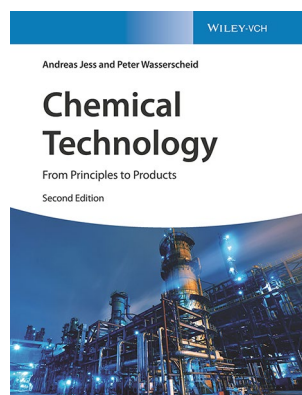


Andreas Jess and Peter Wasserscheid: Chemical Technology: From Principles to Products 2nd Edn

Wiley-VCH Verlag GmbH 2020 ISBN 978-3-527-34421-5 pp 865 £85.00

© Springer-Verlag GmbH Germany, part of Springer Nature 2020



The four basic disciplines of chemical technology (chemistry, thermal and mechanical unit operations, chemical reactions and raw material conservation) are explained in detail to provide a comprehensive and integrated manual of up-to-date methods covering a majority of chemical processes and minimizing constant references to source material. As would be expected from such an all-inclusive work it is a massive tome weighing 2.8 kg, restricting its usage to fixed locations. Derived from degree teaching courses, it develops each subject from basic principles and is aimed at both chemists and chemical engineers intending to pursue an industrial career but does not exclude the more lofty spires of R&D; these scientists also need to understand how their innovations transpose seamlessly into the real world.

Linking subjects together to make a coherent whole is the key to understanding, an objective achieved by introducing well-referenced examples at critical points, enhanced by emphasising and accentuating vital equations that will aid instant recall. As a second edition (First edition published in 2013) this now updated volume includes the recent significant environmental and general public attitudes about changes on environmental issues, not least the burning of fossil fuels. As

a reference manual it is initially partitioned into six sections, then subdivided in ever smaller subject areas into a logical tree-and-branch style to speed up cross-referencing and this succeeds in its objective. Selecting specific subjects at random I found it allowed swift location of targets and the sought-for design information, but that exercise threw up a glaring omission; data on liquefaction processes. The petrochemical industry is based entirely upon fractionation of cryogenically liquefied hydrocarbons. Furthermore, liquefaction and regeneration of liquid air as an energy storage device is projected to be an economic solution to that tricky problem. Both perhaps will be added as new sub-chapters in the next edition.

Buried in several parts of the text were unexpected descriptions of “what if” scenarios, projecting for example global raw material demand and availability to the year 2050. Citing a Mahatma Gandhi quotation “Earth provides enough to satisfy everyman’s need, but not everyman’s greed”, it assesses foresights for energy, water and food, the latter detailed down to a slice of bread, a tomato and equally trivial quantities. The compilation of individual statistics to produce the whole is remarkable in its impact. These carefully compiled tables will enable design scientists to justify what was in the past considered to be eccentric but now to attack and eliminate all forms of waste, whether energy, water, solvent usage, catalyst consumption and many other inputs.

The final *coup de grace* in this valuable tome is reference to cost and where it is relevant. Costs of any project must, today, be reduced to their absolute minimum if design engineers are to be worthy of their fees.

K. Jones

Publisher’s Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.