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CHEMICAL ENGINEERING

Introductory Aspects

Robert W. Field

University of Bath

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First published 1988

Published by
MACMILLAN EDUCATION LTD
Houndmills, Basingstoke, Hampshire RG21 2XS
and London
Companies and representatives
throughout the world

British Library Cataloguing in Publication Data
Field, Robert W.

Chemical engineering: introducing aspects.

—(Dimensions of science).

1. Chemical engineering

I. Title II. Series

660.2 TP155

ISBN 978-0-333-45249-3

ISBN 978-1-349-09840-8 (eBook)

DOI 10.1007/978-1-349-09840-8

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*To Catherine
and our children
Marianne, John and Katy*

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Series Editor's Preface

This book is one in a Series designed to illustrate and explore a range of ways in which scientific knowledge is generated, and techniques are developed and applied. The volumes in this Series will certainly satisfy the needs of students at 'A' level and in first-year higher-education courses, although there is no intention to bridge any apparent gap in the transfer from secondary to tertiary stages. Indeed, the notion that a scientific education is both continuous and continuing is implicit in the approach which the authors have taken.

Working from a base of 'common core' 'A'-level knowledge and principles, each book demonstrates how that knowledge and those principles can be extended in academic terms, and also how they are applied in a variety of contexts which give relevance to the study of the subject. The subject matter is developed both in depth (in intellectual terms) and in breadth (in relevance). A significant feature is the way in which each text makes explicit some aspect of the fundamental processes of science, or shows science, and scientists, 'in action'. In some cases this is made clear by highlighting the methods used by scientists in, for example, employing a systematic approach to the collection of information, or the setting up of an experiment. In other cases the treatment traces a series of related steps in the scientific process, such as investigation, hypothesising, evaluating and problem-solving. The fact that there are many dimensions to the creation of knowledge and to its application by scientists and technologists is the title and consistent theme of all the books in the Series.

The authors are all authorities in the fields in which they have written, and share a common interest in the enjoyment of their work in science. We feel sure that something of that satisfaction will be imparted to their readers in the continuing study of the subject.

Preface

Chemical Engineering: Introductory Aspects aims to reveal some of the links between A-level science and the distinct subject of chemical engineering. A further objective is to reveal some of the work done by chemical engineers, to illustrate a few of the benefits to society that have resulted, and hence to show some of the links between industry and the everyday products around us. It is anticipated that the book will be of interest and use to both students in school as well as those starting a university course. Terms printed in bold in the text are defined in the glossary.

I am grateful to Sally Barnet for typing from a none-too-legible manuscript. The help of Barry Crittenden and David Rowe, who read the manuscript and contributed suggestions, is also acknowledged with thanks. Any remaining errors and omissions are, of course, solely my own responsibility. Finally my thanks go to my wife and children for their patience and understanding during those periods when I was especially busy working on the text.

RWF

Acknowledgements

The author and publishers wish to thank the following who have kindly supplied photographs or diagrams.

APV UK Ltd figures 4.9, 4.10 and 5.11

John Brown & Co Ltd figure 1.11

Esso UK plc figures 6.4 and 6.5

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