

NEW BOOKS

Assonov, A. D. Fundamentals of Metal Science and Heat Treatment. Moscow, Mashinostroenie, 1967, 88 pp., 33,000 cc., 19 k.

Fundamentals of metal science of ferrous metals (crystal structure of metals and alloys, processes of crystallization and recrystallization, iron-carbon phase diagram, isothermal transformation diagram, etc.). Questions of theory and practice of heat treatment from the viewpoint of modern scientific principles. Logical methods of heat treating structural, alloy, and tool steels. For qualified workers and foremen of heat treatment departments in machine building plants.

Balandin, Yu. F. Thermal Fatigue of Metals in Marine Power Machine Construction. Leningrad, Sudostroenie, 1967, 272 pp., 1800 cc., 1R 17k, hardbound.

Analysis of experimental data on the resistance of metals and alloys to thermal fatigue under various conditions, particularly under the simultaneous influence of sharp thermal cycling and mechanical loading (as applied to metals and alloys used in marine power machinery). For builders of power machinery and metal scientists.

Galaktionov, N. A. Hydrogen in Metals. Second edition, revised and enlarged. Moscow, Metallurgiya, 1967, 304 pp., 5200 cc., 1R 25k, hardbound.

Interaction of hydrogen with metals and nonmetallic elements, its effect on various properties of metals and alloys and on the occurrence of specific defects in them. Effect of hydrogen on the mechanical characteristics of uranium, tungsten, molybdenum, titanium, and other refractory metals and alloys. For engineering-technical personnel in the metallurgical, machine building, aviation, defense, and other industries.

Gorelik, S. S. Recrystallization of Metals and Alloys. Moscow, Metallurgiya, 1967, 404 pp., 4600 cc., 1R 91k, hardbound.

Fundamental characteristics of the structure of deformed metals; principles and mechanism of recovery during heating by means of relaxation and recrystallization. Driving force of recrystallization. Mechanism of the formation of large-grained structure on heating after "critical" deformation and formation of coarse-grained and heterogained structures. Processes of the formation of recrystallization texture. Analysis of the influence of alloying on the recrystallization temperature of single-phase and multiphase alloys, supersaturated solid solutions, and refractory compounds. Methods of studying recrystallization. For engineering-technical personnel in the area of physical metal science, heat treatment, and plastic deformation of metals and alloys.

Gusovskii, V. L., Lifshits, A. E., and Tymchak, V. M. Gas-Burning Equipment and Heating Systems for Preheating and Heat Treatment Furnaces. V. M. Tymchak, ed. Moscow, Metallurgiya, 1967, 263 pp., 3800 cc., 1R 21k, hardbound.

Characteristics of fuels used in preheating and heat treatment furnaces. Graphic computation of combustion of gaseous fuels. Determination of the rates of breakaway and breakthrough in burning mixtures of gas fuels with air. Designs and uses of gas-burning equipment; methods of calculating used in design. Recommendations for selecting gas-burning apparatus and heating systems meeting the

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requirements of technological heating, furnace operating conditions, and parameters of gaseous fuels. For engineering-technical personnel in the metallurgical and machine building industries.

Donskoi, A. V. and Zvyagin, I. E. High-Frequency Electrothermal Equipment (Automation and control of systems). Moscow, Énergiya, 1967, 112 pp. (Library of the heat treatment specialist, No. 30), 6000 cc., 30 k.

Methods of constructing and classification of systems for automatic control of high-frequency electrothermal apparatus with tube generators. Analysis of methods of optimizing processes of regulating generators under the influence of the characteristics of the power supply. Appraisal of the technical characteristics of systems of automation of electrothermal apparatus. For engineering-technical personnel concerned with planning and use of electrothermal apparatus.

Investigations in the Area of Commercial Electrical Heating, No. 2. A. P. Al'tgauzen and L. E. Nikol'skii, general editors. Moscow-Leningrad, Énergiya, 1967, 248 pp. (Trudy VNIETO), 2500 cc., 1 R 54 k, hardbound.

Problems of designing, testing, operating, and selecting energetic parameters of vacuum arc furnaces, plasma heating apparatus, gas-producing apparatus, and resistance furnaces of various designs. Control of electrical systems in electrothermal apparatus. Materials for resistance furnaces operating with ordinary oxidizing atmospheres and controlled carbon-containing atmospheres in vacuum. For engineering-technical personnel concerned with development, manufacture, and operation of electrothermal equipment.

Korol'kov, A. M. Casting Properties of Metals and Alloys. Second edition, enlarged. Moscow, Nauka, 1967, 200 pp. (A. A. Baikov Metallurgy Institute), 5000 cc., 1 R 30 k, hardbound.

Structure of liquid metals and alloys. Crystallization of metals and phase diagrams of alloys as the basis of the theory of casting processes. Surface tension of liquid metals and alloys; their viscosity and fluidity. Shrinkage phenomena in alloys and formation of cracks on solidification. Character and distribution of shrinkage cavities. For scientific personnel and technicians in plant laboratories.

Moroz, L. S. and Chechulin, B. B. Hydrogen Embrittlement of Metals. Moscow, 1967, 256 pp., 3900 cc., 1 R 20 k., hardbound.

Principles of the interaction of hydrogen with metals (solubility, diffusion, permeability, formation of new phases). Sources of hydrogen entering into metals during melting and use. Occurrence of hydrogen embrittlement; impairment of plastic and ductile properties, slow destruction, formation of cracks in relation to the nature and structure of metals used, hydrogen concentration, and testing conditions. Hydrogen embrittlement of steel, nickel, molybdenum, titanium, zirconium, vanadium, tantalum, niobium, uranium, and thorium. For engineering-technical personnel in metallurgy, metal science, and heat treatment.

Suchkov, D. I. Copper and Its Alloys. Moscow, Metallurgiya, 1967, 248 pp., 3800 cc., 89 k, hardbound.

The major technological properties and characteristics of the behavior during melting, casting, and mechanical and heat treatments of copper and copper-zinc, tin, aluminum-silicon, aluminum-nickel, and other tin-free bronzes. Means of improving the production and savings of heavy nonferrous metals. For engineering-technical personnel in the machine building industry.

Teben'kov, B. P. Regenerators for Commercial Furnaces. Third edition, revised and enlarged. Moscow, Metallurgiya, 1967, 358 pp., 3000 cc., 1 R 28 k, hardbound.

Design, construction, installation, and operation of regenerators for preheating and heat treatment furnaces. Thermal and aerodynamic characteristics of regenerators. Production indices of the operation of regenerators and the most efficient methods of use. For engineering-technical personnel in machine building and metallurgical industries.