

Preface

Ferroalloys development and production have been boosted together with the rapid increase in steel and alloys processing. It soon became very clear that ferroalloys require new techniques as the then existing blast furnace or steel-making converter technologies were not capable of fulfilling the demanding needs of industry. As the requisite electrical technology was developed in parallel, at the beginning of 20th century ferroalloys had caught up with electrometallurgy—and this has continued until today. In 1907 two pioneering books, “Electrometallurgy” by John Kershaw and “The Electric Furnace: Its Construction, Operation and Uses” by Alfred Stanfield, were published. Already by then the authors had recognized the need to give a brief and clear account of industrial developments in electrometallurgy, although the theoretical basics and engineering background had only just started to be thought about and were not explicitly treated in those publications. The dynamics of the subsequent developments were noted by John Kershaw, who stated “The patent literature of electrometallurgy [is] unusually extensive and voluminous.” Only six years after Alfred Stanfield published the second, twice as large, edition of his book, he noted that “the development of the electric furnace and its uses has been so rapid.”

It took, however, many more years to develop the theory and technology of ferroalloys smelting, taking into account the variety of raw materials, furnaces, and alloys, and environmental and economic constraints. Whereas several books on ferroalloys were published in the 1900s in different languages, it became evident that there existed a need for a new publication aiming at providing a holistic, integrated overview of all practically relevant ferroalloys processes and equipment, and other pertinent aspects. This was the reason behind the preparation of this text.

This handbook is a combined product of many contributors, who tried their best to collate, process, outline, and present the most comprehensive information on the subject as was available at the time of writing. The authors aim to provide scientific and technological knowledge that will be of use worldwide, and with sufficient detail for practical application. The material in this book is also intended to help students, plant engineers, and managers as well as researchers in the relevant fields, to understand the theory and technology of different ferroalloys in accordance with modern-day practice and current scientific developments.

As the Editor of this volume, I gratefully acknowledge all contributions and also my colleagues who assisted in the preparation of the book. I hope the reader will find it practical and effective, whether for processes theory development or industrial implementation.

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