Green Chemistry in the Pharmaceutical Industry . Edited by Peter Dunn, Andrew Wells , and Michael T. Williams. Wiley-VCH: Weinheim, Germany. 2010. 370 + xviii pages. €129. ISBN 978-3-527-32418-7.

At last! A book which looks at Green Chemistry from an industrial viewpoint! I have waited a long time for a text on green issues which I could whole-heartedly recommend to readers in industry, and this multiauthor work, edited by three British industrial chemists, is an outstanding overview of the subject.

After an introductory opening chapter from Roger Sheldon which sets the scene of green chemistry in industry, further chapters by industrial chemists/engineers (many from GlaxoSmithKline [GSK]) cover Green Chemistry Metrics, Solvent Use/Waste Issues, and Environmental and Regulatory Aspects. For those scientists wishing to learn about industrial approaches to green chemistry, these chapters make excellent reading, and could form a useful addition to any green chemistry course.

The later chapters are mostly case studies from industry and have a high process R&D content as well as discussions about environmental issues. The examples include the well-publicised Sitagliptin (Merck), Chemoenzymatic Processes for Statins (DSM), Taxol (BMS), Pregbalin (Pfizer), Peptide Mimetics (Takeda) and Radafaxine (GSK). The latter chapter discusses different processes to the API, culminating in the choice of a SMB separation process with racemisation of the unwanted isomer.

Industrial Scale Chromatography is also covered in an excellent chapter from scientists/engineers at Novasep. In this chapter recycling strategies are explored in depth and illustrate that chromatographic methods, when efficient, can have excellent green credentials.

Other chapters include “Continuous Processing”, “Dynamic Resolution − Turning Waste Isomers into Useful Product” and “Green Technologies in the Generic Pharmaceutical Industry”. The latter chapter by scientists from Dr. Reddy’s (India) is an intriguing insight into the drivers in the generic industry, and the chapter has interesting examples which would be useful as teaching materials for a green chemistry undergraduate course.

The final chapter by the Editors looks to the future and examines “Trends for Green Chemistry in the Pharmaceutical Industry”. It briefly looks at new technologies and critically examines whether they are merely trendy or whether they will have a genuine impact in future manufacturing.

Overall, this is an excellent multiauthor work which covers the subject comprehensively. A minor criticism is that there could have been more emphasis on workup, especially the avoidance of aqueous quenches, which generate much aqueous waste, and on minimising the number of unit operations in manufacture. Only one case study–on generic manufacture–illustrated this concept with a block flow diagram.

In conclusion, this is the best book I have read on Green Chemistry and should be on the bookshelf of every process chemist and engineer.

Outstanding!

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