



# TRAINING COURSES

LAB ESSENTIAL  
LYOPHILISATION COURSES



**biopharma  
group**

[WWW.BIOPHARMA.CO.UK](http://WWW.BIOPHARMA.CO.UK)

# OVERVIEW

## ABOUT BIOPHARMA GROUP

Biopharma Group has world-renowned expertise in freeze drying. Our in-depth knowledge and extensive experience enables us to resolve client freeze drying issues, design new formulations and optimise processes. We have worked on over 3000 freeze drying projects from small drug molecules to large complex biomolecules, food products, tissues, whole organisms, advanced materials and archaeological artifacts. We continually invest in research to investigate future applications for freeze drying to keep us at the forefront of this field.

**We have been conducting training courses in freeze drying technology since 1997, with regular fixtures held in the UK, US & mainland Europe.**

## LYO COURSES OFFERED

- 1 SCHEDULED COURSES**
- 2 CUSTOMISED COURSES**
- 3 ONLINE TRAINING COURSES**



**+6000 individuals  
trained**



**over 400 courses  
conducted**



**more than 45  
cities visited**

# SCHEDULED COURSES:

Biopharma offers scheduled training courses throughout the year in the US, Europe and the UK. The courses are suitable for anyone working in the field of Lyophilisation and the programs are designed to provide delegates with in-depth and up-to-date information that can be applied, practically, to their own specific situations.

All courses are relevant to anyone whose activities include:

- Process Engineering
- Pilot Plant Operation
- Production
- Formulation and Process R&D
- Quality Assurance

**Each course is tailored to be up to date with contemporary material and industry relevant developments, but topics typically include:**

- **Product Freezing:** Ice structure, cooling rates and glass transition/eutectic behaviour
- **General Concepts of Formulation:** Excipients, protectants and solute behaviour
- **Formulation Characterisation:** Freeze drying microscopy, DSC, mDSC, DTA and others
- **Cycle Design, Scale-Up and PAT**
- **Freeze Drying of Proteins:** Stabilisation issues and the role of excipients



**For exact dates see the full course schedule:**  
[www.biopharma.co.uk/intelligent-freeze-drying/training-courses](http://www.biopharma.co.uk/intelligent-freeze-drying/training-courses)

## 3-DAY PRODUCT, PROCESS AND SYSTEMS

The comprehensive three-day courses are suitable for those involved in all stages of freeze drying, from R&D and laboratory work through to full-scale industrial production. The program provides delegates with the most current information, from technical details of the equipment and it's systems to formulation development and cycle optimization.

**Typical content for this course includes:**

- **General introduction to freeze drying**
- **Design of a freeze dryer**
- **Process Analytical Technology (PAT)**
- **Equipment qualification**
- **Formulation characterisation prior to freeze drying**
- **Formulation design**
- **Analysing the dried product**
- **Cycle Development and Scale-Up Issues**
- **Product and Process Monitoring**
- **Smart tech and controlled nucleation**
- **Sterilisation and cleaning**

**The course is also inclusive of two workshops:**

- **Critical Review of freeze dried materials**
- **Interdisciplinary problem-solving**

## 2-DAY GUIDE TO PROCESS DEVELOPMENT

This 2 day course is designed specifically for those involved in the development of freeze drying formulations and cycles, and those working on the problems associated with scale-up.

Many products that are to be freeze dried are composed of multiple elements which can give variable and unpredictable freezing and drying behaviour. This in-depth course will provide up-to-date information on the key aspects of formulation and cycle development for freeze drying.

## PROCESS DEVELOPMENT IN PRACTICE: 3-DAY WORKSHOP

Covering all components included in the 2 day course, the 3 day workshop also includes practical classroom training with experienced scientists, combined with hands-on time in our own freeze drying laboratory; using the same equipment and techniques we use in our own consultancy and research work. **After attending this course you will know:**

- **Different techniques of formulation analysis**
- **How to develop and optimise a freeze drying cycle**
- **How to program a freeze dryer**
- **How to integrate Process Analytical Technology (PAT) into development**
- **What can go wrong and how to troubleshoot**
- **How to tell if your cycle was successful - post-process characterisation**

## CUSTOMISED COURSES:

Our customised lyophilisation training presents the perfect opportunity for you to create a bespoke program, with content specific to your individual operation. Whether you require an engineering or science related program, or a mix of the two, it's totally up to you. The way in which the training is delivered is also flexible.

### ON-SITE

Our lecturers will travel to your site and deliver presentations to your team in their own working environment, allowing the chance to discuss details of products as well as particular issues that may arise, all with complete confidentiality. Alternatively, you may wish for your own customised training program to run at our facility, where your staff will have full use of our laboratory throughout their course.

### CUSTOMISED WEBINAR

Our experts can create you a bespoke online training program, delivered to your employees via webinar. This option is particularly useful for those with colleagues across multiple sites, as it eliminates the need for travel, but still ensures they are receiving expert instruction with complete confidentiality

## ONLINE TRAINING COURSES:

The ideal solution for organisations that have locations around the world, with staff that need to be at the same level of education. We offer live, pre-recorded and fully customisable online courses, delivered by our experts, with the same level of confidentiality as hosted courses.

### LIVE SCHEDULED WEBINARS

If you want to educate staff across multiple sites for a live, interactive training session, the live webinars are a great option. Like our scheduled courses, the webinars offer employees from multiple companies the opportunity to attend a session led by one of our qualified instructors, bringing the classroom to them. These topic specific sessions run throughout the year.

### PRE-RECORDED TRAINING

Your staff can learn at their convenience with our pre-recorded webinar training. We'll provide you with the recordings, allowing your staff to complete their training at their own pace, at their preferred location.

These modules will be available in multiples to cover certain sections of freeze drying - learn in sections. For instance:

#### **Basics of Freeze-Drying**

1. Freezing
2. Drying
3. Secondary Drying

#### **Formulation Design**

1. Understanding Active Ingredients
2. Common Excipients and Their Functions
3. Case Study

*We will introduce these over the course of 2020.*

# REASONS TO ATTEND

1. Lyophilisation/ freeze drying is an extremely complex science with very few experienced expert personnel able to teach it
2. There is no such thing as a 'one cycle fits all' when it comes to lyophilisation
3. The pharma/ biotech industry is tightly regulated, so best practice can save time and money
4. There have been advances in technology to improve old formulations which many people are unaware of
5. Well trained maintenance and engineering departments can help eliminate possible downtime of equipment
6. Well trained personnel can identify and address specific issues companies might be experiencing in the manufacturing process

# TESTIMONIALS



**Guliana Vozza, Scientist, AstraZeneca, Cambridge, UK**

*"The course really met my expectations. I've got a really good fundamental understanding of freeze drying. I particularly enjoyed the good balance between theory and hands on. I would definitely recommend this course to anyone in the freeze drying industry."*

**Yigit Oztunaogw, Lab Network Stores, Business Development Manager, Turkey, Istanbul**

*"The course was really engaging; It was interesting and I gained general knowledge about freeze drying process. I highly recommend it."*



**Timea Tari, Member of Biotechnology Formulation Development Group, Gedeon Richter Budapest, Hungary**

*"The course went beyond what I was anticipating, I learned a lot and it's going to be really beneficial in my future lab career, my favorite session was critical assessment of freeze dried products"*

# MEET OUR EXPERTS

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## Dr Kevin Ward BSc PhD FRSC

R&D Director at Biopharma Group, Dr Kevin Ward is a globally recognised expert in the field of lyophilisation. Kevin has been in the field since 1993 and since joining Biopharma Group in 2000, he's been involved in over 15 academic research projects and, together with his team, has worked on over 3,000 projects for customers worldwide.

Responsible for the development of dedicated freeze drying analytical instruments such as Freeze Drying Microscope - Lyostat, Impedance Analyser - Lyotherm and quantifier of lyo cake robustness - MicroPress.

Dr Ward is an editor and a contributing author of articles and texts on freeze drying, most recent being the Springer book 'Lyophilization of Pharmaceuticals and Biologicals'. He is also in demand as a frequent lecturer to many of the leading regulatory agencies and prominent pharma companies.

## Thomas Peacock

With an MSc in Pharmaceutical Analysis, Tom has managed many commercial freeze drying projects at Biopharma Group typically involving formulation development and characterisation, looking at key product factors and designing robust and efficient cycles.



## Kevin Smith

With 25 years of industry experience, Kevin recently retired as Biopharma's Technical & Service Director. He has carried out installations, qualifications and re-location of a variety of freeze dryers and was responsible for overseeing the day to day operation of the engineering team.



**VISIT OUR WEBSITE:**

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