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| Nota di contenuto | The thermodynamics of gasification -- The kinetics of gasification and reactor theory -- Feedstocks and feedstock characteristics -- Gasification processes -- Practical issues -- Applications -- Auxiliary technologies -- Economics, environmental, and safety issues -- Gasification and the future. Front cover; copyright; Contents; Preface; COMPANION WEBSITE; TERMINOLOGY; ACKNOWLEDGMENTS; 1. Introduction; 1.1 HISTORICAL DEVELOPMENT OF GASIFICATION; 1.2 GASIFICATION TODAY; 2. The Thermodynamics of Gasification; 2.1 REACTIONS; 2.2 THERMODYNAMIC MODELING OF GASIFICATION; 2.2.1 Basic Data; 2.2.2 Equations; 2.2.3 Variables; 2.3 DEDUCTIONS FROM THE THERMODYNAMIC MODEL; 2.3.1 Effect of Pressure; 2.3.2 Effect of Temperature; 2.3.3 Fuel Footprint; 2.3.4 Surprises in Calculations; 2.4 |

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3. The Kinetics of Gasification and Reactor Theory 3.1 KINETICS; 3.1.1 Devolatilization; 3.1.2 Volatiles Combustion; 3.1.3 Char Gasification; 3.2 REACTOR THEORY; 3.3 APPLICATIONS TO REACTOR DESIGN; 3.3.1 Modeling; 4. Feedstocks and Feedstock Characteristics; 4.1 COALS AND COKE; 4.1.1 Formation of Coal; 4.1.2 Coal Analysis; 4.1.3 Other Minerals in Coal; 4.1.4 Other Properties; 4.1.5 Ash Properties; 4.1.6 Coke; 4.1.7 Petroleum Coke; 4.2 LIQUID AND GASEOUS FEEDSTOCKS; 4.2.1 Refinery Residues; 4.2.2 Other Liquid Feedstocks; 4.2.3 Natural Gas; 4.2.4 Other Gaseous Feedstocks; 4.3 BIOMASS
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Sommario/riassunto

This book provides an excellent overview of current technologies for the gasification of coal, oil, gas, biomass and waste feedstocks. Starting from the basic theory, it reviews the potential feedstocks and their suitability for different types of gasification process. Commercial and near-commercial processes are described individually and various features discussed in detail. There is a comprehensive review of contaminants in synthesis gas as well as of gas treating processes. One chapter is devoted to discussions of various chemical, fuel and power applications for gasification.
