

O Levenspiel Chemical Reaction Engineering 3rd 13949

Chemical Reaction Engineering
CHEMICAL REACTION ENGINEERING, 3RD ED
Chemical Reaction Engineering and Reactor Technology
Chemical Reaction and Reactor Technology, Second Edition
Introduction to Chemical Reactor Analysis, Second Edition
Chemical Engineering and Chemical Process Technology - Volume III
Elements of Chemical Reaction Engineering
Chemical and Biochemical Reactors and Process Control
Chemical Reactor Analysis Design 2nd Edition with Chemical Reaction Engineering 3rd Edition Set
Fundamentals of Chemical Reaction Engineering
Chemical Reaction Engineering
Coulson and Richardson's Chemical Engineering
CHEMICAL REACTION ENGINEERING REVIEWS- PROCEEDINGS- 3RD INTERNATIONAL SYMPOSIUM ON CHEMICAL REACTION ENGINEERING-
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Reaction Engineering
Chemical Reaction Engineering
Electrochemical Reaction Engineering
Programmed Learning of Chemical Reaction Engineering
Chemical Reactor Design, Optimization, and Scaleup
Chemical Reactor Design and Control
Chemical Engineering Education
Octave Levenspiel
Levenspiel Tapio O. Salmi Jyri-Pekka Mikkola R.E. Hayes Ryzhard Pohorecki H. Scott Fogler John Metcalfe Coulson Gilbert F. Froment Charles Donald Holland
European Federation of Chemical Engineering R. Ravi Shaofen Li Kenneth B. Bischoff K. Scott H. Scott Fogler E. B. Nauman William L. Luyben
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chemical reaction engineering is concerned with the exploitation of chemical reactions on a commercial scale its goal is the successful design and operation of chemical reactors this text emphasizes qualitative arguments simple design methods graphical procedures and frequent comparison of capabilities of the major reactor types simple ideas are treated first and are then extended to the more complex

market desc chemical engineers in chemical nuclear and biomedical industries special features emphasis is placed throughout on the development of common design strategy for all systems homogeneous and heterogeneous this edition features new topics on biochemical systems reactors with fluidized solids gas liquid reactors and more on non ideal flow the book explains why certain assumptions are made why an alternative approach is not used and to indicate the limitations of the treatment when applied to real situations about the book chemical reaction engineering is concerned with the exploitation of chemical reactions on a commercial scale its goal is the successful design and operation of chemical reactors this text emphasizes qualitative arguments simple design methods graphical procedures and frequent comparison of capabilities of the major reactor types simple ideas are treated first and are then extended to the more complex

the role of the chemical reactor is crucial for the industrial conversion of raw materials into products and numerous factors must be considered when selecting an appropriate and efficient chemical reactor chemical reaction engineering and reactor technology defines the qualitative aspects that affect the selection of an industrial chemical reactor and couples various reactor models to case specific kinetic expressions for chemical processes offering a systematic development of the chemical reaction engineering concept this volume explores essential stoichiometric kinetic and thermodynamic terms needed in the analysis of chemical reactors homogeneous and heterogeneous reactors residence time distributions and non ideal flow conditions in industrial reactors solutions of algebraic and ordinary differential equation systems gas and liquid phase diffusion coefficients and gas film coefficients correlations for gas liquid systems solubilities of gases in liquids guidelines for laboratory reactors and the estimation of kinetic parameters the authors pay special attention to the exact formulations and derivations of mass energy balances and their numerical solutions richly illustrated and containing exercises and solutions covering a number of processes from oil refining to the development of specialty and fine chemicals the text provides a clear understanding of chemical reactor analysis and design

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introduction to chemical reactor analysis second edition introduces the basic concepts of chemical reactor analysis and design an important foundation for understanding chemical reactors which play a central role in most industrial chemical plants the scope of the second edition has been significantly enhanced and the content reorganized for improved pedagogical value containing sufficient material to be used as a text for an undergraduate level two term course this edition also contains five new chapters on catalytic reaction engineering written so that newcomers to the field can easily progress through the topics this text provides sufficient knowledge for readers to perform most of the common reaction engineering calculations required for a typical practicing engineer the authors introduce kinetics reactor types and commonly used terms in the first chapter subsequent chapters cover a review of chemical engineering thermodynamics mole balances in ideal reactors for three common reactor types energy balances in ideal reactors and chemical reaction kinetics the text also presents an introduction to nonideal reactors and explores kinetics and reactors in catalytic systems the book assumes that readers have some knowledge of thermodynamics numerical methods heat transfer and fluid flow the authors include an appendix for numerical methods which are essential to solving most realistic problems in chemical reaction engineering they also provide numerous worked examples and additional problems in each chapter given the significant number of chemical engineers involved in chemical process plant operation at some point in their careers this book offers essential training for interpreting chemical reactor performance and improving reactor operation what's new in this edition five new chapters on catalytic reaction engineering including various catalytic reactions and kinetics transport processes and experimental methods expanded coverage of adsorption additional worked problems reorganized

material

chemical engineering and chemical process technology is a theme component of encyclopedia of chemical sciences engineering and technology resources in the global encyclopedia of life support systems eolss which is an integrated compendium of twenty encyclopedias chemical engineering is a branch of engineering dealing with processes in which materials undergo changes in their physical or chemical state these changes may concern size energy content composition and or other application properties chemical engineering deals with many processes belonging to chemical industry or related industries petrochemical metallurgical food pharmaceutical fine chemicals coatings and colors renewable raw materials biotechnological etc and finds application in manufacturing of such products as acids alkalis salts fuels fertilizers crop protection agents ceramics glass paper colors dyestuffs plastics cosmetics vitamins and many others it also plays significant role in environmental protection biotechnology nanotechnology energy production and sustainable economical development the theme on chemical engineering and chemical process technology deals in five volumes and covers several topics such as fundamentals of chemical engineering unit operations fluids unit operations solids chemical reaction engineering process development modeling optimization and control process management the future of chemical engineering chemical engineering education main products which are then expanded into multiple subtopics each as a chapter these five volumes are aimed at the following five major target audiences university and college students educators professional practitioners research personnel and policy analysts managers and decision makers and ngos

the fourth edition of elements of chemical reaction engineering is a completely revised version of the book it combines authoritative coverage of the principles of chemical reaction engineering with an unsurpassed focus on critical thinking and creative problem solving employing open ended questions and stressing the socratic method clear and organized it integrates text visuals and computer simulations to help readers solve even the most challenging problems through reasoning rather than by memorizing equations book jacket

the publication of the third edition of chemical engineering volume marks the completion of the re orientation of the basic material contained in the first three volumes of the series volume 3 is devoted to reaction engineering both chemical and biochemical together with measurement and process control this text is designed for students graduate and postgraduate of chemical engineering

coulson and richardson s chemical engineering volume 3a chemical and biochemical reactors and reaction engineering fourth edition covers reactor design flow modelling

gas liquid and gas solid reactions and reactors captures content converted from textbooks into fully revised reference material includes content ranging from foundational through technical features emerging applications numerical methods and computational tools

reaction engineering clearly and concisely covers the concepts and models of reaction engineering and then applies them to real world reactor design the book emphasizes that the foundation of reaction engineering requires the use of kinetics and transport knowledge to explain and analyze reactor behaviors the authors use readily understandable language to cover the subject leaving readers with a comprehensive guide on how to understand analyze and make decisions related to improving chemical reactions and chemical reactor design worked examples and over 20 exercises at the end of each chapter provide opportunities for readers to practice solving problems related to the content covered in the book seamlessly integrates chemical kinetics reaction engineering and reactor analysis to provide the foundation for optimizing reactions and reactor design compares and contrasts three types of ideal reactors then applies reaction engineering principles to real reactor design covers advanced topics like microreactors reactive distillation membrane reactors and fuel cells providing the reader with a broader appreciation of the applications of reaction engineering principles and methods

sandra s promo copy emphasizing electrochemical reactor design this book covers electrochemistry and chemical engineering principles and will enable researchers in these fields to work together more effectively in the design process written as a textbook all basic aspects are reinforced with numerous examples on real synthesis making this an essential reference for graduate students needing to learn about fundamental electrochemical kinetics rate processes and modeling

the author provides an explanation of multiple chemical reactors in this book also included are numerical solutions and chapters on bio chemicals and polymers midwest

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