

VOLUME 5

Commissioning and Qualification

Second Edition



Ispe Baseline Pharmaceutical Engineering Guide Volume 5

Walkiria S. Schlindwein, Mark Gibson



Ispe Baseline Pharmaceutical Engineering Guide Volume 5:

ISPE Baseline® Guide: Volume 5 - Commissioning and Qualification Ispe, 2006-05 *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 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

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

Quality assurance of pharmaceuticals: a compendium of guidelines and related materials. Volume 2. Good manufacturing practices and inspection World Health Organization,2024-01-31 The GMP Compendium for Medical Products is a valuable resource for manufacturers regulators and other stakeholders involved in producing and distributing medical products It covers various topics from quality management systems to personnel hygiene equipment validation and complaint handling The guidance provided is based on the latest scientific and technical knowledge and considers the evolving regulatory landscape and the challenges faced by the industry

Pharmaceutical Quality by Design Walkiria S. Schlindwein,Mark Gibson,2018-01-11 A practical guide to Quality by Design for pharmaceutical product development Pharmaceutical Quality by Design A Practical Approach outlines a new and proven approach to pharmaceutical product development which is now being rolled out across the pharmaceutical industry internationally Written by experts in the field the text explores the QbD approach to product development This innovative approach is based on the application of product and process understanding underpinned by a systematic methodology which can enable pharmaceutical companies to ensure that quality is built into the product Familiarity with Quality by Design is essential for scientists working in the pharmaceutical industry The authors take a practical approach and put the focus on the industrial aspects of the new QbD approach to pharmaceutical product development and manufacturing The text covers quality risk management tools and analysis applications of QbD to analytical methods regulatory aspects quality systems and knowledge management In addition the book explores the development and manufacture of drug substance and product design of experiments the role of excipients multivariate analysis and include several examples of applications of QbD in actual practice This important resource Covers the essential information about Quality by Design QbD that is at the heart of modern pharmaceutical development Puts the focus on the industrial aspects of the new QbD approach Includes several illustrative examples of applications of QbD in practice Offers advanced specialist topics that can be systematically applied to industry

Pharmaceutical Quality by Design offers a guide to the principles and application of Quality by Design QbD the holistic approach to manufacturing that offers a complete understanding of the manufacturing processes involved in order to yield consistent and high quality products

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 down stream 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

WHO Expert Committee on Specifications for Pharmaceutical Preparations ,2021-04-26 The Expert Committee on Specifications for Pharmaceutical Preparations works towards clear independent and practical standards and guidelines for the quality assurance of medicines and provision of global regulatory tools Standards are developed by the Expert Committee through worldwide consultation and an international consensus building process The following new guidance texts were adopted and recommended for use Guidelines and guidance texts adopted by the Expert Committee on Specifications for Pharmaceutical Preparations Points to consider when including Health Based Exposure Limits HBELs in cleaning validation Good manufacturing practices water for pharmaceutical use Guideline on data integrity WHO United Nations Population Fund recommendations for condom storage and shipping temperatures WHO United Nations Population Fund guidance on testing of male latex condoms WHO United Nations Population Fund guidance on conducting post market surveillance of condoms WHO Biowaiver List proposal to waive in vivo bioequivalence requirements for WHO Model List of Essential Medicines immediate release solid oral dosage forms WHO Certification Scheme on the quality of pharmaceutical

products moving in international commerce Good reliance practices in the regulation of medical products high level principles and considerations and Good regulatory practices in the regulations of medical products All of the above are included in this report and recommended for implementation *Process Validation in Manufacturing of Biopharmaceuticals* Anurag Singh Rathore, Hal Baseman, Scott Rudge, 2023-12-18 The fourth edition of *Process Validation in Manufacturing of Biopharmaceuticals* is a practical and comprehensive resource illustrating the different approaches for successful validation of biopharmaceutical processes A pivotal text in its field this new edition provides guidelines and current practices contains industrial case studies and is expanded to include in depth analysis of the new Process Validation PV guidance from the US FDA Key Features Offers readers a thorough understanding of the key concepts that form the basis of a good process validation program for biopharmaceuticals Includes case studies from the various industry leaders that demonstrate application of these concepts Discusses the use of modern tools such as multivariate analysis for facilitating a process validation exercise Covers process characterization techniques for scaling down unit operations in biopharmaceutical manufacturing including chromatography chemical modification reactions ultrafiltration and microfiltration and practical methods to test raw materials and in process samples Providing a thorough understanding of the key concepts that form the basis of a good process validation program this book will help readers ensure that PV is carried out and exceeds expectations Fully illustrated this is a much needed practical guide for biopharmaceutical manufacturers **Risk Management**

Applications in Pharmaceutical and Biopharmaceutical Manufacturing Hamid Mollah, Harold Baseman, Mike Long, 2013-02-01 Sets forth tested and proven risk management practices in drug manufacturing Risk management is essential for safe and efficient pharmaceutical and biopharmaceutical manufacturing control and distribution With this book as their guide readers involved in all facets of drug manufacturing have a single expertly written and organized resource to guide them through all facets of risk management and analysis It sets forth a solid foundation in risk management concepts and then explains how these concepts are applied to drug manufacturing Risk Management Applications in Pharmaceutical and Biopharmaceutical Manufacturing features contributions from leading international experts in risk management and drug manufacturing These contributions reflect the latest research practices and industry standards as well as the authors firsthand experience Readers can turn to the book for Basic foundation of risk management principles practices and applications Tested and proven tools and methods for managing risk in pharmaceutical and biopharmaceutical product manufacturing processes Recent FDA guidelines EU regulations and international standards governing the application of risk management to drug manufacturing Case studies and detailed examples demonstrating the use and results of applying risk management principles to drug product manufacturing Bibliography and extensive references leading to the literature and helpful resources in the field With its unique focus on the application of risk management to biopharmaceutical and pharmaceutical manufacturing this book is an essential resource for pharmaceutical and process engineers as well as safety

and compliance professionals involved in drug manufacturing

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