DESCRIPTION

Sustainable development is an area that has world-wide appeal, from developed industrialized countries to the developing world. Development of innovative technologies to achieve sustainability is being addressed by many European countries, the USA and also China and India. The need for chemical processes to be safe, compact, flexible, energy efficient, and environmentally benign and conducive to the rapid commercialization of new products poses new challenges for chemical engineers. This book examines the newest technologies for sustainable development in chemical engineering, through careful analysis of the technical aspects, and discussion of the possible fields of industrial development.

The book is broad in its coverage, and is divided into four sections:

- **Energy Production**, covering renewable energies, innovative solar technologies, cogeneration plants, and smart grids

- **Process Intensification**, describing why it is important in the chemical and petrochemical industry, the engineering approach, and nanoparticles as a smart technology for bioremediation

- **Bio-based Platform Chemicals**, including the production of bioethanol and biodiesel, bioplastics production and biodegradability, and biosurfactants

- **Soil and Water Remediation**, covering water management and re-use, and soil remediation technologies
Throughout the book there are case studies and examples of industrial processes in practice.

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