

VOLUME 5

Commissioning and Qualification

Second Edition


Ispe Maintenance Baseline Guide

Graham P. Bunn

Ispe Maintenance Baseline Guide:

Good Quality Practice (GQP) in Pharmaceutical Manufacturing: A Handbook Jordi Botet,2015-09-28 Pharmaceutical manufacturing can be viewed as a supply chain which spans from the production and purchase of the starting and packaging materials through the manufacture of dosage forms until the safe reception of the finished product by the patient The entire chain comprises of several processes auditing materials purchase procurement production storage distribution quality control and quality assurance The quality standard for pharmaceutical production is current good manufacturing practice CGMP which is applied within the frame of a pharmaceutical quality system PQS This implementation however requires a scientific approach and has to take into account several elements such as risk assessment life cycle patient protection among other factors Hence pharmaceutical manufacturing is a complex subject in terms of regulation given the technical and managerial requirements This comprehensive handbook describes CGMP for new professionals who want to understand and apply the elements which build up pharmaceutical quality assurance The book gives details about basic quality control requirements such as risk management quality hazards and management systems documentation clean environments personnel training and gives guidelines on regulatory aspects This is an ideal handbook for undergraduates studying pharmaceutical or industrial manufacturing and supply chains as well for entrepreneurs and quality control professionals seeking to learn about CGMP standards and implementing quality assurance systems in the pharmaceutical sector [GMP Compliance, Productivity, and Quality](#) Vinay Bhatt,1998-06-30 Written by twenty eight experts filled with recommendations that can immediately be put into action this book provides the strategies and tactics required to link and harmonize manufacturing processes with GMP to achieve optimum operability and cost effective regulatory compliance Drawn from name brand and generic companies and regulatory and contract organizations across the globe the contributing authors bring readers a combined 450 years of hands on experience They offer thought provoking questions to help readers diagnose their company s challenges needs and available options all with the single purpose of achieving their ultimate goals quality high productivity and profitability

Process Architecture in Biomanufacturing Facility Design Jeffery Odum,Michael C. Flickinger,2018-01-26 Essential information for architects designers engineers equipment suppliers and other professionals who are working in or entering the biopharmaceutical manufacturing field Biomanufacturing facilities that are designed and built today are radically different than in the past The vital information and knowledge needed to design and construct these increasingly sophisticated biopharmaceutical manufacturing facilities is difficult to find in published literature and it s rarely taught in architecture or design schools This is the first book for architects and designers that fills this void Process Architecture in Biomanufacturing Facility Design provides information on design principles of biopharmaceutical manufacturing facilities that support emerging innovative processes and technologies use state of the art equipment are energy efficient and sustainable and meet regulatory requirements Relying on their many years of hands on

design and operations experience the authors emphasize concepts and practical approaches toward design construction and operation of biomanufacturing facilities including product process facility relationships closed systems and single use equipment aseptic manufacturing considerations design of biocontainment facility and process based laboratory and sustainability considerations as well as an outlook on the facility of the future Provides guidelines for meeting licensing and regulatory requirements for biomanufacturing facilities in the U S A and WHO especially in emerging global markets in India China Latin America and the Asia Pacific regions Focuses on innovative design and equipment to speed construction and time to market increase energy efficiency and reduce footprint construction and operational costs as well as the financial risks associated with construction of a new facility prior to the approval of the manufactured products by regulatory agencies Includes many diagrams that clarify the design approach Process Architecture in Biomanufacturing Facility Design is an ideal text for professionals involved in the design of facilities for manufacturing of biopharmaceuticals and vaccines biotechnology and life science industry including architects and designers of industrial facilities construction equipment vendors and mechanical engineers It is also recommended for university instructors advanced undergraduates and graduate students in architecture industrial engineering mechanical engineering industrial design and industrial interior design

Good Manufacturing Practices for Pharmaceuticals, Seventh Edition Graham P. Bunn, 2019-02-04 This book provides insight into the world of pharmaceutical quality systems and the key elements that must be in place to change the business and organizational dynamics from task oriented procedure based cultures to truly integrated quality business systems that are self detecting and correcting Chapter flow has been changed to adopt a quality systems organization approach and supporting chapters have been updated based on current hot topics including the impact of the worldwide supply chain complexity and current regulatory trends

Downstream Industrial Biotechnology Michael C. Flickinger, 2013-07-17

DOWNSTREAM INDUSTRIAL BIOTECHNOLOGY An affordable easily accessible desk reference on biomanufacturing focused on downstream recovery and purification Advances in the fundamental knowledge surrounding biotechnology novel materials and advanced engineering approaches continue to be translated into bioprocesses that bring new products to market at a significantly faster pace than most other industries Industrial scale biotechnology and new manufacturing methods are revolutionizing medicine environmental monitoring and remediation consumer products food production agriculture and forestry and continue to be a major area of research The downstream stage in industrial biotechnology refers to recovery isolation and purification of the microbial products from cell debris processing medium and contaminating biomolecules from the upstream process into a finished product such as biopharmaceuticals and vaccines Downstream process design has the greatest impact on overall biomanufacturing cost because not only does the biochemistry of different products e g peptides proteins hormones antibiotics and complex antigens dictate different methods for the isolation and purification of these products but contaminating byproducts can also reduce overall process yield and may have serious

consequences on clinical safety and efficacy Therefore downstream separation scientists and engineers are continually seeking to eliminate or combine unit operations to minimize the number of process steps in order to maximize product recovery at a specified concentration and purity Based on Wiley's Encyclopedia of Industrial Biotechnology Bioprocess Bioseparation and Cell Technology this volume features fifty articles that provide information on downstream recovery of cells and protein capture process development and facility design equipment PAT in downstream processes downstream cGMP operations and regulatory compliance It covers Cell wall disruption and lysis Cell recovery by centrifugation and filtration Large scale protein chromatography Scale down of biopharmaceutical purification operations Lipopolysaccharide removal Porous media in biotechnology Equipment used in industrial protein purification Affinity chromatography Antibody purification monoclonal and polyclonal Protein aggregation precipitation and crystallization Freeze drying of biopharmaceuticals Biopharmaceutical facility design and validation Pharmaceutical bioburden testing Regulatory requirements Ideal for graduate and advanced undergraduate courses on biomanufacturing biochemical engineering biopharmaceutical facility design biochemistry industrial microbiology gene expression technology and cell culture technology Downstream Industrial Biotechnology is also a highly recommended resource for industry professionals and libraries

Pharmaceutical Microbiological Quality Assurance and Control David Roesti,Marcel Goverde,2020-01-02

Relying on practical examples from the authors experience this book provides a thorough and modern approach to controlling and monitoring microbial contaminations during the manufacturing of non sterile pharmaceuticals Offers a comprehensive guidance for non sterile pharmaceuticals microbiological QA QC Presents the latest developments in both regulatory expectations and technical advancements Provides guidance on statistical tools for risk assessment and trending of microbiological data Describes strategy and practical examples from the authors experience in globalized pharmaceutical companies and expert networks

Pharmaceutical Blending and Mixing P. J. Cullen,Rodolfo J. Romañach,Nicolas

Abatzoglou,Chris D. Rielly,2015-05-11 Written in four parts this book provides a dedicated and in depth reference for blending within the pharmaceutical manufacturing industry It links the science of blending with regulatory requirements associated with pharmaceutical manufacture The contributors are a combination of leading academic and industrial experts who provide an informed and industrially relevant perspective of the topic This is an essential book for the pharmaceutical manufacturing industry and related academic researchers in pharmaceutical science and chemical and mechanical engineering

Good Design Practices for GMP Pharmaceutical Facilities Terry Jacobs,Andrew A. Signore,2016-08-19

This revised publication serves as a handy and current reference for professionals engaged in planning designing building validating and maintaining modern cGMP pharmaceutical manufacturing facilities in the U S and internationally The new edition expands on facility planning with a focus on the ever growing need to modify existing legacy facilities and on current trends in pharmaceutical manufacturing which include strategies for sustainability and LEED building ratings All chapters

have been re examined with a fresh outlook on current good design practices

Manufacturing of Quality Oral Drug Products Sam A. Hout,2022-06-27 This book provides an understanding of what is required to engineer and manufacture drug products It bridges established concepts and provides for a new outlook by concentrating and creating new linkages in the implementation of manufacturing quality assurance and business practices related to drug manufacturing and healthcare products This book fills a gap by providing a connection between drug production and regulated applications It focuses on drug manufacturing quality techniques in oral solid dosage and capsule filling including equipment and critical systems to control production and the finished products The book offers a correlation between design strategies and a step by step process to ensure the reliability safety and efficacy of healthcare products Fundamentals of techniques quality by design risk assessment and management are covered along with a scientific method approach to continuous improvement in the usage of computerized manufacturing and dependence on information technology and control operations through data and metrics Manufacturing and Quality Assurance of Oral Pharmaceutical Products Processing and Safe Handling of Active Pharmaceutical Ingredients API is of interest to professionals and engineers in the fields of manufacturing engineering quality assurance reliability business management process and continuous improvement life cycle management healthcare products manufacturing pharmaceutical processing and computerized manufacturing

Principles of Parenteral Solution Validation Igor Gorsky,Harold S. Baseman,2019-11-27 Principles of Parenteral Solution Validation A Practical Lifecycle Approach covers all aspects involved in the development and process validation of a parenteral product By using a lifecycle approach this book discusses the latest technology compliance developments and regulatory considerations and trends from process design to divesting As part of the Expertise in Pharmaceutical Process Technology series edited by Michael Levin this book incorporates numerous case studies and real world examples that address timely problems and offer solutions to the daily challenges facing practitioners in this area

20th ISPE International Conference on Concurrent Engineering C. Bil,J. Mo,J. Stjepandić,2013-09-12 As a concept Concurrent Engineering CE initiates processes with the goal of improving product quality production efficiency and overall customer satisfaction Services are becoming increasingly important to the economy with more than 60% of the GDP in Japan the USA Germany and Russia deriving from service based activities The definition of a product has evolved from the manufacturing and supplying of goods only to providing goods with added value to eventually promoting a complete service business solution with support from introduction into service and from operations to decommissioning This book presents the proceedings of the 20th ISPE International Conference on Concurrent Engineering held in Melbourne Australia in September 2013 The conference had as its theme Product and Service Engineering in a Dynamic World and the papers explore research results new concepts and insights covering a number of topics including service engineering cloud computing and digital manufacturing knowledge based engineering and sustainability in concurrent engineering

[Handbook of Validation in Pharmaceutical Processes, Fourth Edition](#) James

Agalloco,Phil DeSantis,Anthony Grilli,Anthony Pavell,2021-10-28 Revised to reflect significant advances in pharmaceutical production and regulatory expectations Handbook of Validation in Pharmaceutical Processes Fourth Edition examines and blueprints every step of the validation process needed to remain compliant and competitive This book blends the use of theoretical knowledge with recent technological advancements to achieve applied practical solutions As the industry's leading source for validation of sterile pharmaceutical processes for more than 10 years this greatly expanded work is a comprehensive analysis of all the fundamental elements of pharmaceutical and bio pharmaceutical production processes Handbook of Validation in Pharmaceutical Processes Fourth Edition is essential for all global health care manufacturers and pharmaceutical industry professionals Key Features Provides an in depth discussion of recent advances in sterilization Identifies obstacles that may be encountered at any stage of the validation program and suggests the newest and most advanced solutions Explores distinctive and specific process steps and identifies critical process control points to reach acceptable results New chapters include disposable systems combination products nano technology rapid microbial methods contamination control in non sterile products liquid chemical sterilization and medical device manufacture

Handbook of

Near-Infrared Analysis Donald A. Burns,Emil W. Ciurczak,2007-09-07 Fast inexpensive and easy to use near infrared NIR spectroscopy can be used to analyze small samples of virtually any composition The Handbook of Near Infrared Analysis Third Edition explains how to perform accurate as well as time and cost effective analyses across a growing spectrum of disciplines Presenting nearly 50% new and re

Quality Assurance of Pharmaceuticals World Health Organization,2007

Quality assurance of pharmaceutical products is a continuing concern of WHO Despite efforts made around the world to ensure a supply of quality and effective medicines substandard spurious and counterfeit products still compromise health care delivery in many countries To respond to the global need for adequate quality assurance of pharmaceuticals WHO's Expert Committee on Specifications for Pharmaceutical Preparations has over the years made numerous recommendations to establish standards and guidelines and to promote the effective functioning of national regulatory and control systems and the implementation of internationally agreed standards by trained personnel Many of the relevant documents endorsed by the Committee are reproduced in this volume providing guidance covering all aspects of good manufacturing practices GMP Important texts on inspection are also included Most of the material has been published separately in the Expert Committee's reports This compendium brings it together to make it more accessible and of greater practical value to those working in faculties of pharmacy in medicines regulation and control and in the pharmaceutical industry This is the second updated edition of the compendium and includes texts published in 2005 and 2006 in the WHO Technical Report Series

Process Validation & cGMP (Part - 1)

Mr. Rohit Manglik,2024-03-24 Covers fundamentals of process validation documentation regulatory guidelines and GMP principles in pharmaceutical manufacturing

Building Services Design Methodology David Bownass,D. Bownass,2002-09-11 Building Services Design Methodology clearly sets out and defines the building services

design process from concept to post construction phase By providing a step by step methodology for students and practitioners of service engineering the book will encourage improved efficiency both in environmental terms and in terms of profit enhancement through better project management Generic advice and guidance is set in the current legal and contractual context ensuring that this will be required reading for professionals The book's practical style is reinforced by a number of case studies

Comprehensive Membrane Science and Engineering Enrico Drioli,Lidieta

Giorno,2010-07-09 Comprehensive Membrane Science and Engineering Four Volume Set covers all aspects of membrane science and technology from basic phenomena to the most advanced applications and future perspectives Modern membrane engineering is critical to the development of process intensification strategies and to the stimulation of industrial growth The work presents researchers and industrial managers with an indispensable tool toward achieving these aims Covers membrane science theory and economics as well as applications ranging from chemical purification and natural gas enrichment to potable water Includes contributions and case studies from internationally recognized experts and from up and coming researchers working in this multi billion dollar field Takes a unique multidisciplinary approach that stimulates research in hybrid technologies for current and future life saving applications artificial organs drug delivery

Antibody-Drug Conjugates Kenneth J. Olivier, Jr.,Sara A. Hurvitz,2016-11-14 Providing practical and proven solutions for antibody drug conjugate ADC drug discovery success in oncology this book helps readers improve the drug safety and therapeutic efficacy of ADCs to kill targeted tumor cells Discusses the basics drug delivery strategies pharmacology and toxicology and regulatory approval strategies Covers the conduct and design of oncology clinical trials and the use of ADCs for tumor imaging Includes case studies of ADCs in oncology drug development Features contributions from highly regarded experts on the frontlines of ADC research and development

Perinatal Tissue-Derived Stem Cells Babak

Arjmand,2016-12-01 This book covers several aspects of perinatal tissue derived stem cells from theoretical concepts to clinical applications Topics include functions and different sources immunomodulatory properties translational point of view GMP facility design and manufacturing for clinical translation therapeutic potentials and finally ethical considerations The text provides a brief review of each type of perinatal stem cells and then focuses on their multi or pluripotent properties regenerative capacity and future therapeutic potential in regenerative medicine Additionally the book discusses GMP compliance in stem cell facilities and the manufacture of stem cells for clinical translation The chapters are authored by world renowned experts in the perinatal stem cell field Perinatal Tissue Derived Stem Cells Alternative Sources of Fetal Stem Cells part of Springer's Stem Cell Biology and Regenerative Medicine series is essential reading for basic and clinical scientists clinicians and pharmaceutical experts working or conducting research in the fields of stem cell biology molecular aspects of stem cell research tissue engineering regenerative medicine and cellular therapy

Manual of Industrial Microbiology and Biotechnology Arnold L. Demain,Julian E. Davies,Ronald M. Atlas,1999 The editors have enlisted a

broad range of experts including microbial ecologists physiologists geneticists biochemists molecular biologists and biochemical engineers who offer practical experience not found in texts and journals This comprehensive perspective makes MIMB a valuable how to resource the structure of which resembles the sequence of operation involved in the development of a commercial biological process and product

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