ECA Academy
Your GMP/GDP Information Source

GMP Certification Programme
Certified Quality Control Manager

Speakers

Dr Raphael Bar
BR Consulting, formerly with Teva, Israel

Dr Helmut Buschmann
AiCuris, Germany and RD&C, Vienna

Dr Norbert Handler
RD&C, Vienna

Stability by Design

- Stability testing in product design and method development
- Focus mainly on small-molecule APIs and drug products
- Including Nitrosamine Impurities

Live Online Training on 28/29 April 2021

Highlights

- Forced degradation studies in the pharmaceutical industry
- Overview and regulatory view
- Common degradation reactions
- How to perform your own forced degradation study
- Thermal Stress studies to support shipping/distribution
- Reactions and forced degradations in solid state – innovative approach
- How to perform a successful and compliant nitrosamine risk assessment (including API, excipients, drug product, packaging, transport, etc.)

Q&A sessions and exercises ensure interaction

Programme

Objective

Forced degradations are the basis for development of analytical methods, for drug formulation development, for understanding the degradation mechanisms and for predicting the stability behavior of active ingredient and drug product. Stress testing is the basis for predicting the stability behavior during storage, shipping and distribution of active ingredient and marketed drug product. Both forced degradation and stress testing are regulatory requirements.

Background

After an overview of the basic chemistry of the common degradation reactions, this course will teach you how they are practiced in the pharmaceutical industry, and how you can carry them out on your own, while ensuring that all degradation products are chromatographically detected and subjected to a mass balance.

Among the topics to be discussed will be:

- An overview of the basic chemistry of the degradation reactions
- Common practices of forced degradations in the pharmaceutical industry
- Practical aspects in carrying out forced degradation studies
- How to ensure that all degradation products are detected
- Peak purity by LC-UV
- Set up a mass balance in degraded samples with guided exercises (A hand-held calculator is required!)
- Comparing degradation rates to estimate impact of a process change on the drug quality
- Performing stability studies to support shipping/distribution of medicines
- Investigating an excursion from a label storage conditions
- Requirements, guidelines and risk assessment related to nitrosamine contamination

Target Audience

Personnel from the following departments will highly benefit from this course:

- Stability Personnel
- Analytical R&D
- Quality Control Formulation Development
- Quality Assurance and RA
- CROs offering analytical services
- Qualified Persons (QP)

Moderators

Dr Raphael Bar
Dr Markus Funk

Programme

What is Stress Testing and what are Forced Degradations – Regulatory View

- Regulations (ICH, EU and USFDA)
- Chemical stress of drug substance and product
- Physical stress of excipients and active pharmaceutical ingredient
- Is a forced degradation study a GMP study?
- Purposes of stress testing:
  a. development of stability-indicating methods
  b. optimization of a formulation (API-Excipients compatibility study)
  c. Prediction of stability behavior (accelerated testing of pharmaceuticals)
  d. Evaluation of temperature excursions during shipment/ distribution

Common Degradation Reactions of APIs and Excipients

- Reactivity of common chemical functional groups
- Major mechanisms of chemical degradation
- Hydrolysis (alkaline, acidic)
- Oxidation (Autoxidation, peroxide and metal-mediated)
- Photolysis
- Case studies for APIs and excipients

Forced Degradation Studies in the Pharmaceutical Industry

- Common practices of forced degradations
- Examples of forced degradations studies
- Is there a general methodology for chemical stress?

How to Ensure Chromatographic Detection of all Degradation Products

- Ensuring chromatographic elution of all degradation products (Gradient mode, varying mobile phase solvents; various modes of chromatography)
- Detecting all degradation products (LC-PDA, LC-MS, universal detector)
- Techniques to confirm undetected degradation products (Flow injection analysis, UV spectrophotometric analysis)
- Determining peak purity by LC-PDA (spectral and matching homogeneity)

Q&A Session 1

Presentation and Exercises on Photostability of a Drug Product under Manufacturing Conditions

Impurities and Degradation Products Resulting from Reactive APIs, Excipients and their Impurities

- Reactivity of common chemical functional groups
- Major mechanisms of chemical degradation
- Hydrolysis (alkaline, acidic)
- Oxidation (Autoxidation, peroxide and metal-mediated)
- Photolysis
- Case studies for excipients

How to Perform your own Forced Degradation Study with:

- Heat (with and w/o humidity)
- Acid and base
- Oxidation
- Mechanical stress factors (e.g. grinding, milling ...)

Q&A Session 2

Reactions and Forced Degradations in Solid State – Innovative Approach

- Differences liquid phase – solid state
- Reactions and degradation in solid state
- Kinetics
- Alternative approach to mimic and predict solid state degradation

Mass Balance in Degraded Samples of Pharmaceuticals

- Definition and equations for mass balance
- Determination from chromatographic analysis of degraded samples
- Correction of mass balance for response factor
- Correction of mass balance for molecular weights
- Exercises of mass balance calculations

Nitrosamines

- Latest requirements and guidelines from EDQM and EMA
- Scientific and chemical background
- How to perform a successful and compliant nitrosamine risk assessment (including API, excipients, drug product, packaging, transport, etc.)
- Case Studies

Q&A Session 3

Case Studies for Interaction and Incompatibilities

Comparative Accelerated Degradation Rates

- A quality control tool of pharmaceutical products - monitoring process changes
- A development tool for optimizing drug formulations- Excipients - API compatibility studies

Thermal Stress Studies to Support Shipping/ Distribution

- Studies at elevated extreme temperatures
- Studies at low extreme conditions
- When, how and what?
- Cyclic studies to support shipping/distribution

Mean Kinetic Temperature: Uses and Misuses

- Mean Kinetic Temperature (MKT) and relative humidity
- Interpretation of MKT
- Temperature profile of a shipment of medicines
- Global climatic zones by ICH and WHO

Evaluation and Investigation of Excursions from Storage Label Conditions

- Excursions and Time-out-of-Storage during shipping/ distribution
- Understanding the evaluation of the impact of temperature excursion on shelf-life
- What stability data are required to investigate temperature excursions
- Estimation of a maximal "Time-out-of-Storage" of a pharmaceutical

Q&A Session 4

Q&A sessions

Q&A sessions on both days ensure interaction and that your questions are answered.

Speakers

Dr Raphael Bar, BR Consulting, Israel

Dr Bar headed the Analytical R&D Laboratories at Teva Pharmaceuticals and the analytical QC laboratory at Pharmos. He served in the Scientific Advisory Board of global PDA (USA) and is presently a board member of Israel PDA Chapter as well as a member of the organizing committee of the Israel Society for Analytical Chemistry. For the lasts ten years, Raphael Bar has been a pharmaceutical consultant for the Pharma and bio-Pharma industries.

Dr Helmut Buschmann, AiCuris, Germany and RD&C, Austria

Dr Buschmann is a senior management executive with over 20 years of international experience in drug discovery research and drug development in the Pharmaceutical/Biotechnology sector. Currently, he is "Head of Chemistry, Pharmaceutical Development and Patent Affairs" at AiCuris in Germany. Together with Norbert Handler he founded RD&C Research, Development & Consulting GmbH in Vienna in 2014, where he is involved in several projects.

Dr Norbert Handler, RD&C, Austria

Together with Helmut Buschmann he founded RD&C Research, Development & Consulting GmbH in Vienna in 2014, where he currently holds the position of a managing partner. He is involved in several projects ranging from drug discovery and development, regulatory affairs, IP management to impurity profiling. He is acknowledged as consulting engineer in Austria and appointed as general authorized and certified expert for pharmaceutical chemistry at the trade court in Vienna.

If the bill-to-address deviates from the specifications on the right, please fill out here:

_____

_____

_____

_____

CONCEPT HEIDELBERG
P.O. Box 101764
Fax +49 (0) 62 21/84 44 34

D-69007 Heidelberg
GERMANY

Reservation Form (Please complete in full)

Stability by Design | Live Online Training on 28/29 April 2021

Title, first name, surname

Department | Company

Important: Please indicate your company's VAT ID Number | Purchase Order Number, if applicable

City | ZIP Code | Country

Phone / Fax

E-Mail (Please fill in)

General terms and conditions
If you cannot attend the conference you have two options:
1. We are happy to welcome a substitute colleague at any time.
2. If you have to cancel entirely we must charge the following processing fees:
- Cancellation until 2 weeks prior to the conference 10 %,
- Cancellation until 1 weeks prior to the conference 50 %
- Cancellation within 1 week prior to the conference 100 %.

CONCEPT HEIDELBERG reserves the right to change the materials, instructors, or speakers without notice or to cancel an event.
If the event must be cancelled, registrants will be notified as soon as possible and will receive a full refund of fees paid. CONCEPT HEIDELBERGwill not be responsible for discount airfare penalties or other costs incurred due to a cancellation.
Terms of payment: Payable without deductions within 10 days after receipt of invoice.
Important: This is a binding registration and above fees are due in case of cancellation or non-appearance. If you cannot take part, you have to inform us in writing. The cancellation fee will then be calculated according to the point of time at which we receive your message.
In case you do not appear at the event without having informed us, you will have to pay the full registration fee, even if you have not made the payment yet. Only after we have received your payment, you are entitled to participate in the conference (receipt of payment will not be confirmed)! (As of January 2012).
German law shall apply. Court of jurisdiction is Heidelberg.

Privacy Policy: By registering for this event, I accept the processing of my Personal Data. Concept Heidelberg will use my data for the processing of this order, for which I hereby declare to agree that my personal data is stored and processed. Concept Heidelberg will only send me information in relation with this order or similar ones. My personal data will not be disclosed to third parties (see also the privacy policy at http://www.gmp-compliance.org/eca_privacy.html). I note that I can ask for the modification, correction or deletion of my data at any time via the contact form on this website.

Date of the Live Online Training

Wednesday, 28 April 2021, 9.00 h – 18.00 h
Thursday, 29 April 2021, 9.00 h – 18.00 h
All times mentioned are CEST.

Technical Requirements

For our webinars, we use Cisco WebEx, one of the leading suppliers of online meetings.
At http://www.webex.com/test-meeting.html you can check if your system meets the necessary requirements for the participation at a WebEx meeting and at the same time install the necessary plug-in. Please just enter your name and email address for the test. If the installation is not possible because of your rights for the computer system, please contact your IT department.
WebEx is a standard nowadays and the necessary installation is fast and easy.

Fees (per delegate, plus VAT)

ECA Members € 1,590
APIC Members € 1,690
Non-ECA Members € 1,790
EU GMP Inspectorates € 895
The conference fee is payable in advance after receipt of invoice. VAT is reclaimable.

Registration

Via the attached reservation form, by e-mail or by fax message. Or you register online at www.gmp-compliance.org.

Presentations/Certificate

The presentations will be made available to you prior to the Live Online Training as PDF files. After the event, you will automatically receive your certificate of participation.

Conference language

The official conference language will be English.

Organisation and Contact

ECA has entrusted Concept Heidelberg with the organisation of this event.

CONCEPT HEIDELBERG
P.O.Box 10 17 64
69007 Heidelberg, Germany
Phone +49(0)62 21/84 44-0
Fax +49(0)62 21/84 44 34
info@concept-heidelberg.de
www.concept-heidelberg.de

For questions regarding content please contact:
Dr Markus Funk (Operations Director) at
+49(0)62 21/84 44 40, or at
funk@concept-heidelberg.de.

For questions regarding organisation please contact:
Ms Marion Grimm (Organisation Manager) at
+49(0)62 21/84 44 18, or at
grimm@concept-heidelberg.de.