

# Handbook of Biological Wastewater Treatment: Second Edition

The scope of this comprehensive new edition of *Handbook of Biological Wastewater Treatment* ranges from the design of the activated sludge system, final settlers, auxiliary units (sludge thickeners and digesters) to pre-treatment units such as primary settlers and UASB reactors.

The core of the book deals with the optimized design of biological and chemical nutrient removal. The book presents the state-of-the-art theory concerning the various aspects of the activated sludge system and develops procedures for optimized cost-based design and operation. It offers a truly integrated cost-based design method that can be easily implemented in spreadsheets and adapted to the particular needs of the user.

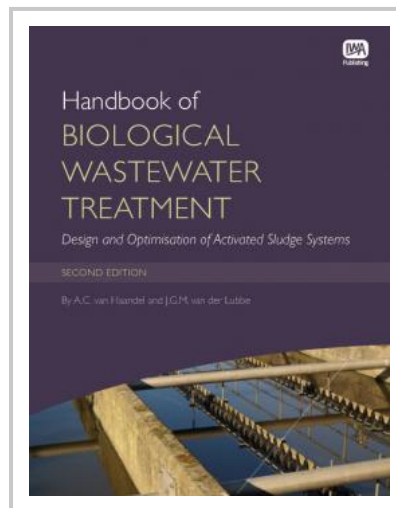
This second edition incorporates valuable new material that improves the instructive qualities. The book has a new structure that makes the material more readily understandable and the numerous additional examples clarify the text.

New sections have been added throughout:

- to explain the difference between true and apparent yield while the section on the F/M ratio, and especially the reasons not to use it, has been expanded;
- to demonstrate the effect of the oxygen recycle to the anoxic zones on both the denitrification capacity and the concept of available nitrate is explained in more detail.
- the latest developments on the causes and solution to sludge bulking and scum formation
- to show the rapid developments of innovative nitrogen removal and sludge separation problems
- the anaerobic pre-treatment section is completely rewritten based on the experiences obtained from an extensive review of large full-scale UASB based sewage treatment plants
- a new section on industrial anaerobic wastewater treatment
- three new appendices have been added. These deal with the calibration of the denitrification model, empirical design guidelines for final settler design (STORA/STOWA and ATV) and with the potential for development of denitrification in the final settler.
- A new chapter on moving bed biofilm reactors

*Handbook of Biological Wastewater Treatment: Second Edition* is written for postgraduate students and engineers in consulting firms and environmental protection agencies. It is an invaluable resource for everybody working in the field of wastewater treatment.

Lecturer support material is available when adopted for university courses. This includes course material for the first 7 modules in the form of PDF printouts and an exercise file with questions and answers and a symbol list.



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