Phosphorus: Polluter and Resource of the Future: Removal and Recovery from Wastewater

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Phosphorus has always been both a curse and a blessing. On the one hand, it is essential for all life forms and cannot be replaced by anything. On the other hand, wastewater treatment aims to minimize phosphorus concentrations in wastewater in order to minimize its discharge into rivers and lakes, where eutrophication caused by high phosphorus concentrations would lead to excessive plant growth. Phosphorus is extracted from rock phosphate deposits, which are finite and non-renewable. And as the issue of resource conservation is the focus of attention worldwide, phosphorus must be used sustainably. This includes recycling of secondary phosphates, efficient extraction and treatment of raw phosphate as well as its efficient use.

The book starts from the peculiarity of the element phosphorus in Part I Phosphorus a special element?, Part II shows the possibilities and limitations of the elimination of phosphorus during the wastewater treatment. Current developments in phosphorus recovery are presented in Part III Phosphorus Recovery - Technology, where also a large number of technology developments are presented in the context of case studies. Part IV “Assessment” shows impulses for future ways. The book concludes with an “Outlook” in Part V.

The book is partially based on the book Phosphorus in Environmental Technology – Principles and Application [1], edited by Eugina Valsami-Jones and published by IWA Publishing in 2004. Various new technologies have been developed since its release, particularly in the area of phosphorus recovery. Phosphorus: Polluter and Resource of the Future discusses all aspects of both Phosphorus elimination and recovery and summarizes the latest state of Phosphorus recovery technologies.

This title includes two chapters which are freely available as downloadable Open Access files:

Chapter 19: The Pearl® and WASSTRIP® processes (Canada) [2]
Chapter 34: Wastewater treatment of the future: Health, water and resource protection[3]

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