

Leipel

HIGH FREQUENCY INDUCTION HEATING UNITS

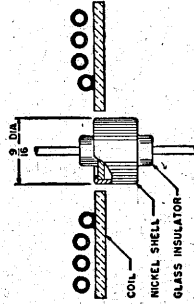
BRAZING SOLDERING MELTING HARDENING
BOMBARDING

The Leipel line of induction heating equipment represents the most advanced thought in the field of electronics as well as the most practical and efficient source of heat yet developed for industrial heating.

If you are interested in induction heating you are invited to send samples of the work with specifications. Our engineers will process and return the completed job with full data and recommendations without any cost or obligations.

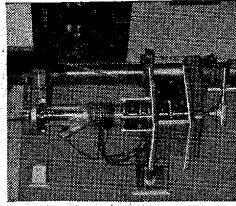
TYPICAL INDUCTION HEATING APPLICATIONS IN THE MANUFACTURE OF TRANSISTORS

SOLDERING TRANSISTOR ASSEMBLIES BY INDUCTION HEATING



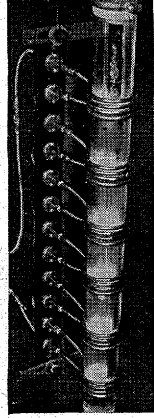
Concentrator-type coil creates high intensity, restricted heating at joint of nickel shell and finned glass, thus causing solder to flow for permanent seal.

SINGLE CRYSTAL PULVER



General arrangement for pulling single crystals. Induction heating coil is shown surrounding quartz tube containing crucible with molten germanium in suitable atmosphere.

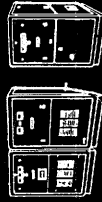
MULTIPLE ZONE REFINING



Induction heating apparatus used in zone refining. The six coils shown provide simultaneous molten zones in the ingot as it passes through the tube containing the protective atmosphere.

Electronic Tube Generators from 1 kw to 100 kw.
Spark Gap Converters from 2 kw to 30 kw.

WRITE FOR THE NEW LEIPER CATALOG . . . 36 illustrated pages packed with valuable information.



All Leipel equipment is certified to comply with the requirements of the Federal Communications Commission.

LEIPER HIGH FREQUENCY LABORATORIES, INC.

55th STREET and 37th AVENUE, WOODSIDE 77, NEW YORK CITY, N. Y.

last chapter. The choice of topics is oriented toward the chemical or mechanical engineering student, and it would appear that the text was written for use in a survey type course on process controls for these people. A major portion of the text is devoted to a presentation of the principles of operation of various types of components and instruments found in process control systems. The treatment of closed-loop feedback theory is presented briefly in the last two chapters. It is regrettable that this material has not been presented earlier where it could serve as a focal point for the other developments. By the same token, if the Laplace transform were introduced earlier it could become a useful tool and point out vividly the concept of the transfer function and how the properties of individual components affect closed-loop system operation. The question of system stability, absolute and relative, is not discussed until the end of the book. In brief, the systems aspect of process control is not emphasized.

The treatment of the operation of various components is presented clearly and simplified to indicate the fundamental physical principles involved. Most of the material is up to date and seems well chosen in terms of current practice. The text is well written, and there are problems at the end of each chapter with answers in the back of the book.

S. R. Parker

Constitution of Binary Alloys, by

Max Hansen and Kurt Anderko.
2nd Ed., Metallurgy and Metallurgical Engineering Series.
Published by McGraw-Hill Book Co., New York City, 1958. 1305 pages; \$32.50.

This is an immensely valuable translation and revision of the well-known "Der Aufbau der Zweistofflegierungen" originally published in German by Max Hansen in 1936.

The original German edition became a metallurgists' "bible" and source book of phase diagrams. The present English edition represents an almost twofold expansion of the first in terms of systems covered and diagrams offered. Earlier constitution diagrams have been revised in the light of improved data and many new systems have been added. In particular, the multitude of binary systems that have been investigated as a result of developments in titanium metallurgy and in nuclear energy are thoroughly covered. Other welcome features include the pre-

sensation of data in terms of atomic per cent and the inclusion of lattice parameters of intermediate phases.

This book is a necessity in every metallurgical library. The U. S. Air Force is to be congratulated for its sponsorship of the formidable task of revision.

H. W. Salzberg

Radioisotopes, by Sidney Jefferson. Published by Philosophical Library, New York, 1958. 110 pages; \$4.75.

This little book presents a brief survey of the industrial applications of radioisotopes. The examples chosen are British and cover such subjects as radioactive markers, leak detectors, thickness gauges, etc. Only sufficient details are included to excite the interest of lay personnel. The book also includes a popular, nontechnical survey of radioactivity, atomic structure, atomic energy, detection of radiation, and health precautions. This book will provide insight into radioisotopes for the businessman and layman.

S. Edmonds

Announcements from Publishers

"Studies on Organic Fluorine Compounds," Vol. 3, J. E. Park, J. R. Lacher, and others, University of Colorado, for Office of Naval Research, Aug. 1945. Report PB 121702, * 296 pages; \$5.50.

Report contains results of a study in thermochemistry designed to obtain information concerning heats of chemical reactions and, indirectly, to examine bond energies and the nature of their variation among compounds.

"A Hollow Cathode Discharge Tube for Isotopic Analysis: Progress Report," May 1958. AEC Report IDO-14432, * 15 pages; 50 cents.

"The Solubility of Zirconium Tetrafluoride in Nitric Acid from 0° to 80°C," April 1958. AEC Report IDO-14442, * 17 pages; 75 cents.

"High-Temperature Electrical Insulating Inorganic Coatings on Wire," C. G. Bergeron, A. L. Friedberg, P. F. Schwarzlose, R. J. Beals, and W. M. Faber, University of Illinois, for Wright Air Development Center, U. S. Air Force, March 1958. Report PB 131811, * 78 pages; \$2.00.

*Order from Office of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C.

Dispersion of Materials, by Rolt Hammond. Printed in Northern Ireland by Universities Press, Belfast, for Philosophical Library, New York, 1958. x + 230 pages; \$10.00

This book covers dispersion of materials by method (crushing, grinding, fluidization, flotation, liquid-dispersion techniques.) Major emphasis is on practical methods, including equipment, ranges of applicability, and types of materials used. Illustrative material is of good quality. The book is recommended to those who are concerned with industrial processes in these areas.

A section on "dispersion of gases and atmospheric pollution" constitutes a well-conceived summary of some air pollution topics but is somewhat forced within the over-all scope of the book. Although pollutants are frequently introduced to atmosphere by dispersion methods, their control at the source is frequently the reverse—a problem in collection. This distinction should be more clearly delineated.

Amos Turk

"Thin Metal Films as Corrosion Indicators," R. B. Belser and F. E. Hankinson, Georgia Institute of Technology, for Wright Air Development Center, U. S. Air Force, May 1958. Report PB 131894, * 98 pages; \$2.25.

"High-Temperature Insulation for Wire," J. D. Walton and J. N. Harris, Georgia Institute of Technology, for Wright Air Development Center, U. S. Air Force, March 1958. Report PB 131812, * 35 pages; \$1.00.

"HRP Radiation Corrosion Studies: In-Pile Loop L-4-11," AEC Report ORNL-2152, * 1958. 48 pages; \$1.50.

"Analyses of Experimental Power-Reactivity Feedback Transfer Functions for a Natural Circulation Boiling Water Reactor," AEC Report ANL-5850, * July 1958. 52 pages, \$1.50.

Catalogs of Technical Reports

The Office of Technical Services, U. S. Dept. of Commerce, has published "Catalogs of Technical Reports" listing all research reports available from the OTS collection in the fields of powder metallurgy and semiconductors.

Many of the reports listed in the catalogs are the result of research conducted for the Army, Navy, Air

Force, and other agencies of the U. S. Government. All reports listed are for sale to the public, some in printed form from OTS and others in microfilm or photocopy from the Library of Congress.

The CTR's may be ordered from OTS, U. S. Dept. of Commerce, Washington 25, at 10 cents each. They are: CTR-343, "Powder Metallurgy," 1929-1958; and CTR-340, "Semi-Conductors," 1933-1958.

U. S. Papers from Geneva Atom Conference Available from OTS

Technical papers presented by American nuclear scientists at the Second International United Nations Conference on Peaceful Uses of Atomic Energy held in Geneva, September 1-13, 1958, have been published by the U. S. Atomic Energy Commission and are for sale by the Office of Technical Services (OTS), U. S. Dept. of Commerce, Washington 25, D. C. A list of the U. S. technical papers is available from OTS; price, 25 cents.

The following papers are of especial interest to ECS members:

715—High temperature thermodynamic properties of reactor materials. R. J. Ackermann and R. J. Thorn.

914—Analysis for plutonium by controlled potential coulometry. F. A. Scott and R. M. Peekema.

917—Spectrographic determination of oxygen, nitrogen, and hydrogen in metals. V. A. Fassel and others.

923—Application of isotopes to boron hydride chemistry. W. S. Koski and J. E. Todd.

1833—Summary of analytical methods used in the chemical processing plants at Hanford. R. J. Brouns and R. A. Schneider.

2247—Recent advances in the basic chemistry of plutonium, americium, and curium. S. W. Rabideau and others.

517—Pyrometallurgical processing. P. Chiotti and A. F. Voigt.

520—Concentration and purification of uranium, plutonium, and neptunium by ion exchange in nuclearly safe equipment. F. W. Tober.

521—A rationale for the recovery of irradiated uranium and thorium by solvent extraction. T. H. Siddall, III.

523—Continuous processes for the direct reduction of uranium hexafluoride to uranium tetrafluoride of high purity and density. S. H. Smiley and D. C. Brater.

535—Recovery of uranium from highly irradiated reactor fuel by a