

Troubleshooting Practice In The Refinery

This extensively updated second edition of the already valuable reference targets research chemists and engineers who have chosen a career in the complex and essential petroleum industry, as well as other professionals just entering the industry who seek a comprehensive and accessible resource on petroleum processing. The handbook describes and discusses the key components and processes that make up the petroleum refining industry. Beginning with the basics of crude oils and their nature, it continues with the commercial products derived from refining and with related issues concerning their environmental impact. More in depth coverage of many topics previously covered in the first edition, such as hydraulic fracturing or fracking as it is often termed, help ensure this reference remains a relevant and up-to-date resource. At its core is a complete overview of the processes that make up a modern refinery, plus a brief history of the development of processes. Also described in detail are design techniques, operations and in the case of catalytic units, the chemistry of the reaction routes. These discussions are supported by calculation procedures and examples, which enable readers to use today's simulation-software packages. The handbook also covers off-sites and utilities, as well as environmental and safety aspects relevant to the industry. The chapter on refinery planning covers both operational planning and the decision making procedures for new or revamped processes. Major equipment used in the industry is reviewed along with details and examples of the process specifications for each. An extensive glossary and dictionary of the terms and expressions used in petroleum refining, plus appendices supplying data such as converging factors and selected crude oil assays, as well as an example of optimizing a refinery configuration using linear programming are all included to aid the reader. The 2nd edition of the Handbook of Petroleum Processing is an indispensable desk reference for chemists and engineers as well as an essential part of the libraries of universities with a chemical engineering faculty and oil refineries and engineering firms performing support functions or construction.

Distillation: Operation and Applications—winner of the 2015 PROSE Award in Chemistry & Physics from the Association of American Publishers—is a single source of authoritative information on all aspects of the theory and practice of modern distillation, suitable for advanced students and professionals working in a laboratory, industrial plants, or a managerial capacity. It addresses the most important and current research on industrial distillation, including all steps in process design (feasibility study, modeling, and experimental validation), together with operation and control aspects. This volume features an extra focus on distillation applications. Winner of the 2015 PROSE Award in Chemistry & Physics from the Association of American Publishers Practical information on the newest development written by recognized experts Coverage of a huge range of laboratory and industrial distillation approaches Extensive references for each chapter

facilitates further study

Forsthoffer summarizes, expands, and updates the content from previous books in a convenient all-in-one volume. This titles offers comprehensive technical coverage and insider information on best practices derived from lessons learned in the engineering, operation, and maintenance of a wide array of rotating equipment.

Performance Management for the Oil, Gas, and Process Industries: A Systems Approach is a practical guide on the business cycle and techniques to undertake step, episodic, and breakthrough improvement in performance to optimize operating costs. Like many industries, the oil, gas, and process industries are coming under increasing pressure to cut costs due to ongoing construction of larger, more integrated units, as well as the application of increasingly stringent environmental policies. Focusing on the 'value adder' or 'revenue generator' core system and the company direction statement, this book describes a systems approach which assures significant sustainable improvements in the business and operational performance specific to the oil, gas, and process industries. The book will enable the reader to: utilize best practice principles of good governance for long term performance enhancement; identify the most significant performance indicators for overall business improvement; apply strategies to ensure that targets are met in agreed upon time frames. Describes a systems approach which assures significant sustainable improvements in the business and operational performance specific to the oil, gas, and process industries Helps readers set appropriate and realistic short-term/ long-term targets with a pre-built facility health checker Elucidates the relationship between PSM, OHS, and Asset Integrity with an increased emphasis on behavior-based safety Discusses specific oil and gas industry issues and examples such as refinery and gas plant performance initiatives and hydrocarbon accounting

Corrosion in ageing refinery plant presents a serious safety hazard. This important book summarises key research into corrosion processes in refinery equipment, how it can be measured and controlled. The book reviews factors affecting corrosion such as carburisation and metal dusting as well as corrosion in steel and other materials used in refinery technology. It considers corrosion in a range of refinery equipment such as storage tanks, HF alkylation units, sour water strippers and insulated units. Other chapters discuss ways of testing for corrosion and cracking in refineries together with integrity and life cycle assessment techniques. There is also coverage of ways of trouble-shooting corrosion problems and preventative measures such as coating systems. With its distinguished editor and team of contributors, Corrosion in refineries is a valuable reference for all those concerned with building and maintaining refineries in the petrochemical industry. Summarises key research into corrosion processes in refinery equipment Discusses ways of testing for corrosion and cracking in refineries

A Practical Gas Analysis by Gas Chromatography provides a detailed overview of the most important aspects of gas

analysis by gas chromatography (GC) for both the novice and expert. Authors John Swinley and Piet de Coning provide the necessary information on the selection of columns and components, thus allowing the reader to assemble custom gas analysis systems for specific needs. The book brings together a wide range of disparate literature on this technique that will fill a crucial gap for those who perform different types of research, including lab operators, separation scientists, graduate students and academic researchers. This highly practical, up-to-date reference can be consulted in the lab to guide key decisions about proper setup, hardware and software selection, calibration, analysis, and more, allowing researchers to avoid the common pitfalls caused by incorrect infrastructure. Shows, in detail, how valve configurations work, allowing readers to understand the building blocks of extremely complex systems Presents the complete infrastructure for setting up a gas analysis laboratory in a single source Includes a full chapter on practical analytical systems for analyzing various gas mixtures

Examines real life problems and solutions for operators and engineers running process controls Expands on the first book with the addition of five new chapters as well as new troubleshooting examples Written for the working operator and engineer, with straightforward instruction not hinged on complex math Includes real-life examples of control problems that commonly arise and how to fix them Emphasizes single and well-established process engineering principles that will help working engineers and operators switch manual control loops to automatic control

Discussing distillation, this book gives readers guidelines for operation, troubleshooting and control. It offers a compendium of Do's and Don'ts, good practices, and guidelines for trouble-free design; operation and troubleshooting for inlets and outlets; avoiding tray damage; installation; commissioning and startup techniques; and more.

Includes Practice Test Questions Plant Operator Selection System Secrets helps you ace the Plant Operator Selection System without weeks and months of endless studying. Our comprehensive Plant Operator Selection System Secrets study guide is written by our exam experts, who painstakingly researched every topic and concept that you need to know to ace your test. Our original research reveals specific weaknesses that you can exploit to increase your exam score more than you've ever imagined. Plant Operator Selection System Secrets includes: The 5 Secret Keys to POSS Exam Success: Time is Your Greatest Enemy, Guessing is Not Guesswork, Practice Smarter, Not Harder, Prepare, Don't Procrastinate, Test Yourself; A comprehensive General Strategy review including: Make Predictions, Answer the Question, Benchmark, Valid Information, Avoid Fact Traps, Milk the Question, The Trap of Familiarity, Eliminate Answers, Tough Questions, Brainstorm, Read Carefully, Face Value, Prefixes, Hedge Phrases, Switchback Words, New Information, Time Management, Contextual Clues, Don't Panic, Pace Yourself, Answer Selection, Check Your Work, Beware of Directly Quoted Answers, Slang, Extreme Statements, Answer Choice Families; A comprehensive Content

review including: Power Plant Operator, Specialized Training, Solve Problems, Adjustments, Electrical Power Station, Logs of Performance and Maintenance, Production, Safe Working Conditions, Emergency Situations, Water Treatment Plant, Test Results, Independent Contractor, Mechanical Concepts, Tables and Graphs, Reading Comprehension, Mathematical Usage, Index Score, Good Night's Sleep, Complete and Balanced Breakfast, Drink Plenty of Water, Practice Exercises, Assembly Questions, Double-Check Your Work, Jigsaw Puzzles, Electronics Equipment, Spatial Intelligence, Manipulate Three-Dimensional Objects, Mechanical Concepts, Basics of Physics, Velocity of an Object, Speed, Acceleration, and much more...

Handbook of Natural Gas Transmission and Processing gives engineers and managers complete coverage of natural gas transmission and processing in the most rapidly growing sector to the petroleum industry. The authors provide a unique discussion of new technologies that are energy efficient and environmentally appealing at the same time. It is an invaluable reference on natural gas engineering and the latest techniques for all engineers and managers moving to natural gas processing as well as those currently working on natural gas projects. Provides practicing engineers critical information on all aspects of gas gathering, processing and transmission First book that treats multiphase flow transmission in great detail Examines natural gas energy costs and pricing with the aim of delivering on the goals of efficiency, quality and profit

Diagnose and Troubleshoot Problems in Chemical Process Equipment with This Updated Classic! Chemical engineers and plant operators can rely on the Third Edition of A Working Guide to Process Equipment for the latest diagnostic tips, practical examples, and detailed illustrations for pinpointing trouble and correcting problems in chemical process equipment. This updated classic contains new chapters on Control Valves, Cooling Towers, Waste Heat Boilers, Catalytic Effects, Fundamental Concepts of Process Equipment, and Process Safety. Filled with worked-out calculations, the book examines everything from trays, reboilers, instruments, air coolers, and steam turbines...to fired heaters, refrigeration systems, centrifugal pumps, separators, and compressors. The authors simplify complex issues and explain the technical issues needed to solve all kinds of equipment problems. Comprehensive and clear, the Third Edition of A Working Guide to Process Equipment features: Guidance on diagnosing and troubleshooting process equipment problems Explanations of how theory applies to real-world equipment operations Many useful tips, examples, illustrations, and worked-out calculations New to this edition: Control Valves, Cooling Towers, Waste Heat Boilers, Catalytic Effects, and Process Safety Inside this Renowned Guide to Solving Process Equipment Problems • Trays • Tower Pressure • Distillation Towers • Reboilers • Instruments • Packed Towers • Steam and Condensate Systems • Bubble Point and Dew Point • Steam Strippers • Draw-Off Nozzle Hydraulics • Pumpharounds and Tower Heat Flows •

Condensers and Tower Pressure Control • Air Coolers • Deaerators and Steam Systems • Vacuum Systems • Steam Turbines • Surface Condensers • Shell-and-Tube Heat Exchangers • Fire Heaters • Refrigeration Systems • Centrifugal Pumps • Separators • Compressors • Safety • Corrosion • Fluid Flow • Computer Modeling and Control • Field Troubleshooting Process Problems

Practical Guide to Vegetable Oil Processing, Second Edition, includes an up-to-date summary of the basic principles of edible oil refining, processing, and deodorizing, serving as a hands-on training manual for chemists, engineers, and managers new to the industry. The 15-chapter book includes current information on the bleaching of green oils and coconut oil, quality requirements for frying oil applications, and more. Written for the non-chemist new to the industry, the book makes it simple to apply these important concepts for the edible oil industry. Provides insights to the challenges of bleaching very green oils Includes new deodorizer designs and performance measures Offers insights on frying oil quality management Simple and easy-to-read language

Solve the machinery failure problems costing you time and money with this classic, comprehensive guide to analysis and troubleshooting Provides detailed, complete and accurate information on anticipating risk of component failure and avoiding equipment downtime Includes numerous photographs of failed parts to ensure you are familiar with the visual evidence you need to recognize Covers proven approaches to failure definition and offers failure identification and analysis methods that can be applied to virtually all problem situations Demonstrates with examples how the progress and results of failure analysis and troubleshooting efforts can be documented and monitored Failures of machinery in a plant setting can have wide-ranging consequences and in order to stay competitive, corporations across all industries must optimize the efficiency and reliability of their machinery. Machinery Failure Analysis and Troubleshooting is a trusted, established reference in the field, authored by two well-known authorities on failure and reliability. Structured to teach failure identification and analysis methods that can be applied to almost all problem situations, this eagerly awaited update takes in the wealth of technological advances and changes in approach seen since the last edition published more than a decade ago. Covering both the engineering detail and management theory, Machinery Failure Analysis and Troubleshooting provides a robust go-to reference and training resource for all engineers and managers working in manufacturing and process plants. Provides detailed, complete and accurate information on anticipating risk of component failure and avoiding equipment downtime Presents documented failure case studies and analyzes the procedures employed to define events that led to component or systems failure Includes numerous photographs of failed parts to ensure readers are familiar with the visual evidence they need to recognize

In petroleum refineries, although there are sets of standard operating procedures to operate the plants, unique problems

often arise, which need to be tackled with engineering knowledge and experience without much loss of energy and time. This process is termed 'troubleshooting', and it saves production loss, leading to profitability and sustainability of the refinery operation. This book covers the ins and outs of troubleshooting in petroleum refineries, with an analysis of the problems faced, the fundamentals behind them and logical reasoning and illustrations to solve the problems, along with lessons learnt. This is the first such book on the market since the publication of one by Norman P. Lieberman about 30 years ago, and there has been a massive change in technology since then. This book will not only enlighten practicing engineers in refineries and postgraduate students but also facilitate the creation of a knowledge bank on troubleshooting case studies, helping share engineering knowledge and experiences.

This textbook covers the essential aspects of process safety engineering in a practical and comprehensive manner. It provides readers with an understanding of process safety hazards in the refining and petrochemical industries and how to manage them in a reliable and professional manner. It covers the most important concepts: static electricity, intensity of thermal radiation, thermodynamics of fluid phase equilibria, boiling liquid expanding vapor explosion (BLEVE), emission source models, hazard identification methods, risk control and methods for achieving manufacturing excellence while also focusing on safety. Extensive case studies are included. Aimed at senior undergraduate and graduate chemical engineering students and practicing engineers, this book covers process safety principles and engineering practice authoritatively, with comprehensive examples: •

- Fundamentals, methods, and procedures for the industrial practice of process safety engineering.
- The thermodynamic fundamentals and computational methods for release rates from ruptures in pipelines, vessels, and relief valves.
- Fundamentals of static electricity hazards and their mitigation.
- Quantitative assessment of fires and explosions.
- Principles of dispersion calculations for toxic or flammable gases and vapors.
- Methods of qualitative and quantitative risk assessment and control.

This book addresses corrosion problems and their solutions at facilities in the oil refining and petrochemical industry, including cooling water and boiler feed water units. Further, it describes and analyzes corrosion control actions, corrosion monitoring, and corrosion management. Corrosion problems are a perennial issue in the oil refining and petrochemical industry, as they lead to a deterioration of the functional properties of metallic equipment and harm the environment – both of which need to be protected for the sake of current and future generations. Accordingly, this book examines and analyzes typical and atypical corrosion failure cases and their prevention at refineries and petrochemical facilities, including problems with: pipelines, tanks, furnaces, distillation columns, absorbers, heat exchangers, and pumps. In addition, it describes naphthenic acid corrosion, stress corrosion cracking, hydrogen damages, sulfidic corrosion, microbiologically induced corrosion, erosion-corrosion, and corrosion fatigue occurring at refinery units. At last, fouling, corrosion and cleaning are discussed in this book.

A must-read for any practicing engineer or student in this area There is a renaissance that is occurring in chemical and process engineering, and it is crucial for today's scientists, engineers, technicians, and operators to stay current. This book offers the most

up-to-date and comprehensive coverage of the most significant and recent changes to petroleum refining, presenting the state-of-the-art to the engineer, scientist, or student. Useful as a textbook, this is also an excellent, handy go-to reference for the veteran engineer, a volume no chemical or process engineering library should be without.

Part I: Process design -- Introduction to design -- Process flowsheet development -- Utilities and energy efficient design -- Process simulation -- Instrumentation and process control -- Materials of construction -- Capital cost estimating -- Estimating revenues and production costs -- Economic evaluation of projects -- Safety and loss prevention -- General site considerations -- Optimization in design -- Part II: Plant design -- Equipment selection, specification and design -- Design of pressure vessels -- Design of reactors and mixers -- Separation of fluids -- Separation columns (distillation, absorption and extraction) -- Specification and design of solids-handling equipment -- Heat transfer equipment -- Transport and storage of fluids.

The problem of removing water which is emulsified with produced oil has grown more widespread and often times more difficult as producers attempt to access more difficult reserves. This practical guide is designed to help engineers and operators develop a "feel" for selection, sizing, and troubleshooting emulsion equipment. These skills are of vital importance to ensure low operating costs and to meet crude export quality specifications. The book is written for engineers and operators, who need advanced knowledge of the numerous techniques and the equipment used to destabilize and resolve petroleum emulsions problems. In *Emulsions and Oil Treating Equipment: Selection, Sizing and Troubleshooting* the author provides engineers and operators with a guide to understanding emulsion theory, methods and equipment, and practical design of a treating system. Comprehensive in its scope, the author explains methods such as: demulsifiers, temperature, electrostatics and non-traditional methods of modulated or pulsed voltage control, as well as equipment such as: electrostatic treater (dehydrator), separator, gunbarr heater-treater and free water knockout. Written in a "how to" format, it brings together hundreds of methods, handy formulas, diagrams and tables in one convenient book. Detailed coverage emulsion equipment and removal methods Tips for selecting, sizing, and operating emulsion equipment Overview of emulsion theory and factors affecting treatment methods Packed with equipment diagrams, worked out calculations covers equipment and removal methods

Drawing on his passion, training, and experience, Lieberman presents problems and troubleshooting techniques that are associated with specific processes, systems, and equipment, leading novice and practiced troubleshooters alike to the crux of malfunctions and failures. The fourth edition updates troubleshooting and design techniques, and adds seven new chapters with information on turbines, motors, heat exchangers, and environmentally friendly operations. Norm Lieberman sprinkles his troubleshooting guide with insightful and humorous anecdotes from 45 years in the petrochemical and refining industry. Features: * Nitty-gritty descriptions of common refinery and chemical plant problems and the diagnostic field observations, experiments, and calculations that reveal their origin * Troubleshooting checklists and references following each chapter * Practical advice for optimizing interactions with key plant operations personnel

Safety in Petroleum Industries covers pertinent safety aspects and precautions to be taken for design, operation, maintenance,

inspection and project constructions for petroleum industries, with an emphasis on petroleum refineries. Relevant practical knowledge and experience contributing to safe and sustained operation of the industry has been compiled with all necessary references. Identified areas where theoretical inputs are required have also been incorporated. Learning objectives for the petroleum industries have been identified and discussed in an organized manner based on author's more than thirty-five years of experience in petroleum and chemical industries. Aimed at practicing engineers in upstream and downstream petroleum industries, this book: Covers safety tips for operation of petroleum industries Documents design codes, tools and practices including safe operating practices of different equipment and safety procedures in a single source Includes detailed safety procedures like HAZOP, Safety Audit, management safety review, and process safety management Contains dedicated chapters on Fire Fighting, and Industrial Hygiene and Ergonomics Discusses first-hand experienced examples and burning issues in the petroleum industry

Vacuum systems are in wide spread use in the petrochemical plants, petroleum refineries and power generation plants. The existing texts on this subject are theoretical in nature and only deal with how the equipment functions when in good mechanical conditions, from the viewpoint of the equipment vendor. In this much-anticipated volume, one of the most well-respected and prolific process engineers in the world takes on troubleshooting vacuum systems, and especially steam ejectors, an extremely complex and difficult subject that greatly effects the profitability of the majority of the world's refineries.

The petrochemical industry is an important area in our pursuits for economic growth, employment generation, and basic needs. It is a huge field that encompasses many commercial petrochemical and polymer-enabled products. The book is designed to help the reader, particularly students and researchers of petroleum science and engineering, to understand synthesis, processing, mechanics, and simulation of the petroleum processes. The selection of topics addressed and the examples, tables, and graphs used to illustrate them are governed, to a large extent, by the fact that this book is aimed primarily at petroleum science and engineering technologists. Undoubtedly, this book contains must read materials for students, engineers, and researchers working in the area of petrochemicals and petroleum and provides valuable insights into the related synthesis, processing, mechanisms, and simulation. This book is concise, self-explanatory, informative, and cost-effective.

Phosphoric acid is an important industrial acid that is utilized for manufacturing phosphatic fertilizers and industrial products, for pickling and posterior treatment of steel surfaces to prevent corrosion, for ensuring appropriate paint adhesion, and for the food and beverages industry, e.g., cola-type drinks to impart taste and slight acidity and to avoid iron sedimentation. This industry is spread out in countries of four continents - Asia, Africa, America, and Europe - which

operate mines and production plants and produce fertilizers. Phosacid is one of the most widely known acids. The global phosacid market and its many phosphate derivatives are expanding worldwide; this trend is expected to continue in the next years, thus producing innovative products.

Troubleshooting Practice in the Refinery Petroleum Refineries A Troubleshooting Guide CRC Press

'Current Trends in Engineering Practice' covers topics such as geotechnical investigations and structures, construction of earthmoving equipment, power system methodologies, inertial systems, launch vehicle design and corporate turnaround. Distillation & Hydrocarbon Processing Practices is a practical reference guide to the design and operations of hydrocarbon processing plants (refineries, petrochemical plants, and gas processing plants). Ashis Nag illustrates advanced practices in distillation with examples of process simulation and basic principles. Nag's extensive knowledge and more than 35 years of experience as an engineer supply the practical examples and design guidelines contained in this text. Its many case studies will assist engineering students as well as practicing engineers in understanding the inner workings at these complex facilities.

A prominent linchpin in world politics and in security policies world over, oil and gas have tremendous value in both, the political and economical sectors of global relations, business establishments and policy. Regardless of whether one is a novice to a given field, or a well accomplished veteran in the field, there is a need for the continued engagement with the basics that underlie the core subjects. With that in mind, the Fundamentals of Oil and Gas is a perfect primer for the first-timer in the field, while also a copious text to help a seasoned veteran stay abreast with the nuances of the world of Oil and Gas.

Chemical production processes consist of many complex apparatuses involving both moving and static parts as well as interconnecting pipes, control mechanisms and electronics, mechanical and thermal stages, heat exchangers, waste and side product processing units, power ducts and many others. Bringing such a complicated unit online and ensuring its continued productivity requires substantial skill at anticipating, detecting and solving acute problems. This book is the professional's and student's entrance to the fascinating and important world of trouble shooting for chemical, pharmaceutical and other production processes.

More Best Practices for Rotating Equipment follows Forsthoffer's multi-volume Rotating Equipment Handbooks, addressing the latest best practices in industrial rotating machinery and also including a comprehensive treatment of the basics for reference. The author's famous troubleshooting approach teaches the reader proven methodologies for installation, operation, and maintenance of equipment, and covers all phases of work with rotating equipment. Reliability optimization is also addressed for the first time. The book is ideal for engineers working in the design, installation,

operation, and maintenance of power machinery. It is also an essential source of information for postgraduate students and researchers of mechanical and industrial engineering. Presents 200 new best practices for rotating equipment Offers an easy-to-use reference, with each chapter addressing a different type of equipment Covers all phases of work with rotating equipment, from pre-commissioning through maintenance

A comprehensive review of the theory and practice of the simulation and optimization of the petroleum refining processes Petroleum Refinery Process Modeling offers a thorough review of how to quantitatively model key refinery reaction and fractionation processes. The text introduces the basics of dealing with the thermodynamics and physical property predictions of hydrocarbon components in the context of process modeling. The authors - three experts on the topic - outline the procedures and include the key data required for building reaction and fractionation models with commercial software. The text shows how to filter through the extensive data available at the refinery and using plant data to begin calibrating available models and extend the models to include key fractionation sub-models. It provides a sound and informed basis to understand and exploit plant phenomena to improve yield, consistency, and performance. In addition, the authors offer information on applying models in an overall refinery context through refinery planning based on linear programming. This important resource: -Offers the basic information of thermodynamics and physical property predictions of hydrocarbon components in the context of process modeling -Uses the key concepts of fractionation lumps and physical properties to develop detailed models and workflows for atmospheric (CDU) and vacuum (VDU) distillation units -Discusses modeling FCC, catalytic reforming and hydroprocessing units Written for chemical engineers, process engineers, and engineers for measurement and control, this resource explores the advanced simulation tools and techniques that are available to support experienced and aid new operators and engineers.

THE FIRST BOOK OF ITS KIND ON DISTILLATION TECHNOLOGY The last half-century of research on distillation has tremendously improved our understanding and design of industrial distillation equipment and systems. High-speed computers have taken over the design, control, and operation of towers. Invention and innovation in tower internals have greatly enhanced tower capacity and efficiency. With all these advances, one would expect the failure rate in distillation towers to be on the decline. In fact, the opposite is the case: the tower failure rate is on the rise and accelerating. Distillation Troubleshooting collects invaluable hands-on experiences acquired in dealing with distillation and absorption malfunctions, making them readily accessible for those engaged in solving today's problems and avoiding tomorrow's. The first book of its kind on the distillation industry, the practical lessons it offers are a must for those seeking the elusive path to trouble-free distillation. Distillation Troubleshooting covers over 1,200 case histories of problems, diagnoses, solutions, and key lessons. Coverage includes: * Successful and unsuccessful struggles with plugging, fouling, and

coking * Histories and prevention of tray, packing, and internals damage * Lessons taught by incidents and accidents during shutdowns, commissioning, and abnormal operation * Troubleshooting distillation simulations to match the real world * Making packing liquid distributors work * Plant bottlenecks from intermediate draws, chimney trays, and feed points * Histories of and key lessons from explosions and fires in distillation towers * Prevention of flaws that impair reboiler and condenser performance * Destabilization of tower control systems and how to correct it * Discoveries from shutdown inspections * Suppression of foam and accumulation incidents A unique resource for improving the foremost industrial separation process, Distillation Troubleshooting transforms decades of hands-on experiences into a handy reference for professionals and students involved in the operation, design, study, improvement, and management of large-scale distillation.

[Copyright: 3ea2287a177dc350818c0102c3e4f427](#)