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Titolo	The Chemical Reactor from Laboratory to Industrial Plant : A Modern Approach to Chemical Reaction Engineering with Different Case Histories and Exercises // by Elio Santacesaria, Riccardo Tesser
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ISBN	3-319-97439-4
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (XVII, 561 p. 428 illus., 147 illus. in color.)
Disciplina	660.2832
Soggetti	Chemical engineering Thermodynamics Heat engineering Heat - Transmission Mass transfer Chemistry, Physical and theoretical Industrial Chemistry/Chemical Engineering Engineering Thermodynamics, Heat and Mass Transfer Physical Chemistry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Influence of chemical and physical equilibria on chemical reactions -- Introduction to mass and energy balances -- Study of reactions occurring in fluid-phase systems and related reactors (FPSR - fluid phase systems reactors) -- Study of reactions occurring at the fluid-solid interface and related reactors (FSIR - fluid solid interface reactors) -- Appendices- Methods for calculating the fugacity coefficients- Methods for calculating the activity coefficients -- The main algorithms for interpreting and correlating experimental data.
Sommario/riassunto	This graduate textbook, written by a former lecturer, addresses industrial chemical reaction topics, focusing on the commercial-scale exploitation of chemical reactions. It introduces students to the concepts behind the successful design and operation of chemical reactors, with an emphasis on qualitative arguments, simple design

methods, graphical procedures, and frequent comparison of capabilities of the major reactor types. It starts by discussing simple ideas before moving on to more advanced concepts with the support of numerous case studies. Many simple and advanced exercises are present in each chapter and the detailed MATLAB code for their solution is available to the reader as supplementary material on Springer website. It is written for MSc chemical engineering students and novice researchers working in industrial laboratories.
