INDUSTRIAL INORGANIC CHEMICALS: Production and Uses

Edited by R. Thompson

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Preface

In 1977 'The Modern Inorganic Chemicals Industry' appeared as The Royal Society of Chemistry Special Publication No. 31, being the Proceedings of a two-day conference which formed part of that year's Annual Congress at University College, London. At the time there was no comprehensive collected textbook on the contemporary inorganic chemicals industry, and the conference content was specifically designed such that the delivered papers be publishable in book form to fill a recognized gap. As convener and editor I was also concerned that the treatment should be *authoritative*, so consequently recognized authors were invited to contribute.

SP31 was an almost instant success, becoming a standard text in university and polytechnic chemistry and chemical engineering courses. The first print quickly sold out and the Proceedings were later to be printed twice more.

Nearly two decades have passed since SP31 was begun. The inorganic chemicals industry, like others, has moved on; albeit perhaps more slowly in production methods as is the way with capital-intensive commodity industries. It was decided that the time had come to prepare what is in effect a second edition, again with the main criterion that each chapter be an authoritative contribution from an industry expert. Several of the authors are in fact the same as in the earlier work, while others had contributed to the almost equally popular companion volume SP40, 'Speciality Inorganic Chemicals'. That recorded papers from a Salford University symposium run by the Inorganic Chemicals Group of the Society's Industrial Division in 1980. Yesterday's specialities can become today's commodities, and the importance of alumina and silica (debatably then in the commodities league) in their various forms is, for example, sufficient to merit inclusion here alongside other high-tonnage chemicals. Three chapters not included this time relate to water, the chlor-alkali industry, and soluble silicates, for accounts of which the reader is referred to SP31.

Chapters which have been extended over the earlier volumes are on aluminium, fluorine, and phosphorus chemicals, where the production and uses of derived products (many of which are themselves sold in large tonnages) are described in some detail.

Inorganic chemicals manufacture is highly integrated: a product from one part of the industry is often a feed-stock of another. This is no better illustrated than by

sulfuric acid (Chapter 4) which finds major outlets *inter alia* in the production of boron, phosphorus, and titanium products described later in the book. The whole interplay across the industry is reviewed in Chapter 1, a further purpose of which is to place the various production and consumption rates in relative as well as absolute perspective.

The chemicals industry is often perceived (with some past justification) as being dirty and environmentally unacceptable. Air was polluted, rivers contaminated, and tracts of land laid waste, as well as the health and well-being both of employees and people living near to the plants being affected. The last two decades have seen considerable changes both in practical action being taken and the tightening of legislation requiring it. An overview given in Chapter 2 deals with these aspects, relating them also to metals smelting and the physical treatment and use of production by-products.

One of the features which heightened the demand for SP31 was the inclusion of an educational chapter that addressed some of the shortcomings of contemporary chemistry courses, at least insofar as degree courses in 'pure' chemistry were concerned. Graduate chemical engineers are often more fitted to enter manufacturing industry than their chemistry counterparts. It was therefore decided that we should again include a primer plus bibliography on at least the elements of chemical engineering. While this book is not designed primarily for student use, Chapter 3 could usefully be read first by those unfamiliar with the design and manufacturing procedures of the chemicals industry.

Finally, I must pay tribute to the individual authors, all busy people, who have contributed to this book; not least to those who finished their chapters on time and had to await completion by others. All were written within a span of about two years and thus none, bearing in mind any proof-stage alterations, will become outdated for some years to come.

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