

A.B.K. Prasad, G. Siva Kumar, K. S. Raju

Critical Minerals

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Product Description

The global transition from fossil fuel energy to green energy heavily relies on critical minerals containing lithium, nickel, cobalt, copper and Rare Earth Elements (REEs). Critical minerals provide a comprehensive guide to these essential resources, detailing their geological occurrence, mining techniques and processes. It highlights their indispensable role in manufacturing modern technologies from electric vehicle (EV) batteries, wind turbines to advanced digital electronics and strategic defence systems.

Beyond the technical aspects, the book critically examines the geopolitical landscape, addressing market monopolies, price volatility, and supply chain uncertainties. It also sheds light on the environmental concerns of mining and India's strategic push for self-reliance through the National Critical Mineral Mission. Written with clarity, it serves as a highly useful resource for university students pursuing engineering, geology, metallurgy, and material sciences, as well as industry professionals navigating this vital sector.

Salient Features Strategic Classification: Classifies critical minerals based on economic importance and global supply Rare Earth Elements: Covers the occurrence and complex chemical extraction processes of REEs Lithium Processing: Details advanced extraction techniques from hard rock pegmatites and continental brines Analytical Methods: Explains the use of advanced analytical instruments like ICP-MS, XRF, and LIBS for precise elemental analysis and mineral identification Green Energy: Explores the use of critical minerals and their compounds in EV motors, wind turbines, and solar panels Geopolitics: Analyses international trade policies, market monopolies and supply chain vulnerabilities India’s Initiatives: Details the National Critical Minerals Mission and domestic resource potential Environmental Impact: Discusses the ecological footprints of mining and processing operations and need for sustainabilit.

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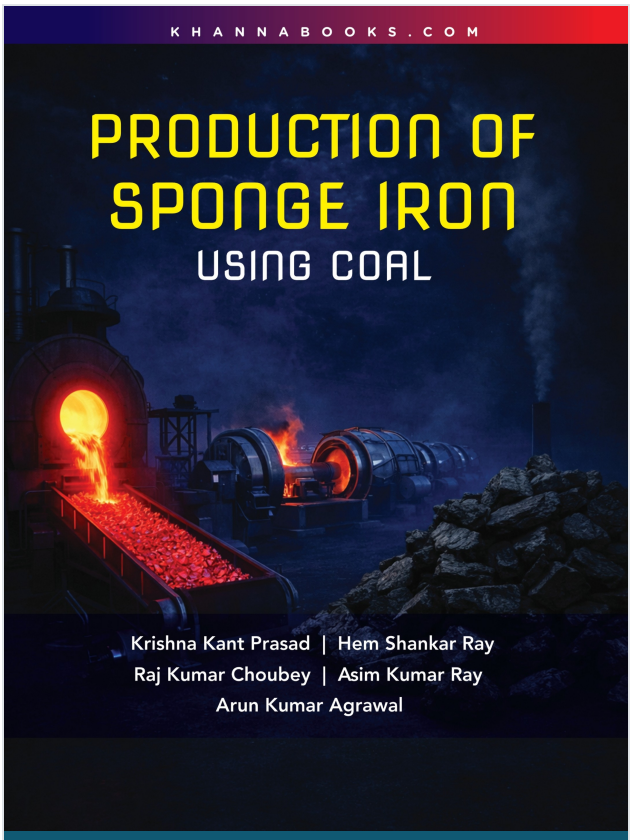
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Krishna Kant Prasad, Hem Shankar Ray, Raj Kumar Choubey, Asim Kumar Ray, Arun Kumar Agarwal

Production of Sponge Iron Using COAL

Author :	Krishna Kant Prasad, Hem Shankar Ray, Raj Kumar Choubey, Asim Kumar Ray, Arun Kumar Agarwal
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Product Description

Production of Sponge Iron Using COAL

Production of Sponge Iron using Coal: Rotary Kiln, Tunnel Kiln and using Gas from Coal is a definitive technical guide that explores India's global leadership in the coal-based direct reduction of iron ore. While international markets often rely on gas-based shaft processes, this book highlights how India has pioneered and perfected the use of rotary kilns to utilize abundant, high-ash non-coking coal-resources often dismissed by foreign experts as "muck". The text provides an exhaustive analysis of the thermodynamic, kinetic, and aerodynamic principles that govern the solid-state reduction of iron oxides.

The book serves as a vital bridge between theoretical research and industrial application, documenting decades of expertise from leading metallurgists. It broadens the traditional focus on rotary kilns to include emerging commercial successes in tunnel kiln technology and coal gasification-based shaft furnaces. Beyond technical specifications, the authors connect modern engineering with India's ancient metallurgical heritage, such as the storied Iron Pillar of Delhi. This work is an essential resource for metallurgical students, researchers, industry professionals, and entrepreneurs seeking to understand the economic and technical nuances of sustainable ironmaking in coal-rich regions.

Salient Features

- Rotary Kiln Dominance: Detailed analysis of the rotary kiln's primary role in India, covering its versatility in processing lump hematite and its unique operational strengths and weaknesses.
- Scientific Process Modeling: Comprehensive chapters on mathematical modeling, CFD analysis, and reaction kinetics that allow for precise control over heat transfer and solid movement.

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- Alternative Reduction Technologies: In-depth exploration of tunnel kilns as a viable solution for reducing magnetite and iron ore fines, filling a critical gap in traditional kiln operations.
- Coal Gasification Insights: Evaluation of the economic and technical feasibility of converting coal into reducing gas (CO and H) to supplement production in shaft furnaces.
- Resource Optimization: Strategies for utilizing high-ash Indian coal and recirculating char to enhance energy efficiency and reduce the environmental footprint of ironmaking.
- Practical Engineering Focus: Guidance on plant design, refractory management, and overcoming common industrial hurdles like accretion or "ring formation" inside kilns.
- Historical Contextualization: A unique addendum on India's ancient ironmaking legacy, offering a perspective on the longevity and evolution of sponge iron technology.
- Future-Ready Strategies: Critical projections on hydrogen-based ironmaking and the integration of sponge iron into blast furnaces to reduce costly metallurgical coke consumption.

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- Addendum

Author

Krishna Kant Prasad

Dr. Krishna Kant Prasad (born on 24th January 1945 in Bhagalpur, Bihar), after completing B.Sc. Hons. (Chem.) from Bhagalpur University, he did his B.E., M.E. and Ph.D. in Metallurgical Engineering from the Indian Institute of Science, Bangalore. After brief teaching stints at the Banaras Hindu University and MR Engineering College, Jaipur he joined R&D Division of Tata Steel, Jamshedpur in 1972. He moved to RDCIS, SAIL, Ranchi in 1981 as in-charge of R&D activities in the Sponge Iron Pilot Plant Complex and since then he was actively involved in steering R&D activities both in Sponge Iron Making and Alternate Iron Making areas. He retired from SAIL, in January 2006. Thereafter, he served as a visiting professor in the Department of Metallurgical Engineering in IT (now IIT), BHU, Varanasi, for two and then joined NITK (National Institute of Technology Karnataka) in Surathkal, initially as the Ministry of Steel Chair Professor, and then in various capacities - all equivalent to a visiting professor - for seven and a half years. Dr. Prasad has guided four Ph.D. students. He has to his credit over 130 research papers, five registered copyrights and holds two patents on sponge iron making. He has authored four books entitled Sponge Iron Making in Rotary Kiln, Chemical and Metallurgical Thermodynamics, Advances in Rotary Kiln Sponge Iron Plant and Integrated Iron- and Steelmaking. He has also edited two books - "Trends in Beneficiation and Agglomeration of Iron Ore' and 'Steel Plant Technologies: An Overview. He is life member of the Indian Institute of Metals, Electrochemical Society of India and the Computer Society of India. E-mail: kkpmprnc@gmail.com. Professor

Hem Shankar Ray

Hem Shankar Ray (born on 19th June 1940, Jabalpur, Madhya Pradesh) unfortunately left for his heavenly abode on 28th April 2023 just as the preparation of the manuscript

started. Prof. H. S. Ray is widely regarded as one of the greatest minds of the Indian scientific community and a very well-known name in the field of Extractive Metallurgy. He obtained his B.Tech. (Hons.) in Metallurgical Engineering from the Indian Institute of Technology, Kharagpur (1962) and M.A.Sc. and Ph.D. degrees from the University of Toronto, Canada (1963, 67). He was with I.I.T. Kanpur from 1967-80 as Lecturer and Asst. Professor. In between he served as Manager/Senior Technologist - Research and Development, Pilkington Research Centre, Lathom, England (1977-1979). He then served as Professor of Metallurgical Engineering (1980-1990) and Dean of Students Affairs (1988-90) at the Indian Institute of Technology, Kharagpur. Prof. Ray served the Regional Research Laboratory, Bhubaneswar (now IMMTD) as Director from 1990-2000 (two terms). On retirement he served as an Emeritus Scientist at the Central Glass and Ceramic Research Institute, Calcutta. He holds several patents including 2 U.S. patents to his credit. His areas of interest included thermal analysis, kinetics, extractive metallurgy, energy and R&D administration. He guided about 40 Ph.D. students and 20 M.Tech. students for their thesis work. He has published about 500 papers in reviewed journals and conference proceedings and over 26 books. He also edited 15 Conference proceedings and written about 50 technical reports. He also wrote numerous other non-technical articles, editorials, etc. Prof. Ray received several awards in recognition of his work and these include the National Metallurgists Day Award, G.D. Birla Award and two Kamani Gold Medals of the Indian Institute of Metals. He received the Distinguished Alumni award from IIT Kharagpur, which, interestingly, he shared that year with the Google CEO, Sundar Pichai. He served several companies and R&D laboratories as consultant or member of Boards/Research Councils. He was associated with several Professional Bodies and served as President, Indian Institute of Mineral Engineers and Indian Thermal Analysis Society; also, as a Vice President of the Millennium Institute of Energy and Environment Management and was an Editor of a popular science magazine Everyman's Science. He also served in several other institutions in various capacities. He was deeply involved with professional bodies such as IIM (Indian Institute of Metals),

MIEEM (Millennium Institute of Energy and Environmental Management), IAPQR (Indian Association for Productivity, Quality and Reliability) etc. and used to be regular and most 0sought-after speaker in their seminars/workshops. Apart from his stellar achievements in the world of academics, Prof Ray was well known for his interests and capabilities in other spheres of life such as Music and Art. His creative abilities spanned far and wide across writing books of both scientific and nonscientific nature, proficiency in several musical instruments like Guitar, Tabla, Violin and Esraj and painting in both oil and water colour. His office workspace at his home housed an eclectic mix of all forms of Arts. His most unusual interest was in Magic. He had a keen interest in the subject and built several magic tricks himself. He also performed in public as a professional magician. Prof Ray was a great friend to all his colleagues and students. His abilities to build positivity in all his circles made him stand out as an exceptional human being. His associations with people were lifelong. He held deep respect for all his relationships and loved nurturing the young and rising. From writing science fiction books for teenagers to help inculcate interest in core science in school to mentoring startups in science and tech and to helping and problem solving institutions to break through status quo to push forward, Prof Ray had pretty much done it all. He remained a self-driven human being with natural leaderships skills combined with motivating and inspiring others to rise, right till the end. Sri

Raj Kumar Choubey

Raj Kumar Choubey , was born on August 11, 1954 at Sikariya, Bhojpur, Bihar (unfortunately he passed away on February 19, 2024). He passed B.Sc. from the University of Burdwan in 1974 and Bachelor of Engineering from MREC (now MNIT) in Jaipur Rajasthan in the year 1980. He joined M/s Jaipur Metals and Electricals in 1980 and operated the first induction furnace of India. In 1982 he joined M/s Hindustan Motors and served till the year 2000. There he developed various grades of automobile grade steel and was a part of the team who fabricated the first Diesel Engine for automobiles in India. Thereafter he decided to be a start-up entrepreneur. His portfolio lately read: Owner -

Metcon Power Consultant & Engineers, Kolkata, having global clients base including Tata Steel and Jindal Steel. Director - Bhagwati Power & Steel Limited, Raipur, CG. Director - RNT Medicare Private Limited, Kolkata. Partner - Premier Hygienic Services, Kolkata. He involved himself in innovation and setting up commercial plants based on self developed technology for: Manufacturing DRI (Sponge Iron) from Mill Scale, DRI through Tunnel Kiln Technology, Development of Metallic Saggers for reduction of Iron Ore, Process for reduction of Chromite Ore at lower temperature, Extraction of liquid fuel from waste plastic, Recycling of Steel Plant wastes Development of Binders for agglomeration Address: Metcon House, North Bazar, Post: Andal - 713321, District: Paschim Bardhman, West Bengal. Email: choubey@metconpower.in, Website: www.metconpower.in. Dr.

Asim Kumar Ray

Dr. Asim Kumar Ray was born at Calcutta in 1952. He graduated with Honours in Chemical Engineering from Jadavpur University in 1974. He did his Masters in Chemical Engineering from IIT Kanpur and Ph. D. in Metallurgical Engineering from IIT Kharagpur. After a brief stay of about one and a half year each at Indian Iron and Steel Company, Burnpur and Indian Oil Corporation, he joined Research & Development Centre for Iron & Steel (RDCIS), SAIL, Ranchi in 1978. After a long stay at RDCIS, SAIL, Ranchi, he assumed charge of General Manager (Quality) at Durgapur Steel Plant (DSP), SAIL in 2008. Dr Ray was instrumental in commissioning Sponge Iron Pilot Plant and associated Process Research Laboratory and carried out R & D activities related to Sponge Iron & other Alternate Iron Making processes, Steelmaking and Continuous Casting. He established Computational Laboratory at RDCIS and carried out mathematical and physical simulation of different metallurgical processes. He steered several projects on process improvement and product development in all SAIL plants. Under his leadership, DSP had received several awards on Quality including prestigious Golden Peacock Award on Quality -2010 of Institution of Directors (IOD). Dr. Ray retired from SAIL in December 2012. Presently, Dr. Ray is with M/s Lechler (India) Pvt. Ltd. Dr. Ray has co-authored the Book on "Rotary

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solutions among the engineers to help them learn from each other's experience and make constant improvement in their subsequent endeavours.

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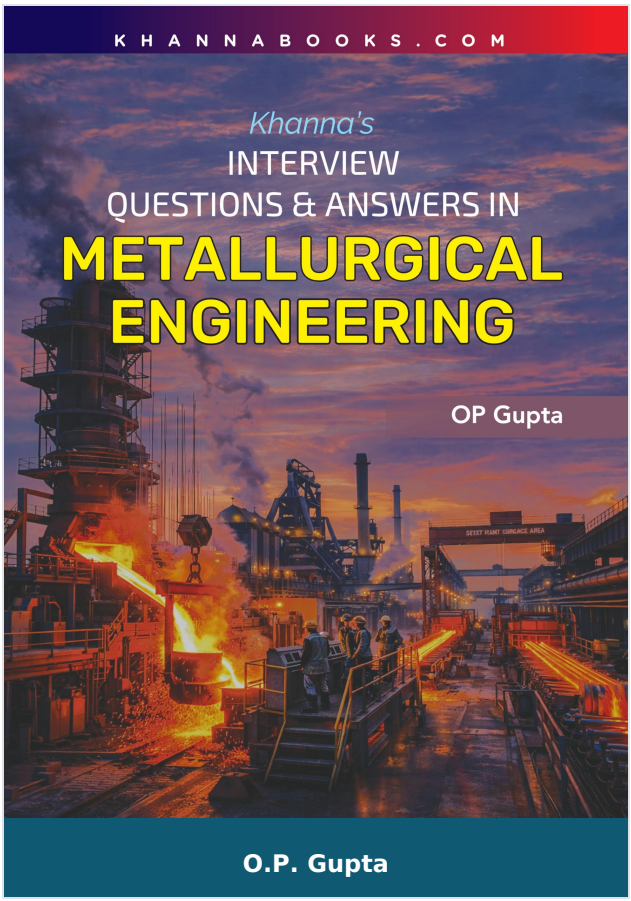
Development of Metallic Saggers for reduction of Iron Ore, Process for reduction of Chromite Ore at lower temperature, Extraction of liquid fuel from waste plastic, Recycling of Steel Plant wastes Development of Binders for agglomeration Address: Metcon House, North Bazar, Post: Andal - 713321, District: Paschim Bardhman, West Bengal. Email: choubey@metconpower.in, Website: www.metconpower.in. Dr. Asim Kumar Ray was born at Calcutta in 1952. He graduated with Honours in Chemical Engineering from Jadavpur University in 1974. He did his Masters in Chemical Engineering from IIT Kanpur and Ph. D. in Metallurgical Engineering from IIT Kharagpur. After a brief stay of about one and a half year each at Indian Iron and Steel Company, Burnpur and Indian Oil Corporation, he joined Research & Development Centre for Iron & Steel (RDCIS), SAIL, Ranchi in 1978. After a long stay at RDCIS, SAIL, Ranchi, he assumed charge of General Manager (Quality) at Durgapur Steel Plant (DSP), SAIL in 2008. Dr Ray was instrumental in commissioning Sponge Iron Pilot Plant and associated Process Research Laboratory and carried out R & D activities related to Sponge Iron & other Alternate Iron Making processes, Steelmaking and Continuous Casting. He established Computational Laboratory at RDCIS and carried out mathematical and physical simulation of different metallurgical processes. He steered several projects on process improvement and product development in all SAIL plants. Under his leadership, DSP had received several awards on Quality including prestigious Golden Peacock Award on Quality -2010 of Institution of Directors (IOD). Dr. Ray retired from SAIL in December 2012. Presently, Dr. Ray is with M/s Lechler (India) Pvt. Ltd. Dr. Ray has co-authored the Book on "Rotary Kiln Sponge Ironmaking". He has to his credit about 140 research publications and three patents. Shri Arun Kumar Agrawal , born in 1963, is a 1985 metallurgical engineering graduate from the then Institute of Technology, Banaras Hindu University (IT-BHU - now IIT-BHU), Varanasi. He joined MECON Limited, Ranchi in the year 1986 as Management Trainee (Technical) after one year stint in Hindustan Aluminium Co. (Hindalco - Aditya Birla Group) at Renukoot in Uttar Pradesh. He joined the Iron Making Division of MECON and was deeply involved in the basic engineering and design, detailed engineering, consultancy and project management as

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Khanna's Interview Questions & Answers in Metallurgical Engineering

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Product Description

Interview Questions and Answers in Metallurgical Engineering is a definitive preparatory guide designed to bridge the gap between academic theory and professional practice. Authored by Om Prakash Gupta, an experienced industry veteran, the book serves as a comprehensive resource for students and engineers facing the rigors of technical interviews and competitive examinations. Its core theme centers on the practical application of metallurgical principles across a vast spectrum of materials and processes, ranging from foundational material science to advanced nanomaterials and smart technologies.

The primary purpose of this volume is to equip candidates with the precise, high-impact knowledge required by major public and private sector recruiters, such as SAIL, TATA Steel, and DRDO. By presenting information in a clear question-and-answer format, it demystifies complex topics like phase diagrams, heat treatments, and powder metallurgy, making them accessible for quick revision and deep understanding. Whether you are a diploma student, a postgraduate researcher, or a professional seeking a career transition, this book provides the practical value and academic rigor necessary to excel in the metallurgical engineering landscape.

Salient Features

• Comprehensive Coverage: Includes 35 specialized chapters ranging from foundational metallic structures to advanced nanomaterials and polymers.

• Industry Alignment: Specifically tailored to meet the technical standards of elite recruiters like SAIL, TATA Steel, ISRO, and DRDO.

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- Power Metallurgy(PM)
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- Metal Treatment/Coating
- Welding/ Soldering /Brazing
- Miscellaneous Questions

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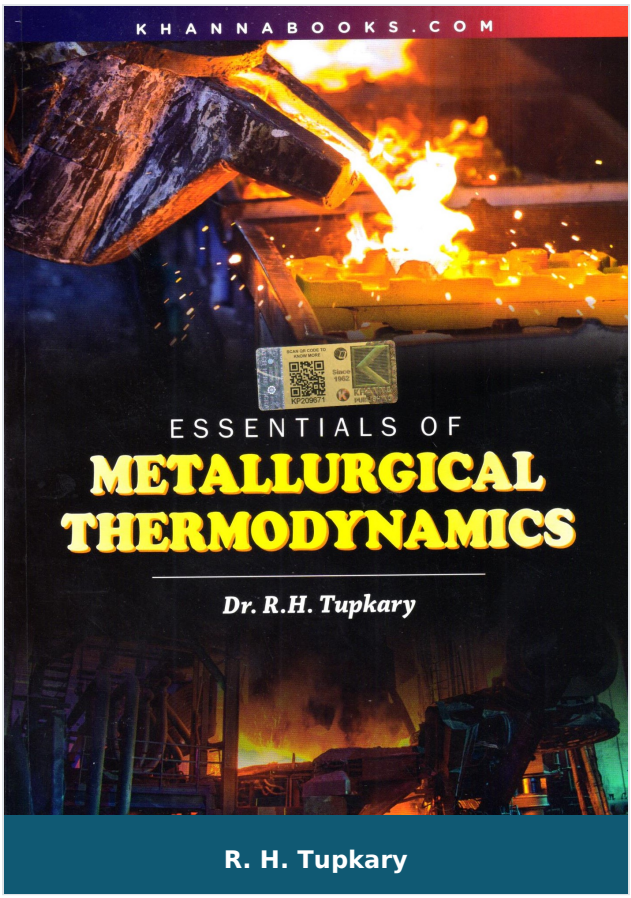
O.P. Gupta

O.P. Gupta Om Prakash Gupta is basically being a chemical engineer, he has a practising experience of efficient Ennergy management and HR functions in steel Industry for more than three decades. privileged to be the youngest writer of technical books in the country (for he had written his first book at the age of 24 years while doing M. Tech. at I.I.T kanpur in 1979), he has authored many frontline books for engineering students. besides, being the regular faculty member in technical courses for Management Trainees (Technical), he has also visited england and france on a study tour sponsored by United Nations Development Programme (UNDP) to study the scope of energy conservation in steel plants in 1987.

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Essentials of Metallurgical Thermodynamics

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Product Description

Thermodynamics is the very basic science to appreciate all engineering disciplines, more particularly the chemical, metallurgical and mechanical engineering in terms of the efficiencies in various related operations that is why metallurgical thermodynamics has been developed specifically to understand the metallurgical engineering processes and their energy efficiencies. Any change is driven by the potential driving it. Thermodynamics is the tool to appreciate that potential and to assess the related energy efficiency. Hence thermodynamics is the basic tool that helps to assess finally the economics of any metallurgical process. The more one understands it the better. The present book attempts to explain the very basic thermodynamic concepts underlying metallurgical engineering operations and therefore the related economics.

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- Solution I
- Solution II
- Solution III
- Equilibria in Phase Diagrams
- Electrochemical Processes
- Free Energy - Temperature Relationship
- Kinetics of Reactions

Author

R. H. Tupkary

R.H. Tupkary Dr. R. H. Tupkary graduated in Met. Engg. from Bananas Hindu University in 1959 in first class and was placed at third position in merit list. He completed M.Eng.Sci. and Ph.D. from University of Melbourne in 1963 and 1966 respectively. He worked as a lecturer in Met. Egg. during 1959-62 and Reader during 1966-1970 period in BHU and then joined Visvesvaraya Regional College Engineering, Nagpur as Professor and later became head and voluntarily retired in 1994. Dr. Tupkary is a recipient of Binani Gold

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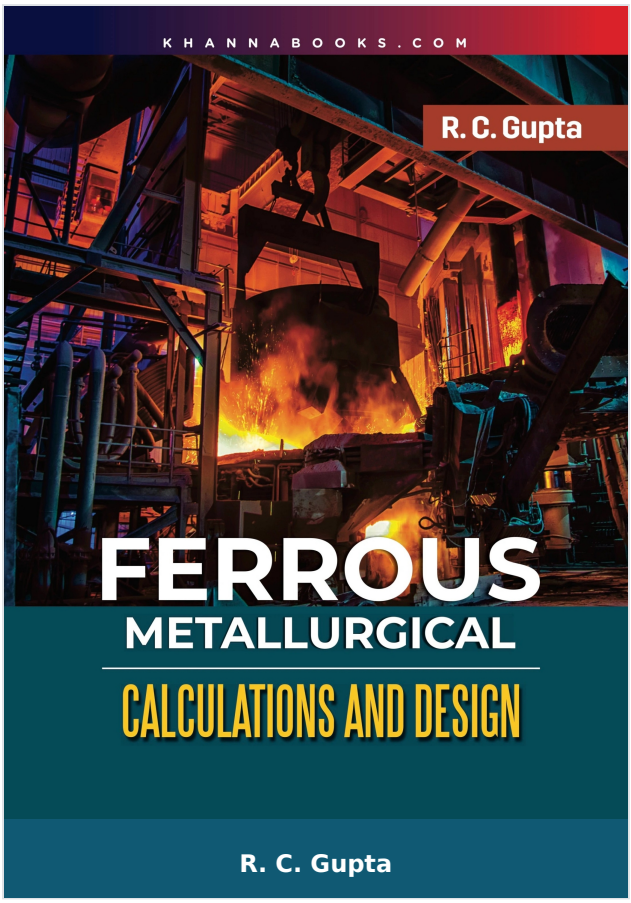
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Medal of Indian Institute of Metals in 1972 and Distinguished Alumnus Award of BHU in 1988. He has published several technical papers and is more known for his two books, one on Steel Making and the other on Iron Making which are very popular textbooks of the subjects since 1977. Out of these two books, "Steel Making" was written when he was confined in Nagpur Central Jail during the emergency period of 1975-77. During his tenure as professor in VRCE, he was actively associated with Nagpur University, through its various academic and administrative bodies as their elected member. He has also worked as Managing Director of one Marathi daily published from Nagpur during the period 1994-97. He is committed social worker and is associated with varieties of such activities at and around Nagpur.

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Ferrous Metallurgical (Calculations and Design)

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Product Description

This book is a unique combination of ferrous metallurgical calculations and unit design. The book is divided in two arts each having eight chapters.

The part one on ferrous metallurgical calculations gives method to calculate mass balance, chemical analysis of the product and waste materials including exit gases. This part one covers Coal & It’s Properties, Combustion of Fuels, Coke Making, Iron Ore Agglomeration, Blast Furnace Iron Making, Alternate Methods of Iron Making, Ferroalloy Preparation and Melting Metal & Alloys.

The second part on Ferrous Metallurgical Unit Design may be a globally first attempt to provide method of estimating basic design dimensions of some metallurgical units. This part covers Chimney & Draught, Coke Oven, Blast Furnace, DRI Kiln, Ladle Cupola, Basic Oxygen Steel Making Furnace, and Electric arc Furnace.

In addition, the appendices provide weight, Measure & Science Laws, Mathematical Formulae, Unit Conversion Tables, Useful Data, Commonly Used Materials, Raw, Materials for Iron & Steel Making, Fuels and their Properties and Steel Plant Waste materials.

Keys features

1. A useful book for Academic Staff & Students in Metallurgical Engineering, Still Plant Executives, Metallurgical Consultants, Steel Plant Managers, Chartered Engineers, and Auditors.

2. A Metallurgical Engineering book giving calculation method for mass balance, product & waste analysis in various ferrous metallurgical processes.

3. A first book to give method for designing metallurgical units e.g. coke oven, blast furnace, DRI Kiln, BOF, EAF, Ladle, Cupola etc.

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4. Each chapter starts with introduction to highlight importance before giving calculation or design & each chapter gives projects for students. Some reference for further reading is also given at the end of chapters.

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- Ferroalloy Making.
- Melting Metals & Alloy.
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- Blast Furnace Dimensions.
- DRI Kiln Dimensions.
- Ladle Dimensions.
- Cupola Dimensions.
- Basic Oxygen Steel Making.
- EAF Steel Making.
- Appendix

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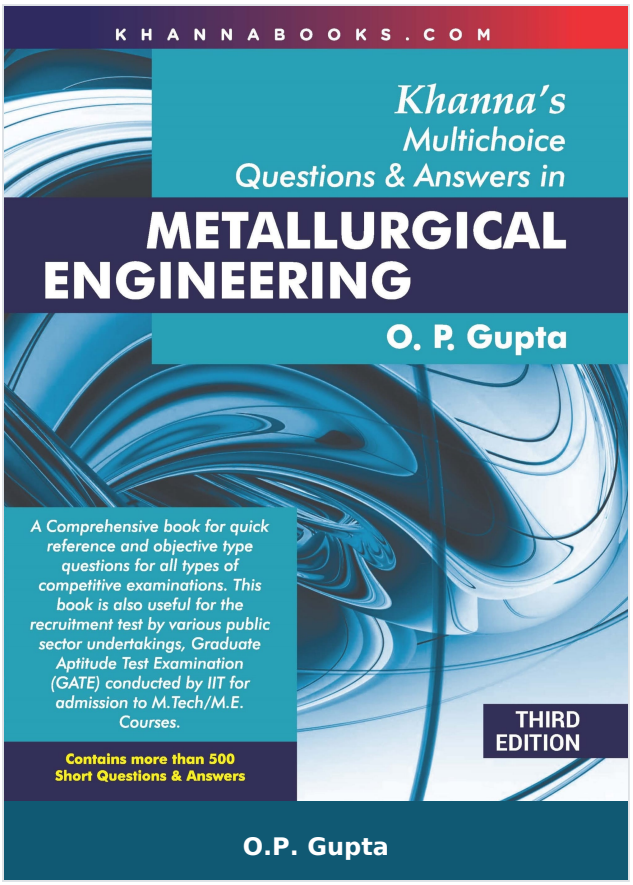
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Prof. R C Gupta is an alumni, Former Professor and Head, Department of Metallurgical Engineering (Advanced Centre in Metallurgy), Institute of Technology (now IIT-BHU), Banaras Hindu University, Varanasi (India). In his four decades (1970-2010) teaching and research carrier he guided many students for their PhD, M. Tech., and B. Tech. degree in Metallurgy. He held various positions in national & international forums including Ministry & Forest (Delhi-GOI) & Pollution Control Board (Bhubaneswar-Odisha State). The Author is globally known by his three popular PHI (Delhi) textbooks: Theory & Laboratory Experiments in Metallurgy (2009 & 2025), Energy & Environmental Management in Metallurgical Industries (2012), and Fuels Furnaces & Refractories (2016). His chapter on Energy Resources, Its Role, and Use in Metallurgical Industries in Elsevier’s publications (2014 & 2024) on Treatise in Process Metallurgy (Chief Ed. Sheshadri Seetharaman) has made global imprint. In view of his books and other research publications (>140 nos.) the author is included in world top 2% scientist prepared by a Group of Professors at Stanford University (USA) in 2020.

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Khanna's Multichoice Questions & Answers in Metallurgical Engineering

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Product Description

This book is meant for diploma & degree student of metallurgical engineering for their academic programs as well as for various competitive examination for securing jobs. This book has been structured in three section. First section contains multiple choice type questions of various subjects of metallurgical engineering. Second section contains chapter wise question of GATE (Graduate Aptitude Test in Engineering) from 1991 to 2016. Third section contains SHORT QUESTIONS & ANSWERS in METALLURGICAL ENGINEERING. Fourth section contains APPENDICES containing Glossary of terms related to Metallurgical Engineering and Q&A of GATE-2017. This book has been designed to serve as "Hand Book of Metallurgical Engineering" which will be useful for various competitive examinations for recruitment in various public sector & Private Sector companies as well as for GATE Examination. Question have been arranged subject wise and answers are given at the bottom of the page.

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- Materials Science
- Fuel Technology
- Furnace Technology
- Refractory Technology
- Foundry Metallurgy
- Welding Metallurgy
- Metallurgy of Nuclear Metals
- Electrometallurgy and Corrosion
- Metallurgical Testing &Inspection
- Metallurgical Analysis
- Physics of Metals
- Metallurgical Thermodynamics
- Metallurgical Kinetics
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Author

O.P. Gupta

O.P. Gupta Om Prakash Gupta is basically being a chemical engineer, he has a practising experience of efficient Ennergy management and HR functions in steel Industry for more than three decades. privileged to be the youngest writer of technical books in the country (for he had written his first book at the age of 24 years while doing M. Tech. at I.I.T

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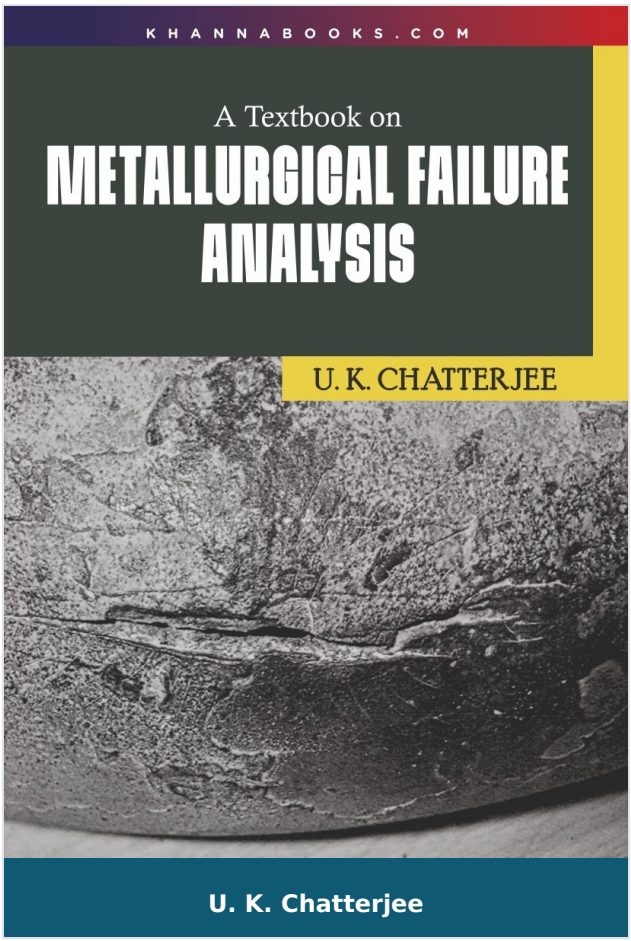
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Textbook on Metallurgical Failure Analysis

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Product Description

A Textbook on METALLURGICAL FAILURE ANALYSIS: This handy textbook presents the basic causes of failure of metallic components and the factors – mechanical, metallurgical, thermal and environmental – that contribute to the failure. Basis of metal deformation and fracture, including fractography, are elaborated. Procedure for failure analysis has been explained and the tools used for failure analysis described. Several actual cases of failure investigation are included.

The classified types of failure covered in the book are:

- Fatigue failure
- Wear failure
- Environment assisted failure
- High temperature failure
- Casting failure
- Heat treatment related failure
- Metalworking defeat related failure
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- Environment Assisted failure
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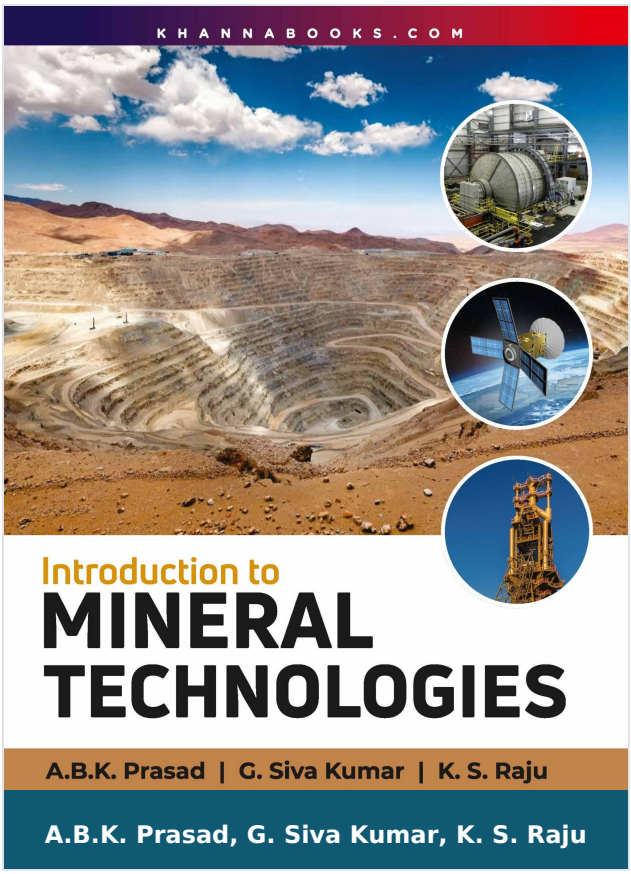
U. K. Chatterjee

K CHATTERJEE: obtained the B.Tech (1964) and Ph.D. (1968) degree in metallurgical engineering from the Indian Institute of technology , Kharagpur , and served as a faculty member there for 41 years, The author or co-author of 110 papers in professional journals and conference proceedings and co-author of the book ‘Environmental degradation of metals’ (Marcel Dekker . 2001). He is an alexander von Humboldt fellow and a life of IIT Kharagpur.

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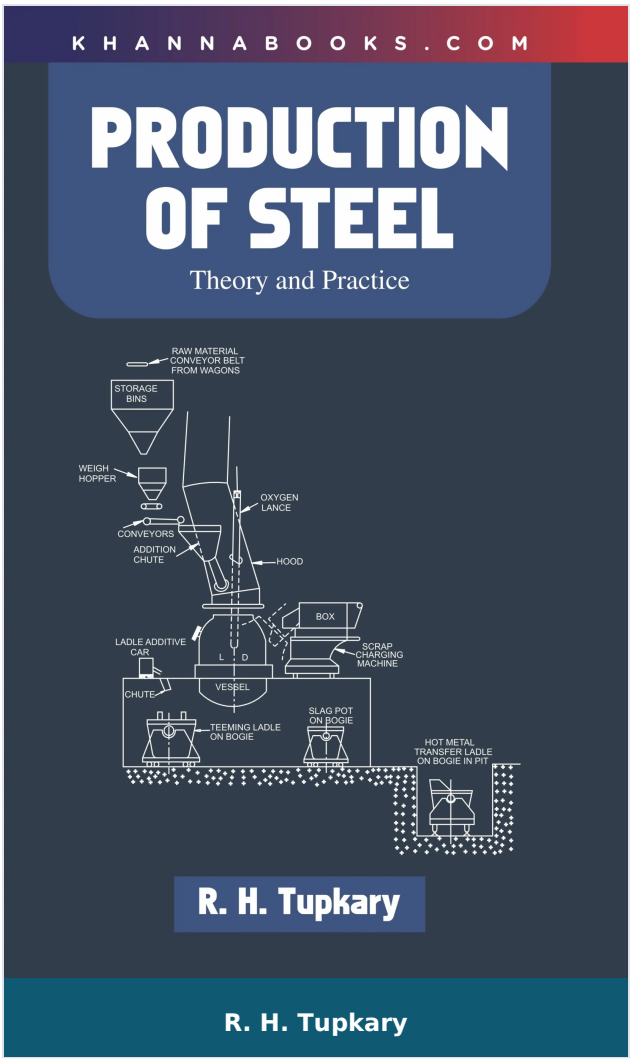
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Production of steel (Theory and Practice)

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Product Description

Production of steel (Theory and Practice) "A good slag maker is a good steel producer" "In engineering and technology what can not be measured can not be controlled to improve the quality".

After getting proper training at the university of Melbourne in the field of iron and steel making, in the period 1962-65, and after working as faculty member at Banaras Hindu university , first as lecturer and then as reader, Dr. RH Tupkary moved to visvesvaraya National institute of technology, Nagpur as professor, in 1970. He wrote the book titled “introduction to modern steelmaking” when he was confined in Nagpur central jail during the emergency of 1975-1977. It was the first ever book on steelmaking written in independent India. It was extremely well appreciated then and since then till to date for over 44years now. It was designed to cater to the needs of Indian students of metallurgical engineering and practicing steel makers, in those days. But it was very well received all over the world. The title and therefore the contents were so chosen that it was the introduction to the subject in those days, when steel was made in India more as an art rather than based much on the science and technology. It was because the steelmaking technology was still in its infancy in India at that time. The production was also not much. The steelmakers then worked in steel industry more as operators than scientists.

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- BOF Process- Design and Practice.
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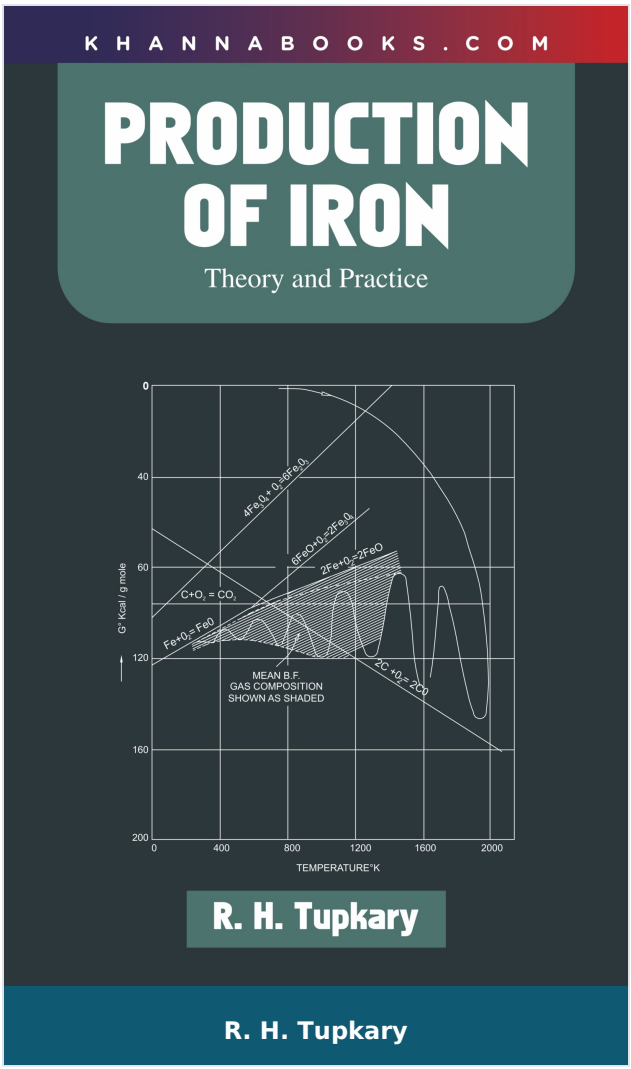
R. H. Tupkary

Dr. R. H. Tupkary graduated in Met. Engg. from Bananas Hindu University in 1959 in first class and was placed at third position in merit list. He completed M.Eng.Sci. and Ph.D. from University of Melbourne in 1963 and 1966 respectively. He worked as a lecturer in Met. Egg. during 1959-62 and Reader during 1966-1970 period in BHU and then joined Visvesvaraya Regional College Engineering, Nagpur as Professor and later became head and voluntarily retired in 1994. Dr. Tupkary is a recipient of Binani Gold Medal of Indian Institute of Metals in 1972 and Distinguished Alumnus Award of BHU in 1988. He has published several technical papers and is more known for his two books, one on Steel Making and the other on Iron Making which are very popular textbooks of the subjects since 1977. Out of these two books, "Steel Making" was written when he was confined in Nagpur Central Jail during the emergency period of 1975-77. During his tenure as professor in VRCE, he was actively associated with Nagpur University, through its various academic and administrative bodies as their elected member. He has also worked as Managing Director of one Marathi daily published from Nagpur during the period 1994-97. He is committed social worker and is associated with varieties of such activities at and around Nagpur.

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Product Description

Production of iron (Theory and Practice)"A good slag designer is essential for production iron efficiently" "In engineering and technology what can not be measured can not be controlled to improve the quality"

After getting proper training at the university of Melbourne in the field of iron and steel making, in the period 1962-65, and after working as faculty member at Banaras Hindu university , first as lecturer and then as reader, Dr. RH Tupkary moved to visvesvaraya National institute of technology, Nagpur as professor, in 1970. He always wished to write books on iron and steel making but being very busy in RSS activities he could not find time to do that. What prevented him from writing the book, He wrote the book titled “introduction to modern steelmaking” when he was confined in Nagpur central jail during the emergency of 1975-1977. It was the first ever book on steelmaking written in independent India. It was extremely well appreciated then and since then till to date for over 44years now. It was designed to cater to the needs of Indian students of metallurgical engineering and practicing steel makers, in those days. But it was very well received all over the world. The title and therefore the contents were so chosen that it was the introduction to the subject in those days, when steel was made in India more as an art rather than based much on the science and technology. It was because the steelmaking technology was still in its infancy in India at that time. The production was also not much. The steelmakers then worked in steel industry more as operators than scientists.

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Author

R. H. Tupkary

Dr. R. H. Tupkary graduated in Met. Engg. from Bananas Hindu University in 1959 in first class and was placed at third position in merit list. He completed M.Eng.Sci. and Ph.D. from University of Melbourne in 1963 and 1966 respectively. He worked as a lecturer in Met. Egg. during 1959-62 and Reader during 1966-1970 period in BHU and then joined Visvesvaraya Regional College Engineering, Nagpur as Professor and later became head and voluntarily retired in 1994. Dr. Tupkary is a recipient of Binani Gold Medal of Indian Institute of Metals in 1972 and Distinguished Alumnus Award of BHU in 1988. He has published several technical papers and is more known for his two books, one on Steel Making and the other on Iron Making which are very popular textbooks of the subjects since 1977. Out of these two books, "Steel Making" was written when he was confined in Nagpur Central Jail during the emergency period of 1975-77. During his tenure as professor in VRCE, he was actively associated with Nagpur University, through its various academic and administrative bodies as their elected member. He has also worked as Managing Director of one Marathi daily published from Nagpur during the period 1994-97. He is committed social worker and is associated with varieties of such activities at and around Nagpur.

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