

Book Review

HANDBOOK ON THE ESTIMATION OF METALLURGICAL PROCESS COSTS

by W.T. Ruhmer. Special Publication No. 14, Mintek, Randburg, South Africa, 1991, 175 pp, US\$160.00

This new handbook is not a revision of the previous edition published in 1985, but a totally new book. It contains an array of empirical methods that might help in estimating preliminary capital and operating costs of major unit operations in extractive metallurgical plants.

The methods are based on manufacturers' information and on typical operating data and are arranged in sections, each dealing with a specific operation or process module. The areas such as grinding, gravity concentration, heavy-media separation, flotation, magnetic and electrical separation are covered.

Each section contains process description and process or equipment flow diagrams, as well as methods for determining the equipment specifications and energy requirements.

Two sections are devoted to methods for converting equipment cost data into installed plant costs, working capital and operating costs. A large section dealing with financial calculations is also incorporated to enable profitability analyses to be carried out.

Section on magnetic separation is rather brief in comparison to other unit operations and incorporates a single flowsheet in which wet drum magnetic separators are used. Similarly scanty information can be found in a section on electrostatic separation. Overall, however, the handbook provides excellent reference information on various unit operations and is the latest and probably the best single reference source for minerals processing engineers.

However, those who are looking for a review of process and equipment costs will find the title of the manual misleading. In contrast to the first edition which contained most useful information, in a diagrammatic form, on prices, mass and power of a wide spectrum of metallurgical equipment, as a function of its capacity or dimensions, the current edition does not give any information on costs. Actual cost data, in tabular form, appear in the accompanying loose supplement which is intended to be updated from time to time.

Values of parameters a , b and c for a quadratic equation $y = a + bx + cx^2$, where y is the cost of equipment and x its size or capacity are given for a variety of metallurgical equipment, including self-cleaning suspended magnets, manual-cleaning suspended magnets and wet drum magnetic separators of three different diameters. No information is made available for electrostatic separators as well as for more sophisticated wet magnetic separators (e.g. WHIMS and HGMS) and for dry magnetic separators (roll separators, cross-belt separators etc.).

In spite of this omission, the handbook is thorough and reflects the wide experience of its author. The presentation of the manual is also of high standard, although an inexplicable absence of the date of publication will be found irritating.