Preface

There are many industrial surveys reporting poor performance of processes involving particles, whereas fluid only processes often reach 90 to 95% of design capacity. One study reports only 6% of particulate processes examined reporting no major performance problems (in R.A. Williams, CAPE-21, EUREKA project 2311). Clearly, the presence of particles increases process uncertainties and this book is aimed at reducing some of those uncertainties for a large engineering and scientific audience.

In many engineering disciplines Particle Technology is now a subject worthy of study on its own, rather than a sub-section of fluid mechanics. Over the last twenty years, or so, there have been several books authored on aspects of the subject. This is an inevitable consequence of the subject's breadth and the interests of those authors within it. So, there is no lack of information for the serious student to turn to. However, where does he, or she, start off? *Fundamentals of Particle Technology* was written as a starting point for students new to the subject. The philosophy behind the book is to provide a text that all students, hopefully, regard as accessible, both in cost and style. Also, the nature of learning has changed significantly in recent years and this book reflects some of these changes. There are numerous line diagrams and illustrations included, but very few equipment pictures. Instead, web addresses are provided for equipment manufacturers and interested students should access these sites to see the equipment offered. This provides ready access to colour pictures of modern machinery, rather than pictures that date all too quickly. The web sites are those of major manufacturers that are likely to be available for many years to come and, although the exact URL might alter, a small amount of intelligent browsing will soon find the device, or its more modern equivalent. Likewise, the exercises at the end of a chapter have further details of their solution via the Internet site www.midlandit.co.uk/particletechnology. Most practical questions require a series of calculations following from problem decomposition and the student may perform an error at any stage; the multiple choice style is designed to take the student through the calculations so that he, or she, cannot progress if an error is made on the way. Thus, the student should know instantly if he, or she, has made a mistake. The disadvantage of this style is that it provides limited training in problem decomposition; so, the support web site has additional problems available for practice in this.

Experience shows that journal references at the end of each chapter are rarely consulted; so, where appropriate, references are given within the text and to named research workers. A simple literature search will show up their work – it is not usual for an author to publish only a single paper; hence it should be easier to look for a name and context, rather than a specific paper. There is also a further reading section, with recommended books that correspond to each chapter within this book.

Finally, I would like to express my gratitude to colleagues at Loughborough University, both present and past, for helping me develop this style of teaching and encouraging my interest of this subject.

Richard Holdich,
Loughborough, November, 2002.