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**CATALYTIC PROCESSES
UNDER UNSTEADY-STATE
CONDITIONS**

Yu. Sh. Matros

Catalytic Processes Under Unsteady State Conditions

**Air & Waste Management Association.
Meeting**

Catalytic Processes Under Unsteady State Conditions:

Catalytic Processes Under Unsteady-state Conditions ,1989 **Catalytic Processes Under Unsteady-State Conditions** Y.S. Matros,1988-12-01 This book deals with catalytic processes under forced non steady state conditions It demonstrates both theoretically and practically that forced non steady state processes are highly efficient compared with steady state processes and illustrates this with a wealth of practical examples The first part of the book describes the theoretical and experimental basis of efficient processes mathematical models of non steady state processes in reactors influence of a non steady state catalyst surface problems of optimization the theory of a heat front in the fixed catalyst bed and methods to create efficient cyclic regimes The second part considers the following processes sulphur dioxide oxidation in sulphuric acid production cleaning of effluent gases from toxic impurities production of high potency heat ammonia and methanol synthesis etc The book will appeal to many readers chemical engineers especially in the field of mathematical modelling of reactors with a fixed catalyst bed personnel of chemical plants and machine manufacturing companies dealing with maintenance and installation of catalytic reactors specialists in detoxification of the effluents from organic admixtures and carbon monoxide students of technical colleges and universities

Catalytic processes under unsteady-state conditions Jurij Š Matros,1989

Unsteady State Processes in Catalysis Yu S. Matros,1990-12 In the last decades the investigation methods of unsteady state catalytic processes have been widely developed by the response technique methods From this research emerged the realization that under unsteady state conditions and especially under artificially created ones it is possible to increase the productivity or selectivity of a catalyst or a catalytical process as a whole The scientific literature in this field is mostly theoretical and aims at structuring and analysing mathematical models of unsteady state catalytical processes In this book the theoretical and applied aspects of an efficiency of artificially created unsteady conditions in catalysis are discussed It contains the lectures from researchers from all over the world that were held during the International Conference Unsteady State Processes in Catalysis 5 8 June 1990 Novosibirsk USSR Topics include The problems of dynamics of a catalyst surface Kinetic models of unsteady processes Dynamics of chemical reactors Artificially created unsteady processes in a catalytic reactor

Periodic Operation of Chemical Reactors P. L. Silveston,R. R. Hudgins,2012-12-04 This comprehensive review prepared by 24 experts many of whom are pioneers of the subject brings together in one place over 40 years of research in this unique publication This book will assist R provides a rich source of experimental data plus process models Accompanying website with modelling data

Principles and Practice of Heterogeneous Catalysis John Meurig Thomas,W. John Thomas,2015-02-09 This long awaited second edition of the successful introduction to the fundamentals of heterogeneous catalysis is now completely revised and updated Written by internationally acclaimed experts this textbook includes fundamentals of adsorption characterizing catalysts and their surfaces the significance of pore structure and surface area solid state and surface chemistry poisoning promotion

deactivation and selectivity of catalysts as well as catalytic process engineering A final section provides a number of examples and case histories With its color and numerous graphics plus references to help readers to easily find further reading this is a pivotal work for an understanding of the principles involved *Cyclic Separating Reactors* Takashi Aida,Peter L. Silveston,2008-04-15 Cyclic Separating Reactors is a critical examination of the literature covering periodically operated separating reactors incorporating an adsorbent as well as a catalyst aiming to establish the magnitude of performance improvement available with this type of reactor compared to systems in which the reactor and separator are separate units The adequacy of present models is considered by comparison of simulation and experimental studies and gaps in understanding or experimental verification of model predictions are identified Separating reactors including chromatographic reactors and pressure swing reactors are an expeditious means of process intensification reducing both capital and operating costs particularly where reactions are equilibrium limited For this reason cyclically operating separating reactors are attracting considerable interest across the range of chemical manufacturing industries so this book is a timely and valuable summary of the literature available to the engineer Following an introduction to multifunctional reactors and to periodic reactor operation Cyclic Separating Reactors covers both chromatographic and pressure swing adsorption reactors and is written for chemical engineers in both industry and academe First book to critically examine the literature surrounding Cyclically Operating Separating Reactors providing a straightforward entry to and detailed appraisal of the literature so the reader does not have to engage in an expensive and time consuming literature review Evaluates current models and understanding to give the engineer clear information on what performance can be expected of these reactors and where current information needs to be augmented when designing systems for commercial operation

Chemical Process Technology Jacob A. Moulijn,Michiel Makkee,Annelies E. van Diepen,2013-03-21 With a focus on actual industrial processes e g the production of light alkenes synthesis gas fine chemicals polyethene it encourages the reader to think out of the box and invent and develop novel unit operations and processes Reflecting today s emphasis on sustainability this edition contains new coverage of biomass as an alternative to fossil fuels and process intensification The second edition includes New chapters on Process Intensification and Processes for the Conversion of Biomass Updated and expanded chapters throughout with 35% new material overall Text boxes containing case studies and examples from various different industries e g synthesis loop designs Sasol I Plant Kaminsky catalysts production of Ibuprofen click chemistry ammonia synthesis fluid catalytic cracking Questions throughout to stimulate debate and keep students awake Richly illustrated chapters with improved figures and flow diagrams Chemical Process Technology Second Edition is a comprehensive introduction linking the fundamental theory and concepts to the applied nature of the subject It will be invaluable to students of chemical engineering biotechnology and industrial chemistry as well as practising chemical engineers From reviews of the first edition The authors have blended process technology chemistry and thermodynamics in

an elegant manner Overall this is a welcome addition to books on chemical technology The Chemist Impressively wide ranging and comprehensive an excellent textbook for students with a combination of fundamental knowledge and technology Chemistry in Britain now Chemistry World Heterogeneous Catalysis Georgiĭ Konstantinovich Boreskov,2003 Table of contents **Kinetics and Catalysis** ,1991 *Multiple Steady States and Rate Oscillations in Heterogeneous Catalysis* Brian Erik Henry,1993 **Environmental Issues and Solutions in Petroleum Exploration, Production and Refining** Kerry L. Sublette,Thomas M. Harris,Francis S. Manning,1994 **8th International Congress on Catalysis: New methods in catalysis research, dynamics of catalytic reactions, contribution of catalysis to ensuring the energy requirements, catalysis and environmental protection** ,1984 **Environmental Issues and Solutions in Petroleum Exploration, Production and Refining** ,1994 *CJChE* ,1997-08 Semiconductor Nanoclusters - Physical, Chemical, and Catalytic Aspects P.V. Kamat,D. Meisel,1997 During the past decade there has been a phenomenal growth in the basic research of semiconductor nanoclusters and other nanomaterials As the field has evolved the emphasis has shifted from basic theoretical description to field utilization of nanostructure based devices The topics of the various chapters presented in this book written by leaders in the field highlight the salient features of nanocrystalline semiconductor materials Features of this book Provides synthetic strategies to generate ultrasmall particles films and wires Describes the characterization methodologies of a large number of nanomaterials from the molecular level to the long range crystallographic ordering Develops theoretical descriptions of present day quantum confinement effects in various materials including metallic particles III V semiconductors and porous silicon Explores the fate of photoinduced charge carriers in these materials and the phenomena of charge transfer across interfaces Covers the utilization of these newly discovered effects in analytical chemistry organic synthesis environmental remediation and electrochemistry The aim of the book is to present the necessary background material for advanced undergraduate students in the field of physical chemistry and materials science and provide a reference book for the experts in this area *Russian Chemical Reviews* ,2007 **Recent Advances in the Engineering Analysis of Chemically Reacting Systems** Laxmangudi Krishnamurthy Doraiswamy,1984 **Emerging Solutions to VOC & Air Toxics Control** ,1997 *Proceedings ... A & WMA Annual Meeting Air & Waste Management Association. Meeting*,1992

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