

Hydrodynamics, Mass and Heat Transfer in Chemical Engineering: A Comprehensive Guide



Hydrodynamics, Mass and Heat Transfer in Chemical Engineering (Topics in Chemical Engineering Book 14)

by Andrei D. Polyaniin

★★★★☆ 4 out of 5

Language : English

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Screen Reader: Supported

Print length : 408 pages



Hydrodynamics, mass and heat transfer are fundamental principles that govern the behavior of fluids and the transfer of mass and heat in chemical engineering processes. This book provides a comprehensive overview of these topics, covering a wide range of concepts and applications.

Hydrodynamics

Hydrodynamics is the study of the flow of fluids. This section covers the basic principles of fluid flow, including fluid properties, pressure, velocity, and flow rate. It also discusses different types of fluid flow, such as laminar flow, turbulent flow, and compressible flow.

Mass Transfer

Mass transfer is the movement of mass from one region to another. This section covers the basic principles of mass transfer, including diffusion, convection, and mass transfer coefficients. It also discusses different types of mass transfer processes, such as gas-liquid mass transfer, liquid-liquid mass transfer, and solid-liquid mass transfer.

Heat Transfer

Heat transfer is the transfer of thermal energy from one region to another. This section covers the basic principles of heat transfer, including conduction, convection, and radiation. It also discusses different types of heat transfer processes, such as heat transfer in fluids, heat transfer in solids, and heat transfer in heat exchangers.

Chemical Reaction Engineering

Chemical reaction engineering is the study of the kinetics and design of chemical reactors. This section covers the basic principles of chemical reaction engineering, including reaction kinetics, reactor design, and reactor operation. It also discusses different types of chemical reactors, such as batch reactors, continuous reactors, and plug flow reactors.

Applications

The principles of hydrodynamics, mass and heat transfer are applied in a wide range of chemical engineering processes, including the design of chemical reactors, heat exchangers, and mass transfer equipment. This section discusses some of the most common applications of these principles in the chemical engineering industry.

This book provides a comprehensive overview of the fundamental principles of hydrodynamics, mass and heat transfer in chemical

engineering. It is an essential resource for students, researchers, and practicing engineers who need to understand these topics.



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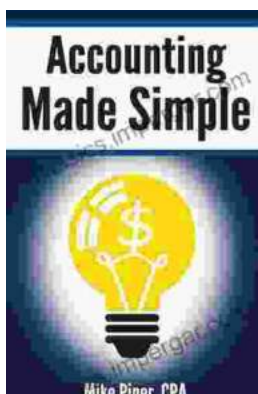
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