrum. Vol 31, No. 6, 637-40 (Jun 1960). (PB172155)[1]

R-168 MECHANICAL PROPERTIES OF STRUCTURAL MATERIALS AT LOW TEMPERATURES; A COMPILATION FROM THE LITERATURE, by R. M. McClintock and H. P. Gibbons. Nat. Bur. Stand. (U. S.), Monogr. No. 13, 180 pages (Jun 1960). (PB172156)[2]

R-169 CLOSED CIRCUIT LIQUID HYDROGEN REFRIGERATION SYSTEM, by D. B. Chelton, J. W. Dean and B. W. Birmingham. Rev. Sci. Instrum. Vol 31, No. 7, 712-6 (Jul 1960). (PB172157)[1]

R-170 LOW-TEMPERATURE TRANSPORT PROPERTIES OF COMMERCIAL METALS AND ALLOYS. IV. REACTOR GRADE Be, Mo, and W, by R. L. Powell, J. L. Harden and E. F. Gibson. J. Appl. Phys. Vol 31, No. 7, 1221-4 (Jul 1960). (PB172158)[1]

R-171 CARBON RESISTANCE THERMOMETRY WITH MIXED dc AND rf CURRENTS, by J. J. Gniewek and R. J. Corruccini. Rev. Sci. Instrum. Vol 31, No. 8, 899-900 (Aug 1960). (PB172159)[1]

R-172 ON THE PROPERTIES OF THE VAPOR PRESSURE CURVE, by E. H. Brown. Cryogenics Vol 1, No. 1, 37-40 (Sep 1960). (PB172160)[1]

R-173 SPECIFIC HEATS AND ENTHALPIES OF TECHNICAL SOLIDS AT LOW TEMPERATURES; A COMPILATION FROM THE LITERATURE, by R. J. Corruccini and J. J. Gniewek. Nat. Bur. Stand. (U. S.), Monogr. No. 21, 20 pages (Oct 1960). (No charge for single copy)[2]

R-174 CRYOGENIC IMPURITY ADSORPTION FROM HYDROGEN, by M. J. Hiza. Chem. Eng. Progr. Vol 56, No. 10, 68-71 (Oct 1960). (PB172162)[1]

R-175 1960 CRYOGENIC ENGINEERING CONFERENCE. Nat. Bur. Stand. (U. S.), Tech. News Bull. Vol 44, No. 11, 193-7 (Nov 1960). (PB172163)[1]

R-176 LOW TEMPERATURE STATIC SEALS USING ELASTOMERS AND PLASTICS, by D. H. Weitzel, R. F. Robbins, G. R. Bopp and W. R. Bjorklund. Rev. Sci. Instrum. Vol 31, No. 12, 1350-1 (Dec 1960). (PB172164)[1]

R-177 ADVANCES IN CRYOGENIC ENGINEERING (Proc. 1960 Cryogenic Engineering Conf., Aug. 23-25, Boulder, Colorado; K. D. Timmerhaus, Editor) Vol 6. Plenum Press, New York (1961). (Plenum Press, New York - $39.50)[4]

R-178 SUPERCONDUCTING RECTIFIERS, by J. R. Purcell and E. G. Payne. Paper C-2 in Advances in Cryogenic Engineering (Proc. 1960 Cryogenic Engineering Conf.) Vol 6, 149-53. Plenum Press, New York (1961). (PB172165)[1]

R-179 SUPERCONDUCTING MAGNETS, by V. D. Arp and R. H. Kropschot. Paper C-4 in Advances in Cryogenic Engineering (Proc. 1960 Cryogenic Engineering Conf.) Vol 6, 166-73. Plenum Press, New York (1961). (PB172166)[1]

R-180 ELASTOMERS FOR STATIC SEALS AT CRYOGENIC TEMPERATURES, by D. H. Weitzel, R. F. Robbins, G. R. Bopp and W. R. Bjorklund. Paper D-6 in Advances in Cryogenic Engineering (Proc. 1960 Cryogenic Engineering Conf.) Vol 6, 219-27. Plenum Press, New York (1961). (PB172167)[1]

R-181 STUDIES OF THE LOW TEMPERATURE DISTILLATION OF HYDROGEN ISOTOPES, by T. M. Flynn. (a) Paper D-8 in Advances in Cryogenic Engineering (Proc. 1960 Cryogenic Engineering Conf.) Vol 6, 236-44. Plenum Press, New York (1961). (Out of print). (b) Cryogenics Vol 1, No. 2, 96-100 (Dec 1960). (PB172168-A)[1] (c) Bull. Inst. Int. Froid Annexe Vol 1960-1, 51-63 (1960). (PB172168-B)[1]

R-182 TENSILE CRYOSTAT FOR THE TEMPERATURE RANGE 4° TO 300°K, by R. M. McClintock and K. A. Warren. (a) Paper F-4 in Advances in Cryogenic Engineering (Proc. 1960 Cryogenic Engineering Conf.) Vol 6, 372-8. Plenum Press, New York (1961). (Out of print). (b) Mater. Res. Stand. Vol 1, 95-8 (Feb 1961). (PB172169)[1]

R-183 APPROXIMATE WIDE-RANGE EQUATION OF STATE FOR HYDROGEN, by R. D. Goodwin. Paper G-4 in Advances in Cryogenic Engineering (Proc. 1960 Cryogenic Engineering Conf.) Vol 6, 450-6. Plenum Press, New York (1961). (PB172170)[1]

R-184 THE ADSORPTION OF METHANE ON SILICA GEL AT LOW TEMPERATURES, by M. J. Hiza and A. J. Kidnay. Paper G-5 in Advances in Cryogenic Engineering (Proc. 1960 Cryogenic Engineering Conf.) Vol 6, 457-66. Plenum Press, New York (1961). (PB172171)[1]

R-185 LOW-TEMPERATURE THERMOCOUPLE THERMOMETRY, by R. L. Powell, M. D. Bunch and L. P. Caywood. Paper H-6 in Advances in Cryogenic Engineering (Proc. 1960 Cryogenic Engineering Conf.) Vol 6, 537-41. Plenum Press, New York (1961). (PB172172)[1]

R-186 MECHANICAL PROPERTIES OF FOUR AUSTENITIC STAINLESS STEELS AT TEMPERATURES BETWEEN 300° AND 20°K, by C. J. Guntner and R. P. Reed. Paper J-1 in Advances in Cryogenic Engineering (Proc. 1960 Cryogenic Engineering Conf.) Vol 6, 565-76. Plenum Press, New York (1961). (PB172173)[1]

R-187 SIMPLE ADIABATIC DEMAGNETIZATION APPARATUS, by V. D. Arp and R. H. Kropschot. Rev. Sci. Instrum. Vol 32, No. 2, 217-8 (Feb 1961). (PB172174)[1]

R-188 LOW TEMPERATURE THERMOCOUPLES - I. GOLD-COBALT OR CONSTANTAN VS. COPPER OR 'NORMAL' SILVER, by R. L. Powell, M. D. Bunch and R. J. Corruccini. Cryogenics Vol 1, No. 3, 139-50 (Mar 1961). (PB172175)[1]

R-189 CRYOGENIC ADHESIVE PROPERTIES OF BISPHENOL-A EPOXY RESINS, by M. J. Hiza and P. L. Barrick. Soc. Plast. Eng. Trans. Vol 1, No. 2, 73-9 (Apr 1961). (PB172176)[1]

R-190 SUPERCONDUCTIVITY OF Nb_3Sn IN PULSED FIELDS OF 185 KILOGAUSS, by V. D. Arp, R. H. Kropschot, J. H. Wilson, W. F. Love and R. Phelan. Phys. Rev. Lett. Vol 6, No. 9, 452-3 (May 1961). (PB172177)[1]

R-191 THERMAL EXPANSION OF TECHNICAL SOLIDS AT LOW TEMPERATURES; A COMPILATION FROM THE LITERATURE, by R. J. Corruccini and J. J. Gniewek. Nat. Bur. Stand. (U.S.) Monogr. No. 29, 22 pages (May 1961). (Out of print).

R-192 EVALUATION OF BALL BEARING SEPARATOR MATERIALS OPERATING SUBMERGED IN LIQUID NITROGEN, by W. A. Wilson, K. B. Martin, J. A. Brennan and B. W. Birmingham. ASLE Trans. Vol 4, 50-8 (1961). (PB172179)[1]

R-193 MULTIPLE LAYER INSULATION FOR CRYOGENIC APPLICATIONS, by R. H. Kropschot. Cryogenics Vol 1, No. 3, 171-7 (Mar 1961). (PB172180)[1]

R-194 TESTING OF BALL BEARINGS WITH FIVE DIFFERENT SEPARATOR MATERIALS AT 9200 RPM IN LIQUID NITROGEN, by J. A. Brennan, W. A. Wilson, R. Radebaugh and B. W. Birmingham. (a) Paper presented at the Lubrication Symposium, May 8-9, 1961, Miami, Florida. Paper No. 61-LUBS-18. Am. Soc. of Mechanical Engrs., New York (1961). (PB172181-A)[1] (b) Paper G-2 in Advances in Cryogenic Engineering (Proc. 1961 Cryogenic Engineering Conf.) Vol 7, 262-72. Plenum Press, New York (1962). (PB172181-B)[1]

R-195 A COMPILATION OF THE PHYSICAL EQUILIBRIA AND RELATED PROPERTIES OF THE HYDROGEN-NITROGEN SYSTEM, by D. E. Drayer and T. M. Flynn. Nat. Bur. Stand. (U.S.), Tech. Note No. 110, 62 pages (May 1961). (PB161611)[2]

R-196 A COMPILATION OF THE PHYSICAL EQUILIBRIA AND RELATED PROPERTIES OF THE HYDROGEN-HELIUM SYSTEM, by D. E. Drayer and T. M. Flynn. Nat. Bur. Stand. (U.S.), Tech. Note No. 109, 50 pages (Jun 1961). (PB161610)[2]

R-197 A COMPILATION OF THE PHYSICAL EQUILIBRIA AND RELATED PROPERTIES OF THE HYDROGEN-CARBON MONOXIDE SYSTEM, by D. E. Drayer and T. M. Flynn. Nat. Bur. Stand. (U.S.), Tech. Note No. 108, 81 pages (May 1961). (PB161609)[2]

R-198 PREDICTION OF SYMPTOMS OF CAVITATION, by R. B. Jacobs. J. Res. Nat. Bur. Stand. (U.S.), Sect. C, Vol 65, No. 3, 147-56 (Jul-Sep 1961). (PB172182)[1]

R-199 THE APPLICATION OF GAS-LUBRICATED BEARINGS TO A MINIATURE HELIUM EXPANSION TURBINE, by B. W. Birmingham, H. Sixsmith and W. A. Wilson. Paper A-4 in Advances in Cryogenic Engineering (Proc. 1961 Cryogenic Engineering Conf.) Vol 7, 30-42. Plenum Press, New York (1962). (PB172183)[1]

R-200 ON THE BULK DENSITY OF BOILING LIQUID OXYGEN, by R. W. Arnett. Paper F-4 in Advances in Cryogenic Engineering (Proc. 1961 Cryogenic Engineering Conf.) Vol 7, 214-8. Plenum Press, New York (1962). (PB172184)[1]

R-201 DRY GAS OPERATION OF BALL BEARINGS AT CRYOGENIC TEMPERATURES, by L. E. Scott, D. B. Chelton and J. A. Brennan. Paper G-3 in Advances in Cryogenic Engineering (Proc. 1961 Cryogenic Engineering Conf.) Vol 7, 273-6. Plenum Press, New York (1962). (PB172185)[1]

R-202 TEMPERATURE DEPENDENCE OF MAGNETIC LOSSES, by J. J. Gniewek and R. L. Powell. Paper H-1 in Advances in Cryogenic Engineering (Proc. 1961 Cryogenic Engineering Conf.) Vol 7, 303-10. Plenum Press, New York (1962). (PB172186)[1]

R-203 THE APPLICATION AND BEHAVIOR OFELASTOMERS AT CRYOGENIC TEMPERATURES, by R. F. Robbins, D. H. Weitzel and R. N. Herring. Paper H-6 in Advances in Cryogenic Engineering (Proc. 1961 Cryogenic Engineering Conf.) Vol 7, 343-52. Plenum Press, New York (1962). (PB172187)[1]

R-204 AN EXPERIMENTAL INVESTIGATION OF THE INDIVIDUAL BOILING AND CONDENSING HEAT TRANSFER COEFFICIENTS FOR HYDROGEN, by D. E. Drayer and K. D. Timmerhaus. Paper J-6 in Advances in Cryogenic Engineering (Proc. 1961 Cryogenic Engineering Conf.) Vol 7, 401-12. Plenum Press, New York (1962). (PB172188)[1]

R-205 A CRYOSTAT FOR TENSILE TESTS IN THE TEMPERATURE RANGE 300° TO 4°K, by R. P. Reed. Paper K-3 in Advances in Cryogenic Engineering (Proc. 1961 Cryogenic Engineering Conf.) Vol 7, 448-54. Plenum Press, New York (1962). (PB172189)[1]

R-206 MARTENSITIC TRANSFORMATION PRODUCTS AND MECHANICAL PROPERTIES OF AUSTENITIC STAINLESS STEELS AT LOW TEMPERATURES, by C. J. Guntner and R. P. Reed. Paper K-9 in Advances in Cryogenic Engineering (Proc. 1961 Cryogenic Engineering Conf.) Vol 7, 500-2. Plenum Press, New York (1962). (PB172190)[1]

R-207 A METHOD OF MEASURING SHEAR MODULUS FROM -424° TO 70°F, by R. P. Mikesell and R. M. McClintock. Paper K-11 in Advances in Cryogenic Engineering (Proc. 1961 Cryogenic Engineering Conf.) Vol 7, 509-13. Plenum Press, New York (1962). (PB172191)[1]

R-208 LOW TEMPERATURE CHARACTERISTICS OF SOME COMMERCIAL THERMOCOUPLES, by R. L. Powell and L. P. Caywood, Jr. Paper L-2 in Advances in Cryogenic Engineering (Proc. 1961 Cryogenic Engineering Conf.) Vol 7, 517-21. Plenum Press, New York (1962). (PB172192)[1]

R-209 AN ELECTRICALLY CONTROLLED GUARDED FLAT PLATE CALORIMETER, by D. Cline and R. H. Kropschot. Paper L-5 in Advances in Cryogenic Engineering (Proc. 1961 Cryogenic Engineering Conf.) Vol 7, 534-8. Plenum Press, New York (1962). (PB172193)[1]

R-210 THE EFFICIENCY OF AN IDEAL REFRIGERATOR, by R. B. Jacobs. Paper L-11 in Advances in Cryogenic Engineering (Proc. 1961 Cryogenic Engineering Conf.) Vol 7, 567-71. Plenum Press, New York (1962). (PB172194)[1]

R-211 LOAD CARRYING CAPACITY OF GAS-LUBRICATED BEARINGS WITH INHERENT ORIFICE COMPENSATION USING NITROGEN AND HELIUM GAS, by H. Sixsmith, W. A. Wilson and B. W. Birmingham. Nat. Bur. Stand. (U.S.), Tech. Note No. 115, 35 pages (Aug 1961). (PB161616)[2]

R-212 SUPERCONDUCTING MAGNETS, by R. H. Kropschot and V. Arp. Cryogenics Vol 2, No. 1, 1-15 (Sep 1961). (PB172195)[1]

R-213 RECENT PROGRESS IN CRYOGENIC ENGINEERING, by R. B. Scott. Paper presented at the Mountain States Navy Research and Development Clinic, Raton, New Mexico (Sep 1961). (PB172196)[1]

R-214 AN ALUMINUM MAGNET COOLED WITH LIQUID HYDROGEN, by J. R. Purcell. High Magnetic Fields (Proc. International Conf. on High Magnetic Fields, Nov. 1-4, 1961, Massachusetts Institute of Technology, Cambridge, Massachusetts) 166-9. The M.I.T. Press and John Wiley and Sons, Inc., New York (1962). (PB172197)[1]

R-215 PREDICTION OF PRESSURE DROP IN TWO-PHASE SINGLE-COMPONENT FLUID FLOW, by M. R. Hatch and R. B. Jacobs. AIChE J. Vol 8, No. 1, 18-25 (Mar 1962). (PB172198)[1]

R-216 ELECTROMAGNETIC BEARING, by H. Sixsmith. Rev. Sci. Instrum. Vol 32, No. 11, 1196-7 (Nov 1961). (PB172199)[1]

R-217 A TABULATION OF THE THERMODYNAMIC PROPERTIES OF NORMAL HYDROGEN FROM LOW TEMPERATURES TO 300°K AND FROM 1 TO 100 ATMOSPHERES, by J. W. Dean. Nat. Bur. Stand. (U.S.) Tech. Note No. 120, 71 pages (Nov 1961). (PB161621)[2]

R-218 THE THERMODYNAMIC PROPERTIES OF NITROGEN FROM 64 TO 300°K BETWEEN 0.1 AND 200 ATMOSPHERES, by T. R. Strobridge. Nat. Bur. Stand. (U.S.), Tech. Note No. 129, 85 pages (Jan 1962). (PB161630)[2]

R-219 A SURVEY OF THE LITERATURE ON HEAT TRANSFER FROM SOLID SURFACES TO CRYOGENIC FLUIDS, by R. J. Richards, W. G. Steward and R. B. Jacobs. Nat. Bur. Stand. (U.S.), Tech. Note No. 122, 44 pages (Oct 1961). (PB161623)[2]

R-220 PROVISIONAL THERMODYNAMIC FUNCTIONS FOR PARA-HYDROGEN, by H. M. Roder and R. D. Goodwin. Nat. Bur. Stand. (U.S.), Tech. Note No. 130, 142 pages (Dec 1961). (PB161631)[2]

R-221 AN INTERMEDIATE SIZE AUTOMATICALLY CONTROLLED HYDROGEN REFRIGERATION SYSTEM, by D. B. Chelton, D. B. Mann and B. W. Birmingham. Bull. Inst. Int. Froid Annexe Vol 1960-1, 73-81 (1960). (PB172200)[1]

R-222 ON THE THERMODYNAMIC PROPERTIES OF FLUIDS, by E. H. Brown. Bull. Inst. Int. Froid Annexe Vol 1960-1, 169-78 (1960). (PB172201)[1]

R-223 SOME LOW TEMPERATURE PROPERTIES OF MATERIALS, by R. H. Kropschot. Mountain States Navy Research and Development Clinic (Proc., Raton, New Mexico, Sept. 1961). Communications and Electronics Foundation, Raton (1963). (PB172202)[1]

R-224 APPARATUS FOR DETERMINATION OF PRESSURE-DENSITY-TEMPERATURE RELATIONS AND SPECIFIC HEATS OF HYDROGEN TO 350 ATMOSPHERES AT TEMPERATURES ABOVE 14°K, by R. D. Goodwin. J. Res. Nat. Bur. Stand. (U.S.), Sect. C, Vol 65, No. 4, 231-43 (Oct-Dec 1961). (PB172203)[1]

R-225 STRAIN GAGE CALIBRATION DEVICE, by R. M. McClintock. U.S. Patent No. 3,005,332 (Oct 24, 1961). (50¢)[5]

R-226 THE DENSITIES OF SATURATED LIQUID HYDROGEN, by R. D. Goodwin, D. E. Diller, H. M. Roder and L. A. Weber. Cryogenics Vol 2, No. 2, 81-3 (Dec 1961). (PB172205)[1]

R-227 MINIATURE HELIUM EXPANSION TURBINE WITH GAS-LUBRICATED BEARINGS. Nat. Bur. Stand. (U.S.), Tech. News Bull. Vol 46, No. 1, 2-3 (Jan 1962). (PB172206)[1]

R-228 TWO TENSILE CRYOSTATS DEVELOPED. Nat. Bur. Stand. (U.S.), Tech. News Bull. Vol 46, No. 2, 21-2 (Feb 1962). (PB172207)[1]

R-229 AN EQUATION OF STATE FOR CALCULATING THE THERMODYNAMIC PROPERTIES OF HELIUM AT LOW TEMPERATURES, by R. D. McCarty and R. B. Stewart. Progress in International Research on Thermodynamic and Transport Properties (Proc. Second Symp. on Thermo-physical Properties, Jan. 24-26, 1962, Princeton, New Jersey) 107-17. Academic Press, New York (1962). (PB172208)[1]

R-230 A BIBLIOGRAPHY OF THE THERMOPHYSICAL PROPERTIES OF OXYGEN AT LOW TEMPERATURES, by J. G. Hust, L. D. Wallace, J. A. Crim, L. A. Hall and R. B. Stewart. Nat. Bur. Stand. (U.S.), Tech. Note No. 137, 83 pages (Feb 1962). (PB161638)[2]

R-231 THE RESISTIVE TRANSITION IN Nb_3Sn, by D. Cline, R. H. Kropschot, V. Arp and J. H. Wilson. High Magnetic Fields (Proc. International Conf. on High Magnetic Fields, Nov. 1-4, 1961, Massachusetts Institute of Technology, Cambridge, Massachusetts) 580-3. The M.I.T. Press and John Wiley and Sons, Inc., New York (1962). (PB172209)[1]

R-232 DIELECTRIC CONSTANT OF LIQUID PARAHYDROGEN, by R. J. Corruccini. Nat. Bur. Stand. (U.S.), Tech. Note No. 144, 11 pages (Apr 1962). (No charge for single copy)[6]

R-233 CRYOGENIC TEMPERATURE MEASUREMENT WITH PLATINUM RESISTANCE THERMOMETERS -IS FIXED-POINT CALIBRATION ADEQUATE? by R. J. Corruccini. Nat. Bur. Stand. (U.S.), Tech. Note No. 147, 12 pages (Apr 1962). (PB161648)[2]

R-234 THE EFFECT OF EXPERIMENTAL VARIABLES INCLUDING THE MARTENSITIC TRANSFORMATION ON THE LOW-TEMPERATURE MECHANICAL PROPERTIES OF AUSTENITIC STAINLESS STEELS, by C. J. Guntner and R. P. Reed. Amer. Soc. Metals Trans. Quart. Vol 55, No. 3, 399-419 (Sep 1962). (PB172210)[3]

R-235 A TABULATION OF THE THERMODYNAMIC PROPERTIES OF NORMAL HYDROGEN FROM LOW TEMPERATURES TO 540°R AND FROM 10 TO 1500 psia, Supplement A (British Units), by J. W. Dean. Nat. Bur. Stand. (U.S.), Tech. Note No. 120A, 75 pages (Jun 1962). (PB190611)[2]

R-236 THE VAPOUR PRESSURE OF 20°K EQUILIBRIUM HYDROGEN, by L. A. Weber, D. E. Diller, H. M. Roder and R. D. Goodwin. Cryogenics Vol 2, No. 4, 236-8 (Jun 1962). (PB172211)[1]

R-237 THERMAL EXPANSION OF SOME ENGINEERING MATERIALS FROM 20 TO 293°K, by V. Arp, J. H. Wilson, L. Winrich and P. Sikora. Cryogenics Vol 2, No. 4, 230-6 (Jun 1962). (PB172212)[1]

R-238 THERMAL RADIATION PROPERTIES OF SOLIDS AT LOW TEMPERATURES, by R. J. Corruccini. Measurement of Thermal Radiation Properties of Solids (Symp., Sept. 1962, Dayton, Ohio), NASA Spec. Publ. No. 31, 33-7 (1963). (PB172213)[1]

R-239 INFRARED WAVELENGTH DEPENDENCE OF THE TOTAL ABSORPTIVITY OF ELECTROPLATED SILVER, by D. Cline. J. Appl. Phys. Vol 33, No. 7, 2310-1 (Jul 1962). (PB172214)[1]

R-240 THE THERMAL PROPERTIES OF POWDER INSULATORS IN THE TEMPERATURE RANGE 300° -4°K, by D. Cline and R. H. Kropschot. Radiative Transfer from Solid Materials (Proc. Conf. on Radiative Transfer from Solid Materials, Dec. 12-13, 1960, Boston, Massachusetts) 61-81. The Macmillan Co., New York (1962). (PB172215)[2]

R-241 THE SPONTANEOUS MARTENSITIC TRANSFORMATIONS IN 18% Cr, 8% Ni STEELS, by R. P. Reed. Acta Met. Vol 10, No. 9, 865-77 (Sep 1962). (PB172216)[1]

R-242 THE THERMODYNAMIC PROPERTIES OF HELIUM FROM 3 TO 300°K BETWEEN 0.5 AND 100 ATMOSPHERES, by D. B. Mann. Nat. Bur. Stand. (U.S.), Tech. Note No. 154, 95 pages (Jan 1962). (PB172217)[7]

R-243 KIHARA PARAMETERS AND SECOND VIRIAL COEFFICIENTS FOR CRYOGENIC FLUIDS AND THEIR MIXTURES, by J. M. Prausnitz and A. L. Myers. AIChE J. Vol 9, No. 1, 5-11 (Jan 1963). (PB172218)[1]

R-244 LOW TEMPERATURE PHYSICAL EQUILIBRIA OF SOME BINARY HYDROGEN SYSTEMS, by M. J. Hiza, D. E. Drayer and T. M. Flynn. (Paper presented at the AICHE 48th National Meeting, Aug. 26-29, 1962, Denver, Colorado). (PB172219)[2]

R-245 ADVANCES IN CRYOGENIC ENGINEERING (Proc. 1961 Cryogenic Engineering Conf., Aug. 15-17, University of Michigan, Ann Arbor, Michigan; K. D. Timmerhaus, Editor) Vol 7. Plenum Press, New York (1962). (Plenum Press, New York - $39.50)[4]

R-246 P-ρ-T VALUES FOR NEON FROM 27° TO 300°K FOR PRESSURES TO 200 ATMOSPHERES USING CORRESPONDING STATES THEORY, by R. D. McCarty, R. B. Stewart and K. D. Timmerhaus. Paper C-3 in Advances in Cryogenic Engineering (Proc. 1962 Cryogenic Engineering Conf.) Vol 8, 135-45. Plenum Press, New York (1963). (PB172220)[1]

R-247 SOME IDEALIZED SOLUTIONS FOR CHOKING, TWO-PHASE FLOW OF HYDROGEN, NITROGEN AND OXYGEN, by R. V. Smith. Paper J-10 in Advances in Cryogenic Engineering (Proc. 1962 Cryogenic Engineering Conf.) Vol 8, 563-73. Plenum Press, New York (1963). (PB172221)[1]

R-248 A COMPARISON OF THE LOW TEMPERATURE ADSORPTION OF NITROGEN AND METHANE FROM HYDROGEN GAS ON THREE DIFFERENT ADSORBENTS, by M. J. Hiza and A. J. Kidnay. Paper C-7 in Advances in Cryogenic Engineering (Proc. 1962 Cryogenic Engineering Conf.) Vol 8, 174-82. Plenum Press, New York (1963). (PB172222)[1]

R-249 EXPERIMENTAL DETERMINATION OF THE BULK DENSITY OF BOILING LIQUID OXYGEN, by R. W. Arnett, D. R. Millhiser and W. H. Probert. Paper E-4 in Advances in Cryogenic Engineering (Proc. 1962 Cryogenic Engineering Conf.) Vol 8, 256-62. Plenum Press, New York (1963). (PB172223)[1]

R-250 THERMAL CONDUCTIVITY OF SOLID H_2O AND D_2O AT LOW TEMPERATURES, by J. W. Dean and K. D. Timmerhaus. Paper E-5 in Advances in Cryogenic Engineering (Proc. 1962 Cryogenic Engineering Conf.) Vol 8, 263-67. Plenum Press, New York (1963). (PB172224)[1]

R-251 PRESSURE MEASUREMENTS IN CRYOGENIC SYSTEMS, by P. Smelser. Paper F-7 in Advances in Cryogenic Engineering (Proc. 1962 Cryogenic Engineering Conf.) Vol 8, 378-86. Plenum Press, New York (1963). (PB172225)[1]

R-252 LIQUID REQUIREMENTS FOR THE COOLDOWN OF CRYOGENIC EQUIPMENT, by R. B. Jacobs. Paper J-6 in Advances in Cryogenic Engineering (Proc. 1962 Cryogenic Engineering Conf.) Vol 8, 529-35. Plenum Press, New York (1963). (PB172226)[1]

R-253 PERLITE FOR CRYOGENIC INSULATION, by R. H. Kropschot and R. W. Burgess. Paper G-7 in Advances in Cryogenic Engineering (Proc. 1962 Cryogenic Engineering Conf.) Vol 8, 425-36. Plenum Press, New York (1963). (PB172227)[1]

R-254 COOLDOWN AND WARMUP OF LARGE POWDER-INSULATED DEWARS, by F. Kreith, J. W. Dean and L. Brooks. Paper J-7 in Advances in Cryogenic Engineering (Proc. 1962 Cryogenic Engineering Conf.) Vol 8, 536-43. Plenum Press, New York (1963). (PB172228)[1]

R-255 FORCE AND SEAL EVALUATION OF ELASTOMERIC O-RINGS, by P. R. Ludtke and D. H. Weitzel. Paper H-6 in Advances in Cryogenic Engineering (Proc. 1962 Cryogenic Engineering Conf.) Vol 8, 467-77. Plenum Press, New York (1963). (PB172229)[1]

R-256 LINEAR THERMAL EXPANSION OF ELASTOMERS IN THE RANGE 300° TO 76°K, by R. F. Robbins, Y. Ohori and D. H. Weitzel. Paper E-8 in Advances in Cryogenic Engineering (Proc. 1962 Cryogenic Engineering Conf.) Vol 8, 287-99. Plenum Press, New York (1963). (PB172230)[1]

R-257 EXPERIMENTAL INVESTIGATION OF LIQUID HYDROGEN COOLING BY HELIUM GAS INJECTION, by A. F. Schmidt. Paper J-5 in Advances in Cryogenic Engineering (Proc. 1962 Cryogenic Engineering Conf.) Vol 8, 521-8. Plenum Press, New York (1963). (PB172231)[1]

R-258 LOW-TEMPERATURE THERMOCOUPLES, by R. L. Powell, L. P. Caywood, Jr. and M. D. Bunch. Temperature, Its Measurement and Control in Science and Industry, Vol 3, pt. 2, 65-77. Reinhold-Van Nostrand, New York (1962). (PB172232)[1]

R-259 TEMPERATURE MEASUREMENTS IN CRYOGENIC ENGINEERING, by R. J. Corruccini. Paper F-1 in Advances in Cryogenic Engineering (Proc. 1962 Cryogenic Engineering Conf.) Vol 8, 315-33. Plenum Press, New York (1963). (PB172233)[1]

R-260 CURRENT TRENDS AND PROSPECTS IN CRYOGENICS, by R. B. Stewart, R. V. Smith and T. R. Strobridge. Cryogenics Vol 2, No. 6, 321-4 (Dec 1962). (PB172234)[1]

R-261 THE USE OF A VENTURI TUBE AS A QUALITY METER, by R. V. Smith, P. C. Wegin, J. F. Ferguson and R. B. Jacobs. J. Basic Eng. Vol 84, No. 3, 411-2 (Sep 1962). (PB172235)[1]

R-262 AN EXPERIMENTAL INVESTIGATION OF OVER-ALL HEAT TRANSFER COEFFICIENTS FOR CONDENSING AND BOILING HYDROGEN FILMS, by K. D. Timmerhaus, D. E. Drayer and J. W. Dean. International Developments in Heat Transfer (Proc. 1961 International Heat Transfer Conf., Aug. 28-Sept. 1, Boulder, Colorado) Vol 2, 270-8. Am. Soc. Mechanical Engrs., New York (1961). (PB172236)[1]

R-263 THE THERMAL CONDUCTIVITY OF SOLID NITROGEN, by H. M. Roder. Cryogenics Vol 2, No. 5, 302-4 (Sep 1962). (PB172237)[1]

R-264 THE THERMODYNAMIC PROPERTIES OF HELIUM FROM 6 TO 540°R BETWEEN 10 AND 1500 psia, by D. B. Mann. Nat. Bur. Stand. (U.S.), Tech. Note 154A, 89 pages (Jan 1962). (PB182435)[2]

R-265 CAVITATION PROBLEMS IN CRYOGENICS, by R. B. Jacobs and K. B. Martin. J. Basic Eng. Vol 82, No. 3, 756-7 (Sep 1960). (PB172238)[1]

R-266 INTERPOLATION OF PLATINUM RESISTANCE THERMOMETERS, 10° TO 273.15°K, by R. J. Corruccini. Temperature, Its Measurement and Control in Science and Industry, Vol 3, pt. 1, 329-38. Reinhold-Van Nostrand, New York (1962). (PB172239)[1]

R-267 CRYOGENIC TESTING OF STRUCTURAL SOLIDS, by R. M. McClintock. Metals Eng. Quart. Vol 2, No. 1, 28-35 (Feb 1962). (PB172240)[1]

R-268 THE THERMODYNAMIC PROPERTIES OFNITROGEN FROM 114 TO 540°R BETWEEN 1.0 AND 3000 psia, Supplement A (British Units), by T. R. Strobridge. Nat. Bur. Stand (U.S.) Tech. Note No. 129A, 85 pages (Feb 1963). ($1.00)[6]

R-269 THE SPECIFIC HEAT OF SATURATED LIQUID PARA-HYDROGEN FROM 15 TO 32°K, by B. A. Younglove and D. E. Diller. Cryogenics Vol 2, No. 5, 283-7 (Sep 1962). (PB172241)[1]

R-270 THE SPECIFIC HEAT AT CONSTANT VOLUME OF PARA-HYDROGEN AT TEMPERATURES FROM 15 TO 90°K AND PRESSURES TO 340 atm., by B. A. Younglove and D. E. Diller. Cryogenics Vol 2, No. 6, 348-52 (Dec 1962). (PB172242)[1]

R-271 MELTING PRESSURE EQUATION FOR THE HYDROGENS, by R. D. Goodwin. Cryogenics Vol 2, No. 6, 353-5 (Dec 1962). (PB172243)[1]

R-272 TUNNELING BETWEEN A NORMAL METAL AND A SUPERCONDUCTOR, by J. L. Harden and R. S. Collier. Cryogenics Vol 2, No. 6, 369-70 (Dec 1962). (PB172244)[1]

R-273 HEAT TRANSFER BETWEEN A CRYO-SURFACE AND A CONTROLLED ATMOSPHERE, EXPERIMENTAL INVESTIGATION, by R. J. Richards, K. Edmonds and R. B. Jacobs. Bull. Inst. Int. Froid Annexe Vol 1962-1, 89-110 (1962). (PB172245)[2]

R-274 INSTRUMENT FOR THE CONTINUOUS MEASUREMENT OF THE DENSITY OF FLOWING FLUIDS, by C. E. Miller, R. B. Jacobs and J. Macinko. Rev. Sci. Instrum. Vol 34, No. 1, 24-7 (Jan 1963). (PB172246)[1]

R-275 SOME CHARACTERISTICS OF A SIMPLE CRYOPUMP, by L. O. Mullen and R. B. Jacobs. Trans. Nat. Vac. Symp. Vol 9, 220-6. The Macmillan Co., New York (1962). (PB172247)[1]

R-276 PRESSURE-DENSITY-TEMPERATURE RELATIONS OF FLUID PARA HYDROGEN FROM 15 TO 100°K AT PRESSURES TO 350 ATMOSPHERES, by R. D. Goodwin, D. E. Diller, H. M. Roder, and L. A. Weber. J. Res. Nat. Bur. Stand (U.S.), Sect. A, Vol 67, No 2, 173-92 (Mar-Apr 1963). (PB172248)[2]

R-277 THE INTERMEDIATE STATE OF SOME HARD SUPERCONDUCTORS, by V. Arp, R. H. Kropschot and T. S. Craig. Superconductors, 135-41. Interscience Publishers, New York (1962). (PB172249)[1]

R-278 THE ORTHOBARIC DENSITIES OF PARAHYDROGEN, DERIVED HEATS OF VAPORIZATION AND CRITICAL CONSTANTS, by H. M. Roder, D. E. Diller, L. A. Weber and R. D. Goodwin. Cryogenics Vol 3, No. 1, 16-22 (Mar 1963). (PB172250)[1]

R-279 PRESSURE-DENSITY-TEMPERATURE RELATIONS OF FREEZING LIQUID PARAHYDROGEN TO 350 ATMOSPHERES, by R. D. Goodwin and H. M. Roder. Cryogenics Vol 3, No. 1, 12-5 (Mar 1963). (PB172251)[1]

R-280 ADVANCES IN CRYOGENIC ENGINEERING (Proc. 1962 Cryogenic Engineering Conf., Aug. 14-16, University of California, Los Angeles, California; K. D. Timmerhaus, Editor) Vol 8. Plenum Press, New York (1963). (Plenum Press, New York - $45.00)[4]

R-281 SOLID FORMATION IN FLOWING CRYOGENIC FLUIDS, by D. B. Chelton, B. W. Birmingham and J. W. Dean. Paper E-11 in Advances in Cryogenic Engineering (Proc. 1962 Cryogenic Engineering Conf.) Vol 8, 311-4. Plenum Press, New York (1963). (PB172252)[1]

R-282 AN APPARATUS TO DETERMINE THE SOLID-VAPOR EQUILIBRIA OF BINARY CRYOGENIC SYSTEMS, by M. J. Hiza and R. N. Herring. Paper C-5 in Advances in Cryogenic Engineering (Proc. 1962 Cryogenic Engineering Conf.) Vol 8, 158-61. Plenum Press, New York (1963). (PB172253)[1]

R-283 A REFRIGERATION SYSTEM INCORPORATING A LOW-CAPACITY, HIGH-SPEED, GAS-BEARING-SUPPORTED EXPANSION TURBINE, by D. B. Mann, H. Sixsmith, W. A. Wilson and B. W. Birmingham. Paper D-5 in Advances in Cryogenic Engineering (Proc. 1962 Cryogenic Engineering Conf.) Vol 8, 211-27. Plenum Press, New York (1963). (PB172254)[1]

R-284 TENSILE CRYOSTAT, by R. M. McClintock. U.S. Patent No. 3,078,708 (Feb 26, 1963). (50¢)[5]

R-285 TENSILE AND IMPACT PROPERTIES OF SELECTED MATERIALS FROM 20 TO 300°K, by K. A. Warren and R. P. Reed. Nat. Bur. Stand. (U.S.) Monogr. No. 63, 51 pages (June 1963). (COM74-10737)[7]

R-286 IDEAL YIELD OF A SIMON LIQUEFIER, by L. E. Scott. Cryogenics Vol 3, No. 2, 111-2 (Jun 1963). (PB172256)[1]

R-287 AIR DIELECTRIC COAXIAL CABLES AS CRYOGENIC TRANSFER LINES, by D. B. Mann. Cryogenics Vol 3, No. 2, 108-9 (Jun 1963). (PB172257)[1]

R-288 TRANSVERSE MAGNETORESISTANCE OF HIGH PURITY ALUMINUM FROM 4 TO 30°K, by J. R. Purcell and R. B. Jacobs. Cryogenics Vol 3, No. 2, 109-10 (Jun 1963). (PB172258)[1]

R-289 THE LOWER CRITICAL FIELD IN THE GINZBURG-LANDAU THEORY OF SUPERCONDUCTIVITY, by J. L. Harden and V. Arp. Cryogenics Vol 3, No. 2, 105-8 (Jun 1963). (PB172259)[1]

R-290 ANALYSIS OF THE FROST PHENOMENA ON A CRYO-SURFACE, by R. V. Smith, D. K. Edmonds, E. G. F. Brentari and R. J. Richards. Paper B-7 in Advances in Cryogenic Engineering (Proc. 1963 Cryogenic Engineering Conf.) Vol 9, 88-97. Plenum Press, New York (1964). (PB172260)[1]

R-291 A PRELIMINARY STUDY OF THE ORIFICE FLOW CHARACTERISTICS OF LIQUID NITROGEN AND LIQUID HYDROGEN DISCHARGING INTO A VACUUM, by J. A. Brennan. Paper E-6 in Advances in Cryogenic Engineering (Proc. 1963 Cryogenic Engineering Conf.) Vol 9, 292-303. Plenum Press, New York (1964). (PB172261)[1]

R-292 THE PERFORMANCE OF POINT LEVEL SENSORS IN LIQUID HYDROGEN, by D. A. Burgeson, W. G. Pestalozzi and R. J. Richards. Paper G-5 in Advances in Cryogenic Engineering (Proc. 1963 Cryogenic Engineering Conf.) Vol 9, 416-22. Plenum Press, New York (1964). (PB172262)[1]

R-293 PRELIMINARY THERMODYNAMIC PROPERTIES OF NEON, by R. D. McCarty and R. B. Stewart. Paper D-1 in Advances in Cryogenic Engineering (Proc. 1963 Cryogenic Engineering Conf.) Vol 9, 161-7. Plenum Press, New York (1964). (PB172263)[1]

R-294 A NEW STEADY STATE CALORIMETER FOR MEASURING HEAT TRANSFER THROUGH CRYOGENIC INSULATION, by D. R. Beck and F. Kreith. Paper B-4 in Advances in Cryogenic Engineering (Proc. 1963 Cryogenic Engineering Conf.) Vol 9, 64-70. Plenum Press, New York (1964). (PB172264)[1]

R-295 THE CORRELATION OF THERMODYNAMIC PROPERTIES OF CRYOGENIC FLUIDS, by R. B. Stewart and K. D. Timmerhaus. Paper A-3 in Advances in Cryogenic Engineering (Proc. 1963 Cryogenic Engineering Conf.) Vol 9, 20-7. Plenum Press, New York (1964). (PB172265)[1]

R-296 HIGH-EFFICIENCY FLUID TRANSFER LINE COUPLING, by D. B. Chelton. U. S. Patent No. 3,034,319 (May 15, 1962). (50¢)[5]

R-297 CHOKING TWO-PHASE FLOW LITERATURE SUMMARY AND IDEALIZED DESIGN SOLUTIONS FOR HYDROGEN, NITROGEN, OXYGEN, AND REFRIGERANTS 12 AND 11, by R. V. Smith. Nat. Bur. Stand. (U.S.), Tech. Note No. 179, 127 pages (Aug 1963). (PB190610)[2]

R-298 THE ADSORPTION OF METHANE AND NITROGEN ON SILICA GEL, SYNTHETIC ZEOLITE, AND CHARCOAL, by A. J. Kidnay and M. J. Hiza. J. Phys. Chem. Vol 67, 1725-7 (Aug 1963). (PB172267)[1]

R-299 A COMPARISON OF TWO MELTING-PRESSURE EQUATIONS CONSTRAINED TO THE TRIPLE POINT USING DATA FOR ELEVEN GASES AND THREE METALS, by R. D. Goodwin and L. A. Weber. Nat. Bur. Stand. (U.S.), Tech. Note No. 183, 23 pages (Oct 1963). (COM75-10052)[7]

R-300 CARBON RESISTORS FOR CRYOGENIC LIQUID LEVEL MEASUREMENT, by R. C. Muhlenhaupt and P. Smelser. Nat. Bur. Stand. (U.S.), Tech. Note No. 200, 25 pages (Oct 1963). (N64-14272)[7]

R-301 FUNCTIONS FOR THE CALCULATION OF ENTROPY, ENTHALPY, AND INTERNAL ENERGY FOR REAL FLUIDS USING EQUATIONS OF STATE AND SPECIFIC HEATS, by J. G. Hust and A. L. Gosman. Paper D-8 in Advances in Cryogenic Engineering (Proc. 1963 Cryogenic Engineering Conf.) Vol 9, 227-33. Plenum Press, New York (1964). (PB172268)[1]

R-302 THERMODYNAMIC REPRESENTATION OF HIGH-PRESSURE VAPOUR-LIQUID EQUILIBRIA, by J. M. Prausnitz. Chem. Eng. Sci. Vol 18, 613-30 (1963). (PB172269)[1]

R-303 AN OPERATIONAL INFORMATION RETRIEVAL SYSTEM IN THE FIELD OF CRYOGENICS, by N. A. Olien. Automation and Scientific Communication, pt. 2, 157-8 (Proc. 26th Annual Meeting, 1963). American Documentation Institute, Washington, D.C. (1963). (PB172270)[1]

R-304 HIGH-FIELD LIQUID H_2 -COOLED ALUMINUM-WOUND MAGNET, by J. R. Purcell and E. G. Payne. Rev. Sci. Instrum. Vol 34, No. 8, 893-7 (Aug 1963). (PB172271)[1]

R-305 HIGH-FIELD CRYOGENIC MAGNET. Nat. Bur. Stand. (U.S.), Tech. News Bull. Vol 47, No. 11, 195-6 (Nov 1963). (PB172272)[1]

R-306 THERMODYNAMIC PROPERTY VALUES FOR GASEOUS AND LIQUID CARBON MONOXIDE FROM 70 TO 300°K WITH PRESSURES TO 300 ATMOSPHERES. by J. G. Hust and R. B. Stewart. Nat. Bur. Stand. (U.S.), Tech. Note No. 202, 109 pages (Nov 1963). (NBS-TN 202)[7]

R-307 THERMAL CONDUCTIVITY, by R. L. Powell. American Institute of Physics Handbook, 2d ed, chap. 4g, 76-101. McGraw-Hill, New York (1963). (PB172273)[2]

R-308 RADIOMETRY, by M. M. Reynolds, Linde Air Products Co.; R. J. Corruccini and M. M. Fulk, Nat. Bur. Stand.; R. M. Burley, Baird-Atomic, Inc. American Institute of Physics Handbook, 2d ed, chap. 6k, 153-72. McGraw-Hill, New York (1963). (PB172274)[1]

R-309 THE NBS CRYOGENIC DATA CENTER, by V. J. Johnson. Progress in Refrigeration Science and Technology (Proc. XIth Intern. Congress of Refrigeration, 1963, Munich, Germany) Vol 1, 110-4. Pergamon Press, Oxford, England (1965). (PB172275)[1]

R-310 CHOKING TWO-PHASE FLOW OF HYDROGEN: SOME IDEALIZED SOLUTIONS, by R. V. Smith. Proceedings of the Nuclear Propulsion Conference, 115-25. Atomic Energy Comm., Oak Ridge, Tennessee (Jul 1963). (PB172276)[1]

R-311 A MINIATURE HELIUM TURBO-EXPANDER FOR CRYOGENIC REFRIGERATION SYSTEMS, by M. T. Norton. Progress in Refrigeration Science and Technology (Proc. XIth Intern. Congress of Refrigeration, 1963, Munich, Germany) Vol 1, 131-5. Pergamon Press, Oxford, England (1965). (PB172277)[1]

R-312 THE CORRELATION OF EXPERIMENTAL PRESSURE-DENSITY-TEMPERATURE AND SPECIFIC HEAT DATA FOR PARAHYDROGEN, by H. M. Roder, L. A. Weber and R. D. Goodwin. Progress in Refrigeration Science and Technology (Proc. XIth Intern. Congress of Refrigeration, 1963, Munich, Germany) Vol 1, 187-91. Pergamon Press, Oxford, England (1965). (PB172278)[1]

R-313 CRYOGENICS AND SPACE TECHNOLOGY, By R. B. Scott. Progress in Refrigeration Science and Technology (Proc. XIth Intern. Congress of Refrigeration, 1963, Munich, Germany) Vol 1, 105-9. Pergamon Press, Oxford, England (1965). (PB172279)[1]

R-314 EFFECTS OF TENSILE STRESS ON THE DOMAIN STRUCTURE IN GRAIN-ORIENTED 3.25% SILICON STEEL, by J. J. Gniewek. J. Appl. Phys. Vol 34, No. 12, 3618-22 (Dec 1963). (PB172280)[1]

R-315 SURVEY OF CURRENT NBS WORK ON PROPERTIES OF PARAHYDROGEN, by R. D. Goodwin, D. E. Diller, W. J. Hall, H. M. Roder, L. A. Weber and B. A. Younglove. Paper D-9 in Advances in Cryogenic Engineering (Proc. 1963 Cryogenic Engineering Conf.) Vol 9, 234-42. Plenum Press, New York (1964). (PB172281)[1]

R-316 MEDICAL APPLICATIONS, by E. G. F. Brentari and R. V. Smith. ASHRAE Guide and Data Book, chap. 68, 773-8. Am. Soc. Heating, Refrig. Air Conditioning Engrs., Inc., New York (1964). (PB172282)[1]

R-317 ADVANCES IN CRYOGENIC ENGINEERING (Proc. 1963 Cryogenic Engineering Conf., Aug. 19-21, University of Colorado, Boulder, Colorado; K. D. Timmerhaus, Editor) Vol 9. Plenum Press, New York (1964). (Plenum Press, New York - $45.00)[4]

R-318 A STUDY OF HEAT AND MASS TRANSFER TO UNINSULATED LIQUID OXYGEN CONTAINERS, by D. C. Holten. Paper H-2 in Advances in Cryogenic Engineering (Proc. 1960 Cryogenic Engineering Conf.) Vol 6, 499-508. Plenum Press, New York (1961). (PB172283)[1]

R-319 SECOND AND THIRD VIRIAL COEFFICIENTS FOR HYDROGEN, by R. D. Goodwin, D. E. Diller, H. M. Roder and L. A. Weber. J. Res. Nat. Bur. Stand. (U.S.), Sect. A, Vol 68, No. 1, 121-6 (Jan-Feb 1964). (PB172285)[1]

R-320 DESIGN OF STATIC ELASTOMERIC SEALS FOR CRYOGENIC TEMPERATURES, by D. H. Weitzel, P. R. Ludtke and R. F. Robbins. Proceedings of the Conference on Design of Leak-Tight Separable Fluid Connectors (NASA, Huntsville, Alabama, Mar 1964) Vol 2, 139-65. (PB172286)[2]

R-321 THE ROLE CRYOGENICS IS PLAYING IN EXPANDING MECHANICAL ENGINEERING, V. J. Johnson, Editor. (Proc. ASHRAE Meeting, Feb. 11-14, 1963, New York). Am. Soc. Heating, Refrig. Air Conditioning Engrs., Inc., New York (1964). (PB172287)[2]

R-322 THE QUEST FOR DESIGN DATA, by R. B. Stewart. The Role Cryogenics is Playing in Expanding Mechanical Engineering (Proc. ASHRAE Meeting, Feb. 11-14, 1963, New York) 13-24. Am. Soc. Heating, Refrig. Air Conditioning Engrs., Inc., New York (1964). (PB172288)[1]

R-323 MODERN METHODS OF ANALYSIS FOR DESIGN OF CRYOGENIC EQUIPMENT AND PROCESSES, by T. R. Strobridge and D. B. Mann. The Role Cryogenics is Playing in Expanding Mechanical Engineering (Proc. ASHRAE Meeting, Feb. 11-14, 1963, New York) 25-37. Am. Soc. Heating, Refrig. Air Conditioning Engrs., Inc., New York (1964). (PB172289)[1]

R-324 FOUR CRITICAL FIELDS IN SUPERCONDUCTING INDIUM LEAD ALLOYS, by S. Gygax, J. L. Olsen and R. H. Kropschot. Phys. Lett. Vol 8, No. 4, 228-30 (Feb 1964). (PB172290)[1]

R-325 RECENT DEVELOPMENTS IN USING ELASTOMERS FOR STATIC CRYOGENIC SEALS, by P. R. Ludtke. Proceedings of the Seventh National Society of Aerospace Materials and Process Engineers Symp. (May 20-22, 1964, Los Angeles, California) 25-1--25-14. Western Periodicals, Los Angeles (1964). (PB172291)[1]

R-326 SOLUBILITY OF HELIUM IN LIQUID HYDROGEN, by R. J. Corruccini. J. Chem. Phys. Vol 40, No. 7, 2039-40 (Apr 1964). (PB172292)[1]

R-327 A BIBLIOGRAPHY OF THERMOPHYSICAL PROPERTIES OF ARGON FROM 0 TO 300°K, by L. A. Hall, J. G. Hust and A. L. Gosman. Nat. Bur. Stand. (U.S.), Tech. Note No. 217, 102 pages (Jun 1964). (PB189103)[2]

R-328 SURFACE CURRENTS IN TYPE II SUPERCONDUCTORS, by S. Gygax and R. H. Kropschot. Phys. Lett. Vol 9, No. 2, 91 (Apr 1964). (PB172293)[1]

R-329 REVIEW OF STATIC SEALS FOR CRYOGENIC SYSTEMS, by R. F. Robbins and P. R. Ludtke. J. Spacecraft Rockets Vol 1, No. 3, 253-9 (May-Jun 1964). (PB172294)[1]

R-330 THE THEORY OF A STABLE HIGH-SPEED EXTERNALLY PRESSURIZED GAS-LUBRICATED BEARING, by H. Sixsmith and W. A. Wilson. J. Res. Nat. Bur. Stand. (U.S.), Sect. C, Vol 68, No. 2, 101-14 (Apr-Jun 1964). (PB172295)[1]

R-331 THEORY OF BOIL-OFF CALORIMETRY, by R. B. Jacobs. Rev. Sci. Instrum. Vol 35, No. 7, 828-32 (Jul 1964). (PB172296)[1]

R-332 THE ELECTRICAL PORPERTIES OF ALUMINUM FOR CRYOGENIC ELECTROMAGNETS, by R. J. Corruccini. Nat. Bur. Stand. (U.S.) Tech. Note No. 218, 34 pages (Aug 1964). (PB188809)[2]

R-333 TEMPERATURE AND MEAN FREE PATH DEPENDENCE OF THE GINZBURG-LANDAU PARAMETER, by S. Gygax and R. H. Kropschot. Phys. Lett. Vol 12, No. 1, 7-9 (Sep 1964). (PB172297)[1]

R-334 STATISTICAL SURFACE THERMODYNAMICS OF SIMPLE LIQUID MIXTURES, by C. A. Eckert and J. M. Prausnitz. AIChE J. Vol 10, No. 5, 677-83 (Sep 1964). (PB172298)[1]

R-335 CRYOGENIC ENGINEERING. Nat. Bur. Stand. (U.S.), Tech. News Bull. Vol 48, No. 9, 148-51 (Sep 1964). (PB172299)[1]

R-336 PHYSICAL AND THERMODYNAMIC PROPERTIES OF PARAHYDROGEN. Nat. Bur. Stand. (U. S.), Tech. News Bull. Vol 48, No. 9, 152-3 (Sep 1964). (PB172300)[1]

R-337 NONSPATTERING SOLDER FLUX, by W. R. Bjorklund. Rev. Sci. Instrum. Vol 35, No. 10, 1369-70 (Oct 1964). (PB172301)[1]

R-338 DIELECTRIC POLARIZABILITY OF FLUID PARA-HYDROGEN, by J. W. Stewart. (a) J. Chem. Phys. Vol 40, No. 11, 3297-306 (Jun 1964). (PB172302)[1] (b) Low Temperature Physics LT9 (Proc. IXth International Conf. on Low Temperature Physics, Aug. 31-Sept. 4, 1964, Columbus, Ohio) pt. B, 1230-2. Plenum Press, New York (1965). (PB172340)[1]

R-339 NUCLEATION CHARACTERISTICS OF STATIC LIQUID NITROGEN AND LIQUID HYDROGEN, by J. Hord, R. B. Jacobs, C. C. Robinson and L. L. Sparks. J. Eng. Power Vol 86, 485-94 (Oct 1964). (PB172303)[1]

R-340 THERMODYNAMICS OF HYDROGEN SOLUBILITY IN CRYOGENIC SOLVENTS AT HIGH PRESSURES, by M. Orentlicher and J. M. Prausnitz. Chem. Eng. Sci. Vol 19, 775-82 (Oct 1964). (PB172304)[1]

R-341 STRESS-INDUCED MARTENSITIC TRANSFORMATIONS IN 18Cr-8Ni STEEL, by R. P. Reed and C. J. Guntner. Trans. Met. Soc. AIME Vol 230, 1713-20 (Dec 1964). (PB172305)[1]

R-342 INFLUENCE OF SPIN PARAMAGNETISM ON SUPERCONDUCTIVITY, by R. A. Kamper, R. S. Collier and Y. Ohori. Phys. Rev. Vol 137, No. 1A, A75-7 (Jan 1965). (PB172306)[1]

R-343 COMMERCIAL CARBON COMPOSITION RESISTORS AS PRESSURE TRANSDUCERS, by C. E. Miller, J. W. Dean and T. M. Flynn. Rev. Sci. Instrum. Vol 36, No. 2, 231-2 (Feb 1965). (PB172307)[1]

R-344 THE ROLE OF CRYOGENICS IN THE PRODUCTION OF HIGH AND ULTRA-HIGH VACUUM, by L. O. Mullen and M. J. Hiza. Cryogenics Vol 4, No. 6, 387-94 (Dec 1964). (PB172308)[1]

R-345 THE JOULE-THOMSON PROCESS IN CRYOGENIC REFRIGERATION SYSTEMS, by J. W. Dean and D. B. Mann. Nat. Bur. Stand. (U. S.), Tech. Note No. 227, 39 pages (Feb 1965). (PB184473)[2]

R-346 THERMODYNAMIC PROPERTIES OF NEON FROM 25 TO 300°K BETWEEN 0.1 AND 200 ATMOSPHERES, by R. D. McCarty and R. B. Stewart. Advances in Thermophysical Properties at Extreme Temperatures and Pressures, 84-97. Am. Soc. of Mechanical Engrs., New York (1965). (PB172309)[1]

R-347 A BIBLIOGRAPHY OF EXPERIMENTAL SATURATION PROPERTIES OF THE CRYOGENIC FLUIDS, by N. A. Olien and L. A. Hall. Nat. Bur. Stand. (U. S.), Tech. Note No. 309, 115 pages (Apr 1965). (N65-24999)[7]

R-348 RECOMMENDED MATERIALS AND PRACTICES FOR USE WITH CRYOGENIC PROPELLANTS, by A. F. Schmidt. (a) AIR 839, 29 pp. Soc. of Automotive Engrs., Inc., New York (1965). (Soc. of Automotive Engrs., Inc., New York - $2.00)[4] (b) AIR 839B(Revised) 66 pp. Soc. of Automotive Engrs., Inc., New York (1969). (Soc. of Automotive Engrs., Inc., New York - $2.00)[4]

R-349 MEASUREMENTS OF THE VISCOSITY OF PARAHYDROGEN, by D. E. Diller. (a) J. Chem. Phys. Vol 42, No. 6, 2089-100 (Mar 1965). (PB172311)[1] (b) Low Temperature Physics LT9 (Proc. IXth International Conf. on Low Temperature Physics, Aug. 31-Sept. 4, 1964, Columbus, Ohio) pt B, 1227-9. Plenum Press, New York (1965). (PB172341)[1]

R-350 NUCLEATE BOILING OF HYDROGEN, by D. E. Drayer. Ind. Eng. Chem. Fundam. Vol 4, No. 2, 167-71 (May 1965). (PB172312)[1]

R-351 THERMODYNAMICS OF SOLID CARBON DIOXIDE SOLUBILITY IN LIQUID SOLVENTS AT LOW TEMPERATURES, by A. L. Myers and J. M. Prausnitz. Ind. Eng. Chem. Fundam. Vol 4, No. 2, 209-12 (May 1965). (PB172313)[1]

R-352 AN ANOMALOUS DECREASE OF THE ELASTIC MODULI AT VERY LOW TEMPERATURES IN SOME 300 SERIES STAINLESS STEELS, by R. P. Reed and R. P. Mikesell. Paper A-5 in Advances in Cryogenic Engineering (Proc. 1964 Cryogenic Engineering Conf.) Vol 10, 46-9. Plenum Press, New York (1965). (PB172314)[1]

R-353 CONSIDERATIONS WHEN USING TURBINE-TYPE FLOWMETERS IN CRYOGENIC SERVICE, by W. J. Alspach and T. M. Flynn. Paper F-3 in Advances in Cryogenic Engineering (Proc. 1964 Cryogenic Engineering Conf.) Vol 10, 246-52. Plenum Press, New York (1965). (PB172315)[1]

R-354 TRANSFER LINE SURGE, by W. G. Steward. Paper I-3 in Advances in Cryogenic Engineering (Proc. 1964 Cryogenic Engineering Conf.) Vol 10, 313-22. Plenum Press, New York (1965). (PB172316)[1]

R-355 A PULSED REFRIGERATION SYSTEM FOR CRYOGENIC MAGNET APPLICATION, by T. R. Strobridge and D. B. Mann. Paper N-3 in International Advances in Cryogenic Engineering (Proc. 1964 Cryogenic Engineering Conf.) Vol 10, 54-61. Plenum Press, New York (1965). (PB172317)[1]

R-356 SOLID-VAPOR EQUILIBRIUM IN THE SYSTEM HYDROGEN-METHANE, by M. J. Hiza and R. N. Herring. Paper Q-5 in International Advances in Cryogenic Engineering (Proc. 1964 Cryogenic Engineering Conf.) Vol 10, 182-91. Plenum Press, New York (1965). (PB172318)[1]

R-357 NUCLEATE AND FILM POOL BOILING DESIGN CORRELATIONS FOR O_2, N_2, H_2, AND He, by E. G. Brentari and R. V. Smith. Paper T-1 in International Advances in Cryogenic Engineering (Proc. 1964 Cryogenic Engineering Conf.) Vol 10, 325-41. Plenum Press, New York (1965). (PB172319)[1]

R-358 SOLUBILITY OF SOLIDS IN DENSE GASES, by J. M. Prausnitz. Nat. Bur. Stand. (U.S.), Tech. Note No. 316, 45 pages (Jul 1965). (No charge for single copy)[2]

R-359 A THEORETICAL MODEL FOR PREDICTING THERMAL STRATIFICATION AND SELF PRESSURIZATION OF A FLUID CONTAINER, by R. W. Arnett and D. R. Millhiser. Proceedings of the Conference on Propellant Tank Pressurization and Stratification (NASA, George C. Marshall Space Flight Center, Huntsville, Alabama, Jan 20-21, 1965) Vol 2, 20 pp. NASA, Huntsville (1965). (PB172320)[2]

R-360 THERMODYNAMIC AND RELATED PROPERTIES OF PARAHYDROGEN FROM THE TRIPLE POINT TO 100°K AT PRESSURES TO 340 ATMOSPHERES, by H. M. Roder, L. A. Weber and R. D. Goodwin. Nat. Bur. Stand. (U.S.), Monogr. No. 94, 110 pages (Aug 1965). (N65-32001)[7]

R-361 THE WORLD OF CRYOGENICS. III. CRYOGENICS AT THE NATIONAL BUREAU OF STANDARDS BOULDER LABORATORIES, by B. W. Birmingham. Cryogenics Vol 5, No. 3, 121-8 (Jun 1965). (PB172321)[1]

R-362 ADVANCES IN CRYOGENIC ENGINEERING (Proc. 1964 Cryogenic Engineering Conf., Aug. 18-21, University of Pennsylvania, Philadelphia, Pennsylvania) Vol 10, pt. I (Sections A-L) K. D. Timmerhaus, Editor. Plenum Press, New York (1965). (Plenum Press, New York - $45.00)[4]

R-363 INTERNATIONAL ADVANCES IN CRYOGENIC ENGINEERING (Proc. 1964 Cryogenic Engineering Conf., Aug. 18-21, University of Pennsylvania, Philadelphia, Pennsylvania) Vol 10, pt. II (Sections M-U) K. D. Timmerhaus, Editor. Plenum Press, New York (1965). (Plenum Press, New York - $25.00)[4]

R-364 CRYOGENIC BEHAVIOR OF SELECTED MAGNETIC MATERIALS, by J. J. Gniewek and E. Ploge. J. Res. Nat. Bur. Stand. (U.S.), Sect. C, Vol 69, No. 3, 225-36 (Jul-Sep 1965). (PB172322)[1]

R-365 SURFACE TENSIONS OF NORMAL AND PARA HYDROGEN, by R. J. Corruccini. Nat. Bur. Stand. (U.S.), Tech. Note No. 322, 17 pages (Aug 1965). (COM75-10236)[7]

R-366 SPARK PLANING DAMAGE IN COPPER, by J. J. Gniewek, A. F. Clark and J. C. Moulder. Nat. Bur. Stand. (U.S.), Tech. Note No. 321, 6 pages (Sep 1965). (COM75-10238)[7]

R-367 REFRACTIVE INDEX AND DISPERSION OF LIQUID HYDROGEN, by R. J. Corruccini. Nat. Bur. Stand. (U.S.), Tech. Note No. 323, 22 pages (Sep 1965). (COM75-10237)[7]

R-368 BOILING HEAT TRANSFER FOR OXYGEN, NITROGEN, HYDROGEN, AND HELIUM, by E. G. Brentari, P. J. Giarratano and R. V. Smith. Nat. Bur. Stand. (U.S.), Tech. Note No. 317, 119 pages (Sep 1965). (Out of print).

R-369 PREPARATION OF COPPER CRYSTALS WITH LOW ELECTRICAL RESISTIVITY, by J. J. Gniewek and A. F. Clark. J. Appl. Phys. Vol 36, No. 10, 3358-9 (Oct 1965). (PB172324)[1]

R-370 STRESS ANALYSIS OF TAPE-WOUND MAGNET COILS, by J. Hord. J. Res. Nat. Bur. Stand. (U.S.), Sect. C, Vol 69, No. 4, 287-302 (Oct-Dec 1965). (PB172325)[1]

R-371 SPEED OF SOUND IN FLUID PARAHYDROGEN, by B. A. Younglove. J. Acoust. Soc. Amer. Vol 38, No. 3, 433-8 (Sep 1965). (PB172326)[1]

R-371A SUMMARY OF RECENT DETERMINATIONS OF THE ULTRASONIC VELOCITY IN FLUID PARAHYDROGEN, by B. A. Younglove. Low Temperature Physics LT9 (Proc. IXth International Conf. on Low Temperature Physics, Aug. 31-Sept. 4, 1964, Columbus, Ohio) pt. B, 1223-6. Plenum Press, New York (1965). (PB172327)[1]

R-372 COMBINED ELECTROMAGNETIC AND ELECTROMECHANICAL POWER CONVERTER, by H. Sixsmith. U.S. Patent No. 3,224,818 (Dec 1965). (50¢)[6]

R-373 CONDENSING VACUUM INSULATION, by R. B. Jacobs, L. O. Mullen, D. A. Van Gundy, R. J. Richards and W. G. Steward. U.S. Patent No. 3,137,143 (Jun 1964). (50¢)[5]

R-374 DOUBLE BAYONET INSULATED TRANSFER LINE COUPLING, by D. A. Van Gundy, R. J. Richards, W. G. Steward and R. B. Jacobs. U.S. Patent No. 3,207,533 (Sep 1965). (50¢)[5]

R-375 CRYOGENIC COIL FOR MEGAJOULE ENERGY STORAGE, by V. Arp. Proceedings of the International Symposium on Magnet Technology (Sep 8-10, 1965, Stanford University, California; H. Brechna and H. S. Gordon, Editors). Published by U.S. Atomic Energy Commission, Technical Information Division (TID-4500, 44th ed.). (Complete proceedings available from National Technical Information Service, Springfield, Virginia 22151 at $8.50 per copy). (PB172331)[1]

R-376 IRREGULARITIES IN THE NBS (1955) PROVISIONAL TEMPERATURE SCALE, by H. M. Roder. J. Res. Nat. Bur. Stand. (U.S.), Sect. A, Vol 69, No. 6, 527-30 (Nov-Dec 1965). (PB172332)[1]

R-377 THE SONDHEIMER-WILSON-KOHLER FORMULA IN PLATINUM RESISTANCE THERMOMETRY, by R. J. Corruccini. J. Res. Nat. Bur. Stand. (U.S.), Sect. C, Vol 69, No. 4, 283-6 (Oct-Dec 1965). (PB172333)[1]

R-378 LONGITUDINAL MAGNETORESISTANCE OF COPPER, by R. L. Powell. Low Temperature Physics LT9 (Proc. IXth International Conf. on Low Temperature Physics, Aug. 31-Sept. 4, 1964, Columbus, Ohio) pt. B, 732-5. Plenum Press, New York (1965). (PB172334)[1]

R-379 SUPERCONDUCTING BEHAVIOR OF INDIUM-LEAD ALLOYS, by S. Gygax, J. L. Olsen and R. H. Kropschot. Low Temperature Physics LT9 (Proc. IXth International Conf. of Low Temperature Physics, Aug. 31-Sept. 4, 1964, Columbus, Ohio) pt. A, 587-90. Plenum Press, New York (1965). (PB172335)[1]

R-380 THERMODYNAMIC PROPERTY COMPUTATIONS FOR SYSTEMS ANALYSIS, by J. G. Hust and R. B. Stewart. ASHRAE J. Vol 8, No. 2, 64-8 (Feb 1966). (PB172336)[1]

R-381 THE LOW TEMPERATURE REMOVAL OF SMALL QUANTITIES OF NITROGEN ON METHANE FROM HYDROGEN GAS BY PHYSICAL ADSORPTION ON A SYNTHETIC ZEOLITE, by A. J. Kidnay and M. J. Hiza. AIChE J. Vol 12, No. 1, 58-63 (Jan 1966). (PB172337)[1]

R-382 SLUSH HYDROGEN BEING STUDIED, Nat. Bur. Stand. (U.S.), Tech. News Bull. Vol 50, No. 1, 1 (Jan 1966). (PB172338)[1]

R-383 ENERGY GAP OF SUPERCONDUCTING TIN FILMS IN A MAGNETIC FIELD, by R. S. Collier and R. A. Kamper. Phys. Rev. Vol 143, No. 1, 323-8 (Mar 1966). (PB172339)[1]

R-384 NUCLEAR SPIN RELAXATION IN LIQUID HYDROGEN, by C. E. Miller, T. M. Flynn, T. K. Grady and J. S. Waugh. Physica Vol 32, No. 2, 244-51 (Feb 1966). (PB173436)[1]

R-385 ONE DIMENSIONAL SOLUTIONS OF THE GINZBURG-LANDAU EQUATIONS FOR THIN SUPERCONDUCTING FILMS, by V. D. Arp, R. S. Collier, R. A. Kamper and H. Meissner. Phys. Rev. Vol 145, No. 1, 231-6 (May 1966). (PB173437)[1]

R-386 THERMOPHYSICAL PROPERTIES OF METALS AT CRYOGENIC TEMPERATURES, by R. L. Powell. Behavior of Materials at Cryogenic Temperatures, ASTM Spec. Tech. Pub. No. 387, 134-48 (1966). (PB173438)[1]

R-387 ANALYZING LIQUID H_2 WITH NMR, by C. E. Miller, W. J. Alspach and T. M. Flynn. Cryog. Eng. News Vol 1, No. 8, 66, 68, 82-3 (Jun 1966). (PB173439)[1]

R-388 LOW-TEMPERATURE PHASE TRANSFORMATIONS, by R. P. Reed and J. F. Breedis. Behavior of Materials at Cryogenic Temperatures, ASTM Spec. Tech. Pub. No. 387, 60-132 (1966). (PB173440)[2]

R-389 THE VISCOSITY AND THERMAL CONDUCTIVITY COEFFICIENTS OF DILUTE ARGON BETWEEN 100 AND 2000°K, by H. J. M. Hanley. Nat. Bur. Stand. (U.S.) Tech. Note No. 333, 23 pages (Mar 1966). (No charge for single copy)[6]

R-390 REMOTE POSITIONER FOR ROTARY SWITCHES, by S. B. Lang and A. M. Gray. Rev. Sci. Instrum. Vol 37, No. 6, 799-801 (Jun 1966). (PB173778)[1]

R-391 COMPARISON OF THE LENNARD-JONES, exp-6, AND KIHARA POTENTIAL FUNCTIONS FROM VISCOSITY DATA OF DILUTE ARGON, by H. J. M. Hanley. J. Chem. Phys. Vol 44, No. 11, 4219-22 (Jun 1966). (PB173779)[1]

R-392 A SUPERCONDUCTING LIQUID-LEVEL SENSOR FOR SLUSH HYDROGEN USE, by B. L. Knight, K. D. Timmerhaus and T. M. Flynn. Paper D-5 in Advances in Cryogenic Engineering (Proc. 1965 Cryogenic Engineering Conf.) Vol 11, 218-22. Plenum Press, New York (1966). (PB173780)[1]

R-393 A COLD-MODERATOR REFRIGERATOR INCORPORATING A HIGH-SPEED TURBINE EXPANDER, by R. O. Voth, M. T. Norton and W. A. Wilson. Paper C-3 in Advances in Cryogenic Engineering (Proc. 1965 Cryogenic Engineering Conf.) Vol 11, 126-38. Plenum Press, New York (1966). (PB173781)[1]

R-394 LIQUID-SOLID MIXTURES OF HYDROGEN NEAR THE TRIPLE POINT, by D. B. Mann, P. R. Ludtke, C. F. Sindt and D. B. Chelton. Paper D-4 in Advances in Cryogenic Engineering (Proc. 1965 Cryogenic Engineering Conf.) Vol 11, 207-17. Plenum Press, New York (1966). (PB173782)[1]

R-395 SOLID-VAPOR EQUILIBRIUM IN THE SYSTEM HELIUM-METHANE, by M. J. Hiza and A. J. Kidnay. Paper F-1 in Advances in Cryogenic Engineering (Proc. 1965 Cryogenic Engineering Conf.) Vol 11, 338-48. Plenum Press, New York (1966). (PB173783)[1]

R-396 COMPARATIVE STUDY OF FORCED CONVECTION BOILING HEAT TRANSFER CORRELATIONS FOR CRYOGENIC FLUIDS, by P. J. Giarratano and R. V. Smith. Paper H-1 in Advances in Cryogenic Engineering (Proc. 1965 Cryogenic Engineering Conf.) Vol 11, 492-506. Plenum Press, New York (1966). (PB173784)[1]

R-397 LOW-TEMPERATURE TRANSPORT PROPERTIES OF GASEOUS H_2, D_2, AND HD, by D. E. Diller and E. A. Mason. J. Chem. Phys. Vol 44, No. 7, 2604-9 (Apr 1966). (AD634900)[1]

R-398 HEAT TRANSFER TO A SUBLIMING SOLID-VAPOR MIXTURE OF HYDROGEN BELOW ITS TRIPLE POINT, by M. C. Jones, T. T. Nagamoto and J. A. Brennan. AIChE J. Vol 12, No. 4, 790-5 (Jul 1966). (PB173785)[1]

R-399 TEMPERATURE-ENTROPY DIAGRAM FOR PARAHYDROGEN TRIPLE-POINT REGION, by C. F. Sindt and D. B. Mann. Nat. Bur. Stand. (U.S.) Tech. Note No. 343, 8 pages (Jun 1966). (NBS-TN 343)[7]

R-400 TEMPERATURE EFFECTS ON PRESSURE TRANSDUCERS, by J. W. Dean and T. M. Flynn. ISA Trans. Vol 5, No. 3, 223-32 (Jul 1966). (PB173786)[1]

R-401 MAGNETIC TRANSFORMATION AND THE INFLUENCE OF PLASTIC STRAIN ON THE SHEAR MODULUS OF Fe-Cr-Ni ALLOYS, by R. P. Mikesell and R. P. Reed. J. Res. Nat. Bur. Stand. (U.S.), Sect. C, Vol 70, No. 3, 207-10 (Jul-Sep 1966). (PB173787)[1]

R-402 A SIMPLIFIED METHOD FOR THE PREDICTION OF MULTICOMPONENT ADSORPTION EQUILIBRIA FROM SINGLE GAS ISOTHERMS, by A. J. Kidnay and A. L. Meyers. AIChE J. Vol 12, No. 5, 981-6 (Sep 1966). (PB173788)[1]

R-403 MASS FLOWMETERS IN CRYOGENIC SERVICE, by W. J. Alspach, C. E. Miller and T. M. Flynn. Flow Measurement Symposium (ASME Flow Measurement Conf., Sept., 1966, Pittsburgh, Pennsylvania) 34-56. (PB173789)[2]

R-404 SLUSH HYDROGEN CHARACTERISTICS, by D. B. Mann, C. F. Sindt, P. R. Ludtke and D. B. Chelton. Proceedings of the Conference on Long-Term Cryo-Propellant Storage in Space (NASA, Huntsville, Alabama, Oct 12-13, 1966) 243-56. (PB173790)[1]

R-405 ACCOMODATION FAULTING IN Fe-Ni MARTENSITIC TRANSFORMATION, by R. P. Reed. Acta Met. Vol 14, No. 10, 1392-4 (Oct 1966). (PB173791)[1]

R-406 COMPARISON OF MASS LIMITING TWO-PHASE FLOW IN A STRAIGHT TUBE AND IN A NOZZLE, by D. K. Edmonds and R. V. Smith. Symposium on Two Phase Flow Vol 1, G-401--G-414. Univ.of Exeter, Devon, England (1966). (N65-30470)[1]

R-407 PYROELECTRIC EFFECT IN BONE AND TENDON, by S. B. Lang. Nature Vol 212, No. 5063, 704-5 (Nov 1966). (PB173792)[1]

R-408 CONDENSATION OF DRY AIR ON A LIQUID HYDROGEN COOLED SURFACE IN THE PRESSURE RANGE 10^{-3} TO 10 TORR (KNUDSEN NUMBER OF 10^{-4} TO 1), by J. Hord. Cryogenics Vol 6, No. 5, 285-93 (Oct 1966). (PB174024)[1]

R-409 INFRARED REFLECTANCES OF METALS AT CRYOGENIC TEMPERATURES - A COMPILATION FROM THE LITERATURE, by P. F. Dickson and M. C. Jones. Nat. Bur. Stand. (U.S.), Tech. Note No. 348, 63 pages (Oct 1966). (No charge for single copy)[6]

R-410 THE VISCOSITY AND THERMAL CONDUCTIVITY COEFFICIENTS OF DILUTE NITROGEN AND OXYGEN, by G. E. Childs and H. J. M. Hanley. Nat. Bur. Stand. (U.S.), Tech. Note No. 350, 31 pages (Oct 1966). (No charge for single copy)[6]

R-411 LIQUID HYDROGEN ENGINEERING INSTRUMENTATION, by T. M. Flynn. Liquid Hydrogen, 295-338. International Inst. of Refrigeration, Paris, France (1965). (PB174025)[2]

R-412 PROPERTIES OF LIQUID HYDROGEN, by R. J. Corruccini. Liquid Hydrogen, 65-106. International Inst. of Refrigeration, Paris, France (1965). (PB174026)[2]

R-413 DENSITY-TEMPERATURE FORMULAE FOR COEXISTING LIQUID AND VAPOR AND FOR FREEZING LIQUID PARA-HYDROGEN, by R. D. Goodwin. J. Res. Nat. Bur. Stand.(U.S.), Sect. C, Vol 70, No. 6, 541-4 (Nov-Dec 1966). (PB174027)[1]

R-414 SOLID-VAPOUR EQUILIBRIUM IN THE SYSTEM NEON-METHANE, by M. J. Hiza and A. J. Kidnay. Cryogenics Vol 6, No. 6, 348-54 (Dec 1966). (PB174686)[2]

R-415 INVERSION TEMPERATURES AND PRESSURES FOR CRYOGENIC GASES AND THEIR MIXTURES, by R. D. Gunn, P. L. Chueh and J. M. Prausnitz. Cryogenics Vol 6, No. 6, 324-9 (Dec 1966). (PB174687)[1]

R-416 DENSITOMETER, by C. E. Miller and R. B. Jacobs. U.S. Patent No. 3,298,221 (Jan 1967). (50¢)[5]

R-417 MOLECULAR THERMODYNAMICS OF SIMPLE LIQUIDS--PURE COMPONENTS, by H. Renon, C. A. Eckert and J. M. Prausnitz. Ind. Eng. Chem. Fundam. Vol 6, No. 1, 52-8 (Feb 1967). (PB174689)[1]

R-418 MOLECULAR THERMODYNAMICS OF SIMPLE LIQUIDS--MIXTURES, by C. A. Eckert, H. Renon and J. M. Prausnitz. Ind. Eng. Chem. Fundam. Vol 6, No. 1, 58-67 (Feb 1967). (PB174690)[2]

R-419 QUANTUM MECHANICAL CALCULATIONS OF THE SECOND VIRIAL COEFFICIENTS FOR HYDROGEN, by M. E. Boyd and S. Y. Larsen. Nat. Bur. Stand. (U.S.), Tech. Note No. 412, 16 pages (Apr 1967). (NBS-TN 412 - 15¢)[3]

R-420 THE VISCOSITY AND THERMAL CONDUCTIVITY COEFFICIENTS OF DILUTE NEON, KRYPTON, AND XENON, by H. J. M. Hanley and G. E. Childs. Nat. Bur. Stand. (U.S.), Tech. Note No. 352, 28 pages (Mar 1967). (No charge for single copy)[5]

R-421 SIZE AND POWER REQUIREMENTS OF 4.2°K REFRIGERATORS, by T. R. Strobridge and D. B. Chelton. Paper H-3 in Advances in Cryogenic Engineering (Proc. 1966 Cryogenic Engineering Conf.) Vol 12, 576-84. Plenum Press, New York (1967). (AD 642444)[1]

R-422 HIGH PRESSURE ADSORPTION ISOTHERMS OF NEON, HYDROGEN, AND HELIUM AT 76°K, by A. J. Kidnay and M. J. Hiza. Paper K-5 in Advances in Cryogenic Engineering (Proc. 1966 Cryogenic Engineering Conf.) Vol 12, 730-40. Plenum Press, New York (1967). (PB173795)[1]

R-423 ADVANCES IN CRYOGENIC ENGINEERING (Proc. 1965 Cryogenic Engineering Conf., Aug. 23-25, 1965, Rice University, Houston, Texas; K. D. Timmerhaus, Editor)Vol 11. Plenum Press, New York (1966). (Plenum Press, New York - $45.00)[4]

R-424 ADVANCES IN CRYOGENIC ENGINEERING (Proc. 1966 Cryogenic Engineering Conf., June 13-15, 1966, Univ. of Colorado and NBS Inst. for Materials Research, Cryogenics Division, Boulder, Colorado; K. D. Timmerhaus, Editor) Vol 12. Plenum Press, New York (1967). (Plenum Press, New York - $45.00)[4]

R-425 DEFORMATION TWINNING IN Ni AND F.C.C. Fe-Ni ALLOYS, by R. P. Reed. Phil. Mag. Vol 15, No. 137, 1051-5 (May 1967). (PB175619)[1]

R-426 ELECTRICAL MEASUREMENTS, by R. L. Powell. Trace Characterization Chemical and Physical, Nat. Bur. Stand. (U.S.), Monogr. No. 100, 69-74 (Apr 1967). (PB175620)[1]

R-427 CRYOGENIC THERMOCOUPLE THERMOMETRY, by L. L. Sparks and R. L. Powell. Meas. Data Vol 1, No. 2, 82-90 (Mar-Apr 1967). (PB175621)[1]

R-428 ON THE PROBLEMS OF MEASURING TRANSIENT TEMPERATURE IN CRYOGENIC FLUIDS, by C. E. Miller and T. M. Flynn. ISA Trans. Vol 6, No. 2, 133-8 (Apr-May-Jun 1967). (PB175622)[1]

R-429 AN EQUATION OF STATE FOR FLUID PARAHYDROGEN FROM THE TRIPLE-POINT TO 100°K AT PRESSURES TO 350 ATMOSPHERES, by R. D. Goodwin. J. Res. Nat. Bur. Stand.(U.S.), Sect. A, Vol 71, No. 3, 203-12 (May-Jun 1967). (PB175623)[1]

R-430 SUPERCONDUCTING DEVICES, by T. M. Flynn and K. D. Timmerhaus. Liquid Helium Technology, Bull. IIR Annexe 1966-5 (Meeting of Comm. 1, June 15-17, 1966, Boulder, Colorado 459-90. (PB173793)[2]

R-431 LIQUID-VAPOR EQUILIBRIUM IN THE SYSTEM HELIUM-METHANE, by C. K. Heck and M. J. Hiza. AIChE J. Vol 13, No. 3, 593-9 (May 1967). (PB175624)[1]

R-432 THE SINGLE-ENGINE CLAUDE CYCLE AS A 4.2°K REFRIGERATOR, by R. C. Muhlenhaupt and T. R. Strobridge. Nat. Bur. Stand. (U.S.), Tech. Note No. 354, 77 pages (Jun 1967). (No charge for single copy)[6]

R-433 CORRELATIONS FOR PREDICTING LEAKAGE THROUGH CLOSED VALVES, by J. Hord. Nat. Bur. Stand. (U.S.), Tech. Note No. 355, 17 pages (Aug 1967). (NBS-TN 355 - 20¢)[3]

R-434 LOW-TEMPERATURE (295 TO 4K) MECHANICAL PROPERTIES OF SELECTED COPPER ALLOYS, by R. P. Reed and R. P. Mikesell. J. Mater. Vol 2, No. 2, 370-92 (Jun 1967). (PB176584)[2]

R-435 COMPARISON OF INCOMPRESSIBLE FLOW AND ISOTHERMAL COMPRESSIBLE FLOW FORMULAE, by J. Hord. Nat. Bur. Stand. (U.S.), Tech. Note No. 356, 28 pages (Aug 1967). (No charge for single copy)[6]

R-436 PIPE COUPLING, by D. H. Weitzel. U.S. Patent No. 3,339,948 (Sep 1967). (50¢)[5]

R-437 THE PLATE-LIKE MARTENSITE TRANSFORMATION IN Fe-Ni ALLOYS, by R. P. Reed. Acta Met. Vol 15, No. 8, 1287-96 (Aug 1967). (PB176585)[1]

R-438 CRYOGENIC TRANSFER LINE ARRANGEMENT, by D. B. Mann. U.S. Patent No. 3,332,446 (Jul 1967). (50¢)[5]

R-439 RESPONSE OF PNEUMATIC PRESSURE-MEASUREMENT SYSTEMS TO A STEP INPUT IN THE FREE MOLECULE, TRANSITION, AND CONTINUUM FLOW REGIMES, by J. Hord. ISA Trans. Vol 6, No. 3, 252-60 (Jul 1967). (PB176586)[1]

R-440 CURVE-FITTING TECHNIQUES AND APPLICATIONS TO THERMODYNAMICS, by J. G. Hust and R. D. McCarty. Cryogenics Vol 7, No. 4, 200-6 (Aug 1967). (PB176587)[1]

R-441 CONTRIBUTION OF THERMAL NOISE TO THE LINE-WIDTH OF JOSEPHSON RADIATION FROM SUPERCONDUCTING POINT CONTACTS, by A. H. Silver, J. E. Zimmerman (Ford Motor Co.) and R. A. Kamper (NBS). Appl. Phys. Lett. Vol 11, No. 6, 209-11 (Sep 1967). (PB176588)[1]

R-442 EXPERIMENTAL APPARATUS AND PROCEDURES FOR EVALUATING PARAMETERS AFFECTING THE PUMPING EFFICIENCY OF A CRYOGENICALLY COOLED PLANE, by L. O. Mullen and M. J. Hiza. J. Vac. Sci. Technol. Vol 4, No. 5, 219-29 (Sep 1967). (PB176589)[1]

R-443 LOW TEMPERATURE MECHANICAL PROPERTIES OF COPPER AND SELECTED COPPER ALLOYS - A COMPILATION FROM THE LITERATURE, by R. P. Reed and R. P. Mikesell. Nat. Bur. Stand. (U.S.), Monogr. No. 101, 165 pages (Dec 1967). (NBS-Monogr. 101 - $2.75)[3]

R-444 METALS CHARACTERIZATION BY LOW-TEMPERATURE THERMOELECTRIC METHODS, by L. L. Sparks and R. L. Powell. Meas. Data Vol 1, No. 5, 89-91 (Sep-Oct 1967). (PB177832)[1]

R-445 THERMODYNAMICS OF TRANSPORT PHENOMENA IN MEMBRANE SYSTEMS, by H. J. M. Hanley. J. Chem. Educ. Vol 44, No. 12, 717-23 (Dec 1967). (PB177833)[1]

R-446 THIRD VIRIAL COEFFICIENTS OF NONPOLAR GASES AND THEIR MIXTURES, by P. L. Chueh and J. M. Prausnitz. AIChE J. Vol 13, No. 5, 896-902 (Sep 1967). (PB177834)[1]

R-447 QUALITY DETERMINATION OF LIQUID-SOLID HYDROGEN MIXTURES, by D. E. Daney and D. B. Mann. Cryogenics Vol 7, No. 5, 280-5 (Oct 1967). (PB177835)[1]

R-448 MILIDEGREE NOISE THERMOMETRY, by R. A. Kamper. Proceedings Symp. on the Physics of Superconducting Devices (Univ. of Virginia, Charlottesville, Apr 28-29, 1967) M-1--M-5. Office of Naval Research, Physics Branch, Washington, D.C. (1967). (AD661848)[1]

R-449 TRANSPORT PROPERTIES OF CRYOGENIC LIQUIDS AND THEIR MIXTURES, by G. T. Preston, T. W. Chapman and J. M. Prausnitz. Cryogenics Vol 7, No. 5, 274-9 (Oct 1967). (PB177836)[1]

R-450 THE THERMAL CONDUCTIVITY OF HELIUM GAS AT MODERATE PRESSURES, by H. M. Roder. Thermodynamik Symp., Heidelberg, Germany, Kl. Schafer, Editor (Sponsored by International Union of Pure and Applied Chemistry) Paper No. VI-3, 1-8 (Sep 1967). (PB178805)[1]

R-451 TWO-PHASE (LIQUID-VAPOR), MASS-LIMITING FLOW WITH HYDROGEN AND NITROGEN, by J. A. Brennan, D. K. Edmonds and R. V. Smith. Nat. Bur. Stand. (U.S.), Tech. Note No. 359, 24 pages (Jan 1968). (NBS-TN 359 - 25¢)[3]

R-452 THERMODYNAMIC PROPERTIES OF He^3 - He^4 SOLUTIONS WITH APPLICATIONS TO THE He^3 - He^4 DILUTION REFRIGERATOR, by R. Radebaugh. Nat. Bur. Stand. (U.S.), Tech. Note No. 362, 144 pages (Dec 1967). (COM74-10482)[7]

R-453 ON THE SELECTION OF THE INTERMOLECULAR POTENTIAL FUNCTION: APPLICATION OF STATISTICAL MECHANICAL THEORY TO EXPERIMENT, by H. J. M. Hanley and M. Klein. Nat. Bur. Stand. (U.S.), Tech. Note No. 360, 85 pages (Nov 1967). (PB190125)[2]

R-454 DISCREPANCIES BETWEEN VISCOSITY DATA FOR SIMPLE GASES, by H. J. M. Hanley and G. E. Childs. (a) Science Vol 159, No. 3819, 1114-7 (Mar 8, 1968). (PB177837)[1] (b) Thermal Conductivity (Proc. Seventh Conf., Gaithersburg, Md., Nov. 13-17, 1967) Nat. Bur. Stand. (U.S.) Spec. Publ. No. 302, 597-604 (Sep 1968). (No charge for single copy)[6]

R-455 INFRARED SPECTRAL REFLECTANCES OF METALS AT LOW TEMPERATURE, by P. F. Dickson and M. C. Jones. Cryogenics Vol 8, No. 1, 24-9 (Feb 1968). (PB178750)[1]

R-456 APPLICABILITY OF DILUTE GAS TRANSPORT PROPERTY TABLES TO REAL GASES, by G. E. Childs and H. J. M. Hanley. Cryogenics Vol 8, No. 2, 94-7 (Apr 1968). (PB178751)[1]

R-457 COMPUTER SOLUTIONS FOR THERMAL-ACOUSTICAL OSCILLATIONS IN GAS-FILLED TUBES, by M. T. Norton and R. C. Muhlenhaupt. Nat. Bur. Stand. (U.S.), Tech. Note No. 363, 87 pages (Nov 1967). (NBS-TN 363 - 50¢)[3]

R-458 SLUSH HYDROGEN PUMPING CHARACTERISTICS, by D. E. Daney, P. R. Ludtke, D. B. Chelton and C. F. Sindt. Nat. Bur. Stand. (U.S.), Tech. Note No. 364, 41 pages (Apr 1968). (NBS-TN 364 - 30¢)[3]

R-459 SURVEY OF ELECTRICAL RESISTIVITY MEASUREMENTS ON 16 PURE METALS IN THE TEMPERATURE RANGE 0 to 273°K, by L. A. Hall. Nat. Bur. Stand. (U.S.), Tech. Note No. 365, 113 pages (Feb 1968). (NBS-TN 365 - 60¢)[3]

R-460 SATURATED LIQUID DENSITIES OF OXYGEN, NITROGEN, ARGON, AND PARAHYDROGEN, by H. M. Roder, R. D. McCarty and V. J. Johnson. Nat. Bur. Stand. (U.S.), Tech. Note No. 361, 69 pages (Jan 1968). (COM75-50052)[7]

R-461 A BIBLIOGRAPHY OF THERMOPHYSICAL PROPERTIES OF METHANE FROM 0 TO 300°K, by L. A. Hall. Nat. Bur. Stand. (U.S.), Tech. Note No. 367, 121 pages (May 1968). (NBS-TN 367 - 60¢)[3]

R-462 DIELECTRIC CONSTANT AND POLARIZABILITY DETERMINED FOR SOLID PARAHYDROGEN, by B. A. Younglove. Nat. Bur. Stand. (U.S.), Tech. News Bull. Vol 52, No. 7, 146-7 (Jul 1968). (PB180895)[1]

R-463 TENSILE PROPERTIES OF NEOPRENE BELOW THE GLASS TRANSITION TEMPERATURE, by R. F. Robbins and R. P. Reed. Paper E-1 in Advances in Cryogenic Engineering (Proc. 1967 Cryogenic Engineering Conf.) Vol 13, 252-8. Plenum Press, New York (1968). (PB180896)[1]

R-464 LIQUID-VAPOR AND SOLID-VAPOR EQUILIBRIUM IN THE SYSTEM HYDROGEN-ETHANE, by M. J. Hiza, C. K. Heck and A. J. Kidnay. Paper F-1 in Advances in Cryogenic Engineering (Proc. 1967 Cryogenic Engineering Conf.) Vol 13, 343-56. Plenum Press, New York (1968). (PB180897)[1]

R-465 THE ADSORPTION ISOTHERMS OF METHANE, NITROGEN, HYDROGEN AND THEIR MIXTURES ON CHARCOAL AT 76°K, by A. J. Kidnay, M. J. Hiza and P. F. Dickson. Paper F-6 in Advances in Cryogenic Engineering (Proc. 1967 Cryogenic Engineering Conf.) Vol 13, 397-408. Plenum Press, New York (1968). (PB180887)[1]

R-466 HYDROSTATIC PRESSURE EFFECTS IN CARBON AND GERMANIUM THERMOMETERS, by J. W. Dean and R. J. Richards. Paper H-1 in Advances in Cryogenic Engineering (Proc. 1967 Cryogenic Engineering Conf.) Vol 13, 505-8. Plenum Press, New York (1968). (PB180888)[1]

R-467 HYDROGEN SLUSH DENSITY REFERENCE SYSTEM, by D. H. Weitzel, C. F. Sindt and D. E. Daney. Paper H-3 in Advances in Cryogenic Engineering (Proc. 1967 Cryogenic Engineering Conf.) Vol 13, 523-33. Plenum Press, New York (1968). (PB180889)[1]

R-468 POLARIZABILITY, DIELECTRIC CONSTANT, PRESSURE, AND DENSITY OF SOLID PARAHYDROGEN ON THE MELTING LINE, by B. A. Younglove. J. Chem. Phys. Vol 48, No. 9, 4181-6 (May 1968). (PB180890)[1]

R-469 COOLDOWN TIME FOR SIMPLE CRYOGENIC PIPELINES, by W. G. Steward, R. V. Smith and J. A. Brennan. Developments in Mechanics (Proc. Tenth Midwestern Mechanics Conf., Colorado State Univ., Ft. Collins, Aug 21-23, 1967) Vol 4, 1513-25. Johnson Publishing Co., Boulder, Colo. (1968). (PB180891)[1]

R-470 LONGITUDINAL MAGNETORESISTANCE OF PURE SINGLE-CRYSTAL COPPER, by A. F. Clark and R. L. Powell. Phys. Rev. Lett. Vol 21, No. 12, 802-4 (Sep 1968). (PB180898)[1]

R-471 AN ANALYSIS OF THE BRAYTON CYCLE AS A CRYOGENIC REFRIGERATOR, by R. C. Muhlenhaupt and T. R. Strobridge. Nat. Bur. Stand. (U. S.), Tech. Note No. 366, 116 pages (Aug. 1968). (NBS-TN 366 - $1.25)[3]

R-472 A REPORT ON THE 1967 APPLIED SUPERCONDUCTIVITY CONFERENCE, by B. W. Birmingham, B. B. Goodman, W. H. Hartwig, et al. Cryogenics Vol 8, No. 3, 176-9 (Jun 1968). (PB180899)[1]

R-473 ADVANCES IN CRYOGENIC ENGINEERING (Proc. 1967 Cryogenic Engineering Conference, Stanford Univ., Calif., Aug 21-23, 1967). Vol 13, K. D. Timmerhaus, Editor. Plenum Press, New York (1968). (Plenum Press, New York - $39.50)[4]

R-474 LIQUID-VAPOR AND SOLID-VAPOR EQUILIBRIUM IN THE SYSTEM HYDROGEN-ETHYLENE, by M. J. Hiza, C. K. Heck and A. J. Kidnay. Chem. Eng. Progr., Symp. Series, Vol 64, No. 88, 57-65 (1968). (PB180892)[1]

R-475 TECHNOLOGY OF LIQUID HELIUM. R. H. Kropschot, B. W. Birmingham and D. B. Mann, Editors. Nat. Bur. Stand. (U. S.), Monogr. No. 111, 381 pages (Oct 1968). (NBS-Monogr. 111 - $2.00)[3]

R-476 PROPERTIES OF HELIUM, by D. B. Mann. Chap. 2 in Technology of Liquid Helium (Nat. Bur. Stand. (U. S.), Monogr. No. 111) 33-53 (Oct 1968). (No charge for single copy)[6]

R-477 REFRIGERATION, by T. R. Strobridge. Chap. 4 in Technology of Liquid Helium (Nat. Bur. Stand. (U. S.), Monogr. No. 111) 77-151 (Oct 1968). (No charge for single copy)[6]

R-478 CRYOELECTRONICS, by J. W. Meyer and R. A. Kamper. Chap. 7 in Technology of Liquid Helium (Nat. Bur. Stand. (U. S.), Monogr. No. 111) 299-326 (Oct 1968). (No charge for single copy)[6]

R-479 APPLICATIONS, by R. A. Kamper, R. H. Kropschot and A. F. Schmidt. Chap. 8 in Technology of Liquid Helium (Nat. Bur. Stand. (U. S.), Monogr. No. 111) 327-62 (Oct 1968). (No charge for single copy)[6]

R-480 CORRELATIONS FOR ESTIMATING FLUID LEAKAGE, by J. Hord. Paper 9E presented at the Symposium on Cryogenic Advance in the Space Program (Second Joint AIChE-IIQPR Meeting, Tampa, Fla., May 19-22, 1968) (No charge for single copy)[6]

R-481 SELECTION OF THE INTERMOLECULAR POTENTIAL. PART 2. FROM DATA OF STATE AND TRANSPORT PROPERTIES TAKEN IN PAIRS, by M. Klein and H. J. M. Hanley. Trans. Faraday Soc. No. 551, Vol 64, Part II, 2927-38 (Nov 1968). (AD681551)[1]

R-482 REFRACTIVE INDEX OF GASEOUS AND LIQUID HYDROGEN, by D. E. Diller. J. Chem. Phys. Vol 49, No. 7, 3096-105 (Oct 1, 1968). (PB180893)[1]

R-483 LOW TEMPERATURE THERMAL EXPANSION OF SOME METALLIC ALLOYS, by A. F. Clark. Cryogenics Vol 8, No. 5, 282-9 (Oct 1968). (PB180894)[1]

R-484 THERMAL CONDUCTIVITY OF AEROSPACE ALLOYS AT CRYOGENIC TEMPERATURES, by J. G. Hust, D. H. Weitzel and R. L. Powell. Thermal Conductivity (Proc. Seventh Conference, Gaithersburg, Md., Nov 13-17, 1967) Nat. Bur. Stand. (U. S.), Spec. Publ. 302, 271-8 (Sep 1968). (No charge for single copy)[6]

R-485 DEVELOPMENT AND OPERATION OF A SPECIALIZED TECHNICAL INFORMATION AND DATA CENTER. (THE CRYOGENIC DATA CENTER), by V. J. Johnson. J. Chem. Doc. Vol 8, No. 4, 219-24 (Nov 1968). (PB182280)[1]

R-486 NUCLEAR SPIN-LATTICE RELAXATION IN VERY DILUTE SOLUTIONS OF ORTHOHYDROGEN IN PARAHYDROGEN, by C. E. Miller and M. Lipsicas. Phys. Rev. Vol 176, No. 1, 273-9 (Dec 1968). (PB182279)[1]

R-487 THE THERMODYNAMIC PROPERTIES OF DEUTERIUM, by R. Prydz, K. D. Timmerhaus and R. B. Stewart. Paper F-5 in Advances in Cryogenic Engineering (Proc. 1967 Cryogenic Engineering Conf.) Vol 13, 384-96. Plenum Press, New York (1968). (No charge for single copy)[6]

R-488 CRYOGENIC THERMOCOUPLE RESEARCH, by R. L. Powell and L. L. Sparks. International Conference on Low Temperature Physics (Proc. 11th Conf., Univ. of St. Andrews, Scotland, Aug 21-28, 1968). Univ. of St. Andrews, Scotland (1968). (PB183874)[1]

R-489 SLUSH HYDROGEN FLUID CHARACTERIZATION AND INSTRUMENTATION, by C. F. Sindt, P. R. Ludtke and D. E. Daney. Nat. Bur. Stand. (U.S.),Tech. Note No. 377, 69 pages (Feb 1969). (NBS-TN 377 - 65¢)[3]

R-490 INCIPIENT AND DEVELOPED CAVITATION IN LIQUID CRYOGENS, by D. K. Edmonds and J. Hord. Nat. Bur. Stand. (U.S.), Tech. Note No. 374, 31 pages (Feb 1969). (NBS-TN 374 - 35¢)[3]

R-491 CRYOELECTRONICS, by R. A. Kamper. Cryogenics Vol 9, No. 1, 20-5 (Feb 1969). (PB183875)[1]

R-492 SPECIFIC HEATS C_v OF FLUID OXYGEN FROM THE TRIPLE POINT TO 300 K AT PRESSURES TO 350 ATMOSPHERES, by R. D. Goodwin and L. A. Weber. J. Res. Nat. Bur. Stand. (U.S.), Sect. A, Vol 73, No. 1, 15-24 (Jan 1969). (PB183876)[1]

R-493 THERMODYNAMIC PROPERTIES OF ARGON FROM THE TRIPLE POINT TO 300 K AT PRESSURES TO 1000 ATMOSPHERES, by A. L. Gosman, R. D. McCarty and J. G. Hust. Nat. Stand. Ref. Data Ser., Nat. Bur. Stand. (U.S.), No. 27, 152 pages (Mar 1969). (SN003-003-00637-8 - $1.80)[3]

R-494 REVIEW OF HEAT TRANSFER TO HELIUM I, by R. V. Smith. Cryogenics Vol 9, No. 1, 11-9 (Feb 1969). (PB183877)[1]

R-495 THERMODYNAMIC PROPERTIES OF FLUID OXYGEN AT TEMPERATURES TO 250 K AND PRESSURES TO 350 ATMOSPHERES ON ISOCHORES AT 1.3 to 3.0 TIMES CRITICAL DENSITY, by R. D. Goodwin. J. Res. Nat. Bur. Stand. (U.S.), Sect. A, Vol 73, No. 1, 25-36 (Jan 1969). (PB183878)[1]

R-496 SPECIFIC HEATS OF OXYGEN AT COEXISTENCE, by R. D. Goodwin and L. A. Weber. J. Res. Nat. Bur. Stand. (U.S.), Sect. A, Vol 73, No. 1, 1-13 (Jan 1969). (PB183879)[1]

R-497 DENSITY DEPENDENCE OF EXPERIMENTAL TRANSPORT COEFFICIENTS OF GASES, by H. J. M. Hanley and R. D. McCarty (NBS); and J. V. Sengers (Univ. of Maryland). J. Chem. Phys. Vol 50, No. 2, 857-70 (Jan 15, 1969). (PB183880)[1]

R-498 CURRENT DEVELOPMENTS IN CRYOMEDICINE, by R. V. Smith. Cryogenics Vol 9, No. 2, 84-9 (Apr 1969). (PB183881)[1]

R-499 CRYOGENICS IN UNITED STATES NATIONAL PROGRAMS, by T. M. Flynn and B. W. Birmingham. Cryogenics Vol 9, No. 1, 3-10 (Feb 1969). (PB183882)[1]

R-500 PYROELECTRIC THERMOMETER FOR USE AT LOW TEMPERATURES, by S. B. Lang, S. A. Shaw, L. H. Rice and K. D. Timmerhaus. Rev. Sci. Instrum. Vol 40, No. 2, 274-84 (Feb 1969). (PB183883)[1]

R-501 BELLOWS-SEALED VALVE FOR REACTIVE GASES AT MODERATELY HIGH PRESSURES, by G. C. Straty. Rev. Sci. Instrum. Vol 40, No. 2, 378-9 (Feb 1969). (AD688418)[1]

R-502 A NONSUPERCONDUCTING DETECTION SYSTEM FOR LOW LEVEL dc VOLTAGES, by A. F. Clark and F. R. Fickett. Rev. Sci. Instrum. Vol 40, No. 3, 465-8 (Mar 1969). (PB183884)[1]

R-503 INTERIM VALUES FOR THE VISCOSITY AND THERMAL CONDUCTIVITY COEFFICIENTS OF FLUID He^4 BETWEEN 2 AND 50 K, by H. J. M. Hanley and G. E. Childs. Cryogenics Vol 9, No. 2, 106-11 (Apr 1969). (PB183885)[1]

R-504 A SIMPLE GAS RECIRCULATION PUMP FOR LOW FLOW AND HIGH PRESSURE APPLICATIONS, by M. J. Hiza and A. G. Duncan. Rev. Sci. Instrum. Vol 40, No. 3, 513-4 (Mar 1969). (PB183886)[1]

R-505 NATIONAL PROGRAMS AND THE COMPRESSED GAS INDUSTRY, by B. W. Birmingham and T. M. Flynn. The Future of the Compressed Gas Industry (Proc. 55th Annual Meeting, New York, Jan 16, 1968) 39-50. Compressed Gas Association, Inc., New York (1969). (PB183887)[1]

R-506 ELECTRICAL CONDUCTIVITY OF HIGH PURITY COPPER, by J. J. Gniewek, J. C. Moulder and R. H. Kropschot. Proc. of the Tenth International Conference on Low Temperature Physics, Vol III, Electronic Properties of Metals, 366-70. VINITI, Moscow, USSR (1967). (PB184115)[1]

R-507 FOURTEENTH CRYOGENIC ENGINEERING CONFERENCE, by R. H. Kropschot. Cryogenics Vol 8, No. 6, 347-8 (Dec 1968). (No charge for single copy)[6]

R-508 FLOW AND HEAT TRANSFER CHARACTERISTICS OF SUB-TRIPLE-POINT CRYOGENS IN HEATED TUBES, by M. C. Jones, P. J. Giarratano and A. U. Simpson. Proceedings of the Second International Cryogenic Engineering Conference (Brighton, U. K., May 7-10, 1968) 83-8. Iliffe Science and Technology Publications, Ltd., Guilford, Surrey, U. K. (1968). (PB184116)[1]

R-509 PREPARATION AND CHARACTERIZATION OF SLUSH HYDROGEN AND NITROGEN GELS, by A. S. Rapial and D. E. Daney. Nat. Bur. Stand. (U. S.), Tech. Note No. 378, 43 pages (May 1969). (NBS-TN 378 - 50¢)[5]

R-510 LONGITUDINAL MAGNETORESISTANCE OF PURE COPPER, by R. L. Powell, A. F. Clark and F. R. Fickett. (Paper presented at the Conference on Electron Mean Free Paths in Metals, Zurich, Switzerland, Sep 3-5, 1968). Phys. Kondens. Materie Vol 9, 104-12 (1969). (PB184117)[1]

R-511 REFRIGERATION AT 4° K, by T. R. Strobridge. Proceedings of the 1968 Summer Study on Superconducting Devices and Accelerators, Part I, BNL 50155 (C-55), 193-204. Brookhaven National Lab., Upton, N. Y. (Apr 1969). (PB184220)[1]

R-512 REVIEW OF THE CRYOGENICS SESSION - SECOND WEEK OF THE SUMMER STUDY, by T. R. Strobridge. Proceedings of the 1968 Summer Study on Superconducting Devices and Accelerators, Part I, BNL 50155 (C-55), 368-75. Brookhaven National Lab., Upton, N. Y. (Apr 1969). (PB184221)[1]

R-513 PROPERTIES AND PREPARATION OF HIGH-PURITY ALUMINUM, by V. Arp. Proceedings of the 1968 Summer Study on Superconducting Devices and Accelerators, Part III, BNL 50155 (C-55), 1095-114. Brookhaven National Lab., Upton, N. Y. (Apr 1969). (BNL 50155 (C-55) Part III)[2]

R-514 REVIEW OF HEAT TRANSFER TO HELIUM I, by R. V. Smith. Proceedings of the 1968 Summer Study on Superconducting Devices and Accelerators, Part I, BNL 50155 (C-55), 249-92. Brookhaven National Lab., Upton, N. Y. (Apr 1969). (PB184222)[2]

R-515 THERMAL CONDUCTIVITY OF AEROSPACE ALLOYS AT CRYOGENIC TEMPERATURES, by J. G. Hust and R. L. Powell. Thermal Conductivity (Proc. Eighth Conf., Purdue Univ., West Lafayette, La., Oct 7-10, 1968) 197-208. Plenum Press, New York (1969). (PB186355)[1]

R-516 A TECHNIQUE FOR THE MEASUREMENT OF SPECTRAL REFLECTANCES AT LOW TEMPERATURES IN THE INFRARED AND FAR INFRARED, by M. C. Jones and D. C. Palmer. Progress in Astronautics and Aeronautics, Vol 21, Thermal Design Principles of Spacecraft and Entry Bodies, 543-57. Academic Press, New York (1969). (PB186370)[1]

R-517 FABRICATION OF TUNNEL JUNCTIONS ON NIOBIUM FILMS, by L. O. Mullen and D. B. Sullivan. J. Appl. Phys. Vol 40, No. 5, 2115-7 (Apr 1969). (PB186354)[1]

R-518 TWO-PHASE TWO-COMPONENT CRITICAL FLOW IN A VENTURI, by R. V. Smith, L. B. Cousins and G. F. Hewitt. United Kingdom Atomic Energy Authority, Harwell, Berkshire, England, Rept. No. AERE-R5736 (1968). (No charge for single copy)[6]

R-519 DILUTE GAS VISCOSITIES AT LOW TEMPERATURES, by H. J. M. Hanley and G. E. Childs. J. Chem. Phys. Vol 50, No. 10, 4600-1 (May 1969). (PB186353)[1]

R-520 SELECTION OF THE INTERMOLECULAR POTENTIAL FUNCTION. III. FROM THE ISOTOPIC THERMAL DIFFUSION FACTOR, by H. J. M. Hanley and M. Klein. J. Chem. Phys. Vol 50, No. 11, 4765-70 (Jun 1, 1969). (AD695875)[1]

R-521 A METHOD FOR PRODUCING SMALL GRAIN SIZE IN SUPER-PURITY ALUMINUM, by M. B. Kasen. Trans. Met. Soc. AIME Vol 245, No. 7, 1660-1 (Jul 1969). (AD695876)[1]

R-522 AN AUTOMATED RESILIENCE APPARATUS FOR POLYMER STUDIES FROM -196 TO +180°C, by R. F. Robbins and D. H. Weitzel. Rev. Sci. Instrum. Vol 40, No. 8, 1014-7 (Aug 1969). (PB186351)[1]

R-523 COMMENTS ON "INTERMOLECULAR FORCES: THERMAL DIFFUSION AND DIFFUSION IN He-Kr AND H_2-Kr", by M. J. Hiza and A. G. Duncan. Phys. Fluids Vol 12, No. 7, 1531-2 (Jul 1969). (PB186352)[1]

R-524 STATISTICAL THERMODYNAMICS OF SIMPLE LIQUID MIXTURES. HENRY'S CONSTANTS, by R. C. Miller and J. M. Prausnitz. Ind. Eng. Chem., Fundam. Vol 8, No. 3, 449-52 (Aug 1969). (PB188224)[1]

R-525 A MEMOIR OF RUSSELL B. SCOTT, by V. J. Johnson. Applications of Cryogenic Technology (Proc. CRYO/68 Conf., Chicago, Ill., Jun 9-12, 1968) R. W. Vance and H. Weinstock, Editors, 1-11. Tinnon-Brown, Inc., Los Angeles (1969). (No charge for single copy)[6]

R-526 CRYOGENICS AND NATIONAL GOALS, by T. M. Flynn and B. W. Birmingham. Paper A-1 in Advances in Cryogenic Engineering, (Proc. 1968 Cryogenic Engineering Conf.) Vol 14, 1-12. Plenum Press, New York (1969). (PB188222)[1]

R-527 EQUILIBRIUM GAS-PHASE COMPOSITIONS OF ETHANE AND ETHYLENE IN BINARY MIXTURES WITH HELIUM AND NEON BELOW 150° K AND A CORRELATION FOR DEVIATIONS FROM THE GEOMETRIC MEAN COMBINING RULE, by M. J. Hiza and A. G. Duncan. Paper B-1 in Advances in Cryogenic Engineering (Proc. 1968 Cryogenic Engineering Conf.) Vol 14, 30-40. Plenum Press, New York (1969). (PB188221)[1]

R-528 KINETICS OF ADSORPTION OF METHANE AND NITROGEN FROM HYDROGEN GAS, by A. J. Kidnay, M. J. Hiza and P. F. Dickson. Paper B-2 in Advances in Cryogenic Engineering (Proc. 1968 Cryogenic Engineering Conf.) Vol 14, 41-8. Plenum Press, New York (1969). (PB188220)[1]

R-529 LOW TEMPERATURE MECHANICAL PROPERTIES OF WELDED AND BRAZED COPPER, by R. P. Reed. Paper C-3 in Advances in Cryogenic Engineering (Proc. 1968 Cryogenic Engineering Conf.) Vol 14, 83-7. Plenum Press, New York (1969). (PB188219)[1]

R-530 THERMAL DIFFUSIVITY OF POWDER INSULATION, by R. H. Kropschot, B. L. Knight and K. D. Timmerhaus. Paper F-4 in Advances in Cryogenic Engineering (Proc. 1968 Cryogenic Engineering Conf.) Vol 14, 224-9. Plenum Press, New York (1969). (PB188218)[1]

R-531 CAVITATION IN LIQUID CRYOGENS, by D. K. Edmonds and J. Hord. Paper G-4 in Advances in Cryogenic Engineering (Proc. 1968 Cryogenic Engineering Conf.) Vol 14, 274-82. Plenum Press, New York (1969). (PB188217)[1]

R-532 TWO PHASE (LIQUID VAPOR), MASS LIMITING FLOW WITH HYDROGEN AND NITROGEN, by J. A. Brennan, D. K. Edmonds and R. V. Smith. Paper G-6 in Advances in Cryogenic Engineering (Proc. 1968 Cryogenic Engineering Conf.) Vol 14, 294-8. Plenum Press, New York (1969). (PB188216)[1]

R-533 CRYOGENIC FLOW RESEARCH FACILITY OF THE NATIONAL BUREAU OF STANDARDS, by J. W. Dean, J. A. Brennan and D. B. Mann. Paper H-1 in Advances in Cryogenic Engineering (Proc. 1968 Cryogenic Engineering Conf.) Vol 14, 299-305. Plenum Press, New York (1969). (PB188215)[1]

R-534 PROGRESS ON CRYOGENIC THERMOCOUPLES, by L. L. Sparks, R. L. Powell and W. J. Hall. Paper H-4 in Advances in Cryogenic Engineering (Proc. 1968 Cryogenic Engineering Conf.) Vol 14, 316-21. Plenum Press, New York (1969). (PB188277)[1]

R-535 FLUID PHASE AND TEMPERATURE MEASUREMENT WITH A SINGLE SENSOR, by J. C. Jellison and R. S. Collier. Paper H-5 in Advances in Cryogenic Engineering (Proc. 1968 Cryogenic Engineering Conf.) Vol 14, 322-30. Plenum Press, New York (1969). (PB188276)[1]

R-536 SLUSH HYDROGEN PUMPING CHARACTERISTICS USING A CENTRIFUGAL-TYPE PUMP, by D. E. Daney, P. R. Ludtke, and C. F. Sindt. Paper J-2 in Advances in Cryogenic Engineering (Proc. 1968 Cryogenic Engineering Conf.) Vol 14, 438-45. Plenum Press, New York (1969). (PB188275)[1]

R-537 LATTICE PARAMETERS OF MARTENSITE AND AUSTENITE IN Fe-Ni ALLOYS, by R. P. Reed and R. E. Schramm. J. Appl. Phys. Vol 40, No. 9, 3453-8 (Aug 1969). (PB188274)[1]

R-538 NONANALYTIC VAPOR PRESSURE EQUATION WITH DATA FOR NITROGEN AND OXYGEN, by R. D. Goodwin. J. Res. Nat. Bur. Stand. (U.S.), Sect. A, Vol 73, No. 5, 487-91(Sep-Oct 1969). (PB188273)[1]

R-539 ON EFFICIENT USE OF SELECTIVE VACUUM PUMPING MODES, by L. O. Mullen. J. Environ. Sci. Vol 12, No. 5, 26-30 (Oct 1969). (PB188272)[1]

R-540 REFRIGERATION TECHNIQUES, by T. R. Strobridge. Helium Symposia Proceedings in 1968--A Hundred Years of Helium (Helium Applications Symp., Washington, D.C., Oct 23-24, 1968, and Helium Centennial Symp., Atlantic City, N. J., Sep 11, 1968). U.S. Bur. Mines Inform. Circ. No. 8417, 39-56 (1969). (PB188214)[1]

R-541 HEAT TRANSFER TO SOLID-VAPOR MIXTURES OF CRYOGENS BELOW THEIR TRIPLE POINTS FLOWING THROUGH HEATED TUBES, by M. C. Jones, P. J. Giarratano and A. U. Simpson. AIChE J. Vol 15, No. 5, 890-7 (Nov 1969). (PB188213)[1]

R-542 HEAT AND MASS TRANSFER IN DISPERSED, TWO-PHASE, SINGLE-COMPONENT FLOW, by A. U. Simpson, K. D. Timmerhaus, F. Kreith and M. C. Jones. Int. J. Heat Mass Transfer Vol 12, No. 9, 1141-55 (Sep 1969). (PB188212)[1]

R-543 HARMONIC GENERATION AND SUBMILLIMETER WAVE MIXING WITH THE JOSEPHSON EFFECT, by D. G. McDonald, V. E. Kose, K. M. Evenson, J. S. Wells, and J. D. Cupp. Appl. Phys. Lett. Vol 15, No. 4, 121-2 (Aug 15, 1969). (PB188309)[1]

R-544 THE JOSEPHSON EFFECT, by R. A. Kamper. IEEE Trans. Electron Devices, Vol ED-16, No. 10, 840-4 (Oct 1969). (PB188205)[1]

R-545 SOME APPLICATIONS OF THE JOSEPHSON EFFECT, by R. A. Kamper, L. O. Mullen and D. B. Sullivan. Nat. Bur. Stand. (U.S.), Tech. Note No. 381, 67 pages (Oct 1969). (NBS-TN 381)[7]

R-546 A BIBLIOGRAPHY OF THERMOPHYSICAL PROPERTIES OF AIR FROM 0 TO 300 K, by L. A. Hall. Nat. Bur. Stand. (U.S.), Tech. Note No. 383, 123 pages (Oct 1969). (NBS-TN 383)[7]

R-547 THERMAL CONDUCTANCE AT THE INTERFACE OF A SOLID AND HELIUM II (KAPITZA CONDUCTANCE), by N. S. Snyder. Nat. Bur. Stand. (U.S.), Tech. Note No. 385, 94 pages (Dec 1969). (PB190548)[7]

R-548 FAR-INFRARED ABSORPTION IN LIQUID HYDROGEN, by M. C. Jones. J. Chem. Phys. Vol 51, No. 9, 3833-4 (Nov 1, 1969). (PB188729)[1]

R-549 A COMPILATION AND HISTORICAL REVIEW OF TEMPERATURE SCALE DIFFERENCES, by J. G. Hust. Cryogenics Vol 9, No. 6, 443-55 (Dec 1969). (PB188727)[1]

R-550 CRYOGENIC PROPERTIES OF A POLYURETHANE ADHESIVE, by R. F. Robbins. J. Macromol. Sci. Chem. Vol A3, No. 7, 1367-80 (Nov 1969). (PB188728)[1]

R-551 SATURATION DENSITIES OF OXYGEN IN THE CRITICAL REGION, by L. A. Weber. Phys. Lett. Vol 30A, No. 7, 390-1 (Dec 1969). (PB188832)[1]

R-552 REFRIGERATION FOR SUPERCONDUCTING AND CRYOGENIC SYSTEMS, by T. R. Strobridge. IEEE Trans. Nuclear Science Vol NS-16, No. 3 (Proc. 1969 Particle Accelerator Conf., Washington, D.C., Mar 5-7, 1969)Part 1--Accelerator Engineering and Technology, 1104-8 (Jun 1969). (PB189070)[1]

R-553 ADVANCES IN CRYOGENIC ENGINEERING (Proc. 1968 Cryogenic Engineering Conference, Case Western Reserve Univ., Cleveland, Ohio, Aug 19-21, 1968) Vol 14, K. D. Timmerhaus, Editor. Plenum Press, New York (1969). (Plenum Press, New York - $42.50)[4]

R-554 SUPERCONDUCTOR SWITCH, by V. D. Arp. U.S. Patent No. 3,486,079 (Dec 1969). (50¢)[5]

R-555 THE INFLUENCE OF SURFACE CHARACTERISTICS ON THE BOILING OF CRYOGENIC FLUIDS, by R. V. Smith. J. Eng. Ind. Vol 91, No. 4, 1217-21 (Nov 1969). (PB189071)[1]

R-556 FORMULATION OF A NONANALYTIC EQUATION OF STATE FOR PARAHYDROGEN, by R. D. Goodwin. J. Res. Nat. Bur. Stand.(U.S.), Sect. A, Vol 73, No. 6, 585-91 (Dec 1969). (AD701506)[1]

R-557 PYROELECTRIC EFFECT IN BARIUM TITANATE CERAMIC, by S. B. Lang, L. H. Rice and S. A. Shaw. J. Appl. Phys. Vol 40, No. 11, 4335-40 (Oct 1969). (PB189527)[1]

R-558 INFLUENCE OF EXTERNAL NOISE ON MICROWAVE-INDUCED JOSEPHSON STEPS, by V. E. Kose and D. B. Sullivan. J. Appl. Phys. Vol 41, No. 1, 169-74 (Jan 1970). (PB193853)[1]

R-559 P-V-T, THERMODYNAMIC AND RELATED PROPERTIES OF OXYGEN FROM THE TRIPLE POINT TO 300 K AT PRESSURES TO 33 MN/m^2, by L. A. Weber. J. Res. Nat. Bur. Stand. (U. S.), Sect. A, Vol 74, No. 1, 93-129 (Jan-Feb 1970). (PB193887)[1]

R-560 CRYOGENIC MATERIALS NEEDS, by R. L. Powell. Applying Emerging Technologies (Proc. 5th Annual National Conf. on Industrial Research, Museum of Science and Industry, Chicago, Ill., Sep 18-19, 1969) 102-7. Industrial Research, Inc., Beverly Shores, Indiana (1970). (PB193849)[1]

R-561 HEAT TRANSPORT THROUGH HELIUM II, by V. Arp. Cryogenics Vol 10, No. 2, 96-105 (Apr 1970). (PB193850)[1]

R-562 SOLID-VAPOUR EQUILIBRIA RESEARCH ON SYSTEMS OF INTEREST IN CRYOGENICS, by M. J. Hiza. Cryogenics Vol 10, No. 2, 106-15 (Apr 1970). (PB193851)[1]

R-563 HEAT TRANSPORT THROUGH HELIUM II: KAPITZA CONDUCTANCE, by N. S. Snyder. Cryogenics Vol 10, No. 2, 89-95 (Apr 1970). (PB193852)[1]

R-564 MELTING CURVE AND TRIPLE-POINT PROPERTIES OF FLUORINE, by G. C. Straty and R. Prydz. Phys. Lett. Vol 31A, No. 6, 301-2 (Mar 1970). (AD711739)[1]

R-565 GRAIN BOUNDARY RESISTIVITY OF ALUMINIUM, by M. B. Kasen. Phil. Mag. Vol 21, No. 171, 599-610 (Mar 1970). (AD711740)[1]

R-566 FAR INFRARED ABSORPTION IN LIQUEFIED GASES, by M. C. Jones. Nat. Bur. Stand. (U. S.), Tech. Note No. 390, 43 pages (Apr 1970). (PB191639)[1]

R-567 THERMAL ANCHORING OF WIRES IN CRYOGENIC APPARATUS, by J. G. Hust. Rev. Sci. Instrum. Vol 41, No. 5, 622-4 (May 1970). (PB193834)[1]

R-568 THE VAPOR PRESSURE OF LIQUID FLUORINE, by G. C. Straty and R. Prydz. Paper B-1 in Advances in Cryogenic Engineering (Proc. 1969 Cryogenic Engineering Conf.) Vol 15, 36-41. Plenum Press, New York (1970). (AD711741)[1]

R-569 A MULTIPURPOSE PHASE EQUILIBRIUM APPARATUS TO STUDY MIXTURES OF CRYOGENIC FLUIDS: APPLICATION TO ARGON-METHANE, by A. G. Duncan and M. J. Hiza. Paper B-2 in Advances in Cryogenic Engineering (Proc. 1969 Cryogenic Engineering Conf.) Vol 15, 42-5. Plenum Press, New York (1970). (PB193841)[1]

R-570 ADSORPTION KINETICS IN A TERNARY SYSTEM CONTAINING HYDROGEN, by A. J. Kidnay, M. J. Hiza and P. F. Dickson. Paper B-3 in Advances in Cryogenic Engineering (Proc. 1969 Cryogenic Engineering Conf.) Vol 15, 46-9. Plenum Press, New York, (1970). (PB193842)[1]

R-571 THE P-V-T SURFACE OF OXYGEN IN THE CRITICAL REGION; DENSITIES OF SATURATED LIQUID AND VAPOR, by L. A. Weber. Paper B-4 in Advances in Cryogenic Engineering (Proc. 1969 Cryogenic Engineering Conf.) Vol 15, 50-7. Plenum Press, New York (1970). (PB193843)[1]

R-572 THERMAL CONDUCTIVITY MEASUREMENTS ON FLUID HYDROGEN AT 17 TO 200°K AND PRESSURES TO 10 MN/m^2, by D. E. Diller and H. M. Roder. Paper C-1 in Advances in Cryogenic Engineering (Proc 1969 Cryogenic Engineering Conf.) Vol 15, 58-64. Plenum Press, New York (1970). (PB193845)[1]

R-573 REFRACTIVE INDEX OF LIQUID DEUTERIUM, by G. E. Childs and D. E. Diller. Paper C-2 in Advances in Cryogenic Engineering (Proc. 1969 Cryogenic Engineering Conf.) Vol 15, 65-9. Plenum Press, New York (1970). (PB193844)[1]

R-574 MEASUREMENTS OF THE DIELECTRIC CONSTANT OF SATURATED LIQUID OXYGEN, by B. A. Younglove. Paper C-3 in Advances in Cryogenic Engineering (Proc. 1969 Cryogenic Engineering Conf.) Vol 15, 70-5. Plenum Press, New York (1970). (PB193846)[1]

R-575 LOW-TEMPERATURE ELECTRICAL RESISTIVITY OF SOME ENGINEERING ALLOYS, by A. F. Clark, G. E. Childs and G. H. Wallace. Paper C-5 in Advances in Cryogenic Engineering (Proc. 1969 Cryogenic Engineering Conf.) Vol 15, 85-90. Plenum Press, New York (1970). (PB193847)[1]

R-576 CRYOSTAT AND STRAIN MEASUREMENT FOR TENSILE TESTS TO 1.5° K, by R. P. Reed and R. L. Durcholz. Paper D-3 in Advances in Cryogenic Engineering (Proc. 1969 Cryogenic Engineering Conf.) Vol 15, 109-16. Plenum Press, New York (1970). (PB193848)[1]

R-577 SURVEY OF HEAT TRANSFER TO NEAR-CRITICAL FLUIDS, by R. C. Hendricks, R. J. Simoneau and R. V. Smith. Paper G-1 in Advances in Cryogenic Engineering (Proc. 1969 Cryogenic Engineering Conf.) Vol 15, 197-237. Plenum Press, New York (1970). (PB193854)[2]

R-578 COOLDOWN TRANSIENTS IN CRYOGENIC TRANSFER LINES, by W. G. Steward, R. V. Smith and J. A. Brennan. Paper I-2 in Advances in Cryogenic Engineering (Proc. 1969 Cryogenic Engineering Conf.) Vol 15, 354-63. Plenum Press, New York (1970). (PB193835)[1]

R-579 SLUSH HYDROGEN FLOW CHARACTERISTICS AND SOLID FRACTION UPGRADING, by C. F. Sindt and P. R. Ludtke. Paper I-6 in Advances in Cryogenic Engineering (Proc. 1969 Cryogenic Engineering Conf.) Vol 15, 382-90. Plenum Press, New York (1970). (PB193840)[1]

R-580 PREPARATION AND CHARACTERIZATION OF SLUSH HYDROGEN AND NITROGEN GELS, by D. E. Daney and A. S. Rapial. Paper L-4 in Advances in Cryogenic Engineering (Proc. 1969 Cryogenic Engineering Conf.) Vol 15, 467-75. Plenum Press, New York (1970). (PB193836)[1]

R-581 THE VISCOSITY AND THERMAL CONDUCTIVITY OF DILUTE GASEOUS HYDROGEN FROM 15 TO 5000 K, by H. J. M. Hanley, R. D. McCarty and H. Intemann. J. Res. Nat. Bur. Stand.(U. S.), Sect. A, Vol 74, No. 3, 331-53 (May-Jun 1970). (PB193837)[2]

R-582 THERMAL CONDUCTIVITY OF GASEOUS AND LIQUID HYDROGEN, by H. M. Roder and D. E. Diller. J. Chem. Phys. Vol 52, No. 11, 5928-49 (Jun 1970). (PB193838)[2]

R-583 LIQUEFIED NATURAL GAS AS A CRYOGENIC FLUID--INSTRUMENTATION AND PROPERTIES, by D. B. Mann and H. M. Roder. (a) Proceedings Transmission Conference of A. G. A. Operating Section (New Orleans, La., May 26-27, 1969)T-98--T-106. American Gas Association, Arlington, Va. (1970). (PB193839)[1] (b) Cryogenic Ind. Gases Vol 5, No. 7, 23-9 (Jul-Aug 1970). (Out of print).

R-584 THE EFFECT OF GRAIN BOUNDARIES ON THE RECOVERY OF ELECTRICAL PROPERTIES DURING ANNEALING, by M. B. Kasen. Scr. Met. Vol 4, No. 8, 575-80 (Aug 1970). (PB193833)[1]

R-585 ESTIMATION OF CRITICAL CONSTANTS T_c, ρ_c FROM THE $\rho(T)$ AND $T(\rho)$ RELATIONS AT COEXISTENCE, by R. D. Goodwin. J. Res. Nat. Bur. Stand.(U. S.), Sect. A, Vol 74, No. 2, 221-7 (Mar-Apr 1970). (PB193856)[1]

R-586 ON THE MARTENSITE CRYSTALLOGRAPHY OF Fe-Ni ALLOYS, by H. M. Ledbetter and R. P. Reed. Mater. Sci. Eng. Vol 5, No. 6, 341-9 (Jun 1970). (PB194598)[1]

R-587 A CAPACITOR FOR ACCURATE WIDE RANGE DIELECTRIC CONSTANT MEASUREMENTS ON COMPRESSED FLUIDS, by B. A. Younglove and G. C. Straty. Rev. Sci. Instrum. Vol 41, No. 7, 1087-9 (Jul 1970). (PB194599)[1]

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R-589 FLUORINE COMPATIBLE APPARATUS FOR ACCURATE PVT MEASUREMENTS, by G. C. Straty and R. Prydz. Rev. Sci. Instrum. Vol 41, No. 8, 1223-7 (Aug 1970). (PB194601)[1]

R-590 TECHNIOUES FOR MEASURING STRESS, STRAIN, AND RESISTIVITY AT 4 K FOR VERY SOFT MATERIALS, by R. P. Reed and V. D. Arp. Cryogenics Vol 9, No. 5, 362-4 (Oct 1969). (PB195253)[1]

R-591 ADVANCES IN CRYOGENIC ENGINEERING, Vol 15 (Proc. of the 1969 Cryogenic Engineering Conf., University of California, Los Angeles, Jun 16-18, 1969) K. D. Timmerhaus, Editor. Plenum Press, New York (1970). (Plenum Press, New York - $45.00)[4]

R-592 ELECTRICAL RESISTIVITY OF SOME ENGINEERING ALLOYS AT LOW TEMPERATURES, by A. F. Clark, G. E. Childs and G. H. Wallace. Cryogenics Vol 10, No. 4, 295-305 (Aug 1970). (PB194602)[1]

R-593 PHYSICAL ADSORPTION IN CRYOGENIC ENGINEERING, by A. J. Kidnay and M. J. Hiza. Cryogenics Vol 10, No. 4, 271-7 (Aug 1970). (PB194603)[1]

R-594 THE DENSITY AND TEMPERATURE DEPENDENCE OF THE VISCOSITY AND THERMAL CONDUCTIVITY OF DENSE SIMPLE FLUIDS, by D. E. Diller, H. J. M. Hanley and H. M. Roder. Cryogenics Vol 10, No. 4, 286-94 (Aug 1970). (PB194604)[1]

R-595 PROPERTIES OF FLUORINE ALONG THE VAPOR-LIQUID COEXISTENCE BOUNDARY, by R. Prydz and G. C. Straty. J. Chem. Phys. Vol 53, No. 6, 2359-63 (Sep 15, 1970). (PB195254)[1]

R-596 SURVEY OF ELECTRICAL RESISTIVITY MEASUREMENTS ON 8 ADDITIONAL PURE METALS IN THE TEMPERATURE RANGE 0 TO 273 K, by L. A. Hall and F. E. E. Germann. Nat. Bur. Stand. (U. S.), Tech. Note No. 365-1, 87 pages (Aug 1970). (COM71-00048)[7]

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R-598 THE THERMODYNAMIC PROPERTIES OF COMPRESSED GASEOUS AND LIQUID FLUORINE, by R. Prydz and G. C. Straty. Nat. Bur. Stand. (U. S.), Tech. Note No. 392, 195 pages (Oct 1970). (No charge for single copy)[6]

R-599 THEORY OF He^3 - He^4 DILUTION REFRIGERATORS, by R. Radebaugh and J. D. Siegwarth. Nav. Res. Lab. Rept. No. 7133 (Proc. 1970 Ultralow Temperature Symp., Naval Res. Lab., Washington, D. C., Apr 23-24, 1970) 63-81 (1970). (AD712061)[2]

R-600 ON THE MARTENSITE CRYSTALLOGRAPHY OF THE CUBIC TO ORTHORHOMBIC TRANSFORMATION IN Au-47.5 Cd, by H. M. Ledbetter. Scr. Met. Vol 4, No. 11, 931-7 (Nov 1970). (No charge for single copy)[6]

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R-602 GENERATION OF HARMONICS AND SUBHARMONICS OF THE JOSEPHSON OSCILLATION, by D. B. Sullivan, R. L. Peterson, V. E. Kose and J. E. Zimmerman. J. Appl. Phys. Vol 41, No. 12, 4865-73 (Nov 1970). (No charge for single copy)[6]

R-603 UPPER LIMIT ON ELECTRON-PHONON INTERACTION IN VANADIUM CARBIDE, by D. W. Bloom and L. Finegold (University of Colorado), R. G. Lye (Martin Corp., Baltimore), R. Radebaugh and J. D. Siegwarth. Phys. Lett. Vol 33A, No. 3, 137-8 (Oct 1970). (No charge for single copy)[6]

R-604 SOME VAPOR PRESSURE AND P, V, T DATA ON NITROGEN IN THE RANGE 65 TO 140 K, by L. A. Weber. J. Chem. Thermodyn. Vol 2, No. 6, 839-46 (Nov 1970). (No charge for single copy)[6]

R-605 TABULATED VALUES OF CAVITATION B-FACTOR FOR HELIUM, H_2, N_2, F_2, O_2, REFRIGERANT 114, AND H_2O, by J. Hord and R. O. Voth. Nat. Bur. Stand. (U. S.), Tech. Note No. 397, 109 pages (Feb 1971). (COM71-50060)[7]

R-606 THE PURIFICATION OF HELIUM GAS BY PHYSICAL ADSORPTION AT 76°K, by A. J. Kidnay and M. J. Hiza. AIChE J. Vol 16, No. 6, 949-54 (Nov 1970). (No charge for single copy)[6]

R-607 SPECIFIC HEATS OF FLUORINE AT COEXISTENCE, by R. D. Goodwin and R. Prydz. J. Res. Nat. Bur. Stand. (U. S.), Sect. A, Vol 74, No. 4, 499-505 (Jul-Aug 1970). (AD727812)[1]

R-608 SPECIFIC HEATS, C_v, OF COMPRESSED LIQUID AND GASEOUS FLUORINE AT COEXISTENCE, by R. Prydz and R. D. Goodwin. J. Res. Nat. Bur. Stand. (U. S.), Sect. A, Vol 74, No. 5, 661-5 (Sep-Oct 1970). (AD727813)[1]

R-609 THERMOPHYSICAL PROPERTIES OF METHANE: VIRIAL COEFFICIENTS, VAPOR AND MELTING PRESSURES, by R. D. Goodwin. J. Res. Nat. Bur. Stand. (U. S.), Sect. A, Vol 74, No. 5, 655-60 (Sep-Oct 1970). (No charge for single copy)[6]

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R-611 PVT MEASUREMENTS, VIRIAL COEFFICIENTS, AND JOULE-THOMSON INVERSION CURVE OF FLUORINE, by R. Prydz and G. C. Straty. J. Res. Nat. Bur. Stand. (U.S.), Sect. A, Vol 74, No. 6, 747-60 (Nov-Dec 1970). (AD727814)[1]

R-612 THERMOPHYSICAL PROPERTIES OF METHANE: ORTHOBARIC DENSITIES AND SOME THERMAL PROPERTIES, by R. D. Goodwin. J. Res. Nat. Bur. Stand. (U.S.), Sect. A, Vol 75, No. 1, 15-21 (Jan-Feb 1971). (No charge for single copy)[6]

R-613 A SUMMARY OF THE CHARACTERIZATION STUDY OF SLUSH HYDROGEN, by C. Sindt. Cryogenics Vol 10, No. 5, 372-80 (Oct 1970). (No charge for single copy)[6]

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R-616 m-6-8 POTENTIAL FUNCTION, by M. Klein and H. J. M. Hanley. J. Chem. Phys. Vol 53, No. 12, 4722-3 (Dec 1970). (AD727815)[1]

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R-624 A COMPUTER PROGRAM FOR MARTENSITE CRYSTALLOGRAPHY, by H. M. Ledbetter and C. M. Wayman. Mater. Sci. Eng. Vol 7, 151-7 (Mar 1971). (No charge for single copy)[6]

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R-626 MAGNETORESISTANCE OF VERY PURE POLYCRYSTALLINE ALUMINUM, by F. R. Fickett. Phys. Rev. B Vol 3, No. 6, 1941-52 (Mar 1971). (No charge for single copy)[6]

R-627 CRYOELECTRONICS, by R. A. Kamper. The Helium Society (Proc. 1970 Symp., Washington, D. C., Mar 23-24, 1970) 68-82. The Helium Society, Washington, D. C. (1970). (No charge for single copy)[6]

R-628 LOW TEMPERATURE SPECIFIC HEAT AND THERMAL EXPANSION OF ALLOYS, by A. F. Clark and R. H. Kropschot. Bull. Inst. Int. Froid, Annexe 1970-2 (Proc. Comm. 1, Conf. on Cryophysics and Cryoengineering, Tokyo, Japan, Sep 11-12, 1970) 249-54 (1970). (No charge for single copy)[6]

R-629 NUMERICAL ANALYSIS OF CONTINUOUS AND DISCRETE HEAT EXCHANGERS FOR DILUTION REFRIGERATORS, by R. Radebaugh and J. D. Siegwarth. Bull. Inst. Int. Froid Annexe 1970-2 (Proc. Comm. 1, Conf. on Cryophysics and Cryoengineering, Tokyo, Japan, Sep 11-12, 1970) 57-62 (1970). (No charge for single copy)[6]

R-630 MICROWAVE METHODS FOR CRYOGENIC LIQUID AND SLUSH INSTRUMENTATION, by D. A. Ellerbruch. IEEE Trans. Instrum. Meas. Vol IM-19, No. 4, 412-6 (Nov 1970). (No charge for single copy)[6]

R-631 IRRADIATION EFFECTS ON LOW TEMPERATURE THERMAL AND ELECTRICAL CONDUCTIVITIES OF TWO GRAPHITES, by R. L. Powell and P. Wagner. Carbon (Oxford) Vol 8, 690-2 (1970). (No charge for single copy)[6]

R-632 LNG-2, A REPORT ON THE SECOND INTERNATIONAL CONFERENCE ON LIQUEFIED NATURAL GAS, by N. A. Olien and L. A. Sarkes. Amer. Gas Assoc. Monthly Vol 53, No. 2, 12-4 (Feb 1971). (No charge for single copy)[6]

R-633 SURVEY OF HEAT TRANSFER TO NEAR-CRITICAL FLUIDS, by R. C. Hendricks, R. J. Simoneau and R. V. Smith. NASA Tech. Note No. TN D-5886, 116 pp. (Nov 1970). (N71-13035)[1]

R-634 RESISTANCE OF A SILICON BRONZE AT LOW TEMPERATURES, by D. B. Sullivan. Rev. Sci. Instrum. Vol 42, No. 5, 612-3 (May 1971). (No charge for single copy)[6]

R-635 STUDIES OF A GLASS, CERAMIC CAPACITANCE THERMOMETER BETWEEN 0.025 AND 2.4 K, by W. N. Lawless, R. Radebaugh and R. J. Soulen. Rev. Sci. Instrum. Vol 42, No. 5, 567-70 (May 1971). (No charge for single copy)[6]

R-636 THERMAL CONDUCTIVITY STANDARD REFERENCE MATERIALS FROM 4 TO 300 K. I. ARMCO IRON, by J. G. Hust. Thermal Conductivity (Proc. Ninth Conf., Iowa State Univ., Ames, Oct 6-8, 1969) 217-33. National Technical Information Center, Springfield, Va. (1970). (No charge for single copy)[6]

R-637 CORRECTIONS AND CALCULATIONS ON AN X-RAY DIFFRACTION LINE PROFILE: A COMPUTER PROGRAM, by R. E. Schramm. Nat. Bur. Stand. (U.S.), Tech. Note No. 600, 33 pages (Jun 1971). (COM71-50297)[7]

R-638 THERMOPHYSICAL PROPERTIES OF OXYGEN FROM THE FREEZING LIQUID LINE TO 600 R FOR PRESSURES TO 5000 PSIA, by R. D. McCarty and L. A. Weber. Nat. Bur. Stand. (U.S.), Tech. Note No. 384, 189 pages (Jul 1971). (COM75-10174)[7]

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R-640 SOLID-VAPOR AND LIQUID-VAPOR PHASE EQUILIBRIA FOR THE HELIUM-KRYPTON SYSTEM, by A. J. Kidnay, R. C. Miller and M. J. Hiza. Ind. Eng. Chem. Fundam. Vol 10, No. 3, 459-65 (Aug 1971). (No charge for single copy)[6]

R-641 THERMAL CONDUCTIVITY OF SOLID ARGON, DEUTERIUM, AND METHANE FROM ONE-DIMENSIONAL FREEZING RATES, by D. E. Daney. Cryogenics Vol 11, No. 4, 290-7 (Aug 1971). (No charge for single copy)[6]

R-642 THE LORENZ RATIO AS A TOOL FOR PREDICTING THE THERMAL CONDUCTIVITY OF METALS AND ALLOYS, by J. G. Hust and A. F. Clark. Mater. Res. Stand. Vol 11, No. 8, 22-4 (Aug 1971). (No charge for single copy)[6]

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R-648 THE SPECIFIC HEAT AT CONSTANT OSMOTIC PRESSURE OF He^3 IN SUPERFLUID He^4, by R. Radebaugh and J. D. Siegwarth. Proceedings of the International Conference on Low Temperature Physics 12th (Kyoto, Japan, Sep 4-10, 1970) 163-5. Keigaku Publishing Co., Tokyo, Japan (1971). (No charge for single copy)[5]

R-649 STUDY OF CRYOGENIC STORAGE TANK FATIGUE LIFE - Low Temperature Mechanical Testing of AISI 304 and 310 Stainless Steels, by R. P. Reed, R. L. Durcholz, R. E. Schramm, and T. J. Patrician. Nat. Bur. Stand. (U.S.),Tech. Note No. 609, 86 pages (Aug 1971). (SN003-003-00911-3 - $1.25)[3]

R-650 AN EVALUATION OF POSITIVE DISPLACEMENT CRYOGENIC VOLUMETRIC FLOWMETERS, by J. A. Brennan, J. W. Dean, D. B. Mann and C. H. Kneebone. Nat. Bur. Stand. (U.S.),Tech. Note No. 605, 134 pages (Jul 1971). (COM71-50332)[7]

R-651 STEAM-WATER, CRITICAL FLOW IN A VENTURI, by R. V. Smith. Nat. Bur. Stand. (U.S.),Tech. Note No. 608, 25 pages (Jul 1971). (No charge for single copy)[5]

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R-654 ON THE TRACE ANALYSIS OF PLANAR FEATURES IN ELECTRON MICROSCOPY, by H. M. Ledbetter and T. J. Patrician. Phys. Status Solidi Vol 6, No. 1, 305-10 (Jul 1971). (No charge for single copy)[5]

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R-662 SENSITIVITY ENHANCEMENT OF SUPERCONDUCTING QUANTUM INTERFERENCE DEVICES THROUGH THE USE OF FRACTIONAL-TURN LOOPS, by J. E. Zimmerman. J. Appl. Phys. Vol 42, No. II, 4483-7 (Oct 1971). (No charge for single copy)[6]

R-663 CHARACTERISTICS OF SLUSH AND BOILING METHANE AND METHANE MIXTURES, by C. F. Sindt and P. R. Ludtke. International Congress of Refrigeration, XIIIth (Washington, D. C., Aug 27-Sep 3, 1971) 6 pp. International Institute of Refrigeration, Paris, France (1971). (No charge for single copy)[6]

R-664 THERMAL CONDUCTIVITY, ELECTRICAL RESISTIVITY, AND THERMOPOWER OF AEROSPACE ALLOYS FROM 4 TO 300 K, by J. G. Hust, D. H. Weitzel and R. L. Powell. J. Res. Nat. Bur. Stand. (U.S.), Sect. A, Vol 75, No. 4, 269-77, (Jul-Aug 1971). (No charge for single copy)[6]

R-665 MECHANICAL ANALOGS OF TIME DEPENDENT JOSEPHSON PHENOMENA, by D. B. Sullivan and J. E. Zimmerman. Amer. J. Phys. Vol 39, No. 12, 1504-17 (Dec 1971). (No charge for single copy)[6]

R-666 APPARATUS FOR IMPACT-FATIGUE TESTING, by R. E. Schramm, R. L. Durcholz and R. P. Reed. J. Res. Nat. Bur. Stand. (U.S.), Sect. C, Vol 75, No. 2, 95-8 (Apr-Jun 1971). (No charge for single copy)[6]

R-667 CRYOGENIC FLOW RESEARCH FACILITY PROVISIONAL ACCURACY STATEMENT, by J. W. Dean, J. A. Brennan, D. B. Mann and C. H. Kneebone. Nat. Bur. Stand. (U.S.), Tech. Note No. 606, 40 pages (Jul 1971). (COM71-50325)

R-668 RECOMMENDATIONS FOR DATA COMPILATIONS AND FOR THE REPORTING OF MEASUREMENTS OF THE THERMAL CONDUCTIVITY OF GASES, by H. J. M. Hanley, M. Klein, P. E. Liley, et al. J. Heat Transfer Vol 93, No. 4, 479-80 (Nov 1971). (No charge for single copy)[6]

R-669 HEAT OF MIXING DERIVED FROM LIQUID-VAPOR EQUILIBRIUM DATA: A STUDY OF THE ARGON-METHANE, NORMAL HYDROGEN-NEON, AND NORMAL DEUTERIUM-NEON SYSTEMS, by A. G. Duncan and M. J. Hiza. Ind. Eng. Chem. Fundam. Vol 11, No. 1, 38-45 (Feb 1972). (No charge for single copy)[6]

R-670 LOW-TEMPERATURE TENSILE PROPERTIES OF POLYETHYLENE TEREPHTHALATE MULTIFIBER YARN AND POLYSTYRENE FOAM, by R. P. Reed, R. L. Durcholz and J. M. Arvidson. Paper B-2 in Advances in Cryogenic Engineering (Proc. 1970 Cryogenic Engineering Conf.) Vol 16, 37-45. Plenum Press, New York (1971). (No charge for single copy)[6]

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R-672 ADVANCES IN THERMAL INSULATION, by R. H. Kropschot. Paper D-1 in Advances in Cryogenic Engineering (Proc. 1970 Cryogenic Engineering Conf.) Vol 16, 104-8. Plenum Press, New York (1971). (No charge for single copy)[6]

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R-674 MICROWAVE METHODS FOR CRYOGENIC LIQUID AND SLUSH INSTRUMENTATION, by D. A. Ellerbruch. Paper F-2 in Advances in Cryogenic Engineering (Proc. 1970 Cryogenic Engineering Conf.) Vol 16, 241-50. Plenum Press, New York (1971). (No charge for single copy)[6]

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R-679 A MECHANICAL SUPERCONDUCTING SWITCH FOR LOW TEMPERATURE INSTRUMENTATION, by J. D. Siegwarth and D. B. Sullivan. Rev. Sci. Instrum. Vol 43, No. 1, 153-4 (Jan 1972). (No charge for single copy)[S]

R-680 THE FIFTH SYMPOSIUM ON TEMPERATURE (Conference Report), by L. G. Rubin, R. L. Powell and A. C. Anderson. Cryogenics Vol 11, No. 6, 489-93 (Dec 1971). (No charge for single copy)[S]

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R-686 INFRARED ABSORPTIVITIES OF TRANSITION METALS AT ROOM AND LIQUID-HELIUM TEMPERATURES, by M. C. Jones and D. C. Palmer. J. Opt. Soc. Amer. Vol 62, No. 1, 353-60 (Mar 1972). (No charge for single copy)[S]

R-687 CHARACTERIZATION OF HIGH PURITY METALS BY THE EDDY CURRENT DECAY METHOD, by A. F. Clark, V. A. Deason and R. L. Powell. Cryogenics Vol 12, No. 1, 35-9 (Feb 1972). (No charge for single copy)[S]

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R-699 CAVITATION IN LIQUID CRYOGENS. I - VENTURI, by J. Hord, L. M. Anderson, and W. J. Hall. National Aeronautics and Space Administration, Washington, D. C., Contr. Rept. No. NASA-CR-2054 (May 1972). (N72-24363)[1]

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R-708 SAFETY OF HYDROGEN PRESSURE GAUGES, by R. O. Voth. Paper F-2 in Advances in Cryogenic Engineering Vol 17, 182-7. Plenum Press, New York (1972). (No charge for single copy)[5]

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R-710 FORCED FLOW, SINGLE-PHASE HELIUM COOLING SYSTEMS, by V. Arp. Paper J-4 in Advances in Cryogenic Engineering, Vol 17, 342-51. Plenum Press, New York (1972). (No charge for single copy)[5]

R-711 ADVANCES IN CRYOGENIC ENGINEERING (Proc. of the 1970 Cryogenic Engineering Conference, June 17-19, Colorado Univ., Boulder) Vol 16, K. D. Timmerhaus, Ed. Plenum Press, New York (1971). (Plenum Press, New York - $45.00)[4]

R-712 ADVANCES IN CRYOGENIC ENGINEERING (A Collection of Invited Papers and Contributed Papers Presented at National Technical Meetings During 1970 and 1971) Vol 17, K. D. Timmerhaus, Ed. Plenum Press, New York (1972). (Plenum Press, New York - $39.50)[4]

R-713 REFERENCE TABLES FOR LOW-TEMPERATURE THERMOCOUPLES, by L. L. Sparks, R. L. Powell and W. J. Hall. Nat. Bur. Stand. (U.S.), Monogr. No. 124, 61 pages (Jun 1972). (COM74-11728)[7]

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R-719 THERMOPHYSICAL PROPERTIES OF METHANE, by R. D. Goodwin. International Conference and Exhibition on Liquefied Natural Gas, 3rd (Washington, D. C., Sep 24-28, 1972). Institute of Gas Technology, Chicago, Ill. (1972). (No charge for single copy)[5]

R-720 THERMOPHYSICAL PROPERTIES OF METHANE, by R. D. Goodwin. Natural Gas Research and Technology, Proc. 2nd Conf. (Atlanta, Ga., Jun 5-7, 1972). Institute of Gas Technology, Chicago, Ill. (1972). (No charge for single copy)[5]

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R-724 ARGON THIRD VIRIAL COEFFICIENTS, by H. J. M. Hanley and R. D. McCarty. J. Chem. Phys. Vol 57, No. 7, 3023-5 (Oct 1972). (No charge for single copy)[6]

R-725 COMMENTS ON THE INTERATOMIC POTENTIAL FOR ARGON, by H. J. M. Hanley, J. A. Barker, J. M. Parson, Y. T. Lee and M. Klein. Mol. Phys. Vol 24, No. 1, 11-15 (Jul 1972). (No charge for single copy)[6]

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R-729 ASRDI OXYGEN TECHNOLOGY SURVEY. VOLUME I: THERMOPHYSICAL PROPERTIES. Edited by H. M. Roder and L. A. Weber. NASA Spec. Publ. No. 3071, 432 pages (1972). (NASA SP-3071)[2]

R-730 THERMOPHYSICAL PROPERTIES OF HELIUM-4 FROM 2 TO 1500 K WITH PRESSURES TO 1000 ATMOSPHERES, by R. D. McCarty. Nat. Bur. Stand. (U.S.), Tech. Note No. 631, 161 pages (Nov 1972). (COM75-10334)[7]

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R-739 ASRDI OXYGEN TECHNOLOGY SURVEY. VOLUME III: HEAT TRANSFER AND FLUID DYNAMICS ABSTRACTS OF SELECTED TECHNICAL REPORTS AND PUBLICATIONS. Edited by A. F. Schmidt. NASA Spec. Publ. No. 3076, 77 pages (1972). (NASA SP-3076)[1]

R-740 QUANTUM MECHANICAL MEASUREMENT OF rf ATTENUATION, by R. A. Kamper, M. B. Simmonds, R. T. Adair and C. A. Hoer. Applied Superconductivity Conference (Proc. 1972 Conf., Annapolis, Md., May 1-3, 1972) 696-700. IEEE, Inc., N. Y. (1972). (No charge for single copy)[6]

R-741 PRECISE ELECTRICAL MEASUREMENTS AT LOW TEMPERATURE, by D. B. Sullivan. Applied Superconductivity Conference (Proc. 1972 Conf., Annapolis, Md., May 1-3, 1972) 631-9. IEEE, Inc., N. Y. (1972). (No charge for single copy)[6]

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R-743 CAVITATION IN LIQUID CRYOGENS - II. HYDROFOIL, by J. Hord. National Aeronautics and Space Administration, Washington, D. C., Contr. Rept. No. 2156, 162 pages (Jan 1973). (NASA CR-2156)[1]

R-744 CRITICAL TWO-PHASE FLOW FOR CRYOGENIC FLUIDS, by R. V. Smith, K. R. Randall and R. Epp. Nat. Bur. Stand. (U.S.), Tech. Note No. 633, 80 pages (Jan 1973). (COM73-60239)[7]

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R-747 A NEW TECHNIQUE FOR RF MEASUREMENTS USING SUPERCONDUCTORS, by R. A. Kamper, M. B. Simmonds, R. T. Adair and C. A. Hoer. Proc. IEEE Vol 61, No. 1, 121-2 (Jan 1973). (No charge for single copy)[6]

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R-751 THE JOSEPHSON JUNCTION AND ITS RAMIFICATIONS IN STANDARDS AND MEASUREMENTS, by R. A. Kamper. Joint Measurement Conf., Proc. (National Bureau of Standards, Boulder, Colo., June 21-23, 1972) pages 113-7. Instrument Society of America, Pittsburgh, Pa. (1972). (No charge for single copy)[5]

R-752 POSSIBLE PARAMETRIC CAPACITANCE IN JOSEPHSON JUNCTIONS, by J. E. Zimmerman. Phys. Lett. Vol 42A, No. 5, 375-6 (Jan 1973). (No charge for single copy)[6]

R-753 DIRECTORY OF EUROPEAN LOW TEMPERATURE RESEARCH, by E. A. Edelsack, R. Kropschot, N. A. Olien and J. L. Olsen. Office of Naval Research, London, England, Rept. No. ONRL-D-16-73, 37 pages (Feb 1973). (Single copy available from Office of Naval Research, Branch Office, London, Box 39, FPO, New York, New York 09510 - No charge)

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R-762 CAVITATION IN LIQUID CRYOGENS. III. OGIVES, by J. Hord. National Aeronautics and Space Administration, Washington, D. C., Contr. Rept. No. 2242, 244 pages (May 1973) (NASA CR-2242)[1]

R-763 SURVEY OF NOISE THERMOMETRY, by R. A. Kamper. Temperature Its Measurment and Control in Science and Industry (Proc. Fifth Symp. on Temperature, Washington, D. C., June 21-24, 1971) Vol 4, Pt. 1, 349-54. Instrument Society of America, Pittsburgh, Pa. (1972). (No charge for single copy)[6]

R-764 CALIBRATION OF CAPSULE PLATINUM RESISTANCE THERMOMETERS AT THE TRIPLE POINT OF WATER, by L. L. Sparks and R. L. Powell. Temperature Its Measurement and Control in Science and Industry (Proc. Fifth Symp. on Temperature, Washington, D. C., June 21-24, 1971) Vol 4, Pt. 2, 1415-21. Instrument Society of America, Pittsburgh, Pa. (1972). (No charge for single copy)[6]

R-765 THE FITTING OF RESISTANCE THERMOMETER DATA BY ORTHOGONAL FUNCTIONS, by R. L. Powell, W. J. Hall and J. G. Hust. Temperature Its Measurement and Control in Science and Industry (Proc. Fifth Symp. on Temperature, Washington, D. C., June 21-24, 1971) Vol 4, Pt. 2, 1423-31. Instrument Society of America, Pittsburgh, Pa. (1972). (No charge for single copy)[6]

R-766 METHODS FOR CRYOGENIC THERMOCOUPLE THERMOMETRY, by J. G. Hust, R. L. Powell and L. L. Sparks. Temperature Its Measurement and Control in Science and Industry (Proc. Fifth Symp. on Temperature, Washington, D. C., June 21-24, 1971) Vol 4, Pt. 3, 1525-35. Instrument Society of America, Pittsburgh, Pa. (1972). (No charge for single copy)[6]

R-767 REFERENCE DATA FOR THERMOCOUPLE MATERIALS BELOW THE ICE POINT, by L. L. Sparks and R. L. Powell. Temperature Its Measurement and Control in Science and Industry (Proc. Fifth Symp. on Temperature, Washington, D. C., June 21-24, 1971) Vol 4, Pt. 3, 1569-77. Instrument Society of America, Pittsburgh, Pa. (1972). (No charge for single copy)[6]

R-768 REVISION OF THE STANDARD REFERENCE DATA FOR THERMOCOUPLES, by R. L. Powell. Temperature Its Measurement and Control in Science and Industry (Proc. Fifth Symp. on Temperature, Washington, D. C., June 21-24, 1971) Vol 4, Pt. 3, 1579-84. Instrument Society of America, Pittsburgh, Pa. (1972). (No charge for single copy)[6]

R-769 PROPERTIES OF NONSUPERCONDUCTING TECHNICAL SOLIDS AT LOW TEMPERATURES, by F. R. Fickett. International Conference on Magnet Technology, 4th (Proc. 1972 Conf., Brookhaven National Lab., Upton, N. Y., Sep 19-22, 1972) 498-516. Atomic Energy Commission, Washington, D. C. (1972). (No charge for single copy)[6]

R-770 TENSILE PROPERTIES OF POLYURETHANE AND POLYSTYRENE FOAMS FROM 76 TO 300 K, by R. P. Reed, J. M. Arvidson, and R. L. Durcholz. Paper E-3 in Advances in Cryogenic Engineering Vol 18, 184-93. Plenum Press, New York (1973). (No charge for single copy)[6]

R-771 COMPRESSIVE PROPERTIES OF POLYURETHANE AND POLYSTYRENE FOAMS FROM 76 TO 300 K, by J. M. Arvidson, R. L. Durcholz, and R. P. Reed. Paper E-4 in Advances in Cryogenic Engineering Vol 18, 194-201. Plenum Press, New York (1973). (No charge for single copy)[6]

R-772 CONTINUOUS LIQUID LEVEL MEASUREMENTS WITH TIME-DOMAIN REFLECTOMETRY, by J. E. Cruz, E. H. Rogers, and A. E. Heister. Paper H-4 in Advances in Cryogenic Engineering Vol 18, 323-7. Plenum Press, New York (1973). (No charge for single copy)[6]

R-773 LOW-TEMPERATURE NITROGEN EJECTOR PERFORMANCE, by D. E. Daney, P. M. McConnell and T. R. Strobridge. Paper L-4 in Advances in Cryogenic Engineering Vol 18, 476-85. Plenum Press, New York (1973). (No charge for single copy)[6]

R-774 ADVANCES IN CRYOGENIC ENGINEERING (Proc. 1972 Cryogenic Engineering Conf., Colorado Univ., Boulder, Aug 9-11, 1972) Vol 18, K. D. Timmerhaus, Ed., 533 pages. Plenum Press, New York (1973). (Plenum Press, New York - $39.50)[4]

R-775 KEEPING UP WITH LNG, by N. A. Olien and L. A. Sarkes. Amer. Gas Assoc. Monthly Vol 55, No. 7-8, 29, 31 (Jul-Aug 1973). (No charge for single copy)[6]

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R-781 SOME SOUND VELOCITY MEASUREMENTS ON LIQUID FLUORINE, by G. C. Straty and B. A. Younglove. J. Chem. Phys. Vol 58, No. 5, 2191-2 (Mar 1973). (No charge for single copy)[6]

R-782 HELIUM HEAT TRANSFER, by R. H. Kropschot. Application of Superconducting Cable in Electrical Engineering and High Energy Physics (Proc. Fall Meeting held in Titisee, Germany, sponsored by Kernforschungszentrum, Institut fuer Experimentelle Kernphysik, Karlsruhe, Germany, together with FA Teife Temperaturen der DPG, Oct 9-13, 1972) D-1 - D32. Gesellschaft fuer Kernforschung, Karlsruhe, Germany (1973). (No charge for single copy)[6]

R-783 TEMPERATURE SCALES, THERMOCOUPLES, AND RESISTANCE THERMOMETERS, by H. H. Plumb, R. L. Powell, W. J. Hall, and J. F. Swindells. American Institute of Physics Handbook, Third Edition, Chap. 4a, 4-2 - 4-21. McGraw Hill, Inc., New York (1972). (No charge for single copy)[6]

R-784 THERMAL CONDUCTIVITY, by R. L. Powell and G. E. Childs. American Institute of Physics Handbook, Third Edition, Chap. 4g, 4-142 - 4-162. McGraw Hill, Inc., New York (1972). (No charge for single copy)[6]

R-785 ABILITY OF A CO_2 LASER TO ASSIST ICE BREAKERS, by A. F. Clark, J. C. Moulder, and R. P. Reed. Appl. Opt. Vol 12, No. 6, 1103-4 (Jun 1973). (No charge for single copy)[6]

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R-787 PROPERTIES DATA FOR LNG, by D. E. Diller and L. A. Sarkes. Amer. Gas. Assoc. Monthly Vol 55, No. 9, 27-8 (Sep 1973). (No charge for single copy)[6]

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R-789 LIQUID-VAPOR EQUILIBRIA RESEARCH ON SYSTEMS OF INTEREST IN CRYOGENICS - A SURVEY, by A. J. Kidnay, M. J. Hiza, and R. C. Miller. Cryogenics Vol 13, No. 10, 575-99 (Oct 1973). (No charge for single copy)[6]

R-790 THERMAL CONDUCTIVITY OF SOLIDS AT ROOM TEMPERATURE AND BELOW. A REVIEW AND COMPILATION OF THE LITERATURE, by G. E. Childs, L. J. Ericks, and R. L. Powell. Nat. Bur. Stand. (U. S.), Monogr. No. 131, 624 pages (Sep 1973). (SN003-003-01076-6 - $10.70)[5]

R-791 SURVEY OF THE PROPERTIES OF THE HYDROGEN ISOTOPES BELOW THEIR CRITICAL TEMPERATURES, by H. M. Roder, G. E. Childs, R. D. McCarty, and P. E. Angerhofer. Nat. Bur. Stand. (U. S.), Tech. Note No. 641, 121 pages (Aug 1973). (COM75-10281)[7]

R-792 A COMPILATION AND EVALUATION OF MECHANICAL, THERMAL, AND ELECTRICAL PROPERTIES OF SELECTED POLYMERS, by R. E. Schramm, A. F. Clark, and R. P. Reed. Nat. Bur. Stand. (U.S.), Monogr. No. 132, 848 pages (Sep 1973). (SN003-003-01082-1 - $15.80)[3]

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R-796 THERMODYNAMIC AND TRANSPORT PROPERTIES OF CRYOGENIC PROPELLANTS AND RELATED FLUIDS, by V. J. Johnson. Cryogens and Gases. Testing Methods and Standards Development. American Society for Testing and Materials, Philadelphia, Pa., Publication No. STP 537, 64-78 (1973). (No charge for single copy)[6]

R-797 THE THERMODYNAMIC PROPERTIES OF COMPRESSED GASEOUS AND LIQUID FLUORINE, by R. Prydz and G. C. Straty. Nat. Bur. Stand. (U.S.), Tech. Note No. 392-Revised, 197 pages (Sep 1973). (COM74-50057)[7]

R-798 THERMOPHYSICAL PROPERTIES OF NITROGEN FROM THE FUSION LINE TO 3500 R (1944 K) FOR PRESSURES TO 150,000 PSIA (10342 x 10^5 N/m^2), by R. T. Jacobsen, R. B. Stewart, R. D. McCarty and H. J. M. Hanley. Nat. Bur. Stand. (U.S.), Tech. Note No. 648, 162 pages (Dec 1973). (SN003-003-01246-7 - $1.25)[3]

R-799 SUPERCRITICAL HELIUM HEAT TRANSFER, by P. J. Giarratano. Applications of Cryogenic Technology, Vol 5 (Proc. of the CRYO-72 Conf., Chicago, Ill., Oct 3-5, 1972), Chap. 4, 52-89. Scholium International, Inc., Whitestone, N. Y. (1973). (No charge for single copy)[6]

R-800 DIELECTRIC CONSTANT AND POLARIZABILITY OF SATURATED AND COMPRESSED FLUID METHANE, by G. C. Straty and R. D. Goodwin. Cryogenics Vol 13, No. 12, 712-5 (Dec 1973). (No charge for single copy)[6]

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R-807 PROGRAMS ON LARGE SCALE APPLICATIONS OF SUPERCONDUCTIVITY IN THE UNITED STATES, by R. L. Powell, F. R. Fickett and B. W. Birmingham. Superconducting Machines and Devices - Large Systems Applications (Proc. NATO Advanced Study Institute, Entreves, Italy, Sep 5-14, 1973), S. Foner and B. B. Schwartz, Editors, 651-75. Plenum Publishing Corp., New York (1974). (No charge for single copy)[6]

R-808 ANALYSIS OF THERMAL DIFFUSIVITY EVALUATION UNDER TRANSIENT CONDITIONS FOR POWDER INSULATIONS, by B. L. Knight, K. D. Timmerhaus and R. H. Kropschot. Paper C-2 in Advances in Cryogenic Engineering Vol 18, 112-7. Plenum Press, New York (1973). (No charge for single copy)[6]

R-809 THE CLAUSIUS-MOSSOTTI FUNCTIONS (MOLAR POLARIZABILITIES) OF PURE COMPRESSED GASEOUS AND LIQUID METHANE, ETHANE, PROPANE, BUTANES, AND NITROGEN, by D. E. Diller. Cryogenics Vol 14, No. 4, 215-6 (Apr 1974). (No charge for single copy)[6]

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R-814 JOSEPHSON JUNCTIONS AT 45 TIMES THE ENERGY-GAP FREQUENCY, by D. G. McDonald, F. R. Petersen, J. D. Cupp, B. L. Danielson and E. G. Johnson. Appl. Phys. Lett. Vol 24, No. 7, 335-7 (Apr 1974). (No charge for single copy)[5]

R-815 ELASTIC PROPERTIES OF METALS AND ALLOYS, I. IRON, NICKEL, AND IRON-NICKEL ALLOYS, by H. M. Ledbetter and R. P. Reed. J. Phys. Chem. Ref. Data Vol 2, No. 3, 531-618 (Jul-Sep 1973). (American Chemical Society, Washington, D. C. - $6.00)[4]

R-816 ASRDI OXYGEN TECHNOLOGY SURVEY - VOLUME V: DENSITY AND LIQUID LEVEL MEASUREMENT INSTRUMENTATION FOR THE CRYOGENIC FLUIDS OXYGEN, HYDROGEN, AND NITROGEN, by H. M. Roder. NASA Spec. Publ. No. 3083, 72 pages (1974). (NASA SP-3083)[7]

R-817 A REVIEW OF THE COMPATIBILITY OF STRUCTURAL MATERIALS WITH OXYGEN, by A. F. Clark and J. G. Hust. AIAA J. Vol 12, No. 4, 441-54 (Apr 1974). (No charge for single copy)[6]

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R-820 A MODIFIED BENEDICT-WEBB-RUBIN EQUATION OF STATE FOR METHANE USING RECENT EXPERIMENTAL DATA, by R. D. McCarty. Cryogenics Vol 14, No. 5, 276-80 (May 1974). (No charge for single copy)[6]

R-821 THERMOCOUPLE REFERENCE TABLES BASED ON THE IPTS-68, by R. L. Powell, W. J. Hall, C. H. Hyink, Jr., L. L. Sparks, G. W. Burns, M. G. Scroger and H. H. Plumb. Nat. Bur. Stand. (U.S.), Monogr. No. 125, 410 pages (Mar 1974). (SN003-003-011771-1 - $4.55)[7]

R-822 CRYOGENIC REFRIGERATORS - AN UPDATED SURVEY, by T. R. Strobridge. Nat. Bur. Stand. (U.S.), Tech. Note No. 655, 12 pages (Jun 1974). (COM74-51542)[7]

R-823 ASRDI OXYGEN TECHNOLOGY SURVEY - VOLUME IV: LOW TEMPERATURE MEASUREMENT, by L. L. Sparks. NASA Spec. Publ. No. NASA SP-3073, 155 pages (1974). (NASA SP-3073)[7]

R-824 VELOCITY OF SOUND IN DENSE FLUID METHANE, by G. C. Straty. Cryogenics Vol 14, No. 7, 367-70 (Jul 1974). (No charge for single copy)[6]

R-825 THE THERMOPHYSICAL PROPERTIES OF METHANE, FROM 90 TO 500 K AT PRESSURES TO 700 BAR, by R. D. Goodwin. Nat. Bur. Stand. (U.S.), Tech. Note No. 653, 280 pages (Apr 1974). (SN003-003-01309-9 - $2.55)[5]

R-826 ASRDI OXYGEN TECHNOLOGY SURVEY - VOLUME VI: FLOW MEASUREMENT INSTRUMENTATION, by D. B. Mann. National Aeronautics and Space Administration, Cleveland, Ohio, Lewis Research Center, Spec. Publ. No. NASA SP-3034, 110 pages (1974). (NASA SP-3084)[7]

R-827 MAGNETIC STUDIES OF OXIDIZED IMPURITIES IN PURE COPPER USING A SQUID SYSTEM, by F. R. Fickett and D. B. Sullivan. J. Phys. F Vol 4, No. 6, 900-5 (Jun 1974). (No charge for single copy)[6]

R-828 LIQUID DENSITIES OF OXYGEN, NITROGEN, ARGON AND PARAHYDROGEN, by H. M. Roder. Nat. Bur. Stand. (U.S.), Tech. Note No. 361 (Revised) - Metric Supplement, May 1974, 114 pages (Jun 1974). (SN003-003-01321-8) (Metric Version) - $1.25)[5]

R-829 TABLES OF COLLISION INTEGRALS AND SECOND VIRIAL COEFFICIENTS FOR THE (m,6,8) INTERMOLECULAR POTENTIAL FUNCTION, by M. Klein, H. J. M. Hanley, F. J. Smith and P. Holland. Nat. Stand. Ref. Data Ser., Nat. Bur. Stand. (U.S.), No. 47, 157 pages (Jun 1974). (SN003-003-01125-8 - $2.25)[5]

R-830 THE SPECIFIC HEATS, C(σ), AND C(v), OF COMPRESSED AND LIQUEFIED METHANE, by B. A. Younglove. J. Res. Nat. Bur. Stand. Vol 78A, No. 3, 401-10 (May-Jun 1974). (No charge for single copy)[6]

R-831 MAGNETIC PROPERTIES OF INTERNALLY OXIDIZED COPPER, by F. R. Fickett and D. B. Sullivan. Magnetism and Magnetic Materials-1973 - AIP Conference Proceedings No. 18 (19th Annual Conf., Boston, Mass.). American Institute of Physics, New York, 740 (1974). (Abstract only - No charge for single copy)[6]

R-832 VISCOSITY AND THERMAL CONDUCTIVITY COEFFICIENTS OF GASEOUS AND LIQUID OXYGEN, by H. J. M. Hanley, R. D. McCarty and J. V. Sengers. National Aeronautics and Space Administration, Washington, D. C., Contract Rept. No. NASA CR-2440, 77 pages (Aug 1974). (NASA CR-2440)[7]

R-833 IMPROVEMENTS ON "LOW-TEMPERATURE DIELECTRIC BOLOMETER," by W. N. Lawless, R. Radebaugh and J. D. Siegwarth. J. Opt. Soc. Amer. Vol 64, No. 6, 820-2 (Jun 1974). (No charge for single copy)[6]

R-834 THE KAPITZA RESISTANCE BETWEEN Cu(Cr) AND ^{4}He(^{3}He) SOLUTIONS AND APPLICATIONS TO HEAT EXCHANGERS, by J. D. Siegwarth and R. Radebaugh. Low Temperature Physics - LT 13, Vol 1 - Quantum Fluids (Proc. International Conf. on Low Temperature Physics, 13th, Boulder, Colo., Aug 21-5, 1972), K. D. Timmerhaus, W. J. O'Sullivan and E. F. Hammel, Editors. Plenum Press, New York, 398-400 (1974). (No charge for single copy)[6]

R-835 HEAT TRANSFER BETWEEN FINE COPPER POWDERS AND DILUTE ^{3}He IN SUPERFLUID ^{4}He, by R. Radebaugh and J. D. Siegwarth. Low Temperature Physics - LT 13, Vol 1 - Quantum Fluids (Proc. International Conf. on Low Temperature Physics, 13th, Boulder, Colo., Aug 21-5, 1972), K. D. Timmerhaus, W. J. O'Sullivan and E. F. Hammel, Editors. Plenum Press, New York, 401-5 (1974). (No charge for single copy)[6]

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R-838 LOW TEMPERATURE DIRECT CURRENT COMPARATORS, by D. B. Sullivan and R. F. Dziuba. Rev. Sci. Instrum. Vol 45, No. 4, 517-9 (Apr 1974). (No charge for single copy)[6]

R-839 AN APPLICATION OF SUPERCONDUCTING QUANTUM INTERFERENCE MAGNETOMETERS TO GEOPHYSICAL PROSPECTING, by N. V. Frederick, W. D. Stanley, J. E. Zimmerman and R. J. Dinger. IEEE Trans. Geosci. Electron. Vol GE-12, No. 3, 102-3 (Jul 1974). (No charge for single copy)[6]

R-840 ROTATIONAL CONSTANTS FOR $^{12}C^{16}O_2$ FROM BEATS BETWEEN LAMB-DIP--STABILIZED LASERS, by F. R. Petersen, D. G. McDonald, J. D. Cupp and B. L. Danielson. Phys. Rev. Lett. Vol 31, No. 9, 573-9 (1973). (No charge for single copy)[6]

R-841 SPECTRAL ANALYSIS OF A PHASE LOCKED LASER AT 891 GHz, AN APPLICATION OF JOSEPHSON JUNCTIONS IN THE FAR INFRARED, by J. S. Wells, D. G. McDonald, A. S. Risley, S. Jarvis and J. D. Cupp. Rev. Phys. Appl. Vol 9, No. 1, 285-92 (Jan 1974). (No charge for single copy)[6]

R-842 CALCULATION OF DENSE FLUID TRANSPORT PROPERTIES VIA EQUILIBRIUM STATISTICAL MECHANICAL PERTURBATION THEORY, by J. F. Ely and D. A. McQuarrie. J. Chem. Phys. Vol 60, No. 11, 4105-8 (Jun 1974). (No charge for single copy)[6]

R-843 DIELECTRIC CONSTANTS AND MOLAR POLARIZABILITIES OF SATURATED AND COMPRESSED FLUID NITROGEN, by J. F. Ely and G. C. Straty. J. Chem. Phys. Vol 61, No. 4, 1480-5 (Aug 1974). (No charge for single copy)[6]

R-844 THERMODYNAMIC PROPERTIES OF HELIUM 4 FROM 2 TO 1500 K AT PRESSURES TO 10^8 Pa, by R. D. McCarty. J. Phys. Chem. Ref. Data Vol 2, No. 4, 923-1041 (1973). (American Chemical Society, Washington, D. C. - $7.00)[4]

R-845 THE VISCOSITY AND THERMAL CONDUCTIVITY COEFFICIENTS OF DILUTE NITROGEN AND OXYGEN, by H. J. M. Hanley and J. F. Ely. J. Phys. Chem. Ref. Data Vol 2, No. 4, 735-55 (1973). (American Chemical Society, Washington, D. C. - $4.00)[4]

R-846 TIME-RESOLVED SPECTRA OF BULK TITANIUM COMBUSTION, by C. C. Runyan, J. C. Moulder and A. F. Clark. Combust. Flame Vol 23, No. 1, 129-33 (Aug 1974). (No charge for single copy)[6]

R-847 CAVITATION IN LIQUID CRYOGENS. IV - COMBINED CORRELATIONS FOR VENTURI, HYDROFOIL, OGIVES, AND PUMPS, by J. Hord. National Aeronautics and Space Administration, Washington, D. C., Contract Rept. No. NASA CR-2448, 103 pages (Oct 1974). (NASA CR-2448)[7]

R-848 MEASUREMENTS OF THE VISCOSITY OF COMPRESSED GASEOUS AND LIQUID FLUORINE, by W. M. Haynes. Physica Vol 76, No. 1, 1-20 (1974). (No charge for single copy)[6]

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R-850 RELATIONSHIP BETWEEN STACKING-FAULT ENERGY AND X-RAY MEASUREMENTS OF STACKING-FAULT PROBABILITY AND MICROSTRAIN, by R. P. Reed and R. E. Schramm. J. Appl. Phys. Vol 45, No. 11, 4705-11 (Nov 1974). (No charge for single copy)[6]

R-851 THE SELF-DIFFUSION OF SIMPLE FLUIDS: TABULATED VALUES FOR ARGON AND METHANE, by K. R. Harris, R. Mills, H. J. M. Hanley and L. A. Woolf. Australian National Univ., Canberra, Research School of Physical Sciences, Rept. No. DRU-RR 2, 37 pages (1974). (The Australian National University Press, P.O. Box 4, Canberra, A.C.T. 2600, Australia - $1.00)[4]

R-852 ADVANCES IN THE MEASUREMENT OF RF POWER AND ATTENUATION USING SQUIDS, by R. A. Kamper, M. B. Simmonds, R. T. Adair and C. A. Hoer. Nat. Bur. Stand. (U.S.), Tech. Note No. 661, 27 pages (Sep 1974). (SN003-003-01350-1 - 80¢)[3]

R-853 ADVANCES IN CRYOGENIC ENGINEERING (Proc. 1973 Cryogenic Engineering Conf., Georgia Inst. of Tech., Atlanta, Aug 8-10, 1973) Vol 19, K. D. Timmerhaus, Editor. Plenum Press, New York, 539 pages (1974). (Plenum Press, New York - $39.50)[4]

R-854 CRYOGENIC H_2 AND NATIONAL ENERGY NEEDS, by J. Hord. Paper A-1 in Advances in Cryogenic Engineering Vol 19. Plenum Press, New York, 1-11 (1974). (No charge for single copy)[5]

R-855 SUPERCONDUCTING ELECTRICAL GENERATORS FOR CENTRAL POWER STATION USE, by T. M. Flynn, R. L. Powell, D. B. Chelton and B. W. Birmingham. Paper B-1 in Advances in Cryogenic Engineering Vol 19. Plenum Press, New York, 35-43 (1974). (No charge for single copy)[5]

R-856 LIQUID-VAPOR EQUILIBRIA IN THE NITROGEN-METHANE SYSTEM BETWEEN 95 AND 120 K, by W. R. Parrish and M. J. Hiza. Paper H-2 in Advances in Cryogenic Engineering Vol 19, Plenum Press, New York, 300-8 (1974). (No charge for single copy)[5]

R-857 FORCED CONVECTION HEAT TRANSFER TO SUBCRITICAL HELIUM I, by P. J. Giarratano, R. C. Hess and M. C. Jones. Paper K-1 in Advances in Cryogenic Engineering Vol 19. Plenum Press, New York, 404-16 (1974). (No charge for single copy)[5]

R-858 HEAT TRANSFER TO SLUSH HYDROGEN, by C. F. Sindt. Paper K-3 in Advances in Cryogenic Engineering Vol 19. Plenum Press, New York, 427-36 (1974). (No charge for single copy)[5]

R-859 HYDROGEN-FUTURE FUEL - A BIBLIOGRAPHY (With Emphasis on Cryogenic Technology), by N. A. Olien and S. A. Schiffmacher. Nat. Bur. Stand. (U.S.), Tech. Note No. 664, 131 pages (Feb 1975). (COM75-10289)[7]

R-860 EXPERIMENTAL STUDIES ON THERMODYNAMIC EFFECTS OF DEVELOPED CAVITATION, by R. S. Ruggeri (National Aeronautics and Space Administration, Cleveland, Ohio, Lewis Research Center); DISCUSSION, by J. Hord. Fluid Mechanics, Acoustics, and Design of Turbomachinery - Part I, National Aeronautics and Space Administration Rept. No. NASA SP-304, 377-401 (1974). (Stock No. 3300-00524 - $9.00)[3]

R-861 ELASTIC CONSTANTS OF POLYCRYSTALS: EQUIVALENCE OF LAURENT-EUDIER AND VOIGT AVERAGING METHODS, by H. M. Ledbetter. Phys. Status Solidi A Vol 26, K-67-70 (1974). (No charge for single copy)[6]

R-862 EFFLUX OF GASEOUS HYDROGEN OR METHANE FUELS FROM THE INTERIOR OF AN AUTOMOBILE, by J. M. Arvidson, J. Hord and D. B. Mann. Nat. Bur. Stand. (U.S.), Tech. Note No. 666, 56 pages (Mar 1975). (SN003-003-01397-8 - $1.10)[3]

R-863 RESEARCH OPPORTUNITIES IN CRYOGENIC HYDROGEN-ENERGY SYSTEMS, by J. Hord. Hydrogen Energy Fundamentals, Proc. Symp., Miami Beach, Fla., Mar 3-5, 1975, T. N. Viziroglu, Editor. Miami Univ., Coral Gables, Fla., S3-11--24 (1975). (No charge for single copy)[6]

R-864 LOW TEMPERATURE THERMAL CONDUCTIVITY MEASUREMENTS ON LONGITUDINAL AND TRANSVERSE SECTIONS OF A SUPERCONDUCTING COIL, by J. G. Hust. Cryogenics Vol 15, No. 1, 8-11 (Jan 1975). (No charge for single copy)[6]

R-865 THERMODYNAMIC AND RELATED PROPERTIES OF PARAHYDROGEN FROM THE TRIPLE POINT TO 300 K AT PRESSURES TO 1000 BAR, by L. A. Weber. NASA Spec. Publ. No. SP-3088 and Nat. Bur. Stand. (U.S.), Interagency Rept. No. NBSIR 74-374, 105 pages (Mar 1975). (NASA SP-3088)[7]

R-866 ELASTIC PROPERTIES OF METALS AND ALLOYS. II. COPPER, by H. M. Ledbetter and E. R. Naimon. J. Phys. Chem. Ref. Data Vol 3, No. 4, 897-935 (1974). (American Chemical Society, Washington, D. C. - $4.50)[4]

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R-869 A LOW-TEMPERATURE DIRECT-CURRENT COMPARATOR BRIDGE, by D. B. Sullivan and R. F. Dziuba. IEEE Trans. Instrum. Meas. Vol IM-23, No. 4, 256-60 (Dec 1974). (No charge for single copy)[6]

R-870 TECHNIQUE FOR PREPARING HOMOGENEOUS BULK SAMPLES OF CONCENTRATED ALLOYS, by J. W. Ekin and V. A. Deason. Rev. Sci. Instrum. Vol 46, No. 3, 327-8 (Mar 1975). (No charge for single copy)[6]

R-871 THERMOCOUPLE REFERENCE TABLES BASED ON THE IPTS-68: REFERENCE TABLES IN DEGREES FAHRENHEIT FOR THERMOELEMENTS VERSUS PLATINUM (PT-67), by R. L. Powell and G. W. Burns. Nat. Bur. Stand. (U.S.), Monogr. No. 125 - Suppl. 1, 46 pages (Mar 1975). (SN003-003-01391-9 - $1.05)[5]

R-872 NBS-CGA CRYOGENIC FLOW MEASUREMENT PROGRAM, by J. A. Brennan, R. W. Stokes, C. H. Kneebone and D. B. Mann. Instrument Society of America International Instrumentation-Automation Conf. and Exhibit, New York, Oct 28-31, 1974, Proc. Instrument Society of America, Pittsburgh, Pa., 612-1 - 612-13 (1974). (No charge for single copy)[6]

R-873 THERMAL CONDUCTIVITY AND ELECTRICAL RESISTIVITY STANDARD REFERENCE MATERIALS: AUSTENITIC STAINLESS STEEL, SRM's 735 AND 798, FROM 4 TO 1200 K, by J. G. Hust and P. J. Giarratano. Nat. Bur. Stand. (U.S.), Spec. Publ. No. 260-46, 42 pages (Mar 1975). (SN003-003-01385-4 - $1.00)[5]

R-874 LOW-TEMPERATURE THERMAL CONDUCTIVITY OF TWO FIBRE-EPOXY COMPOSITES, by J. G. Hust. Cryogenics Vol 15, No. 3, 126-8 (Mar 1975). (No charge for single copy)[6]

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R-877 CRYOGENIC DIRECT CURRENT COMPARATORS AND THEIR APPLICATIONS, by R. F. Dziuba and D. B. Sullivan. Applied Superconductivity Conf., Proc., Argonne National Lab. and National Accelerator Lab., Ill., Sep 30 - Oct 2, 1974. IEEE Trans. Magn. Vol MAG-11, No. 2, 716-9 (Mar 1975). (No charge for single copy)[6]

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R-882 SELECTED TOPICS ON HYDROGEN FUEL, by J. Hord (Editor), W. R. Parrish, R. O. Voth, J. G. Hust, et al. Nat. Bur. Stand. (U.S.), Spec. Publ. No. 419, 212 pages (May 1975). (SN003-003-01410-9 - $2.80)[5]

R-883 DIELECTRIC AND THERMAL PROPERTIES OF A MACHINABLE GLASS-CERAMIC AT LOW TEMPERATURES, by W. N. Lawless. Cryogenics Vol 15, No. 5, 273-7 (May 1975). (No charge for single copy)[6]

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R-887 REGISTER OF SPECIALIZED SOURCES FOR INFORMATION ON SELECTED FUELS AND OXIDIZERS, by P. R. Ludtke. National Aeronautics and Space Administration, Cleveland, Ohio, Lewis Research Center, Contract Rept. No. NASA CR-134807, 47 pages (Mar 1975). (NASA CR-134807)[7]

R-888 EQUILIBRIUM PROPERTIES OF FLUID MIXTURES - A Bibliography of Data on Fluids of Cryogenic Interest, by M. J. Hiza, A. J. Kidnay and R. C. Miller. NSRDS Bibliographic Series, published by IFI/Plenum, New York, 166 pages (1975). (IFI/Plenum, New York - $29.50)[4]

R-889 AN ECONOMIC STUDY OF ELECTRICAL PEAKING ALTERNATIVES, by W. R. Parrish. Hydrogen Energy (Hydrogen Economy Energy (THEME) Conf., Proc., Miami Beach, Fla., Mar 18-20, 1974) Part B, T. N. Veziroglu, Editor. Plenum Press, New York, 949-68 (1975). (No charge for single copy)[6]

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R-891 SUPERCONDUCTING ELECTRICAL GENERATORS FOR CENTRAL POWER STATION USE, by B. W. Birmingham, D. B. Chelton, T. M. Flynn and R. L. Powell. ICEC5 (International Cryogenic Engineering Conf., Proc. 5th, Kyoto, Japan, May 7, 1974), K. Mendelssohn, Editor. IPC Science and Technology Press, Guildford, Surrey, England, 157-9 (1974). (No charge for single copy)[6]

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R-895 ADVANCES IN CRYOGENIC ENGINEERING (A Collection of Invited Papers and Contributed Papers Presented at National Technical Meetings during 1973 and 1974) Vol 20, K. D. Timmerhaus, Editor. Plenum Press, New York, 530 pages (1975). (Plenum Press, New York - $45.00)[4]

R-896 SOLID-VAPOR EQUILIBRIUM--A SURVEY, by R. L. Robinson, Jr. and M. J. Hiza. Paper F-2 in Advances in Cryogenic Engineering, Vol 20. Plenum Press, New York, 218-39 (1975). (No charge for single copy)[6]

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R-898 THE REFRACTIVE INDEX AND LORENZ-LORENTZ FUNCTION OF FLUID METHANE, by J. D. Olson. J. Chem. Phys. Vol 63, No. 1, 474-84 (Jul 1975). (No charge for single copy)[6]

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R-900 EQUATIONS FOR THE VISCOSITY AND THERMAL CONDUCTIVITY COEFFICIENTS OF METHANE, by H. J. M. Hanley, R. D. McCarty and W. M. Haynes. Cryogenics Vol 15, No. 7, 413-7 (Jul 1975). (No charge for single copy)[6]

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R-906 MOLECULAR DYNAMICS CALCULATION OF THE THERMODYNAMIC PROPERTIES OF METHANE, by H. J. M. Hanley and R. O. Watts. Aust. J. Phys. Vol 28, 315-24 (1975). (No charge for single copy)[6]

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R-909 MULTIPURPOSE REFRIGERATOR FOR A SUPERCONDUCTING CABLE TEST FACILITY, by T. R. Strobridge. Electric Power Research Inst., Palo Alto, Calif., Final Rept., Research Project No. 282, 52 pages (Jul 1975). (No charge for single copy)[6]

R-910 THERMAL CONDUCTIVITY AND ELECTRICAL RESISTIVITY STANDARD REFERENCE MATERIALS: TUNGSTEN SRM'S 730 AND 799, FROM 4 TO 3000 K, by J. G. Hust and P. J. Giarratano. Nat. Bur. Stand. (U.S.), Spec. Publ. No. 260-52, 47 pages (Sep 1975). (SN003-003-01464-8 - $1.05)[3]

R-911 MATERIALS RESEARCH FOR SUPERCONDUCTING MACHINERY, by Cryogenics Division. Semi-annual Tech. Rept., Sep 1973 - Mar 1974, Sponsored by Advanced Research Projects Agency, Arlington, Va., Order No. ARPA-2569 (Mar 1974). (AD 780 596 - $13.00)[7]

R-912 MATERIALS RESEARCH FOR SUPERCONDUCTING MACHINERY - II, by A. F. Clark, R. P. Reed and E. C. van Reuth, Editors. Semi-annual Tech. Rept., Mar - Sep 1974, Sponsored by Advanced Research Projects Agency, Arlington, Va., Order No. ARPA-2569 (Oct 1974). (ADA 004 586 - $17.25)[7]

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R-914 LOW-TEMPERATURE ELASTIC PROPERTIES OF FOUR AUSTENITIC STAINLESS STEELS, by H. M. Ledbetter, W. F. Weston and E. R. Naimon. J. Appl. Phys. Vol 46, No. 9, 3855-60 (Sep 1975). (No charge for single copy)[6]

R-915 MAGNETIC COUPLING FORCE OF THE SUPERCONDUCTING DC TRANSFORMER, by J. W. Ekin and J. R. Clem. Phys. Rev. B Vol 12, No. 5, 1753-65 (Sep 1975). (No charge for single copy)[6]

R-916 TRENDS IN CRYOGENIC FLUID PRODUCTION IN THE UNITED STATES, by T. M. Flynn and C. N. Smith. Bull. Inst. Int. Froid, Annexe 1970-2 (Proc. Commission 1, Conf. on Cryophysics and Cryoengineering, Tokyo, Japan, Sep 11-12, 1970), 241-7 (1970). Also in Advances in Cryogenic Engineering (A Collection of Invited Papers and Contributed Papers Presented at National Technical Meetings During 1970 and 1971) Vol 17, K. D. Timmerhaus, Editor. Plenum Press, New York, 1-7 (1972). (No charge for single copy)[6]

R-917 LIQUID-VAPOUR PHASE EQUILIBRIA IN THE N_2-CH_4 SYSTEM FROM 130 TO 180 K, by A. J. Kidnay, R. C. Miller, W. R. Parrish and M. J. Hiza. Cryogenics Vol 15, No. 9, 531-40 (Sep 1975). (No charge for single copy)[6]

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R-922 LOW TEMPERATURE ELASTIC PROPERTIES OF ALUMINUM 5083-0 AND FOUR FERRITIC NICKEL STEELS, by W. F. Weston, E. R. Naimon and H. M. Ledbetter. Properties of Materials for Liquefied Natural Gas Tankage, American Society for Testing and Materials, Philadelphia, Pa., Publication No. ASTM STP 579, 397-420 (1975). (No charge for single copy)[6]

R-923 LOW TEMPERATURE FRACTURE BEHAVIOR OF IRON-NICKEL ALLOY STEELS, by R. L. Tobler, R. P. Mikesell, R. L. Durcholz and R. P. Reed. Properties of Materials for Liquefied Natural Gas Tankage, American Society for Testing and Materials, Philadelphia, Pa., Publication No. ASTM STP 579, 261-87 (1975). (No charge for single copy)[6]

R-924 CRITICAL CURRENTS IN GRANULAR SUPERCONDUCTORS, by J. W. Ekin. Phys. Rev. B Vol 12, No. 7, 2676-81 (Oct 1975). (No charge for single copy)[6]

R-925 HYDROGEN TECHNOLOGICAL SURVEY - THERMOPHYSICAL PROPERTIES, by R. D. McCarty. NASA Spec. Publ. No. NASA SP-3089, 536 pages (1975). (NASA SP-3089)[7]

R-926 LOW-TEMPERATURE ELASTIC CONSTANTS OF A SUPERCONDUCTING COIL COMPOSITE, by W. F. Weston. J. Appl. Phys. Vol 46, No. 10, 4458-65 (Oct 1975). (No charge for single copy)[6]

R-927 REGISTER OF HYDROGEN TECHNOLOGY EXPERTS, by P. R. Ludtke. NASA Contr. Rept. No. NASA CR-2624, 83 pages (Oct 1975). (NASA CR-2624)[7]

R-928 VAPOR-LIQUID EQUILIBRIA DATA FOR HELIUM-CARBON MONOXIDE AND HELIUM-NITROUS OXIDE SYSTEMS, by W. R. Parrish and W. G. Steward. J. Chem. Eng. Data Vol 20, No. 4, 412-6 (Oct 1975). (No charge for single copy)[6]

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R-934 MATERIALS RESEARCH FOR SUPERCONDUCTING MACHINERY - IV, by R. P. Reed, A. F. Clark and E. C. van Reuth, Editors. Semi-annual Tech. Rept., Mar - Sep 1975, Sponsored by Advanced Research Projects Agency, Arlington, Va., Order No. ARPA-2569 (Oct 1975). (ADA 019 230 - $16.25)[7]

R-935 A STUDY OF FLOW STABILITY IN HELIUM COOLING SYSTEMS, by M. C. Jones and R. G. Peterson. J. Heat Transfer Vol 97, No. 4, 521-7 (Nov 1975). (No charge for single copy)[6]

R-936 PHASE TRANSITION AND MELTING PRESSURES OF SOLID ETHANE, by G. C. Straty and R. Tsumura. J. Chem. Phys. Vol 64, No. 2, 859-61 (Jan 1976). (No charge for single copy)[6]

R-937 THERMAL CONDUCTIVITY AND ELECTRICAL RESISTIVITY STANDARD REFERENCE MATERIALS: ELECTROLYTIC IRON, SRM'S 734 AND 797 FROM 4 TO 1000 K, by J. G. Hust and P. J. Giarratano. Nat. Bur. Stand. (U.S.), Spec. Publ. No. 260-50, 41 pages (Jun 1975). (SN003-003-01425-7 - $1.00)[5]

R-938 RECOVERY OF HYDROGEN LIQUEFACTION ENERGY, by W. R. Parrish. Intersociety Energy Conversion Engineering Conf., Proc. 10th (Delaware Univ., Newark, Aug 18-20, 1975). Institute of Electrical and Electronics Engineers Inc., New York, Catalog No. 75CHO 983-7 TAB, 1352-5 (1975). (No charge for single copy)[6]

R-939 H_2 LIQUEFACTION: EFFECTS OF COMPONENT EFFICIENCIES, by R. O. Voth and D. E. Daney. Intersociety Energy Conversion Engineering Conf., Proc. 10th (Delaware Univ., Newark, Aug 18-20, 1975). Institute of Electrical and Electronics Engineers, Inc., New York, Catalog No. 75CHO 983-7 TAB, 1356-62 (1975). (No charge for single copy)[6]

R-940 THE CORRELATION OF EQUILIBRIUM AND TRANSPORT PROPERTIES OF FLUIDS, by R. D. McCarty. Properties of Water and Steam, Proc. 8th International Conf. (Giens, France, Sep 1974) Vol I. Editions Europeenes Thermiques et Industries, Paris, France, 537-56 (1975). (No charge for single copy)[6]

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R-942 OPEN DISCUSSION OF LARGE SCALE CRYOGENIC REFRIGERATION (CONFERENCE REPT. - APPLIED SUPERCONDUCTIVITY CONFERENCE 1974), by T. R. Strobridge. Cryogenics Vol 15, No. 3, 157-8 (Mar 1975). (No charge for single copy)[6]

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R-944 HYDROGEN ENERGY (PARTS A AND B), Edited by T. N. Veziroglu - BOOK REVIEW, by J. Hord. Chem. Eng. Vol 82, No. 26, 10+12 (Dec 1975). (No charge for single copy)[6]

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R-984 ADVANCES IN CRYOGENIC ENGINEERING, Proc. Conf. (Queen's Univ., Kingston, Canada, Jul 22-25, 1975) - Vol 21, K. D. Timmerhaus and D. H. Weitzel, Editors. Plenum Press, New York, 564 pages (1976). (Plenum Press, New York - $42.50)[4]

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R-1032 FRACTURE BEHAVIOR OF THE HEAT-AFFECTED ZONE IN 5% Ni STEEL WELDMENTS, by H. I. McHenry and R. P. Reed. Weld. J. Res. Suppl., 9 pages (Apr 1977). (No charge for single copy)[6]

R-1033 STRESSES IN SUPERCONDUCTING SOLENOIDS, by V. Arp. J. Appl. Phys. Vol 48, No. 5, 2026-36 (May 1977). (No charge for single copy)[6]

R-1034 ORTHORHOMBIC ELASTIC CONSTANTS OF AN NbTi/Cu COMPOSITE SUPERCONDUCTOR, by H. M. Ledbetter and D. T. Read. J. Appl. Phys. Vol 48, No. 5, 1874-9 (May 1977). (No charge for single copy)[6]

R-1035 RESULTS, POTENTIALS, AND LIMITATIONS OF JOSEPHSON-MIXER RECEIVERS AT MILLIMETER AND LONG SUBMILLIMETER WAVELENGTHS, by J. Edrich, D. B. Sullivan and D. G. McDonald. IEEE Trans. Microwave Theory Tech. Vol MTT-25, No. 6, 476-9 (Jun 1977). (No charge for single copy)[6]

R-1036 STRUCTURAL MATERIALS FOR CRYOGENIC APPLICATIONS, by F. R. Fickett. Proc. International Cryogenic Engineering Conf., 6th (Grenoble, France, May 11-14, 1976), K. Mendelssohn, Editor. IPC Science and Technology Press, Guildford, Surrey, England, 20-33 (1976). (No charge for single copy)[6]

R-1037 PRESSURE MEASUREMENT AT LOW TEMPERATURES, by J. M. Arvidson and J. A. Brennan. Instrumentation in the Cryogenic Industry, Proc. Biennial Symp., 1st (Houston, Tex., Oct 11-14, 1976) - Vol 1. Instrument Society of America, Pittsburgh, Pa., 607-1--607-9 (1976). (No charge for single copy)[6]

R-1038 PROGRESS REPORT ON CRYOGENIC FLOWMETERING AT THE NATIONAL BUREAU OF STANDARDS, by J. A. Brennan, J. F. LaBrecque and C. H. Kneebone. Instrumentation in the Cryogenic Industry, Proc. Biennial Symp., 1st (Houston, Tex., Oct 11-14, 1976) - Vol 1. Instrument Society of America, Pittsburgh, Pa., 621-1--621-16 (1976). (No charge for single copy)[6]

R-1039 TEMPERATURE DEPENDENCES OF THE ELASTIC CONSTANTS OF PRECIPITATION-HARDENED ALUMINUM ALLOYS 2014 AND 2219, by D. T. Read and H. M. Ledbetter. J. Eng. Mater. Technol. Vol 99, No. 2, 181-4 (Apr 1977). (No charge for single copy)[6]

R-1040 THE VISCOSITY AND THERMAL CONDUCTIVITY COEFFICIENTS FOR DENSE GASEOUS AND LIQUID METHANE, by H. J. M. Hanley, W. M. Haynes and R. D. McCarty. J. Phys. Chem. Ref. Data Vol 6, No. 2, 597-609 (1977). (American Chemical Society, Washington, D. C. - $3.00)[4]

R-1041 REFRIGERATION TECHNOLOGY FOR SUPERCONDUCTORS, by T. R. Strobridge and R. O. Voth. IEEE Trans. Nucl. Sci. Vol NS-24, No. 3, 1222-6 (Jun 1977). (No charge for single copy)[5]

R-1042 ANOMALOUS ELASTIC PROPERTIES OF A PRECIPITATION-HARDENED COPPER ALLOY, by H. M. Ledbetter. Metall. Trans. A Vol 8, No. 6, 1006-7 (Jun 1977). (No charge for single copy)[5]

R-1043 EVALUATION OF CAPACITANCE DENSITOMETRY FOR LNG MIXTURES WITH LOW NITROGEN COMPOSITION, by P. J. Giarratano and R. S. Collier. Ind. Eng. Chem. Process. Des. Dev. Vol 16, No. 3, 330-6 (May-Jul 1977). (No charge for single copy)[6]

R-1044 POSSIBLE CRYOCOOLERS FOR SQUID MAGNETOMETERS, by J. E. Zimmerman, R. Radebaugh and J. D. Siegwarth. SQUID - Superconducting Quantum Interference Devices and Their Applications, Proc. International Conf., 1st (Berlin, Germany, Oct 5-8, 1976), H. D. Hahlbohm and H. Luebbig, Editors. Walter de Gruyter and Co., New York, 287-96 (1977). (No charge for single copy)[6]

R-1045 RF POWER MEASUREMENTS USING QUANTUM INTERFERENCE IN SUPERCONDUCTORS, by D. B. Sullivan, N. V. Frederick and R. T. Adair. SQUID - Superconducting Quantum Interference Devices and Their Applications, Proc. International Conf., 1st (Berlin, Germany, Oct 5-8, 1976), H. D. Hahlbohm and H. Luebbig, Editors. Walter de Gruyter and Co., New York, 355-63 (1977). (No charge for single copy)[5]

R-1046 ELASTIC PROPERTIES OF A BORON-ALUMINUM COMPOSITE AT LOW TEMPERATURES, by D. T. Read and H. M. Ledbetter. J. Appl. Phys. Vol 48, No. 7, 2827-31 (Jul 1977). (No charge for single copy)[5]

Availability

[1] Availability obsolete. See availability [7].

[2] Availability obsolete. See availability [7].

[3] Available in paper copy from Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 at the price indicated. Order by NBS Tech. Note No., NBS Monogr. No., NBS Spec. Publ. No., NSRDS-NBS No., C13.46 No., NASA Spec. Publ. No., NASA CR No., or other number indicated.

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MR-1 COMPILATION OF THERMAL PROPERTIES OF HYDROGEN IN ITS VARIOUS ISOTOPIC AND ORTHO-PARA MODIFICATIONS, by H. W. Woolley, R. B. Scott and F. G. Brickwedde. Nat. Bur. Stand. (U.S.), Res. Pap. 1932, J. Res. Nat. Bur. Stand. (U.S.), Vol 41, No. 5, 98 pages (Nov 1948). (PB172342)[2]

MR-2 LOW TEMPERATURE INSULATION, by R. B. Scott. National Bureau of Standards, Boulder, Colo., Cryogenics Div., Rept. - Unpublished. (No charge for single copy)[6]

MR-3 SAFETY INSTRUCTION AND SAFETY GUIDE FOR HANDLING GASEOUS AND LIQUID HYDROGEN AT THE BOULDER LABORATORIES. Nat. Bur. Stand. (U.S.), Memorandum Rept. No. CM-4, 30 pages (Jan 1960). (PB172343)[2]

MR-4 A COMPENDIUM OF THE PROPERTIES OF MATERIALS AT LOW TEMPERATURE - Phase I. V. J. Johnson (General Editor). Wright Air Development Div., Wright-Patterson AFB, Ohio, Tech. Rept. No. WADD 60-56 (Prepared at National Bureau of Standards, Boulder, Colo., Cryogenics Div., under Contr. No. AF 33(616)58-4).

Part I. Properties of Fluids, 489 pages (Jul 1960). (PB171618)[2]

Part II. Properties of Solids, 333 pages (Oct 1960). (PB171619)[2]

Part III. Bibliography of References, 165 pages (Oct 1960). (PB171620)[2]

MR-5 OPTIMUM DESIGN OF LIQUID OXYGEN CONTAINERS, by R. W. Arnett, K. A. Warren and L. O. Mullen. Wright Air Development Ctr., Wright-Patterson AFB, Ohio, Tech. Rept. No. WADC 60-56 (Prepared at National Bureau of Standards, Boulder, Colo., Cryogenics Div., under Contr. No. 33(616)56-15), 235 pages (Aug 1961). (AD632573)[2]

MR-6 THE THERMODYNAMIC PROPERTIES OF PARAHYDROGEN FROM 1° to 22°K, by J. C. Mullins, W. T. Ziegler and B. S. Kirk. Georgia Inst. of Tech., Atlanta, Engineering Experiment Station, Tech. Rept. No. 1 (Prepared under NBS Contr. No. CST-7339), 69 pages (Nov 1961). (PB170764)[2]

MR-7 A COMPENDIUM OF THE PROPERTIES OF MATERIALS AT LOW TEMPERATURE - Phase II. R. B. Stewart and V. J. Johnson (General Editors). Wright Air Development Div., Wright-Patterson AFB, Ohio, Tech. Rept. No. WADD 60-56, Part IV (Prepared at National Bureau of Standards, Boulder, Colo., Cryogenics Div., under Contr. No. D.O. 33(616)59-6), 507 pages (Dec 1961). (AD272769)[2]

MR-8 THE THERMODYNAMIC PROPERTIES OF OXYGEN FROM 20° to 100°K, by J. C. Mullins, W. T. Ziegler and B. S. Kirk. Georgia Inst. of Tech., Atlanta, Engineering Experiment Station, Tech. Rept. No. 2 (Prepared under NBS Contr. No. CST-7339), 102 pages (Mar 1962). (PB172344)[2]

MR-9 ELASTOMERIC SEALS AND MATERIALS AT CRYOGENIC TEMPERATURES, by D. H. Weitzel, R. F. Robbins, P. R. Ludtke, Y. Ohori and R. N. Herring. Wright Air Development Center, Wright-Patterson AFB, Ohio, Aeronautical Systems Div., Rept. No. ASD TD 62-31 (Prepared at National Bureau of Standards, Boulder, Colo., Cryogenics Div., under Contr. No. AF 33(616)61-04), 68 pages (1962). Also National Bureau of Standards, Boulder, Colo., Cryogenics Div., Rept. -Unpublished. (AD274176)[2]

MR-10 CALCULATION OF THE VAPOR PRESSURE AND HEATS OF VAPORIZATION AND SUBLIMATION OF LIQUIDS AND SOLIDS, ESPECIALLY BELOW ONE ATMOSPHERE PRESSURE. I. ETHYLENE, by W. T. Ziegler, J. C. Mullins and B. S. Kirk. Georgia Inst. of Tech., Atlanta, Engineering Experiment Station, Tech. Rept. No. 1 (Prepared under NBS Contr. No. CST-7238), 47 pages (Jun 1962). (PB173054)[2]

MR-11 CALCULATION OF THE VAPOR PRESSURE AND HEATS OF VAPORIZATION AND SUBLIMATION OF LIQUIDS AND SOLIDS, ESPECIALLY BELOW ONE ATMOSPHERE PRESSURE. II. ARGON, by W. T. Ziegler, J. C. Mullins and B. S. Kirk. Georgia Inst. of Tech., Atlanta, Engineering Experiment Station, Tech. Rept. No. 2 (Prepared under NBS Contr. No. CST-7238), 43 pages (Jun 1962). (PB172346)[2]

MR-12 CALCULATION OF THE VAPOR PRESSURE AND HEATS OF VAPORIZATION AND SUBLIMATION OF LIQUIDS AND SOLIDS, ESPECIALLY BELOW ONE ATMOSPHERE PRESSURE. III. METHANE, by W. T. Ziegler, J. C. Mullins and B. S. Kirk. Georgia Inst. of Tech., Atlanta, Engineering Experiment Station, Tech. Rept. No. 3 (Prepared under NBS Contr. No. CST-7238), 60 pages (Aug 1962). (PB172347)[2]

MR-13 REFERENCE TABLES FOR THERMOCOUPLES, by H. Shenker, J. I. Lauritzen, Jr., R. J. Corruccini and S. T. Lonberger. Nat. Bur. Stand. (U.S.), Circ. No. 561, 84 pages (Apr 1955). (PB172347)[2]

MR-14a ELASTOMERIC SEALS AND MATERIALS AT CRYOGENIC TEMPERATURES, by D. H. Weitzel, R. F. Robbins, P. R. Ludtke and Y. Ohori. Wright Air Development Center, Wright-Patterson AFB, Aeronautical Systems Div., Rept. No. ASD TDR-62-31, Part II (Prepared at National Bureau of Standards, Boulder, Colo., Cryogenics Div., under Contr. No. AF 33(616)61-04), 132 pages (May 1963). Also National Bureau of Standards, Boulder, Colo., Cryogenics Div., Rept. -Unpublished. ($3.50)[6]

MR-14b ELASTOMERIC SEALS AND MATERIALS AT CRYOGENIC TEMPERATURES, by D. H. Weitzel, R. F. Robbins, P. R. Ludtke and Y. Ohori. Wright Air Development Center, Wright-Patterson AFB, Materials Lab., Rept. No. ML-TDR-64-50 (Prepared at National Bureau of Standards, Boulder, Colo., Cryogenics Div., under Contr. No. AF 33(616)61-04), 141 pages (Mar 1964). Also National Bureau of Standards, Boulder, Colo., Cryogenics Div., Rept. -Unpublished. (AD460774)[2]

MR-14c ELASTOMERIC SEALS AND MATERIALS AT CRYOGENIC TEMPERATURES, by D. H. Weitzel, R. F. Robbins and P. R. Ludtke. Wright Air Development Center, Wright-Patterson AFB, Materials Lab., Rept. No. ML-TDR-64-50, Part II (Prepared at National Bureau of Standards, Boulder, Colo., Cryogenics Div., under USAF Delivery Order No. 33(615)64-1002), 100 pages (Mar 1965). Also National Bureau of Standards, Boulder, Colo., Cryogenics Div., Rept. -Unpublished. (Out of print).

MR-15 CALCULATION OF THE VAPOR PRESSURE AND HEATS OF VAPORIZATION AND SUBLIMATION OF LIQUIDS AND SOLIDS, ESPECIALLY BELOW ONE ATMOSPHERE. IV. NITROGEN AND FLUORINE, by W. T. Ziegler and J. C. Mullins. Georgia Inst. of Tech., Atlanta, Engineering Experiment Station, Tech. Rept. No. 1 (Prepared under NBS Contr. No. CST-7404), 59 pages (Apr 1963). (PB168896)[2]

MR-16 CALCULATION OF THE VAPOR PRESSURE AND HEATS OF VAPORIZATION AND SUBLIMATION OF LIQUIDS AND SOLIDS, ESPECIALLY BELOW ONE ATMOSPHERE. V. CARBON MONOXIDE AND CARBON DIOXIDE, by J. C. Mullins, B. S. Kirk and W. T. Ziegler. Georgia Inst. of Tech., Atlanta, Engineering Experiment Station, Tech. Rept. No. 2 (Prepared under NBS Contr. No. CST-7404), 81 pages (Aug 1963). (PB172349)[2]

MR-17 CALCULATION OF THE VAPOR PRESSURE AND HEATS OF VAPORIZATION AND SUBLIMATION OF LIQUIDS AND SOLIDS, BELOW ONE ATMOSPHERE PRESSURE. VI. KRYPTON, by W. T. Ziegler, D. W. Yarbrough and J. C. Mullins. Georgia Inst. of Tech., Atlanta, Engineering Experiment Station, Tech. Rept. No. 1 (Prepared under NBS Contr. No. CST-1154), 44 pages (Jul 1964). (PB172350)[2]

MR-18 TABLES OF THERMAL PROPERTIES OF GASES, by J. Hilsenrath, C. W. Beckett, W. S. Benedict, L. Fano, et al. Nat. Bur. Stand. (U.S.), Circ. No. 564, 488 pages (Nov 1955). (Out of print).

MR-19 ON THE FORMULATION AND NUMERICAL EVALUATION OF A SET OF TWO-PHASE FLOW EQUATIONS MODELLING THE COOLDOWN PROCESS, by S. Jarvis, Jr. Nat. Bur. Stand. (U.S.), Tech. Note No. 301, 48 pages (Jan 1965). (No charge for single copy)[6]

MR-20 CALCULATION OF THE VAPOR PRESSURE AND HEATS OF VAPORIZATION AND SUBLIMATION OF LIQUIDS AND SOLIDS BELOW ONE ATMOSPHERE PRESSURE. VII. ETHANE, by W. T. Ziegler, B. S. Kirk, J. C. Mullins and A. R. Berquist. Georgia Inst. of Tech., Atlanta, Engineering Experiment Station, Tech. Rept. No. 2 (Prepared under NBS Contr. No. CST--1154), 65 pages (Dec 1964). (PB172351)[2]

MR-21 STABILITY OF TWO-PHASE ANNULAR FLOW IN A VERTICAL PIPE, by S. Jarvis, Jr. Nat. Bur. Stand. (U.S.), Tech. Note No. 314, 92 pages (Jun 1965). (No charge for single copy)[6]

MR-22 THE THERMODYNAMIC PROPERTIES OF OXYGEN, by R. B. Stewart. Iowa Univ., Iowa City, Ph.D. Dissertation, 209 pages (Jun 1966). ($5.00)[6]

MR-23 CALCULATION OF THE VAPOR PRESSURE AND HEATS OF VAPORIZATION AND SUBLIMATION OF LIQUIDS AND SOLIDS BELOW ONE ATMOSPHERE PRESSURE. VIII. XENON, by W. T. Ziegler, J. C. Mullins and A. R. Berquist. Georgia Inst. of Tech., Atlanta, Engineering Experiment Station, Tech. Rept. No. 3 (Prepared under NBS Contr. No. CST-1154), 49 pages (Apr 1966). (PB173797)[2]

MR-23a THE SYSTEM HELIUM-ARGON FROM 65 TO 140 K UP TO PRESSURES OF 120 ATM. CORRELATION OF AVAILABLE PHASE EQUILIBRIUM DATA, by J. C. Mullins and W. T. Ziegler. Georgia Inst. of Tech., Atlanta, Engineering Experiment Station, Tech. Rept. No. 3 (Prepared under NBS Contr. No. CST-1154), 69 pages (Jan 1965). (Request from Georgia Institute of Technology, Engineering Experiment Station, Atlanta, Ga.)[4]

MR-24 THERMODYNAMIC PROPERTIES OF ARGON IN THE LIQUID AND GASEOUS STATE FOR TEMPERATURES FROM THE TRIPLE POINT TO 300°K WITH PRESSURES TO 1000 ATMOSPHERES, by A. L. Gosman. Iowa State Univ., Ames, Ph. D. Dissertation, 238 pages (Aug 1965). (Available from University Microfilms, Ann Arbor, Michigan, Order No. 66-3434 - Paper copy $22.00; Microfilm $11.00)

MR-25 TWO-PHASE, TWO-COMPONENT CRITICAL FLOW IN A VENTURI, by R. V. Smith. Oxford Univ., England, Ph. D. Dissertation, 235 pages (Jun 1968). ($4.00)[6]

MR-26 CALCULATION OF THE VAPOR PRESSURE AND HEATS OF VAPORIZATION AND SUBLIMATION OF LIQUIDS AND SOLIDS BELOW ONE ATMOSPHERE PRESSURE. IX. NEON, by W. T. Ziegler, G. N. Brown and J. D. Garber. Georgia Inst. of Tech., Atlanta, Engineering Experiment Station, Tech. Rept. No. 1 (Prepared under NBS Contr. No. CST-7973), 64 pages (May 1970). ($2.50)[6]

MR-27 SPECTRAL RADIATIVE PROPERTIES OF TRANSITION METALS AT LIQUID HELIUM TEMPERATURES, by M. C. Jones. California Univ., Berkeley, Ph. D. Dissertation, 106 pages (Dec 1970). ($4.00)[6]

MR-28 TECHNICAL MANUAL OF OXYGEN/NITROGEN CRYOGENIC SYSTEMS. Naval Air Systems Command, Washington, D. C., Rept. No. NAVAIR 06-3-501, 427 pages (Mar 1971). (No charge for single copy)[6]

MR-29 HANDBOOK ON MATERIALS FOR SUPERCONDUCTING MACHINERY - Mechanical, Thermal, Electrical, and Magnetic Properties of Structural Materials, by Battelle Columbus Laboratories, Advanced Research Projects Agency and National Bureau of Standards. Battelle Columbus Labs., Ohio, Metals and Ceramics Information Center, Handbook No. MCIC-HB-04, ARPA Order No. 2569 (Nov 1974). (AD A002-698)[7]

Thermodynamic Properties Charts

Single copies of the following charts are available from National Bureau of Standards, Cryogenic Data Center, Boulder, Colorado 80302, at no charge. Additional copies of charts D-1 through D-57 may be purchased from National Technical Information Service, Springfield, Virginia 22151 (Order by PB No. --price $1.00 each regardless of size). Charts D-58 through D-70 are available from NBS Cryogenic Data Center only (request by D No.).

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D-3 TEMPERATURE-ENTROPY DIAGRAM OF HELIUM (20 to 300°K; 0.1 to 100 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. (1961). From: Nat. Bur. Stand. (U.S.), Res. Pap. 1932 (1948). PB172354-1 - 8 1/2" x 11" size; PB172354-3 - 17" x 22" size.

D-4 TEMPERATURE-ENTROPY DIAGRAM OF NORMAL HYDROGEN (0 to 150°K; 0.6 to 300 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. (1960). From: Nat. Bur. Stand. (U.S.), Res. Pap. 1932 (1948). PB172355-1 - 8 1/2" x 11" size; PB172355-3 - 17" x 22" size.

D-5 TEMPERATURE-ENTROPY DIAGRAM OF NORMAL HYDROGEN (130 to 300°K; 0.8 to 600 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. (1960). From: Nat. Bur. Stand. (U.S.), Res. Pap. 1932 (1948). PB172356-1 - 8 1/2" x 11" size; PB172356-3 - 17" x 22" size.

D-6 TEMPERATURE-ENTROPY DIAGRAM OF NEON (55 to 300°K, 0.5 to 90 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: A Compendium of the Properties of Materials at Low Temperature - Phase II. R. B. Stewart and V. J. Johnson (General Editors). Wright Air Development Div., Wright-Patterson AFB, Ohio, Tech. Rept. No. WADD 60-56 (1961). PB172357-1 - 8 1/2" x 11" size: PB172357-3 - 17" x 22" size.

D-7 TEMPERATURE-ENTROPY DIAGRAM OF NITROGEN (50 to 450°K; 0.1 to 1200 atm.) Bureau of Mines, Amarillo, Tex. From: Chart by E. S. Burnett (1949). PB172358-1 - 8 1/2" x 11" size; PB172358-3 - 17" x 22" size.

D-8 TEMPERATURE-ENTROPY DIAGRAM OF AIR (70 to 350°K; 1 to 1100 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. (1961). Based on data from Michels, et al., and Claitor, et al. (1954). PB172359-1 - 8 1/2" x 11" size; PB172359-3 - 17" x 22" size.

D-9 PRESSURE-ENTHALPY DIAGRAM OF OXYGEN (100 to 300°K; 1 to 70 atm.). Bureau of Mines (1928). PB172360-1 - 8 1/2" x 11" size.

D-10 PRESSURE-ENTHALPY DIAGRAM OF OXYGEN (-200 to +200°C; 0.10 to 300 atm.). Leiden Univ., Netherlands, Kamerlingh Onnes Lab. (1942). PB172361-1 - 8 1/2" x 11" size; PB172361-3 - 17" x 22" size.

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D-14 COMPRESSIBILITY FACTOR CHART FOR NORMAL HYDROGEN; Z vs P (16 to 300°K; .08 to 800 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: A Compendium of the Properties of Materials at Low Temperature - Phase II. R. B. Stewart and V. J. Johnson (General Editors). Wright Air Development Div., Wright-Patterson AFB, Ohio, Tech. Rept. No. WADD 60-56 (1961). PB172365-1 - 8 1/2" x 11" size; PB172365-3 - 17" x 22" size.

D-15 COMPRESSIBILITY FACTOR CHART FOR NEON; Z vs P (55 to 300°K; 20 to 90 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: A Compendium of the Properties of Materials at Low Temperature - Phase II. R. B. Stewart and V. J. Johnson (General Editors). Wright Air Development Div., Wright-Patterson AFB, Ohio, Tech. Rept. No. WADD 60-56 (1961). PB172366-1 - 8 1/2" x 11" size; PB172366-3 - 17" x 22" size.

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D-17 COMPRESSIBILITY FACTOR CHART FOR NITROGEN; Z vs P (90 to 300°K; 300 to 3000 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: A Compendium of the Properties of Materials at Low Temperature - Phase II. R. B. Stewart and V. J. Johnson (General Editors). Wright Air Development Div., Wright-Patterson AFB, Ohio, Tech. Rept. No. WADD 60-56 (1961). PB172368-1 - 8 1/2" x 11"; PB172368-3 - 17" x 22" size.

D-18A COMPRESSIBILITY FACTOR CHART FOR AIR; Z vs P (90 to 300°K; 0.1 to 600 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: A Compendium of the Properties of Materials at Low Temperature - Phase II. R. B. Stewart and V. J. Johnson (General Editors). Wright Air Development Div., Wright-Patterson AFB, Ohio, Tech. Rept. No. WADD 60-56 (1961). PB172369-1 - 8 1/2" x 11" size; PB172369-3 - 17" x 22" size.

D-18B COMPRESSIBILITY FACTOR CHART FOR AIR; Z vs T (75 to 300°K; 1 to 1000 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: A Compendium of the Properties of Materials at Low Temperature - Phase II. R. B. Stewart and V. J. Johnson (General Editors). Wright Air Development Div., Wright-Patterson AFB, Ohio, Tech. Rept. No. WADD 60-56 (1961). PB172370-1 - 8 1/2" x 11" size; PB172370-3 - 17" x 22" size.

D-19 COMPRESSIBILITY FACTOR CHART FOR METHANE; Z vs P (122 to 273°K; 1 to 600 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: A Compendium of the Properties of Materials at Low Temperature - Phase II. R. B. Stewart and V. J. Johnson (General Editors). Wright Air Development Div., Wright-Patterson AFB, Ohio, Tech. Rept. No. WADD 60-56 (1961). PB172371-1 - 8 1/2" x 11" size; PB172371-3 - 17" x 22" size.

D-20 TEMPERATURE-ENTROPY CHART FOR PARAHYDROGEN (14 to 100°K; 0.1 to 340 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: Nat. Bur. Stand. (U.S.), Monogr. No. 94 (1965). PB172372-1 - 8 1/2" x 11" size; PB172372-3 - 17" x 22" size.

D-20A INTERIM TEMPERATURE-ENTROPY CHART FOR PARAHYDROGEN (In Metric Units; 20 to 100°K; 1 to 340 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: Nat. Bur. Stand. (U.S.), Tech. Note No. 130 (1961). PB172373-1 - 8 1/2" x 11" size; PB172373-2 - 11" x 17" size; PB172373-3 - 17" x 22" size.

D-20B INTERIM TEMPERATURE-ENTROPY CHART FOR PARAHYDROGEN (In British Units; 30 to 180°R; 10 to 5000 psia). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: Nat. Bur. Stand. (U.S.), Tech. Note No. 130 (1961). PB172374-1 - 8 1/2" x 11" size; PB172374-2 - 11" x 17" size; PB172374-3 - 17" x 22" size.

D-21A INTERIM TEMPERATURE-ENTROPY CHART FOR PARAHYDROGEN (In Metric Units; 80 to 300°K; 1 to 100 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: Nat. Bur. Stand. (U.S.), Tech. Note No. 130 (1961). PB172375-1 - 8 1/2" x 11" size; PB172375-2 - 11" x 17" size; PB172375-3 - 17" x 22" size.

D-21B INTERIM TEMPERATURE-ENTROPY CHART FOR PARAHYDROGEN (In British Units; 140 to 540°R; 10 to 1500 psia.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: Nat. Bur. Stand. (U.S.), Tech. Note No. 130 (1961). PB172376-1 - 8 1/2" x 11" size; PB172376-2 - 11" x 17" size; PB172376-3 - 17" x 22" size.

D-22 ENTHALPY-ENTROPY CHART FOR PARAHYDROGEN (16 to 64°K; 0.3 to 340 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: Nat. Bur. Stand. (U.S.), Monogr. No. 94 (1965). PB172377-1 - 8 1/2" x 11" size; PB172377-3 - 17" x 22" size.

D-22A INTERIM ENTHALPY-ENTROPY CHART FOR PARAHYDROGEN (In Metric Units; 20 to 60°K; 1 to 340 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: Nat. Bur. Stand. (U.S.), Tech. Note No. 130 (1961). PB172378-1 - 8 1/2" x 11" size; PB172378-2 - 11" x 17" size; PB172378-3 - 17" x 22" size.

D-22B INTERIM ENTHALPY-ENTROPY CHART FOR PARAHYDROGEN (In British Units; 36 to 100°R; 10 to 5000 psia.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: Nat. Bur. Stand. (U.S.), Tech. Note No. 130 (1961). PB172379-1 - 8 1/2" x 11" size; PB172379-2 - 11" x 17" size; PB172379-3 - 17" x 22" size.

D-23 TEMPERATURE-ENTROPY DIAGRAM FOR NITROGEN (65 to 300°K; 0.1 to 200 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: Nat. Bur. Stand. (U.S.), Tech. Note No. 129 (1962). PB172380-1 - 8 1/2" x 11" size; PB172380-3 - 17" x 22" size.

D-24 TEMPERATURE-ENTROPY DIAGRAM FOR HELIUM (0 to 50°K; 0.5 to 150 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. (1957). From: J. Zelmanov, W. H. Keesom and E. H. Brown Data (1940, 1944, 1958). PB172381-1 - 8 1/2" x 11" size.

D-25 TEMPERATURE-ENTROPY DIAGRAM FOR HELIUM (50 to 100°K; 0.5 to 200 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. (1957). From: W. H. Keesom Data (1940). PB172382-1 - 8 1/2" x 11" size.

D-26 TEMPERATURE-ENTROPY DIAGRAM FOR HELIUM (100 to 200°K; 0.5 to 200 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. (1957). From: W. H. Keesom Data (1940). PB172383-1 - 8 1/2" x 11" size.

D-27 TEMPERATURE-ENTROPY DIAGRAM FOR HELIUM (200 to 400° K; 0.5 to 200 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. (1957). From: W. H. Keesom Data (1940). PB172384-1 - 8 1/2" x 11" size.

D-28 TEMPERATURE-ENTROPY DIAGRAM FOR HYDROGEN (280 to 600°K; 1 to 1200 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. (1960). From: Nat. Bur. Stand. (U.S.), Res. Pap. 1932 (1948). PB172385-1 - 8 1/2" x 11" size; PB172385-2 - 11" x 17" size.

D-42 PRESSURE-ENTHALPY DIAGRAM OF ETHYLENE (-150 to +200°C; .02 to 300 atm.). Leiden Univ., Netherlands, Kamerlingh Onnes Lab. (1941). PB172386-1 - 8 1/2" x 11" size; PB172386-3 - 17" x 22" size.

D-43 PRESSURE-ENTHALPY DIAGRAM OF METHANE (90 to 480°K; 1 to 300 atm.). Leiden Univ., Netherlands, Kamerlingh Onnes Lab. (1940). PB172387-1 - 8 1/2" x 11" size; PB172387-3 - 17" x 22" size.

D-44 COMPRESSIBILITY FACTOR CHART FOR NEON; Z vs P (30 to 300°K; 1 to 200 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. (1962). From: "P-ρ-T Values for Neon from 27° to 300°K for Pressures to 200 Atmospheres Using Corresponding States Theory," by R. D. McCarty, R. B. Stewart and K. D. Timmerhaus. Advances in Cryogenic Engineering, Vol 8, Plenum Press, New York (1963). PB172388-1 - 8 1/2" x 11" size; PB172388-3 - 17" x 22" size.

D-45 INTERIM TEMPERATURE-ENTROPY CHART FOR LIQUID OXYGEN (54 to 100°K; saturated liquid to 200 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. (1963). An extension of the chart contained in The Thermodynamic Properties of Oxygen From 20° to 100°K, by J. C. Mullins, W. T. Ziegler and B. S. Kirk. Georgia Inst. of Tech., Atlanta, Engineering Experiment Station, Tech. Rept. No. 2 (Prepared under NBS Contr. No. CST-7339) (Mar 1962). PB172389-1 - 8 1/2" x 11" size; PB172389-2 - 11" x 17" size.

D-46 TEMPERATURE-ENTROPY DIAGRAM FOR OXYGEN (30 to 100°K; 10^{-6} to 1750 mm Hg.). Reprinted from: The Thermodynamic Properties of Oxygen From 20° to 100°K, by J. C. Mullins, W. T. Ziegler, and B. S. Kirk. Georgia Inst. of Tech., Atlanta, Engineering Experiment Station, Tech. Rept. No. 2 (Prepared under NBS Contr. No. CST-7339) (Mar 1962). PB172390-3 - 17" x 22" size.

D-47 TEMPERATURE-ENTROPY DIAGRAM FOR PARAHYDROGEN (4 to 22°K; 10^{-6} to 1000 mm Hg.). Reprinted from: The Thermodynamic Properties of Parahydrogen from 1° to 22°K, by J. C. Mullins, W. T. Ziegler and B. S. Kirk. Georgia Inst. of Tech., Atlanta, Engineering Experiment Station, Tech. Rept. No. 1 (Prepared under NBS Contr. No. CST-7339) (Nov 1961). PB172391-2 - 11" x 17" size.

D-48R TEMPERATURE-ENTROPY DIAGRAM FOR NEON (60 to 300°K; 0.1 to 200 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. (1963). Reprinted from: "Thermodynamic Properties of Neon from 25 to 300°K between 0.1 and 200 Atmospheres," by R. D. McCarty and R. B. Stewart. Advances in Thermophysical Properties at Extreme Temperatures and Pressures, 84-97. American Society of Mechanical Engineers, New York (1965). PB172392-1 - 8 1/2" x 11" size; PB172392-3 - 17" x 22X size.

D-49R TEMPERATURE-ENTROPY DIAGRAM FOR NEON (25 to 80°K; 0.1 to 200 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. (1963). Reprinted from: "Thermodynamic Properties of Neon from 25 to 300°K between 0.1 and 200 Atmospheres," by R. D. McCarty and R. B. Stewart. Advances in Thermophysical Properties at Extreme Temperatures and Pressures, 84-97. American Society of Mechanical Engineers, New York (1965). PB172393-1 - 8 1/2" x 11" size; PB172393-3 - 17" x 22" size.

D-50 COMPRESSIBILITY FACTOR CHART FOR CARBON MONOXIDE; Z vs P (100 to 300°K; 1 to 300 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. Reprinted from: Nat. Bur. Stand. (U.S.), Tech. Note No. 202 (Sep 1963). PB172394-1 - 8 1/2" x 11" size; PB172394-3 - 17" x 22" size.

D-51 TEMPERATURE-ENTROPY DIAGRAM FOR CARBON MONOXIDE (70 to 300°K; 0.1 to 300 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. Reprinted from: Nat. Bur. Stand. (U.S.), Tech. Note No. 202 (Sep 1963). PB172395-1 - 8 1/2" x 11" size; PB172395-3 - 17" x 22" size.

D-52 TEMPERATURE-ENTROPY DIAGRAM FOR HELIUM (15 to 300°K; 0.1 to 100 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. (1964). From: Nat. Bur. Stand. (U.S.), Tech. Note No. 154 (Jan 1962). PB172396-1 - 8 1/2" x 11" size; PB172396-3 - 17" x 22" size.

D-53 TEMPERATURE-ENTROPY DIAGRAM FOR HELIUM (3 to 25°K; 0.5 to 100 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. (1964). From: Nat. Bur. Stand. (U.S.), Tech. Note No. 154 (Jan 1962). PB172397-1 - 8 1/2" x 11" size; PB172397-3 - 17" x 22" size.

D-54 ENTHALPY-ENTROPY CHART FOR HELIUM (3 to 25°K; 1 to 100 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. (1964). From: Nat. Bur. Stand. (U.S.), Tech. Note No. 154 (Jan 1962). PB172398-1 - 8 1/2" x 11" size; PB172398-3 - 17" x 22" size.

D-55 VELOCITY OF SOUND IN GASEOUS HYDROGEN (20 to 300°K; 36 to 500°R). National Bureau of Standards, Boulder, Colo., Cryogenics Div. (1960). From: Nat. Bur. Stand. (U.S.), Res. Pap. 1932 (1948). PB192399-2 - 11" x 17" size.

D-56 TEMPERATURE-ENTROPY CHART FOR OXYGEN (65 to 300°K; .002 to 340 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: The Thermodynamic Properties of Oxygen, by R. B. Stewart. Ph.D. Dissertation, University of Iowa, Iowa City (1966). PB173078-1 - 8 1/2" x 11" size; PB173078-2 - 11" x 17" size; PB173078-3 - 17" x 22" size.

D-57 COMPRESSIBILITY FACTOR CHART FOR OXYGEN (70 to 300°K; 1 to 340 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: The Thermodynamic Properties of Oxygen, by R. B. Stewart. Ph.D. Dissertation, University of Iowa, Iowa City (1966). PB173079-1 - 8 1/2" x 11" size; PB173079-3 - 17" x 22" size.

D-58 TEMPERATURE-ENTROPY CHART FOR DEUTERIUM (20 to 100°K; 0.1 to 100 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: The Thermodynamic Properties of Deuterium, by R. Prydz. M.S. Thesis, University of Colorado, Boulder (1967). 8 1/2" x 11" size.

D-59 TEMPERATURE-ENTROPY CHART FOR DEUTERIUM (80 to 300°K; 1.0 to 400 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: The Thermodynamic Properties of Deuterium, by R. Prydz. M.S. Thesis, University of Colorado, Boulder (1967). 8 1/2" x 11" size.

D-60 COMPRESSIBILITY FACTOR CHART FOR DEUTERIUM (20 to 300°K; 3 to 5500 psia.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: The Thermodynamic Properties of Deuterium, by R. Prydz. M.S. Thesis, University of Colorado, Boulder (1967). 8 1/2" x 11" size.

D-61 TEMPERATURE-ENTROPY CHART FOR ARGON (85 to 300°K; 0.02 to 1000 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: Nat. Stand. Ref. Data Ser., Nat. Bur. Stand. (U.S.), No. 27 (Mar 1969). 8 1/2" x 11" size.

D-62 COMPRESSIBILITY FACTOR CHART FOR ARGON (90 to 300°K; .5 to 500 atm.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: Nat. Stand. Ref. Data Ser., Nat. Bur. Stand. (U.S.), No. 27 (Mar 1969). 8 1/2" x 11" size.

D-63 TEMPERATURE-ENTROPY CHART FOR OXYGEN (100 to 600 R; 0.03 to 5000 psia.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: Nat. Bur. Stand. (U.S.), Tech. Note No. 384 (Jul 1971). 8 1/2" x 11" size and 17" x 22" size.

D-64 MOLLIER DIAGRAM FOR OXYGEN (120 to 540 R; 0.1 to 5000 psia.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: Nat. Bur. Stand. (U.S.), Tech. Note No. 384 (Jul 1971). 8 1/2" x 11" size and 17" x 22" size.

D-65 PRESSURE-ENTHALPY CHART FOR OXYGEN (120 to 580 R; 800 to 1050 psia.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: Nat. Bur. Stand. (U.S.), Tech. Note No. 384 (Jul 1971). 17" x 22" size.

D-66 ENTHALPY-ENTROPY CHART FOR OXYGEN (120 to 600 R; .03 to 5000 psia.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. (1972). From: Nat. Bur. Stand. (U.S.), Tech. Note No. 384 (Jul 1971). 8 1/2" x 11" size and 17" x 22" size.

D-67 PRESSURE-TEMPERATURE CHART FOR OXYGEN (100 to 600 R; 0 to 5000 psia.). National Bureau of Standards, Boulder, Colo., Cryogenics Div. (1972). From: Nat. Bur. Stand. (U.S.), Tech. Note No. 384 (Jul 1971). 8 1/2" x 11" size and 17" x 22" size.

D-68 TEMPERATURE-ENTROPY CHART FOR HELIUM (2 to 12 K; .1 to 400 atm.), National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: J. Phys. Chem. Ref. Data Vol 2, No. 4 (1973). 8 1/2" x 11" size and 17" x 22" size.

D-69 TEMPERATURE-ENTROPY CHART FOR HELIUM (10 to 110 K: 1 to 1000 atm.), National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: J. Phys. Chem. Ref. Data Vol 2, No. 4 (1973). 8 1/2" x 11" size and 17" x 22" size.

D-70 TEMPERATURE-ENTROPY CHART FOR HELIUM (100 to 1500 K: 1 to 1000 atm.), National Bureau of Standards, Boulder, Colo., Cryogenics Div. From: J. Phys. Chem. Ref. Data Vol 2, No. 4 (1973). 8 1/2" x 11" size and 17" x 22" size.

Author Index*

*Underline indicates first author.

Subject Index

Index

NBS Technical Notes, NBS Monographs, NBS Special Publications, NBS Circulars, etc.

Tech. Note No.	R or MR No.	Title and Authors
4	R-125	The vapor pressures of some hydrocarbons in the liquid and solid state at low temperatures, by W. T. Ziegler.
8	R-126	Thermodynamic properties of helium at low temperatures and high pressures, by D. B. Mann and R. B. Stewart.
38	R-153	Design and construction of a liquid hydrogen temperature refrigeration system, by D. B. Chelton, J. W. Dean and B. W. Birmingham.
39	R-154	Helium refrigeration and liquefaction using a liquid hydrogen refrigerator for precooling, by D. B. Chelton, J. W. Dean, T. R. Strobridge, B. W. Birmingham and D. B. Mann.
56	R-165	A bibliography of the physical equilibria and related properties of some cryogenic systems, by T. M. Flynn.
108	R-197	A compilation of the physical equilibria and related properties of the hydrogen-carbon monoxide system, by D. E. Drayer and T. M. Flynn.
109	R-196	A compilation of the physical equilibria and related properties of the hydrogen-helium system, by D. E. Drayer and T. M. Flynn.
110	R-195	A compilation of the physical equilibria and related properties of the hydrogen-nitrogen system, by D. E. Drayer and T. M. Flynn.
115	R-211	Load carrying capacity of gas-lubricated bearings with inherent orifice compensation using nitrogen and helium gas, by H. Sixsmith, W. A. Wilson and B. W. Birmingham.
120	R-217	A tabulation of the thermodynamic properties of normal hydrogen from low temperatures to 300°K and from 1 to 100 atmospheres, by J. W. Dean.
120A	R-235	A tabulation of the thermodynamic properties of normal hydrogen from low temperatures to 540°R and from 10 to 1500 psia, Supplement A (British Units), by J. W. Dean.
122	R-219	A survey of the literature on heat transfer from solid surfaces to cryogenic fluids, by R. J. Richards, W. G. Steward and R. B. Jacobs.
129	R-218	The thermodynamic properties of nitrogen from 64 to 300°K between 0.1 and 200 atmospheres, by T. R. Strobridge.
129A	R-268	The thermodynamic properties of nitrogen from 114 to 540°R between 1.0 and 3000 psia, Supplement A (British Units), by T. R. Strobridge.
130	R-220	Provisional thermodynamic functions for para-hyrogen, by H. M. Roder and R. D. Goodwin.
137	R-230	A bibliography of the thermophysical properties of oxygen at low temperatures, by J. G. Hust, L. D. Wallace, J. A. Crim, L. A. Hall and R. B. Stewart.
144	R-232	Dielectric constant of liquid parahydrogen, by R. J. Corruccini.
147	R-233	Cryogenic temperature measurement with platinum resistance thermometers - is fixed-point calibration adequate?, by R. J. Corruccini.
154	R-242	The thermodynamic properties of helium from 3 to 300°K between 0.5 and 100 atmospheres, by D. B. Mann.
154A	R-264	The thermodynamic properties of helium from 6 to 540°R between 10 and 1500 psia, by D. B. Mann.
179	R-297	Choking two-phase flow literature summary and idealized design solutions for hydrogen, nitrogen, oxygen, and refrigerants 12 and 11, by R. V. Smith.
183	R-299	A comparison of two melting-pressure equations constrained to the triple point using data for eleven gases and three metals, by R. D. Goodwin and L. A. Weber.
200	R-300	Carbon resistors for cryogenic liquid level measurement, by R. C. Muhlenhaupt and P. Smelser.
202	R-306	Thermodynamic property values for gaseous and liquid carbon monoxide from 70 to 300°K with pressures to 300 atmospheres, by J. G. Hust and R. B. Stewart.
217	R-327	A bibliography of thermophysical properties of argon from 0 to 300°K, by L. A. Hall, J. G. Hust and A. L. Gosman.
218	R-332	The electrical properties of aluminum for cryogenic electromagnets, by R. J. Corruccini.

Tech. Note No.	R or MR No.	Title and Authors
227	R-345	The Joule-Thomson process in cryogenic refrigeration systems, by J. W. Dean and D. B. Mann.
301	MR-19	On the formulation and numerical evaluation of a set of two-phase flow equations modelling the cooldown process, by S. Jarvis, Jr.
309	R-347	A bibliography of experimental saturation properties of the cryogenic fluids, by N. A. Olien and L. A. Hall.
314	MR-21	Stability of two-phase annular flow in a verticle pipe, by S. Jarvis, Jr.
316	R-358	Solubility of solids in dense gases, by J. M. Prausnitz.
317	R-368	Boiling heat transfer for oxygen, nitrogen, hydrogen, and helium, by E. G. Brentari, P. J. Giarratano and R. V. Smith.
321	R-366	Spark planing damage in copper, by J. J. Gniewek, A. F. Clark and J. C. Moulder.
322	R-365	Surface tensions of normal and para hydrogen, by R. J. Corruccini.
323	R-367	Refractive index and dispersion of liquid hydrogen, by R. J. Corruccini.
333	R-389	The viscosity and thermal conductivity coefficients of dilute argon between 100 and 2000^{o}K, by H. J. M. Hanley.
343	R-399	Temperature-entropy diagram for parahydrogen triple-point region, by C. F. Sindt and D. M. Mann.
348	R-409	Infrared reflectances of metals at cryogenic temperatures - a compilation from the literature, by P. F. Dickson and M. C. Jones.
350	R-410	The viscosity and thermal conductivity coefficients of dilute nitrogen and oxygen, by G. E. Childs and H. J. M. Hanley.
352	R-420	The viscosity and thermal conductivity coefficients of dilute neon, krypton, and xenon, by H. J. M. Hanley and G. E. Childs.
354	R-432	The single-engine Claude cycle as a 4.2^{o}K refrigerator, by R. C. Muhlenhaupt and T. R. Strobridge.
355	R-433	Correlations for predicting leakage through closed valves, by J. Hord.
356	R-435	Comparison of incompressible flow and isothermal compressible flow formulae, by J. Hord.
359	R-451	Two-Phase (liquid-vapor), mass-limiting flow with hydrogen and nitrogen, by J. A. Brennan, D. K. Edmonds and R. V. Smith.
360	R-453	On the selection of the intermolecular potential function: Application of statistical mechanical theory to experiment, by H. J. M. Hanley and M. Klein.
361	R-460	Saturated liquid densities of oxygen, nitrogen, argon, and parahydrogen, by H. M. Roder, R. D. McCarty and V. J. Johnson.
361 (Revised)	R-728	Liquid densities of oxygen, nitrogen, argon, and parahydrogen, by H. M. Roder, R. D. McCarty and V. J. Johnson.
361 (Revised) - Metric Supplement	R-828	Liquid densities of oxygen, nitrogen, argon and parahydrogen, by H. M. Roder.
362	R-452	Thermodynamic properties of He^3-He^4 solutions with applications to the He^3-He^4 dilution refrigerator, by R. Radebaugh.
363	R-457	Computer solutions for thermal-acoustical oscillations in gas-filled tubes, by M. T. Norton and R. C. Muhlenhaupt.
364	R-458	Slush hydrogen pumping characteristics, by D. E. Daney, P. R. Ludtke, D. B. Chelton and C. F. Sindt.

Tech. Note No.	R or MR No.	Title and Authors
365	R-459	Survey of electrical resistivity measurements on 16 pure metals in the temperature range 0 to 273 ^{o}K, by L. A. Hall.
365-1	R-596	Survey of electrical resistivity measurements on 8 additional pure metals in the temperature range 0 to 273 K, by L. A. Hall and F. E. E. Germann.
366	R-471	An analysis of the Brayton cycle as a cryogenic refrigerator, by R. C. Muhlenhaupt and T. R. Strobridge.
367	R-461	A bibliography of thermophysical properties of methane from 0 to 300 ^{o}K, by L. A. Hall.
374	R-490	Incipient and developed cavitation in liquid cryogens, by D. K. Edmonds and J. Hord.
377	R-489	Slush hydrogen fluid characterization and instrumentation, by C. F. Sindt, P. R. Ludtke and D. E. Daney.
378	R-509	Preparation and characterization of slush hydrogen and nitrogen gels, by A. S. Rapial and D. E. Daney.
381	R-545	Some applications of the Josephson effect, by R. A. Kamper, L. O. Mullen and D. B. Sullivan.
383	R-546	A bibliography of thermophysical properties of air from 0 to 300 K, by L. A. Hall.
384	R-638	Thermophysical properties of oxygen from the freezing liquid line to 600 R for pressures to 5000 psia, by R. D. McCarty and L. A. Weber.
385	R-547	Thermal conductance at the interface of a solid and helium II (Kapitza conductance), by N. S. Snyder.
390	R-566	Far infrared absorption in liquefied gases, by M. C. Jones.
392	R-598	The thermodynamic properties of compressed gaseous and liquid fluorine, by R. Prydz and G. C. Straty.
392 (Revised)	R-797	The thermodynamic properties of compressed gaseous and liquid fluorine, by R. Prydz and G. C. Straty.
397	R-605	Tabulated values of cavitation B-factor for helium, H_2, N_2, F_2, O_2, refrigerant 114 and H_2O, by J. Hord and R. O. Voth.
412	R-419	Quantum mechanical calculations of the second virial coefficients for hydrogen, by M. E. Boyd and S. Y. Larsen.
600	R-637	Corrections and calculations on an x-ray diffraction line profile: A computer program, by R. E. Schramm.
605	R-650	An evaluation of positive displacement cryogenic volumetric flowmeters, by J. A. Brennan, J. W. Dean, D. B. Mann and C. H. Kneebone.
606	R-667	Cryogenic flow research facility provisional accuracy statement, by J. W. Dean, J. A. Brennan, D. B. Mann and C. H. Kneebone.
608	R-651	Steam-water, critical flow in a venturi, by R. V. Smith.
609	R-649	Study of cryogenic storage tank fatigue life - low temperature mechanical testing of AISI 304 and 310 stainless steels, by R. P. Reed, R. L. Durcholz, R. E. Schramm and T. J. Patrician.
613	R-678	Martensite transformation detection in cryogenic steels (magnetometer development), by F. R. Fickett.
617	R-701	Thermophysical properties of parahydrogen from the freezing liquid line to 5000 R for pressures to 10,000 psia, by R. D. McCarty and L. A. Weber.

Tech. Note No.	R or MR No.	Title and Authors
621	R-722	Liquid-vapor equilibrium in the binary systems He^4 and He^3 with nD_2 and nH_2, by M. J. Hiza.
622	R-723	Thermophysical properties of helium-4 from 4 to 3000 R with pressures to 15000 psia, by R. D. McCarty.
624	R-727	An evaluation of several cryogenic turbine flowmeters, by J. A. Brennan, R. W. Stokes, D. B. Mann and C. H. Kneebone.
625	R-726	Computer programs for thermodynamic and transport properties of hydrogen (Tabcode II), by H. M. Roder, R. D. McCarty and W. J. Hall.
627	R-748	Computation of spectral data for a Josephson Junction circuit, by E. G. Johnson, Jr. and D. G. McDonald.
628	R-746	On the utility of the m-6-8 potential function, by H. J. M. Hanley and M. Klein.
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Custom Bibliographies - The Cryogenic Data Center serves as a central source for information in the field of cryogenics, including properties of materials at low temperatures, liquefied natural gas (LNG), basic and applied superconductivity, cryogenic engineering (including cryogenic patents), instruments and metrology, etc. Important information from the world's literature in these fields is selected and carefully indexed for entry into an automated information system which contains over 100,000 references. Literature searches can be provided, on demand, for any of the topics above. The charges for searches begin at $35 and are based upon the length and complexity of the search. The resulting bibliography can be tailored to the needs of the user, anywhere from a very broad to a very narrow question. The feasibility and estimated cost of a search can be obtained from Neil A. Olien (Phone (303) 499-1000, Extension 3257).

Thermodynamic and Transport Properties Data - The Cryogenic Data Center is also engaged in long term projects designed to produce Standard Reference Data for the thermodynamic and transport properties of the technically important gases. The data are available in tabular and graphical form as well as in the form of computer programs - the descriptive list on page 100 indicates the programs which are available. Computer programs are written in FORTRAN IV language and are currently operational on a CDC 3800 computer. Programs include a data deck and a sample run on our computer and are available at a cost of $50.00 per program. Questions should be directed to R. D. McCarty (Phone (303) 499-1000, extension 3386) or to Neil A. Olien (Phone (303) 499-1000, Extension 3257).

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			Type	Acy	P	T		
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CO	NBS TN 202	CO PROPS	BWR, 16	1	400 atm	70-300 K	P-T, ρ-T	P,ρ,T,S,H,U
D_2	NBS Report-Unpublished	D_2	BWR, 24	1	400 atm	TP-300 K	P-T, ρ-T	P,ρ,T,S,H,U
F_2	NBS TN 392	SAMPLE, PVT F_2	Poly Int	1	24 MN/m^2	TP-300 K	P-T	P,ρ,T,S,H,U,C_p,C_v,$\left(\frac{\partial P}{\partial T}\right)_\rho$,$\left(\frac{\partial P}{\partial \rho}\right)_T$,W
He	NBS TN 631	HE PROPS (71)	BWR, 87	1	1000 atm	LP-1500 K	P-T, ρ-T	P,ρ,T,S,H,U,C_p,C_v,η,λ and others
	NBS Report-Unpublished	HE PROPS (70)	BWR, 35	2	1000 atm	LP-1500 K	P-T, ρ-T	P,ρ,T,S,H,U,C_p,C_v,$\left(\frac{\partial P}{\partial T}\right)_\rho$,$\left(\frac{\partial P}{\partial \rho}\right)_T$,W
	NBS TN 154	HE PROPS (62)	BWR, 17	3	100 atm	3-300 K	P-T, ρ-T	P,ρ,T,S,H,U
H_2	NBS Mono 94	THERMO or VALUES	Poly Int	1	340 atm	TP-100 K	P-T	P,ρ,T,S,H,U,C_p,C_v,$\left(\frac{\partial P}{\partial T}\right)_\rho$,$\left(\frac{\partial P}{\partial \rho}\right)_T$,W
	NBS TN 130	PROP TRS and PROP LIQ	BWR, 16 BWR, 16	2 2	340 atm 340 atm	33-300 K TP-32 K	P-T, ρ-T P-T, ρ-T	P,ρ,T,S,H,U
	NBS IR 75-814	H2HIP	BWR, 32	2	700 atm	TP-700 K	P-T, ρ-T	P,ρ,T,S,H,U,C_p,C_v,W,η,K
(Para)(Equi)	NBS TN 625	TAB CODE	Lin Int	3	5000 psi	TP-6000 R	P-T, P-H	P,ρ,T,S,H,U,C_p,C_v,K,η,W
Para	NBS TN 617	H_2 PROPS THERMO	BWR, 17 Poly Int	1 1	10,000 psi 10,000 psi	180-6000 R TP-180 R	P-T, ρ-T P-T	(all of above plus, θ,ϕ,β,Pr,σ,γ (and others
CH_4	NBS TN 653	METHERM 4	Non-Ana	1	10,000 psi	TP-500 K	P-T	P,ρ,T,S,H,U,C_p,C_v,$\left(\frac{\partial P}{\partial T}\right)_\rho$,$\left(\frac{\partial P}{\partial \rho}\right)_T$,W
CH_4	Cryogenics, Vol 14, No. 5, 239-98 May 1974	CH4 PROP	BWR, 32	1	350 atm	TP-400 K	P-T, ρ-T	(all of above plus, η,λ
Ne	ASME Advances 65 R-346	NE PROPS	BWR, 18	1	200 atm	25-300 K	P-T, ρ-T	P,ρ,T,S,H,U
N_2	NBS TN 642	N_2 PROPS	BWR, 32	1	10,000 atm	64-1900 K	P-T, ρ-T	Same as H_2, O_2 and He
O_2	NBS IR	O_2 PROPS	BWR, 32	2	800 atm	65-300 K	P-T, ρ-T	P,ρ,T,S,H,U,C_p,C_v,W
	J. Res. 70, R-559	PVT 02	Poly Int	1	340 atm	TP-300 K	P-T	P,ρ,T,S,H,U,C_p,C_v,$\left(\frac{\partial P}{\partial T}\right)_\rho$,$\left(\frac{\partial P}{\partial \rho}\right)_T$,W
	NBS TN 384	PVT 02 & TEST	Poly Int	1	5000 psi	TP-600 R	P-T	(all of above and θ,ϕ,β,Pr,α,γ,K,η (and others

Custom Thermocouple Tables

A program for the production of thermocouple tables for cryogenic use has been developed by L. L. Sparks and R. L. Powell of our Properties of Solids Section. The tables are usable from liquid helium temperatures at 4 K to approximately room temperature.

After an individual user makes a spot check of his own thermocouple with its junctions at known temperatures, a computer program is used to compare the results of the spot calibration with an NBS calibration table. The computer then calculates a correction factor and generates a "working" table tailored to the particular thermocouple. The table may be obtained in degrees C or degrees K, with any reference temperature within the range of the table. Tables can be generated for most of the commercial, low-temperature, thermocouple materials.

This program is compatible with many types of computers, making possible the use of local computers. The Cryogenic Data Center will furnish, at cost, the materials and instructions necessary for the user to develop his own tables. The materials needed are (1) a thermocouple data deck, and (2) a program deck, written in FORTRAN II, IV, or 3600, which was developed to adjust the "standard" data to fit a particular thermocouple.

It is preferred that the customer use a local computer. If, however, one is not available, the Cryogenic Data Center will process the spot calibration data furnished by the user. For further information, contact L. L. Sparks, Properties of Solids Section, Thermophysical Properties Division, Center for Mechanical Engineering and Process Technology, National Engineering Laboratory, Boulder, Colorado 80303 (Phone (303) 499-1000, Extension 3612).

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This NBS Technical Note catalogs the publications of the Cryogenics Division, along with author and subject indexes, for the period 1953 through 1977. It also contains a listing of available thermodynamic properties charts, bibliographies, and miscellaneous reports of cryogenic interest.

A resumé of the activities of and services provided by the Cryogenics Division is also included.

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