

Fundamentals Of Chemical Reaction Engineering

YEAH, REVIEWING A BOOKS **FUNDAMENTALS OF CHEMICAL REACTION ENGINEERING** COULD ACCUMULATE YOUR NEAR FRIENDS LISTINGS. THIS IS JUST ONE OF THE SOLUTIONS FOR YOU TO BE SUCCESSFUL. AS UNDERSTOOD, SUCCESS DOES NOT SUGGEST THAT YOU HAVE FANTASTIC POINTS.

COMPREHENDING AS CAPABLY AS ARRANGEMENT EVEN MORE THAN ADDITIONAL WILL MANAGE TO PAY FOR EACH SUCCESS. ADJACENT TO, THE BROADCAST AS WELL AS PERSPICACITY OF THIS FUNDAMENTALS OF CHEMICAL REACTION ENGINEERING CAN BE TAKEN AS SKILLFULLY AS PICKED TO ACT.

REACTION ENGINEERING SHAOFEN LI 2017-07-14 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

CHEMICAL REACTOR DESIGN AND OPERATION K. ROEL WESTERTEP 1991-01-08 CHEMICAL REACTOR DESIGN AND OPERATION K. R. WESTERTEP, W. P. M. VAN SWAAIJ AND A. A. C. M. BEENACKERS CHEMICAL REACTION ENGINEERING LABORATORIES, TWENTE UNIVERSITY OF TECHNOLOGY, ENSCHEDE, THE NETHERLANDS THIS IS A COMPREHENSIVE HANDBOOK ON THE DESIGN AND OPERATION OF CHEMICAL REACTORS WHICH ARE VITAL ELEMENTS IN EVERY MANUFACTURING PROCESS. THE BOOK OFFERS AN INTRODUCTION TO THE MODERN LITERATURE AND COVERS IN DEPTH THE RELEVANT THEORY OF CHEMICAL REACTORS. THE THEORY IS ILLUSTRATED BY NUMEROUS WORKED EXAMPLES TYPICAL TO CHEMICAL REACTION ENGINEERING PRACTICE IN RESEARCH, DEVELOPMENT, DESIGN AND OPERATION. THE EXAMPLES RANGE FROM FINE CHEMICALS TO LARGE SCALE PRODUCTION AND FROM WATER PURIFICATION TO METALLURGICAL PROCESSES, COMMENCING WITH SIMPLE HOMOGENOUS MODEL REACTORS AND THEN MOVING TO THE COMPLICATED, MULTI-PHASE, HETEROGENEOUS REACTORS MET WITH IN REALITY. ALL THE EXAMPLES ARE BASED ON THE INDUSTRIAL EXPERIENCE OF THE AUTHORS. MUCH EFFORT IS DEDICATED TO THE BEHAVIOUR OF REACTORS IN PRACTICE AND TO THE CAPACITY, YIELD AND SELECTIVITY OF THE REACTOR. THE BOOK IS THOROUGHLY INDEXED AND CROSS-REFERENCED. THIS EDITION WILL BE PARTICULARLY USEFUL TO UNDERGRADUATE AND GRADUATE STUDENTS STUDYING CHEMICAL REACTORS. CONTENTS FUNDAMENTALS OF CHEMICAL REACTOR CALCULATIONS MODEL REACTORS: SINGLE REACTIONS, ISOTHERMAL SINGLE PHASE REACTOR CALCULATIONS MODEL REACTORS: MULTIPLE REACTIONS, ISOTHERMAL SINGLE PHASE REACTORS RESIDENCE TIME DISTRIBUTION AND MIXING IN CONTINUOUS FLOW REACTORS INFLUENCE OF MICROMIXING ON CHEMICAL REACTIONS THE ROLE OF THE HEAT EFFECT IN MODEL REACTORS MULTI-PHASE REACTORS, SINGLE REACTIONS MULTI-PHASE REACTORS, MULTIPLE REACTIONS HEAT EFFECTS IN MULTI-PHASE REACTORS THE AUTHORS: THE AUTHORS HAVE ACCUMULATED A LONG EXPERIENCE BOTH IN FINE CHEMICALS AND IN THE PETROCHEMICALS INDUSTRY, IN EUROPE AS WELL AS ABROAD. CURRENTLY THEY ARE JOINTLY RESPONSIBLE FOR THE RESEARCH WORK IN CHEMICAL REACTION ENGINEERING AND PROCESS DEVELOPMENT AT TWENTE UNIVERSITY. SEVERAL NEW REACTOR TYPES AND NEW PROCESSES HAVE BEEN DEVELOPED AT THEIR INSTITUTE AND PRESENT RESEARCH INTERESTS INCLUDE GASIFICATION, FLUIDIZATION AND GAS-LIQUID REACTORS, THREE-PHASE REACTORS, HIGH-PRESSURE TECHNOLOGY IN CHEMICAL REACTION ENGINEERING, THERMAL BEHAVIOUR OF HETEROGENEOUS REACTORS AND COMPUTER DESIGN AND ECONOMIC EVALUATION OF REACTION UNITS AND CHEMICAL PLANTS.

ELEMENTS OF CHEMICAL REACTION ENGINEERING 4TH ED. H. SCOTT FOGLER 2006 'ELEMENTS OF CHEMICAL REACTION ENGINEERING', FOURTH EDITION, PRESENTS THE FUNDAMENTALS OF CHEMICAL REACTION ENGINEERING IN A CLEAR AND CONCISE MANNER.

CHEMICAL REACTION ENGINEERING GILBERT F. FROMENT 1996

AN INTRODUCTION TO CHEMICAL KINETICS MICHEL SOUSTELLE 2013-02-07 THIS BOOK IS A PROGRESSIVE PRESENTATION OF KINETICS OF THE CHEMICAL REACTIONS. IT PROVIDES COMPLETE COVERAGE OF THE DOMAIN OF CHEMICAL KINETICS, WHICH IS NECESSARY FOR THE VARIOUS FUTURE USERS IN THE FIELDS OF CHEMISTRY, PHYSICAL CHEMISTRY, MATERIALS SCIENCE, CHEMICAL ENGINEERING, MACROMOLECULAR CHEMISTRY AND COMBUSTION. IT WILL HELP THEM TO UNDERSTAND THE MOST SOPHISTICATED KNOWLEDGE OF THEIR FUTURE JOB AREA. OVER 15 CHAPTERS, THIS BOOK PRESENTS THE FUNDAMENTALS OF CHEMICAL KINETICS, ITS RELATIONS WITH REACTION MECHANISMS AND KINETIC PROPERTIES. TWO CHAPTERS ARE THEN DEVOTED TO EXPERIMENTAL RESULTS AND HOW TO CALCULATE THE KINETIC LAWS IN BOTH HOMOGENEOUS AND HETEROGENEOUS SYSTEMS. THE FOLLOWING TWO CHAPTERS DESCRIBE THE MAIN APPROXIMATION MODES TO CALCULATE THESE LAWS. THREE CHAPTERS ARE DEVOTED TO ELEMENTARY STEPS WITH THE VARIOUS CLASSES, THE PRINCIPLES USED TO WRITE THEM AND THEIR MODELING USING THE THEORY OF THE ACTIVATED COMPLEX IN GAS AND CONDENSED PHASES. THREE CHAPTERS ARE DEVOTED TO THE PARTICULAR AREAS OF CHEMICAL REACTIONS, CHAIN REACTIONS, CATALYSIS AND THE STOICHIOMETRIC HETEROGENEOUS REACTIONS. FINALLY THE NON-STEADY-STATE PROCESSES OF COMBUSTION AND EXPLOSION

ARE TREATED IN THE FINAL CHAPTER.

INTRODUCTION TO CHEMICAL REACTION ENGINEERING AND KINETICS RONALD W. MISSEN 1999 SOLVING PROBLEMS IN CHEMICAL REACTION ENGINEERING AND KINETICS IS NOW EASIER THAN EVER! AS STUDENTS READ THROUGH THIS TEXT, THEY'LL FIND A COMPREHENSIVE, INTRODUCTORY TREATMENT OF REACTORS FOR SINGLE-PHASE AND MULTIPHASE SYSTEMS THAT EXPOSES THEM TO A BROAD RANGE OF REACTORS AND KEY DESIGN FEATURES. THEY'LL GAIN VALUABLE INSIGHT ON REACTION KINETICS IN RELATION TO CHEMICAL REACTOR DESIGN. THEY WILL ALSO UTILIZE A SPECIAL SOFTWARE PACKAGE THAT HELPS THEM QUICKLY SOLVE SYSTEMS OF ALGEBRAIC AND DIFFERENTIAL EQUATIONS, AND PERFORM PARAMETER ESTIMATION, WHICH GIVES THEM MORE TIME FOR ANALYSIS. KEY FEATURES THOROUGH COVERAGE IS PROVIDED ON THE RELEVANT PRINCIPLES OF KINETICS IN ORDER TO DEVELOP BETTER DESIGNS OF CHEMICAL REACTORS. E-Z SOLVE SOFTWARE, ON CD-ROM, IS INCLUDED WITH THE TEXT. BY UTILIZING THIS SOFTWARE, STUDENTS CAN HAVE MORE TIME TO FOCUS ON THE DEVELOPMENT OF DESIGN MODELS AND ON THE INTERPRETATION OF CALCULATED RESULTS. THE SOFTWARE ALSO FACILITATES EXPLORATION AND DISCUSSION OF REALISTIC, INDUSTRIAL DESIGN PROBLEMS. MORE THAN 500 WORKED EXAMPLES AND END-OF-CHAPTER PROBLEMS ARE INCLUDED TO HELP STUDENTS LEARN HOW TO APPLY THE THEORY TO SOLVE DESIGN PROBLEMS. A WEB SITE, [WWW.WILEY.COM/COLLEGE/MISSEN](http://www.wiley.com/college/missen), PROVIDES ADDITIONAL RESOURCES INCLUDING SAMPLE FILES, DEMONSTRATIONS, AND A DESCRIPTION OF THE E-Z SOLVE SOFTWARE.

FUNDAMENTALS OF CHEMICAL REACTION ENGINEERING MARK E. DAVIS 2013-05-27 APPROPRIATE FOR A ONE-SEMESTER UNDERGRADUATE OR FIRST-YEAR GRADUATE COURSE, THIS TEXT INTRODUCES THE QUANTITATIVE TREATMENT OF CHEMICAL REACTION ENGINEERING. IT COVERS BOTH HOMOGENEOUS AND HETEROGENEOUS REACTING SYSTEMS AND EXAMINES CHEMICAL REACTION ENGINEERING AS WELL AS CHEMICAL REACTOR ENGINEERING. EACH CHAPTER CONTAINS NUMEROUS WORKED-OUT PROBLEMS AND REAL-WORLD VIGNETTES INVOLVING COMMERCIAL APPLICATIONS, A FEATURE WIDELY PRAISED BY REVIEWERS AND TEACHERS. 2003 EDITION. *ESSENTIALS OF CHEMICAL REACTION ENGINEERING* H. SCOTT FOGLER 2010-11-02 LEARN CHEMICAL REACTION ENGINEERING THROUGH REASONING, NOT MEMORIZATION ESSENTIALS OF CHEMICAL REACTION ENGINEERING IS A COMPLETE YET CONCISE, MODERN INTRODUCTION TO CHEMICAL REACTION ENGINEERING FOR UNDERGRADUATE STUDENTS. WHILE THE CLASSIC ELEMENTS OF CHEMICAL REACTION ENGINEERING, FOURTH EDITION, IS STILL AVAILABLE, H. SCOTT FOGLER DISTILLED THAT LARGER TEXT INTO THIS VOLUME OF ESSENTIAL TOPICS FOR UNDERGRADUATE STUDENTS. FOGLER'S UNIQUE WAY OF PRESENTING THE MATERIAL HELPS STUDENTS GAIN A DEEP, INTUITIVE UNDERSTANDING OF THE FIELD'S ESSENTIALS THROUGH REASONING, NOT MEMORIZATION. HE ESPECIALLY FOCUSES ON IMPORTANT NEW ENERGY AND SAFETY ISSUES, RANGING FROM SOLAR AND BIOMASS APPLICATIONS TO THE AVOIDANCE OF RUNAWAY REACTIONS. THOROUGHLY CLASSROOM TESTED, THIS TEXT REFLECTS FEEDBACK FROM HUNDREDS OF STUDENTS AT THE UNIVERSITY OF MICHIGAN AND OTHER LEADING UNIVERSITIES. IT ALSO PROVIDES NEW RESOURCES TO HELP STUDENTS DISCOVER HOW REACTORS BEHAVE IN DIVERSE SITUATIONS. COVERAGE INCLUDES CRUCIAL SAFETY TOPICS, INCLUDING AMMONIUM NITRATE CSTR EXPLOSIONS, NITROANILINE AND T2 LABORATORIES BATCH REACTOR RUNAWAYS, AND SACHE/CCPS RESOURCES GREATER EMPHASIS ON SAFETY: FOLLOWING THE RECOMMENDATIONS OF THE CHEMICAL SAFETY BOARD (CSB) 2 CASE STUDIES FROM PLANT EXPLOSIONS AND TWO HOMEWORK PROBLEMS WHICH DISCUSS ANOTHER EXPLOSION. SOLAR ENERGY CONVERSIONS: CHEMICAL, THERMAL, AND CATALYTIC WATER SPILLING ALGAE PRODUCTION FOR BIOMASS MOLE BALANCES: BATCH, CONTINUOUS-FLOW, AND INDUSTRIAL REACTORS CONVERSION AND REACTOR SIZING: DESIGN EQUATIONS, REACTORS IN SERIES, AND MORE RATE LAWS AND STOICHIOMETRY ISOTHERMAL REACTOR DESIGN: CONVERSION AND MOLAR FLOW RATES COLLECTION AND ANALYSIS OF RATE DATA MULTIPLE REACTIONS: PARALLEL, SERIES, AND COMPLEX REACTIONS; MEMBRANE REACTORS; AND MORE REACTION MECHANISMS, PATHWAYS, BIOREACTIONS, AND BIOREACTORS CATALYSIS AND CATALYTIC REACTORS NONISOTHERMAL REACTOR DESIGN: STEADY-STATE ENERGY BALANCE AND ADIABATIC PFR APPLICATIONS STEADY-STATE NONISOTHERMAL REACTOR DESIGN: FLOW REACTORS WITH HEAT EXCHANGE

FUNDAMENTALS OF CHEMICAL REACTION ENGINEERING H. SCOTT FOGLER 1986-01

CHEMICAL REACTION ENGINEERING AND REACTOR TECHNOLOGY, SECOND EDITION TAPPO O. SALMI 2019-07-11 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. THOROUGHLY REVISED AND UPDATED, THIS MUCH-ANTICIPATED SECOND EDITION ADDRESSES THE RAPID ACADEMIC AND INDUSTRIAL DEVELOPMENT OF CHEMICAL REACTION ENGINEERING. 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 REACTOR OPTIMIZATION ASPECTS 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.

CHEMICAL REACTION KINETICS JORGE ANCHEYTA 2017-06-05 A PRACTICAL APPROACH TO CHEMICAL REACTION KINETICS—FROM BASIC CONCEPTS TO LABORATORY METHODS—FEATURING NUMEROUS REAL-WORLD EXAMPLES AND CASE STUDIES THIS BOOK FOCUSES ON FUNDAMENTAL ASPECTS OF REACTION KINETICS WITH AN EMPHASIS ON MATHEMATICAL METHODS FOR ANALYZING EXPERIMENTAL DATA AND INTERPRETING RESULTS. IT DESCRIBES BASIC CONCEPTS OF REACTION KINETICS, PARAMETERS FOR MEASURING THE PROGRESS OF CHEMICAL REACTIONS, VARIABLES THAT AFFECT REACTION RATES, AND IDEAL REACTOR PERFORMANCE. MATHEMATICAL METHODS FOR DETERMINING REACTION KINETIC PARAMETERS ARE DESCRIBED IN DETAIL WITH THE HELP OF REAL-WORLD EXAMPLES AND FULLY-WORKED STEP-BY-STEP SOLUTIONS. BOTH ANALYTICAL AND NUMERICAL SOLUTIONS ARE EXEMPLIFIED. THE BOOK BEGINS WITH AN INTRODUCTION TO THE BASIC CONCEPTS OF STOICHIOMETRY, THERMODYNAMICS, AND CHEMICAL KINETICS. THIS IS FOLLOWED BY CHAPTERS FEATURING IN-DEPTH DISCUSSIONS OF REACTION KINETICS; METHODS FOR STUDYING IRREVERSIBLE REACTIONS WITH ONE, TWO AND THREE COMPONENTS; REVERSIBLE REACTIONS; AND COMPLEX REACTIONS. IN THE CONCLUDING CHAPTERS THE AUTHOR ADDRESSES REACTION MECHANISMS, ENZYMATIC REACTIONS, DATA RECONCILIATION, PARAMETERS, AND EXAMPLES OF INDUSTRIAL REACTION KINETICS. THROUGHOUT THE BOOK INDUSTRIAL CASE STUDIES ARE PRESENTED WITH STEP-BY-STEP SOLUTIONS, AND FURTHER PROBLEMS ARE PROVIDED AT THE END OF EACH CHAPTER. TAKES A PRACTICAL APPROACH TO CHEMICAL REACTION KINETICS BASIC CONCEPTS AND METHODS FEATURES NUMEROUS ILLUSTRATIVE CASE STUDIES BASED ON THE AUTHOR’S EXTENSIVE EXPERIENCE IN THE INDUSTRY PROVIDES ESSENTIAL INFORMATION FOR CHEMICAL AND PROCESS ENGINEERS, CATALYSIS RESEARCHERS, AND PROFESSIONALS INVOLVED IN DEVELOPING KINETIC MODELS FUNCTIONS AS A STUDENT TEXTBOOK ON THE BASIC PRINCIPLES OF CHEMICAL KINETICS FOR HOMOGENEOUS CATALYSIS DESCRIBES MATHEMATICAL METHODS TO DETERMINE REACTION KINETIC PARAMETERS WITH THE HELP OF INDUSTRIAL CASE STUDIES, EXAMPLES, AND STEP-BY-STEP SOLUTIONS CHEMICAL REACTION KINETICS IS A VALUABLE WORKING RESOURCE FOR ACADEMIC RESEARCHERS, SCIENTISTS, ENGINEERS, AND CATALYST MANUFACTURERS INTERESTED IN KINETIC MODELING, PARAMETER ESTIMATION, CATALYST EVALUATION, PROCESS DEVELOPMENT, REACTOR MODELING, AND PROCESS SIMULATION. IT IS ALSO AN IDEAL TEXTBOOK FOR UNDERGRADUATE AND GRADUATE-LEVEL COURSES IN CHEMICAL KINETICS, HOMOGENEOUS CATALYSIS, CHEMICAL REACTION ENGINEERING, AND PETROCHEMICAL ENGINEERING, BIOTECHNOLOGY.

CHEMICAL REACTIONS AND CHEMICAL REACTORS GEORGE W. ROBERTS 2008-03-14 FOCUSED ON THE UNDERGRADUATE AUDIENCE, CHEMICAL REACTION ENGINEERING PROVIDES STUDENTS WITH COMPLETE COVERAGE OF THE FUNDAMENTALS, INCLUDING IN-DEPTH COVERAGE OF CHEMICAL KINETICS. BY INTRODUCING HETEROGENEOUS CHEMISTRY EARLY IN THE BOOK, THE TEXT GIVES STUDENTS THE KNOWLEDGE THEY NEED TO SOLVE REAL CHEMISTRY AND INDUSTRIAL PROBLEMS. AN EMPHASIS ON PROBLEM-SOLVING AND NUMERICAL TECHNIQUES ENSURES STUDENTS LEARN AND PRACTICE THE SKILLS THEY WILL NEED LATER ON, WHETHER FOR INDUSTRY OR GRADUATE WORK.

ELEMENTS OF CHEMICAL REACTION ENGINEERING H. SCOTT FOGLER 1999 “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.

CHEMICAL REACTOR ANALYSIS AND DESIGN FUNDAMENTALS JAMES BLAKE RAWLINGS 2012

CHEMICAL REACTION ENGINEERING TAYLOR F. BAXTER 2015-08-26 THIS UPDATED AND EXPANDED SECOND EDITION OF THE CHEMICAL REACTION ENGINEERING: BEYOND THE FUNDAMENTALS PROVIDES A USER-FRIENDLY INTRODUCTION TO THE SUBJECT, TAKING A CLEAR STRUCTURAL FRAMEWORK, IT GUIDES THE READER THROUGH THE SUBJECT’S CORE ELEMENTS. A FLOWING WRITING STYLE COMBINES WITH THE USE OF ILLUSTRATIONS AND DIAGRAMS THROUGHOUT THE TEXT TO ENSURE THE READER UNDERSTANDS EVEN THE MOST COMPLEX OF CONCEPTS. THIS SUCCINCT AND ENLIGHTENING OVERVIEW IS A REQUIRED READING FOR ALL THOSE INTERESTED IN THE SUBJECT . WE HOPE YOU FIND THIS BOOK USEFUL IN SHAPING YOUR FUTURE CAREER & BUSINESS. FEEL FREE TO SEND US YOUR INQUIRIES RELATED TO OUR PUBLICATIONS TO [INFO@PWPUBLISHERS.PW](mailto:info@pwpublishers.pw)

CHEMICAL ENGINEERING AND CHEMICAL PROCESS TECHNOLOGY - VOLUME I RYZHARD POHORECKI 2010-11-30 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.

ESSENTIALS OF CHEMICAL REACTION ENGINEERING H. SCOTT FOGLER 2017-10-26 TODAY’S DEFINITIVE, UNDERGRADUATE-LEVEL INTRODUCTION TO CHEMICAL REACTION ENGINEERING PROBLEM-SOLVING FOR 30 YEARS, H. SCOTT FOGLER’S ELEMENTS OF CHEMICAL REACTION ENGINEERING HAS BEEN THE #1 SELLING TEXT FOR COURSES IN CHEMICAL REACTION ENGINEERING WORLDWIDE. NOW, IN ESSENTIALS OF CHEMICAL REACTION ENGINEERING, SECOND EDITION, FOGLER HAS DISTILLED THIS CLASSIC INTO A MODERN, INTRODUCTORY-LEVEL GUIDE SPECIFICALLY FOR UNDERGRADUATES. THIS IS THE IDEAL RESOURCE FOR TODAY’S STUDENTS: LEARNERS WHO DEMAND INSTANTANEOUS ACCESS TO INFORMATION AND WANT TO ENJOY LEARNING AS THEY DEEPEN THEIR CRITICAL THINKING AND CREATIVE PROBLEM-SOLVING SKILLS. FOGLER SUCCESSFULLY INTEGRATES TEXT, VISUALS, AND COMPUTER SIMULATIONS, AND LINKS THEORY TO PRACTICE THROUGH MANY RELEVANT EXAMPLES. THIS UPDATED SECOND EDITION COVERS MOLE BALANCES, CONVERSION AND REACTOR SIZING, RATE LAWS AND STOICHIOMETRY, ISOTHERMAL REACTOR DESIGN, RATE DATA COLLECTION/ANALYSIS, MULTIPLE REACTIONS, REACTION MECHANISMS, PATHWAYS, BIOREACTIONS AND BIOREACTORS, CATALYSIS, CATALYTIC REACTORS, NONISOTHERMAL REACTOR DESIGNS, AND MORE. ITS MULTIPLE IMPROVEMENTS INCLUDE A NEW DISCUSSION OF ACTIVATION ENERGY, MOLECULAR SIMULATION, AND STOCHASTIC MODELING, AND A SIGNIFICANTLY REVAMPED CHAPTER ON HEAT EFFECTS IN CHEMICAL REACTORS. TO PROMOTE THE TRANSFER OF KEY SKILLS TO REAL-LIFE SETTINGS, FOGLER PRESENTS THREE STYLES OF PROBLEMS: STRAIGHTFORWARD PROBLEMS THAT REINFORCE THE PRINCIPLES OF CHEMICAL REACTION ENGINEERING LIVING EXAMPLE PROBLEMS (LEPs) THAT ALLOW STUDENTS TO RAPIDLY EXPLORE THE ISSUES AND LOOK FOR OPTIMAL SOLUTIONS OPEN-ENDED PROBLEMS THAT ENCOURAGE STUDENTS TO USE INQUIRY-BASED LEARNING TO PRACTICE CREATIVE PROBLEM-SOLVING SKILLS ABOUT THE WEB SITE ([UMICH.EDU/~ELEMENTS/5E/INDEX.HTML](http://umich.edu/~elements/5e/index.html)) THE COMPANION WEB SITE OFFERS EXTENSIVE ENRICHMENT OPPORTUNITIES AND ADDITIONAL CONTENT, INCLUDING COMPLETE POWERPOINT SLIDES FOR LECTURE NOTES FOR CHEMICAL REACTION ENGINEERING CLASSES LINKS TO ADDITIONAL SOFTWARE, INCLUDING POLYMATH, MATLAB, WOLFRAM MATHEMATICA, ASPENTECH, AND COMSOL MULTIPHYSICS INTERACTIVE LEARNING RESOURCES LINKED TO EACH CHAPTER, INCLUDING LEARNING OBJECTIVES, SUMMARY NOTES, WEB MODULES, INTERACTIVE COMPUTER GAMES, COMPUTER SIMULATIONS AND EXPERIMENTS, SOLVED PROBLEMS, FAQs, AND LINKS TO LEARNCHEM LIVING EXAMPLE PROBLEMS THAT PROVIDE MORE THAN 75 INTERACTIVE SIMULATIONS, ALLOWING STUDENTS TO EXPLORE THE EXAMPLES AND ASK “WHAT-IF ” QUESTIONS PROFESSIONAL REFERENCE SHELF, CONTAINING ADVANCED CONTENT ON REACTORS, WEIGHTED LEAST SQUARES, EXPERIMENTAL PLANNING, LABORATORY REACTORS, PHARMACOKINETICS, WIRE GAUZE REACTORS, TRICKLE BED REACTORS, FLUIDIZED BED REACTORS, CVD BOAT REACTORS, DETAILED EXPLANATIONS OF KEY DERIVATIONS, AND MORE PROBLEM-SOLVING STRATEGIES AND INSIGHTS ON CREATIVE AND CRITICAL THINKING REGISTER YOUR PRODUCT AT [INFORMIT.COM/REGISTER](http://informit.com/register) FOR CONVENIENT ACCESS TO DOWNLOADS, UPDATES, AND/OR CORRECTIONS AS THEY BECOME AVAILABLE.

BIOPROCESS ENGINEERING SHIJIE LIU 2012-11-21 BIOPROCESS ENGINEERING INVOLVES THE DESIGN AND DEVELOPMENT OF EQUIPMENT AND PROCESSES FOR THE MANUFACTURING OF PRODUCTS SUCH AS FOOD, FEED, PHARMACEUTICALS, NUTRACEUTICALS, CHEMICALS, AND POLYMERS AND PAPER FROM BIOLOGICAL MATERIALS. IT ALSO DEALS WITH STUDYING VARIOUS BIOTECHNOLOGICAL PROCESSES. “BIOPROCESS KINETICS AND SYSTEMS ENGINEERING” FIRST OF ITS KIND CONTAINS SYSTEMATIC AND COMPREHENSIVE CONTENT ON BIOPROCESS KINETICS, BIOPROCESS SYSTEMS, SUSTAINABILITY AND REACTION ENGINEERING. DR. SHIJIE LIU REVIEWS THE RELEVANT FUNDAMENTALS OF CHEMICAL KINETICS-INCLUDING BATCH AND CONTINUOUS REACTORS, BIOCHEMISTRY, MICROBIOLOGY, MOLECULAR BIOLOGY, REACTION ENGINEERING, AND BIOPROCESS SYSTEMS ENGINEERING- INTRODUCING KEY PRINCIPLES THAT ENABLE BIOPROCESS ENGINEERS TO ENGAGE IN THE ANALYSIS, OPTIMIZATION, DESIGN AND CONSISTENT CONTROL OVER BIOLOGICAL AND CHEMICAL TRANSFORMATIONS. THE QUANTITATIVE TREATMENT OF BIOPROCESSES IS THE CENTRAL THEME OF THIS BOOK, WHILE MORE ADVANCED TECHNIQUES AND APPLICATIONS ARE COVERED WITH SOME DEPTH. MANY THEORETICAL DERIVATIONS AND SIMPLIFICATIONS ARE USED TO DEMONSTRATE HOW EMPIRICAL KINETIC MODELS ARE APPLICABLE TO COMPLICATED BIOPROCESS SYSTEMS. CONTAINS EXTENSIVE ILLUSTRATIVE DRAWINGS WHICH MAKE THE UNDERSTANDING OF THE SUBJECT EASY CONTAINS WORKED EXAMPLES OF THE VARIOUS PROCESS PARAMETERS, THEIR SIGNIFICANCE AND THEIR SPECIFIC PRACTICAL USE PROVIDES THE THEORY OF BIOPROCESS KINETICS FROM SIMPLE CONCEPTS TO COMPLEX METABOLIC PATHWAYS INCORPORATES SUSTAINABILITY CONCEPTS INTO THE VARIOUS BIOPROCESSES **CHEMICAL REACTION ENGINEERING: FROM FUNDAMENTALS TO COMMERCIAL PLANTS AND PRODUCTS** 1996

CHEMICAL REACTION ENGINEERING GILBERT F. FROMENT 1996

ABRASIVES TO POLYVINYL COMPOUNDS, OTHERS, FUNDAMENTALS OF CHEMICAL ENGINEERING, UNIT OPERATIONS I AND II, PRINCIPLES OF CHEMICAL REACTION ENGINEERING AND PLANT DESIGN 1993

CHEMICAL REACTION ENGINEERING L.K. DORAISWAMY 2013-07-15 FILLING A LONGSTANDING GAP FOR GRADUATE COURSES IN THE FIELD, CHEMICAL REACTION ENGINEERING: BEYOND THE FUNDAMENTALS COVERS BASIC CONCEPTS AS WELL AS COMPLEXITIES OF CHEMICAL REACTION ENGINEERING, INCLUDING NOVEL TECHNIQUES FOR PROCESS INTENSIFICATION. THE BOOK IS DIVIDED INTO THREE PARTS: FUNDAMENTALS REVISITED, BUILDING ON FUNDAMENTALS, AND BEYOND THE FUNDAMENTALS. PART I: FUNDAMENTALS REVISITED REVIEWS THE SALIENT FEATURES OF AN UNDERGRADUATE COURSE, INTRODUCING CONCEPTS ESSENTIAL TO REACTOR DESIGN, SUCH AS MIXING, UNSTEADY-STATE OPERATIONS, MULTIPLE STEADY STATES, AND COMPLEX REACTIONS. PART II: BUILDING ON FUNDAMENTALS IS DEVOTED TO “SKILL BUILDING,” PARTICULARLY IN THE AREA OF CATALYSIS AND CATALYTIC REACTIONS. IT COVERS CHEMICAL THERMODYNAMICS, EMPHASIZING THE THERMODYNAMICS OF ADSORPTION AND COMPLEX REACTIONS; THE FUNDAMENTALS OF CHEMICAL

KINETICS, WITH SPECIAL EMPHASIS ON MICROKINETIC ANALYSIS; AND HEAT AND MASS TRANSFER EFFECTS IN CATALYSIS, INCLUDING TRANSPORT BETWEEN PHASES, TRANSFER ACROSS INTERFACES, AND EFFECTS OF EXTERNAL HEAT AND MASS TRANSFER. IT ALSO CONTAINS A CHAPTER THAT PROVIDES READERS WITH TOOLS FOR MAKING ACCURATE KINETIC MEASUREMENTS AND ANALYZING THE DATA OBTAINED. PART III: BEYOND THE FUNDAMENTALS PRESENTS MATERIAL NOT COMMONLY COVERED IN TEXTBOOKS, ADDRESSING ASPECTS OF REACTORS INVOLVING MORE THAN ONE PHASE. IT DISCUSSES SOLID CATALYZED FLUID-PHASE REACTIONS IN FIXED-BED AND FLUIDIZED-BED REACTORS, GAS-SOLID NONCATALYTIC REACTIONS, REACTIONS INVOLVING AT LEAST ONE LIQUID PHASE (GAS-LIQUID AND LIQUID-LIQUID), AND MULTIPHASE REACTIONS. THIS SECTION ALSO DESCRIBES MEMBRANE-ASSISTED REACTOR ENGINEERING, COMBO REACTORS, HOMOGENEOUS CATALYSIS, AND PHASE-TRANSFER CATALYSIS. THE FINAL CHAPTER PROVIDES A PERSPECTIVE ON FUTURE TRENDS IN REACTION ENGINEERING.

CHEMICAL REACTION ENGINEERING TAPIO SALMI 2020-03-23 THIS BOOK ILLUSTRATES HOW MODELS OF CHEMICAL REACTORS ARE BUILT UP IN A SYSTEMATIC MANNER, STEP BY STEP. THE AUTHORS ALSO OUTLINE HOW THE NUMERICAL SOLUTION ALGORITHMS FOR REACTOR MODELS ARE SELECTED, AS WELL AS HOW COMPUTER CODES ARE WRITTEN FOR NUMERICAL PERFORMANCE, WITH A FOCUS ON MATLAB AND FORTRAN. EXAMPLES SOLVED IN MATLAB AND SIMULATIONS PERFORMED IN FORTRAN ARE INCLUDED FOR DEMONSTRATION PURPOSES.

CHEMICAL REACTOR MODELING HUGO A. JAKOBSEN 2014-04-02 CHEMICAL REACTOR MODELING CLOSES THE GAP BETWEEN CHEMICAL REACTION ENGINEERING AND FLUID MECHANICS. THE SECOND EDITION CONSISTS OF TWO VOLUMES: VOLUME 1: FUNDAMENTALS. VOLUME 2: CHEMICAL ENGINEERING APPLICATIONS. IN VOLUME 1 MOST OF THE FUNDAMENTAL THEORY IS PRESENTED. A FEW NUMERICAL MODEL SIMULATION APPLICATION EXAMPLES ARE GIVEN TO ELUCIDATE THE LINK BETWEEN THEORY AND APPLICATIONS. IN VOLUME 2 THE CHEMICAL REACTOR EQUIPMENT TO BE MODELED ARE DESCRIBED. SEVERAL ENGINEERING MODELS ARE INTRODUCED AND DISCUSSED. A SURVEY OF THE FREQUENTLY USED NUMERICAL METHODS, ALGORITHMS AND SCHEMES IS PROVIDED. A FEW PRACTICAL ENGINEERING APPLICATIONS OF THE MODELING TOOLS ARE PRESENTED AND DISCUSSED. THE WORKING PRINCIPLES OF SEVERAL EXPERIMENTAL TECHNIQUES EMPLOYED IN ORDER TO GET DATA FOR MODEL VALIDATION ARE OUTLINED. THE MONOGRAPH IS BASED ON LECTURES REGULARLY TAUGHT IN THE FOURTH AND FIFTH YEARS GRADUATE COURSES IN TRANSPORT PHENOMENA AND CHEMICAL REACTOR MODELING AND IN A POST GRADUATE COURSE IN MODERN REACTOR MODELING AT THE NORWEGIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY, DEPARTMENT OF CHEMICAL ENGINEERING, TRONDHEIM, NORWAY. THE OBJECTIVE OF THE BOOK IS TO PRESENT THE FUNDAMENTALS OF THE SINGLE-FLUID AND MULTI-FLUID MODELS FOR THE ANALYSIS OF SINGLE AND MULTIPHASE REACTIVE FLOWS IN CHEMICAL REACTORS WITH A CHEMICAL REACTOR ENGINEERING RATHER THAN MATHEMATICAL BIAS. ORGANIZED INTO 13 CHAPTERS, IT COMBINES THEORETICAL ASPECTS AND PRACTICAL APPLICATIONS AND COVERS SOME OF THE RECENT RESEARCH IN SEVERAL AREAS OF CHEMICAL REACTOR ENGINEERING. THIS BOOK CONTAINS A SURVEY OF THE MODERN LITERATURE IN THE FIELD OF CHEMICAL REACTOR MODELING.

CHEMICAL ENGINEERING DESIGN GAVIN TOWLER 2012-01-25 CHEMICAL ENGINEERING DESIGN, SECOND EDITION, DEALS WITH THE APPLICATION OF CHEMICAL ENGINEERING PRINCIPLES TO THE DESIGN OF CHEMICAL PROCESSES AND EQUIPMENT. REVISED THROUGHOUT, THIS EDITION HAS BEEN SPECIFICALLY DEVELOPED FOR THE U.S. MARKET. IT PROVIDES THE LATEST US CODES AND STANDARDS, INCLUDING API, ASME AND ISA DESIGN CODES AND ANSI STANDARDS. IT CONTAINS NEW DISCUSSIONS OF CONCEPTUAL PLANT DESIGN, FLOWSHEET DEVELOPMENT, AND REVAMP DESIGN; EXTENDED COVERAGE OF CAPITAL COST ESTIMATION, PROCESS COSTING, AND ECONOMICS; AND NEW CHAPTERS ON EQUIPMENT SELECTION, REACTOR DESIGN, AND SOLIDS HANDLING PROCESSES. A RIGOROUS PEDAGOGY ASSISTS LEARNING, WITH DETAILED WORKED EXAMPLES, END OF CHAPTER EXERCISES, PLUS SUPPORTING DATA, AND EXCEL SPREADSHEET CALCULATIONS, PLUS OVER 150 PATENT REFERENCES FOR DOWNLOADING FROM THE COMPANION WEBSITE. EXTENSIVE INSTRUCTOR RESOURCES, INCLUDING 1170 LECTURE SLIDES AND A FULLY WORKED SOLUTIONS MANUAL ARE AVAILABLE TO ADOPTING INSTRUCTORS. THIS TEXT IS DESIGNED FOR CHEMICAL AND BIOCHEMICAL ENGINEERING STUDENTS (SENIOR UNDERGRADUATE YEAR, PLUS APPROPRIATE FOR CAPSTONE DESIGN COURSES WHERE TAKEN, PLUS GRADUATES) AND LECTURERS/TUTORS, AND PROFESSIONALS IN INDUSTRY (CHEMICAL PROCESS, BIOCHEMICAL, PHARMACEUTICAL, PETROCHEMICAL SECTORS). NEW TO THIS EDITION: REVISED ORGANIZATION INTO PART I: PROCESS DESIGN, AND PART II: PLANT DESIGN. THE BROAD THEMES OF PART I ARE FLOWSHEET DEVELOPMENT, ECONOMIC ANALYSIS, SAFETY AND ENVIRONMENTAL IMPACT AND OPTIMIZATION. PART II CONTAINS CHAPTERS ON EQUIPMENT DESIGN AND SELECTION THAT CAN BE USED AS SUPPLEMENTS TO A LECTURE COURSE OR AS ESSENTIAL REFERENCES FOR STUDENTS OR PRACTICING ENGINEERS WORKING ON DESIGN PROJECTS. NEW DISCUSSION OF CONCEPTUAL PLANT DESIGN, FLOWSHEET DEVELOPMENT AND REVAMP DESIGN SIGNIFICANTLY INCREASED COVERAGE OF CAPITAL COST ESTIMATION, PROCESS COSTING AND ECONOMICS NEW CHAPTERS ON EQUIPMENT SELECTION, REACTOR DESIGN AND SOLIDS HANDLING PROCESSES NEW SECTIONS ON FERMENTATION, ADSORPTION, MEMBRANE SEPARATIONS, ION EXCHANGE AND CHROMATOGRAPHY INCREASED COVERAGE OF BATCH PROCESSING, FOOD, PHARMACEUTICAL AND BIOLOGICAL PROCESSES ALL EQUIPMENT CHAPTERS IN PART II REVISED AND UPDATED WITH CURRENT INFORMATION UPDATED THROUGHOUT FOR LATEST US CODES AND STANDARDS, INCLUDING API, ASME AND ISA DESIGN CODES AND ANSI STANDARDS ADDITIONAL WORKED EXAMPLES AND HOMEWORK PROBLEMS THE MOST COMPLETE AND UP TO DATE COVERAGE OF EQUIPMENT SELECTION 108 REALISTIC COMMERCIAL DESIGN PROJECTS FROM DIVERSE INDUSTRIES A RIGOROUS PEDAGOGY ASSISTS LEARNING, WITH DETAILED WORKED EXAMPLES, END OF CHAPTER EXERCISES, PLUS SUPPORTING DATA AND EXCEL SPREADSHEET CALCULATIONS PLUS OVER 150 PATENT REFERENCES, FOR DOWNLOADING FROM THE COMPANION WEBSITE EXTENSIVE INSTRUCTOR RESOURCES: 1170 LECTURE SLIDES PLUS FULLY WORKED SOLUTIONS MANUAL AVAILABLE TO ADOPTING INSTRUCTORS

FUNDAMENTALS OF CHEMICAL REACTOR ENGINEERING TIMUR DOGU 2021-11-09 A COMPREHENSIVE INTRODUCTION TO CHEMICAL REACTOR ENGINEERING FROM AN INDUSTRIAL PERSPECTIVE IN FUNDAMENTALS OF CHEMICAL REACTOR ENGINEERING: A MULTI-SCALE APPROACH, A DISTINGUISHED TEAM OF ACADEMICS DELIVERS A THOROUGH INTRODUCTION TO FOUNDATIONAL CONCEPTS IN CHEMICAL REACTOR ENGINEERING. IT OFFERS READERS THE TOOLS THEY NEED TO DEVELOP A FIRM GRASP OF THE KINETICS AND THERMODYNAMICS OF

REACTIONS, HYDRODYNAMICS, TRANSPORT PROCESSES, AND HEAT AND MASS TRANSFER RESISTANCES IN A CHEMICAL REACTOR. THIS TEXTBOOK DESCRIBES THE INTERACTION OF REACTING MOLECULES ON THE MOLECULAR SCALE AND USES REAL-WORLD EXAMPLES TO ILLUSTRATE THE PRINCIPLES OF CHEMICAL REACTOR ANALYSIS AND HETEROGENEOUS CATALYSIS AT EVERY SCALE. IT INCLUDES A STRONG FOCUS ON NEW APPROACHES TO PROCESS INTENSIFICATION, THE MODELING OF MULTIFUNCTIONAL REACTORS, STRUCTURED REACTOR TYPES, AND THE IMPORTANCE OF HYDRODYNAMICS AND TRANSPORT PROCESSES IN A CHEMICAL REACTOR. WITH END-OF-CHAPTER PROBLEM SETS AND MULTIPLE OPEN-ENDED CASE STUDIES TO PROMOTE CRITICAL THINKING, THIS BOOK ALSO OFFERS SUPPLEMENTARY ONLINE MATERIALS AND AN INCLUDED INSTRUCTOR'S MANUAL. READERS WILL ALSO FIND: A THOROUGH INTRODUCTION TO THE RATE CONCEPT AND SPECIES CONSERVATION EQUATIONS IN REACTORS, INCLUDING CHEMICAL AND FLOW REACTORS AND THE STOICHIOMETRIC RELATIONS BETWEEN REACTING SPECIES A COMPREHENSIVE EXPLORATION OF REVERSIBLE REACTIONS AND CHEMICAL EQUILIBRIUM, INCLUDING THE THERMODYNAMICS OF CHEMICAL REACTIONS AND DIFFERENT FORMS OF THE EQUILIBRIUM CONSTANT PRACTICAL DISCUSSIONS OF CHEMICAL KINETICS AND ANALYSIS OF BATCH REACTORS, INCLUDING BATCH REACTOR DATA ANALYSIS IN-DEPTH EXAMINATIONS OF IDEAL FLOW REACTORS, CSTR, AND PLUG FLOW REACTOR MODELS IDEAL FOR UNDERGRADUATE AND GRADUATE CHEMICAL ENGINEERING STUDENTS STUDYING CHEMICAL REACTOR ENGINEERING, CHEMICAL ENGINEERING KINETICS, HETEROGENEOUS CATALYSIS, AND REACTOR DESIGN, FUNDAMENTALS OF CHEMICAL REACTOR ENGINEERING IS ALSO AN INDISPENSABLE RESOURCE FOR PROFESSIONALS AND STUDENTS IN FOOD, ENVIRONMENTAL, AND MATERIALS ENGINEERING.

CHEMICAL ENGINEERING AND CHEMICAL PROCESS TECHNOLOGY - VOLUME III RYZHARD POHORECKI 2010-11-30 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.

WORKED EXAMPLES IN CHEMICAL REACTION ENGINEERING BENEDICT NNOLIM 2013-09 THIS BOOK STARTS FROM THE FUNDAMENTALS TO THE PROFESSIONAL LEVEL, ACADEMIC, PRACTICAL AND INDUSTRIAL CLASSIFICATION AND UNDERSTANDING OF THE MANY TYPES AND MECHANISMS OF CHEMICAL REACTIONS BEFORE ILLUSTRATING THE GENERALISED KINETICS AND STOICHIOMETRY WHICH MAY BE APPLIED TO THEM. SEVERAL TYPICAL AND NUMERICAL PROBLEMS ARE SOLVED IN CHEMICAL KINETICS, STOICHIOMETRY, MATERIAL AND ENERGY BALANCES RELEVANT TO THE CHEMICAL ENGINEERING ASPECTS OF CHEMICAL REACTOR DESIGN.

SOLUTIONS MANUAL FOR FUNDAMENTALS OF CHEMICAL REACTION ENGINEERING CHARLES D. HOLLAND 19??

KINETICS OF CHEMICAL PROCESSES MICHEL BOUDART 2014-05-16 KINETICS OF CHEMICAL PROCESSES DETAILS THE CONCEPTS ASSOCIATED WITH THE KINETIC STUDY OF THE CHEMICAL PROCESSES. THE BOOK IS COMPRISED OF 10 CHAPTERS THAT PRESENT INFORMATION RELEVANT TO APPLIED RESEARCH. THE TEXT FIRST COVERS THE ELEMENTARY CHEMICAL KINETICS OF ELEMENTARY STEPS, AND THEN PROCEEDS TO DISCUSSING CATALYSIS. THE NEXT CHAPTER TACKLES SIMPLIFIED KINETICS OF SEQUENCES AT THE STEADY STATE. CHAPTER 5 DEALS WITH COUPLED SEQUENCES IN REACTION NETWORKS, WHILE CHAPTER 6 TALKS ABOUT AUTOCATALYSIS AND INHIBITION. THE SEVENTH CHAPTER DESCRIBES THE IRREDUCIBLE TRANSPORT PHENOMENA IN CHEMICAL KINETICS. THE NEXT TWO CHAPTERS DISCUSS THE CORRELATIONS IN HOMOGENOUS KINETICS AND HETEROGENEOUS CATALYSIS, RESPECTIVELY. THE LAST CHAPTER COVERS THE ANALYSIS OF REACTION NETWORKS. THE BOOK WILL BE OF GREAT USE TO STUDENTS, RESEARCHERS, AND PRACTITIONERS OF SCIENTIFIC DISCIPLINES THAT DEAL WITH CHEMICAL REACTION, PARTICULARLY CHEMISTRY AND CHEMICAL ENGINEERING.

REACTION KINETICS FOR CHEMICAL ENGINEERS STANLEY M. WALAS 2013-10-22 REACTION KINETICS FOR CHEMICAL ENGINEERS FOCUSES ON CHEMICAL KINETICS, INCLUDING HOMOGENEOUS REACTIONS, NONISOTHERMAL SYSTEMS, FLOW REACTORS, HETEROGENEOUS PROCESSES, GRANULAR BEDS, CATALYSIS, AND SCALE-UP METHODS. THE PUBLICATION FIRST TAKES A LOOK AT FUNDAMENTALS AND HOMOGENEOUS ISOTHERMAL REACTIONS. TOPICS INCLUDE SIMPLE REACTIONS AT CONSTANT VOLUME OR PRESSURE, MATERIAL BALANCE IN COMPLEX REACTIONS, HOMOGENEOUS CATALYSIS, EFFECT OF TEMPERATURE, ENERGY OF ACTIVATION, LAW OF MASS ACTION, AND CLASSIFICATION OF REACTIONS. THE BOOK ALSO ELABORATES ON ADIABATIC AND PROGRAMMED REACTIONS, CONTINUOUS STIRRED REACTORS, AND HOMOGENEOUS FLOW REACTIONS. TOPICS INCLUDE NONISOTHERMAL FLOW REACTIONS, SEMIFLOW PROCESSES, TUBULAR-FLOW REACTORS, MATERIAL BALANCE IN FLOW PROBLEMS, TYPES OF FLOW PROCESSES, RATE OF HEAT INPUT, CONSTANT HEAT-TRANSFER COEFFICIENT, AND NONISOTHERMAL CONDITIONS. THE TEXT PONDERES ON UNCATALYZED HETEROGENEOUS REACTIONS, FLUID-PHASE REACTIONS CATALYZED BY SOLIDS, AND FIXED AND FLUIDIZED BEDS OF PARTICLES. THE TRANSFER PROCESSES IN GRANULAR MASSES, FLUIDIZATION, HEAT AND MASS TRANSFER, ADSORPTION RATES AND EQUILIBRIA, DIFFUSION AND COMBINED MECHANISMS, DIFFUSIVE MASS TRANSFER, AND MASS-TRANSFER COEFFICIENTS IN CHEMICAL REACTIONS ARE DISCUSSED. THE PUBLICATION IS A

DEPENDABLE SOURCE OF DATA FOR CHEMICAL ENGINEERS AND READERS WANTING TO EXPLORE CHEMICAL KINETICS.

FUNDAMENTALS OF CHEMICAL REACTION ENGINEERING CHARLES DONALD HOLLAND 1989 VERY GOOD, NO HIGHLIGHTS OR MARKUP, ALL PAGES ARE INTACT.

FUNDAMENTALS OF CHEMICAL REACTION ENGINEERING WALTER BRITZ 1965

FUNDAMENTALS OF CHEMICAL REACTION ENGINEERING AMY M. KNIGHT 2015-08-14 THOUGHT-PROVOKING AND ACCESSIBLE IN APPROACH, THIS UPDATED AND EXPANDED SECOND EDITION OF THE FUNDAMENTALS OF CHEMICAL REACTION ENGINEERING (DOVER CIVIL AND MECHANICAL ENGINEERING) PROVIDES A USER-FRIENDLY INTRODUCTION TO THE SUBJECT, TAKING A CLEAR STRUCTURAL FRAMEWORK, IT GUIDES THE READER THROUGH THE SUBJECT'S CORE ELEMENTS. A FLOWING WRITING STYLE COMBINES WITH THE USE OF ILLUSTRATIONS AND DIAGRAMS THROUGHOUT THE TEXT TO ENSURE THE READER UNDERSTANDS EVEN THE MOST COMPLEX OF CONCEPTS. THIS SUCCINCT AND ENLIGHTENING OVERVIEW IS A REQUIRED READING FOR ADVANCED GRADUATE-LEVEL STUDENTS. WE HOPE YOU FIND THIS BOOK USEFUL IN SHAPING YOUR FUTURE CAREER. FEEL FREE TO SEND US YOUR ENQUIRIES RELATED TO OUR PUBLICATIONS TO [INFO@RISEPRESS.PW](mailto:info@risepress.pw) RISE PRESS

CHEMICAL REACTION ENGINEERING: FROM FUNDAMENTALS TO COMMERCIAL PLANTS AND PRODUCTS 1996

MODELING OF CHEMICAL KINETICS AND REACTOR DESIGN A. KAYODE COKER 2001 SELECTING THE BEST TYPE OF REACTOR FOR ANY PARTICULAR CHEMICAL REACTION, TAKING INTO CONSIDERATION SAFETY, HAZARD ANALYSIS, SCALE-UP, AND MANY OTHER FACTORS IS ESSENTIAL TO ANY INDUSTRIAL PROBLEM. AN UNDERSTANDING OF CHEMICAL REACTION KINETICS AND THE DESIGN OF CHEMICAL REACTORS IS KEY TO THE SUCCESS OF THE OF THE CHEMIST AND THE CHEMICAL ENGINEER IN SUCH AN ENDEAVOR. THIS VALUABLE REFERENCE VOLUME CONVEYS A BASIC UNDERSTANDING OF CHEMICAL REACTOR DESIGN METHODOLOGIES, INCORPORATING CONTROL, HAZARD ANALYSIS, AND OTHER TOPICS NOT COVERED IN SIMILAR TEXTS. IN ADDITION TO COVERING FLUID MIXING, THE TREATMENT OF WASTEWATER, AND CHEMICAL REACTOR MODELING, THE AUTHOR INCLUDES SECTIONS ON SAFETY IN CHEMICAL REACTION AND SCALE-UP, TWO TOPICS THAT ARE OFTEN NEGLECTED OR OVERLOOKED. AS A REAL-WORLD INTRODUCTION TO THE MODELING OF CHEMICAL KINETICS AND REACTOR

DESIGN, THE AUTHOR INCLUDES A CASE STUDY ON AMMONIA SYNTHESIS THAT IS INTEGRATED THROUGHOUT THE TEXT. THE TEXT ALSO FEATURES AN ACCOMPANYING CD, WHICH CONTAINS COMPUTER PROGRAMS DEVELOPED TO SOLVE MODELING PROBLEMS USING NUMERICAL METHODS. STUDENTS, CHEMISTS, TECHNOLOGISTS, AND CHEMICAL ENGINEERS WILL ALL BENEFIT FROM THIS COMPREHENSIVE VOLUME. SHOWS READERS HOW TO SELECT THE BEST REACTOR DESIGN, HAZARD ANALYSIS, AND SAFETY IN DESIGN METHODOLOGY FEATURES COMPUTER PROGRAMS DEVELOPED TO SOLVE MODELING PROBLEMS USING NUMERICAL METHODS

GILBERT F. FROMENT 1996

MORTON DENN 2011-09-30 'CHEMICAL ENGINEERING IS THE FIELD OF APPLIED SCIENCE THAT EMPLOYS PHYSICAL, CHEMICAL, AND BIOLOGICAL RATE PROCESSES FOR THE BETTERMENT OF HUMANITY'. THIS OPENING SENTENCE OF CHAPTER 1 HAS BEEN THE UNDERLYING PARADIGM OF CHEMICAL ENGINEERING. CHEMICAL ENGINEERING: AN INTRODUCTION IS DESIGNED TO ENABLE THE STUDENT TO EXPLORE THE ACTIVITIES IN WHICH A MODERN CHEMICAL ENGINEER IS INVOLVED BY FOCUSING ON MASS AND ENERGY BALANCES IN LIQUID-PHASE PROCESSES. PROBLEMS EXPLORED INCLUDE THE DESIGN OF A FEEDBACK LEVEL CONTROLLER, MEMBRANE SEPARATION, HEMODIALYSIS, OPTIMAL DESIGN OF A PROCESS WITH CHEMICAL REACTION AND SEPARATION, WASHOUT IN A BIOREACTOR, KINETIC AND MASS TRANSFER LIMITS IN A TWO-PHASE REACTOR, AND THE USE OF THE MEMBRANE REACTOR TO OVERCOME EQUILIBRIUM LIMITS ON CONVERSION. MATHEMATICS IS EMPLOYED AS A LANGUAGE AT THE MOST ELEMENTARY LEVEL. PROFESSOR MORTON M. DENN INCORPORATES DESIGN MEANINGFULLY; THE DESIGN AND ANALYSIS PROBLEMS ARE REALISTIC IN FORMAT AND SCOPE.

ELEMENTS OF CHEMICAL REACTION ENGINEERING H. SCOTT FOGLER 2013-07-29 THE BOOK PRESENTS IN A CLEAR AND CONCISE MANNER THE FUNDAMENTALS OF CHEMICAL REACTION ENGINEERING. THE STRUCTURE OF THE BOOK ALLOWS THE STUDENT TO SOLVE REACTION ENGINEERING PROBLEMS THROUGH REASONING RATHER THAN THROUGH MEMORIZATION AND RECALL OF NUMEROUS EQUATIONS, RESTRICTIONS, AND CONDITIONS UNDER WHICH EACH EQUATION APPLIES. THE FOURTH EDITION CONTAINS MORE INDUSTRIAL CHEMISTRY WITH REAL REACTORS AND REAL ENGINEERING AND EXTENDS THE WIDE RANGE OF APPLICATIONS TO WHICH CHEMICAL REACTION ENGINEERING PRINCIPLES CAN BE APPLIED (I.E., COBRA BITES, MEDICATIONS, ECOLOGICAL ENGINEERING)

CHEMICAL REACTION ENGINEERING PB 2016-03

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