

## Direct From Midrex

CIM Bulletin  
Minerals Yearbook - V. 3, Area Reports: International Review  
SPONGE IRON PRODUCTION BY DIRECT REDUCTION OF IRON OXIDE  
Reverse Acronyms, Initialisms & Abbreviations Dictionary  
Source Journals in Metals & Materials  
Treatise on Process Metallurgy, Volume 3: Industrial Processes  
Metallics for Steelmaking  
Extractive Metallurgy 3  
Clean Ironmaking and Steelmaking Processes  
Direct Reduction of Iron Ore  
Recovery and Utilization of Metallurgical Solid Waste  
Iron & Steelmaker  
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## **CIM Bulletin**

Contains the proceedings of the Association.

## **Minerals Yearbook - V. 3, Area Reports: International Review**

Volume 1 is a comprehensive dictionary with more than 230,000 entries. It covers periodicals from a wide variety of subjects, including: science, social sciences, humanities, law, medicine, religion, library science, engineering, education, business, and art. Volume 1 lists, in a single in letter-by-letter sequence, abbreviations commonly used for periodicals together with their full titles.

## **SPONGE IRON PRODUCTION BY DIRECT REDUCTION OF IRON OXIDE**

## **Reverse Acronyms, Initialisms & Abbreviations Dictionary**

## **Source Journals in Metals & Materials**

## **Treatise on Process Metallurgy, Volume 3: Industrial Processes**

### **Metallics for Steelmaking**

With a boom in the steel industry all over the world today, the demand of sponge iron has considerably increased as a feed (raw) material to steel making. The increase in the demand of sponge iron is also due to the fact that it is used for replacing coke making required for blast furnace processing. The primary objective of this book is to provide the basis, principles, fundamentals and theory of sponge iron production. This book, earlier titled as Sponge Iron Production in Rotary Kiln, is revised as per the feedback from students, faculty members and professionals. It, now, covers broad spectrum of alternative routes of iron making, therefore, the book is renamed as Alternative Routes to Iron Making. In this revised edition of the book, three new chapters have been added to fulfil the requirement of a textbook for various universities. NEW TO THIS EDITION • New chapters on: o Utilization of Sponge Iron o Environmental Pollution and Control in Sponge Iron Industries o Smelting Reduction Process • Inclusion of principle of fluidisation in fluidised bed processes • Description of Hyl III process with recent development of the process Primarily intended for undergraduate and postgraduate students of metal-lurgical engineering, this book is equally beneficial for researchers, and professionals

engaged in DR processes and steel industries.

## **Extractive Metallurgy 3**

## **Clean Ironmaking and Steelmaking Processes**

## **Direct Reduction of Iron Ore**

## **Recovery and Utilization of Metallurgical Solid Waste**

## **Iron & Steelmaker**

## **Iron and Steel International**

## **Year Book - Association of Iron and Steel Engineers**

## **Metals Abstracts**

At present, a lot of metallurgical solid wastes have not been timely and effectively recycled, resulting in serious problems of environmental pollution and waste of resources. As a result, large-scale comprehensive utilization technologies have been initiated, including slag dry granulation technology, steel slag cement technology, slag wool technology, slag waste heat recovery technology, etc. The comprehensive utilization of metallurgical solid waste has attracted worldwide attention. It is an effective way to improve the utilization efficiency of resources and the added value of products by using scientific metallurgical solid waste recycling methods. This book intends to provide the reader with a comprehensive overview of metallurgical solid wastes comprehensive utilization technology. The comprehensive utilization methods of four representative metallurgical solid wastes are emphatically described, such as blast furnace slag, steel slag, tailings and metallurgical dust.

## **Sponge Iron Production in Rotary Kiln**

Extractive metallurgy is the art and science of extracting metals from their ores and refining them. The production of metals and alloys from these source materials

is still one of the most important and fundamental industries in both developed and developing economies around the world. The outputs and products are essential resources for the metallic, mechanical, electromagnetic, electrical and electronics industries (silicon is treated as a metal for these purposes). This series is devoted to the extraction of metals from ores, concentrates (enriched ores), scraps, and other sources and their refining to the state of either liquid metal before casting or to solid metals. The extraction and refining operations that are required may be carried out by various metallurgical reaction processes. Extractive Metallurgy 1 deals with the fundamentals of thermodynamics and kinetics of the reaction processes. Extractive Metallurgy 2 focuses on pyrometallurgical, hydrometallurgical, halide and electro-metallurgical (conversion) processes. Extractive Metallurgy 3 deals with the industrial processing operations, technologies, and process routes, in other words the sequence of steps or operations used to convert the ore to metal. Processes and operations are studied using the methodology of “chemical reaction engineering”. As the fundamentals of the art and science of Extractive Metallurgy are infrequently taught as dedicated university or engineering schools courses, this series is intended both for students in the fields of Metallurgy and Mechanical Engineering who want to acquire this knowledge, and also for engineers put in charge of the operation of an industrial production unit or the development of a new process, who will need the basic knowledge of the corresponding technology.

## **Ironmaking Conference, 44th Conference**

Process metallurgy provides academics with the fundamentals of the manufacturing of metallic materials, from raw materials into finished parts or products. Coverage is divided into three volumes, entitled Process Fundamentals, encompassing process fundamentals, extractive and refining processes, and metallurgical process phenomena; Processing Phenomena, encompassing ferrous processing; non-ferrous processing; and refractory, reactive and aqueous processing of metals; and Industrial Processes, encompassing process modeling and computational tools, energy optimization, environmental aspects and industrial design. The work distills 400+ years combined academic experience from the principal editor and multidisciplinary 14-member editorial advisory board, providing the 2,608-page work with a seal of quality. The volumes will function as the process counterpart to Robert Cahn and Peter Haasen's famous reference family, *Physical Metallurgy* (1996)--which excluded process metallurgy from consideration and which is currently undergoing a major revision under the editorship of David Laughlin and Kazuhiro Hono (publishing 2014). Nevertheless, process and extractive metallurgy are fields within their own right, and this work will be of interest to libraries supporting courses in the process area. Synthesizes the most pertinent contemporary developments within process metallurgy so scientists have authoritative information at their fingertips Replaces existing articles and monographs with a single complete solution, saving time for busy

scientists Helps metallurgists to predict changes and consequences and create or modify whatever process is deployed

### **Nickel Topics**

### **Fundamentals of Metallurgy**

This book provides a fascinating study of the very important emerging field of direct reduction in which iron ore is 'directly reduced' in the solid-state, using either natural gas or non-coking coal, to produce a highly metallised material, referred to as sponge iron (or direct reduced iron). This intermediate product is subsequently melted in electric arc furnaces or induction furnaces (sometimes even in basic oxygen furnaces) to produce liquid steel. Such a process combination enables steel to be produced without using coking coal, which is an expensive input in the normal blast furnace—basic oxygen furnace route of steelmaking adopted in integrated steel plants. The book offers comprehensive coverage and critical assessment of various coal-based and gas-based direct reduction processes. Besides dealing with the application of the theoretical principles involved in the thermodynamics and kinetics of direct reduction, the book also contains some worked-out examples on sponge iron production. The concluding

part of this seminal book summarises the present and future scenario of direct reduction, including the use of gas generated from coal in direct reduction processes. The book is primarily intended for the undergraduate and postgraduate students of metallurgical engineering. It is also a must-read for researchers, technologists and process metallurgists engaged in the rapidly developing field of direct reduction of iron oxides, which is of critical importance for India and other developing nations that are beginning to play a major role in global steelmaking.

### **Steel Times**

### **Potential for Industrial Energy-Efficiency Improvement in the Long Term**

This book provides the multidisciplinary reading audience with a comprehensive state-of-the-art overview of research and innovations in the relationship between iron ores and iron ore materials. The book covers industrial sectors dealing with exploration and processing of iron ores as well as with advanced applications for iron ore materials and therefore entails a wide range of research fields including geology, exploration, beneficiation, agglomeration, reduction, smelting, and so on, thus encouraging life cycle thinking across the entire production chain. Iron

remains the basis of modern civilization, and our sustainable future deeply depends upon our ability to satisfy the growing demand for iron and steel while decoupling hazardous emissions from economic growth. Therefore, environmental sustainability aspects are also broadly addressed. In response to socioeconomic and climatic challenges, the iron ore sector faces, this book delivers a vision for the new opportunities linked to deployment of the best available, innovative and breakthrough technologies as well as to advanced material applications.

### **IRON AGE THE MANAGEMENT MAGAZINE FOR METAL PRODUCERS**

Facilitates the process of learning and later mastering Aspen Plus® with step by step examples and succinct explanations Step-by-step textbook for identifying solutions to various process engineering problems via screenshots of the Aspen Plus® platforms in parallel with the related text Includes end-of-chapter problems and term project problems Includes online exam and quiz problems for instructors that are parametrized (i.e., adjustable) so that each student will have a standalone version Includes extra online material for students such as Aspen Plus®-related files that are used in the working tutorials throughout the entire textbook

### **Engineered Materials Abstracts**

**Periodical Title Abbreviations: By abbreviation**

**ALTERNATIVE ROUTES TO IRON MAKING, 2nd Ed.**

**Iron and Steel Engineer**

**Metals Abstracts Index**

**Skillings' Mining Review**

**Iron Age**

**Direct Reduced Iron**

## **Industry and Environment**

### **Aspen Plus**

This book describes the available technologies that can be employed to reduce energy consumption and greenhouse emissions in the steel- and ironmaking industries. Ironmaking and steelmaking are some of the largest emitters of carbon dioxide (over 2Gt per year) and have some of the highest energy demand (25 EJ per year) among all industries; to help mitigate this problem, the book examines how changes can be made in energy efficiency, including energy consumption optimization, online monitoring, and energy audits. Due to negligible regulations and unparalleled growth in these industries during the past 15-20 years, knowledge of best practices and innovative technologies for greenhouse gas remediation is paramount, and something this book addresses. Presents the most recent technological solutions in productivity analyses and dangerous emissions control and reduction in steelmaking plants; Examines the energy saving and emissions abatement efficiency for potential solutions to emission control and reduction in steelmaking plants; Discusses the application of the results of research conducted over the last ten years at universities, research centers, and industrial institutions.

## **Foundry Management & Technology**

As product specifications become more demanding, manufacturers require steel with ever more specific functional properties. As a result, there has been a wealth of research on how those properties emerge during steelmaking. Fundamentals of metallurgy summarises this research and its implications for manufacturers. The first part of the book reviews the effects of processing on the properties of metals with a range of chapters on such phenomena as phase transformations, types of kinetic reaction, transport and interfacial phenomena. Authors discuss how these processes and the resulting properties of metals can be modelled and predicted. Part two discusses the implications of this research for improving steelmaking and steel properties. With its distinguished editor and international team of contributors, Fundamentals of metallurgy is an invaluable reference for steelmakers and manufacturers requiring high-performance steels in such areas as automotive and aerospace engineering. It will also be useful for those dealing with non-ferrous metals and alloys, material designers for functional materials, environmentalists and above all, high technology industries designing processes towards materials with tailored properties. Summarises key research and its implications for manufacturers Essential reading for steelmakers and manufacturers Written by leading experts from both industry and academia

## **Chilton's Iron Age**

### **Iron Ores and Iron Oxide Materials**

### **The Making, Shaping, and Treating of Steel**

This book does not give a prediction of what the efficiency will be of the energy use of industrial processes in the future. However, it does give an exploration of limits to the efficiency of current processes and an indication of what might be achieved if new technologies can be developed. At the Department of Science, Technology and Society of Utrecht University research had been done to the opportunities for improvement of the energy efficiency in the short term since the 1980's. This had resulted in a comprehensive database on energy efficient measures. This database and a possible application are described in Chapter 3 of this book. The use of the database induced new research themes around efficiency improvement, e.g. concerning barriers for implementation of measures. It was around 1993 that I did a preliminary study to the potential for efficiency improvement in the long term. Historical analysis had shown us that the short term potential stayed constant over the years. It seemed to be replenished by the introduction of new technologies.

This lead to the question whether there are limits to the efficiency, taking into account both thermodynamic considerations and ideas on the development and dissemination of new technologies.

### **Proceedings**

#### **Metal Bulletin Monthly**

The Minerals Yearbook is an annual publication that reviews the mineral and material industries of the United States and foreign countries. The Yearbook contains statistical data on materials and minerals and includes information on economic and technical trends and development. The Minerals Yearbook includes chapters on approximately 90 commodities and over 175 countries. This volume of the Minerals Yearbook provides an annual review of mineral production and trade and of mineral-related government and industry developments in more than 175 foreign countries. Each report includes sections on government policies and programs, environmental issues, trade and production data, industry structure and ownership, commodity sector developments, infrastructure, and a summary outlook.

## **Periodical Title and Abbreviation by Abbreviation**

### **Brazilian Bulletin**

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