



FREEZE DRYING TECHNOLOGY:
*PRODUCT, PROCESS
AND SYSTEMS*



**biopharma
group**

**3RD - 5TH SEPTEMBER, 2024
AMSTERDAM,
THE NETHERLANDS**



COURSE OVERVIEW

This course provides a comprehensive insight into a wide range of elements in freeze drying, including details on the concepts and practical aspects of each step of the process, principles and methodologies for formulation development and characterization.

Additionally, it covers approaches to cycle development and scale-up including Quality by Design, fundamental equipment features of refrigeration, vacuum and control systems i.e. PAT tools, and aspects of troubleshooting, maintenance and qualification.

COURSE SCHEDULE:

+ Day One

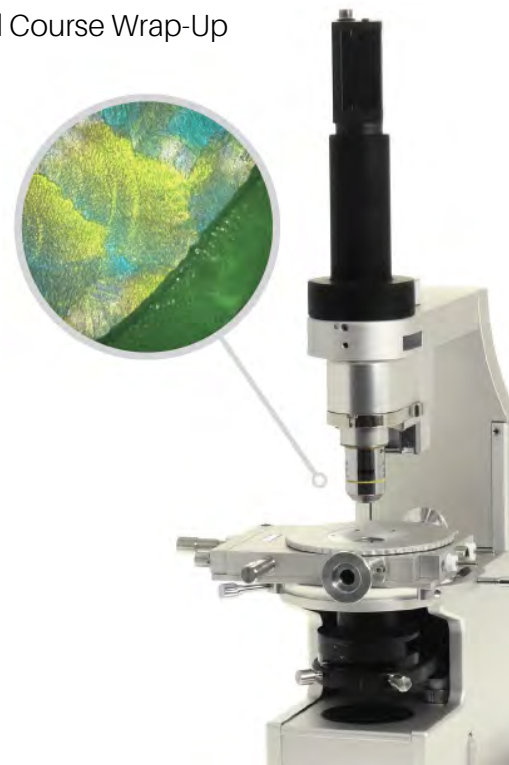
- Welcome & Course Opening
- Introduction to Freeze Drying Technology
- Morning Break
- Product Freezing
- Thermal Transfer & Refrigeration Systems
- Lunch Break
- Primary and Secondary Drying
- Stoppering Systems
- Afternoon Break
- General Concepts of Formulation
- Condensers

+ Day Two

- Formulation Characterization
- Vacuum Systems
- Morning Break
- Cycle Development 1: The Classical Iterative Method
- Lunch Break
- Temperature Measurement & PAT
- Cycle Development 2: Software-Based and QbD
- Afternoon Break
- Containers, Stoppers & Barrier Technologies
- Workshop 1 - Review of lyophilized samples

+ Day Three

- Scale-Up Parameters and Robustness Testing
- Cleaning & Sterilisation
- Morning Break
- Product Analysis 1: Moisture & Thermal Analysis
- Maintenance and Reliability
- Lunch Break
- Product Analysis 2: Mechanical Properties
- Workshop 2 - Troubleshooting, Designing a Dryer
- Refreshments
- Final Q&A and Course Wrap-Up
- Course Ends





IS THIS COURSE RIGHT FOR YOU?

IF YOU'RE INTERESTED IN:

- 1) Biotechnology
- 2) Pharmaceuticals
- 3) Freeze and Cycle Development
- 4) Diagnostic industries

MEET THE EXPERTS

+ **Dr. Kevin Ward**



Dr Kevin Ward entered the world of freeze-drying in 1993 when he embarked on a PhD in the lyophilisation of proteins and liposomes. After working in the pharmaceutical industry and in vaccine development, he joined Biopharma in 2000. As R&D Director, he has built up a team of 9 dedicated freeze-drying scientists, worked on over 3000 projects for more than 500 client companies across the globe, developed 3 analytical instruments, run more than 200 training courses, and successfully secured funding for 15 collaborative research projects.

+ **Andrew Ray**



Andrew has worked for Biopharma Group since 2017 in the Engineering Department. For the first 3 years the focus of his work has been on the service and repair of the SP Scientific range of freeze driers. More recently he has developed his roll into equipment installation & validation and analytical instruments, becoming the Engineering Trainer.

PRICE
€3,180

EARLY BIRD RATE
€2,703

DEADLINE: **28TH JULY**

3RD - 5TH SEPTEMBER, 2024

KIMPTON DE WITT HOTEL

NIEUWEZIJD'S VOORBURG WAL 5 1012 RC

BOOK NOW

<https://biopharmagroupcdmo.com/lyo-training-courses>



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Please note that the cost of accommodation is not included in the course fee* and that bedroom bookings must be made by the participants. A list of local hotels will be provided with the registration confirmation. Fees include morning and afternoon breaks, lunch and full lecture notes.

Payment must be made in full before the start of the course to guarantee a place. Payment by BACS or credit/debit card is acceptable - please note we cannot accept payment by cheque. An invoice will be issued on receipt of booking. Payments in credit/debit card will be charged in GBP at the prevailing exchange rate as set by xe.com. An invoice will be issued on receipt of booking. Discounts are also available for academia and multiple bookings from the same company, please contact Sally Potentier at spotentier@biopharma.co.uk for more information. Cancellation in writing more than 5 weeks before the course start date will incur a service charge of 30% of the applicable fee. No refunds can be made for cancellation after this date. Substitutes will be accepted at any time. Transfer to another scheduled course must be made in writing and a service charge will be incurred. Full T&Cs available on request.