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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Fundamentals in adsorption at the solid-gas interface -- Concepts and thermodynamics -- Thermal analysis and calorimetry techniques for catalysis investigations -- Couplings -- Characterization of catalysts by adsorption calorimetry -- Temperature programmed desorption (TPD) methods -- Temperature programmed reduction / oxidation (TPR/TPO) methods -- Calorimetry at solid-liquid interface -- Other applications and case studies.
Sommario/riassunto	The book is about calorimetry and thermal analysis methods, alone or linked to other techniques, as applied to the characterization of catalysts, supports and adsorbents, and to the study of catalytic reactions in various domains: air and wastewater treatment, clean and renewable energies, refining of hydrocarbons, green chemistry, hydrogen production and storage. The book is intended to fill the gap between the basic thermodynamic and kinetics concepts acquired by students during their academic formation, and the use of experimental techniques such as thermal analysis and calorimetry to answer practical questions. Moreover, it supplies insights into the various thermal and calorimetric methods which can be employed in studies aimed at characterizing the physico-chemical properties of solid adsorbents, supports and catalysts, and the processes related to the adsorption desorption phenomena of the reactants and/or products of catalytic reactions. The book also covers the basic concepts for physico-chemical comprehension of the relevant phenomena.

Thermodynamic and kinetic aspects of the catalytic reactions can be fruitfully investigated by means of thermal analysis and calorimetric methods, in order to better understand the sequence of the elemental steps in the catalysed reaction. So the fundamental theory behind the various thermal analysis and calorimetric techniques and methods also are illustrated.
