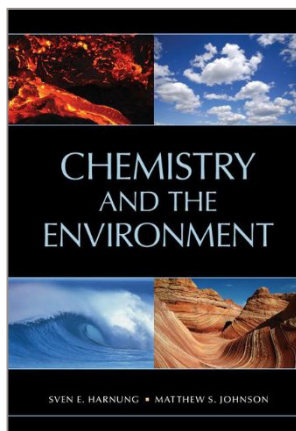


# Chemistry and the Environment

## A book review



By Sven E. Harnung and  
Matthew S. Johnson

CAMBRIDGE UNIVERSITY  
PRESS

440 pages | Paperback  
1<sup>st</sup> edition | October 2012  
ISBN 978-1-10-768257-3

Price: £40 (~€47)

The origin and movement of the atoms and molecules on the Earth is, understandably, a complex, nuanced and diverse subject. Indeed, if the natural world was not complex enough already, its chemistry is further obfuscated by the interferences of human activities. It is for this reason that the achievements of this book, namely presenting a fundamental and unified course in environmental chemistry, are made more impressive.

[Chemistry and the Environment](#) is written as the ideal companion to undergraduate and graduate level courses on environmental chemistry. The authors, Sven E. Harnung and Matthew S. Johnson, both at the University of Copenhagen, are highly respected researchers within the field of environmental chemistry and have devised the book based on their own courses.

After a short introduction, the book is divided into 10 chapters. The first three introduce the Earth and the base equations that govern its dynamics. Three chapters examining the atmosphere, hydrosphere and pedosphere, respectively, follow this, while chapter 7 describes global biogeochemical cycles. The book concludes with two chapters on the chemical industry and the environmental effects of certain chemicals, and a final chapter on climate change.

At the rear of the book, the expansive appendices also provide an almost exhaustive reference for the reader – from the periodic

table to polynuclear complex equations – who might otherwise have resorted to search online for such information.

Perhaps the most impressive aspect of this book is its conciseness. Each one of its chapters could be a textbook within itself, yet the authors manage to distill each topic down to its bare essentials. Some sections, such as the climate change chapter, might have benefitted from a more thorough detail, but, in most subjects, especially the chemical kinetics and fluid dynamics sections, it reaches considerable depth. The authors present the various subjects in a coherent narrative that is not interrupted by case studies or diversions.

One aspect that seems oddly lacking for a book such as this is end of chapter exercises. These are instead available online, the address for which is hidden in small print within the copyright section. The rationale for this is that they are designed to be issued by lecturers to students. Indeed, the answers, normally rarely available and a boon for students when they are, are only available to registered lecturers at the website. I expect that this might disappoint students, many of whom might wish to use the exercises for revision and do not have access to the answers as the lecturer does not use this book or its exercises. The exercises themselves are exemplary, being a mixture of open, descriptive questions and problems of many difficulty levels. Though it would undoubtedly lengthen the book, I feel that it might have made the book more self contained and complete if these exercises had been included within the volume itself and the answers made available to all.

This book will appeal to undergraduates, graduates and professionals alike. Though its scope is necessarily broad, it manages to tackle this most interdisciplinary of subjects with clarity and breadth. Because of its logical and concise layout, it forms an ideal companion – or even, the ideal basis – for any course in environmental chemistry.

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